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Transmission of the Valuations of Human Lives Between Mother and Child

By

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Abstract

The transmission of value between a mother and her children is investigated through a cross-sectional developmental study. The objective of this project is to narrow down the attribution of values to particular individuals of varied age, gender, and familial relationship; and observe trends in how mothers respond compared to children indicative of the transmission of value. The study included children aged five through nine years old ($N = 149$), some participants were siblings ($n = 26$), and their mothers ($n = 123$). A sinking ship selection task was administered and framed in either a saving or giving up context. Questions followed the sinking-ship task to gain insight into the respondents' selections of the presented stimuli. The results suggested a relationship between mothers' and children's sinking-ship task selections and that specific factors influence the choices made by participants. The transmission of value from mothers to children is supported by the study's outcomes. Findings contribute a further understanding of decision-making processes and intergenerational differences in the context of moral hypotheticals. Implications of the findings have material applications that can inform educational curricula and be implemented in school settings.

Keywords: value transmission, maternal, children, moral development, decision-making

Transmission of the Valuations of Human Lives Between Mother and Child

Introduction. The bonds developed through parenthood can shape a child's values and beliefs, but the question remains: To what extent do these values transcend from mother to child? The vast body of research on value transmission focuses on a variety of factors, such as values, morality, and empathy. The niche aspect and complexity of the topic caused by the various understandings curated by extensive research are what makes, specifically, the transmission of value, especially difficult to understand completely. Through a behavioral cross-sectional developmental study, this study examined how mothers and children make choices about lives at risk when different individuals' lives are in direct conflict. In the context of valuing human lives, deciding to save some people at the expense of giving up others is a difficult consideration to make and utilize value-based contemplation. The mechanisms involved in the transmission of parenting choices to children's prosocial behavior are not completely understood despite extensive research (Padilla-Walker & Carlo, 2014). This study investigated the possible reasons behind decisions about saving or giving up human lives of different genders and ages. This cross-sectional developmental project examined how mothers and their children make decisions about saving or giving up human lives of varying genders and ages. I explored how mothers answer valuation questions and compared their choices to children's choices. This study contributes to the understanding of moral development in young children and how it arises through maternal guidance.

Prior Research

The present work directs discussions on moral decisions making (Gierczyk et al., 2017; Gold et al., 2014; Goodwin & Landy, 2014), empathy (Decety, 2021; Decety & Holvoet 2021; Gleichgerrcht & Young, 2013), and values (Henseler Kozachenko & Piazza, 2021; Higgins,

2006, 2015; Rangel et al., 2008; Rogoff, 1981; Rozin et al., 1997; Schwartz & Rubel-Lifschitz, 2006; Sznycer, 2021). These are all aspects of moral psychology that are garnered from our lived experiences. Moral decision-making, empathy, and values are the main topics of this paper, but all are topics that bleed into philosophy, conscience, ethics, and virtue. This study examined the decision-making patterns of mothers and children, specifically concerning how they value human lives, and whether such decision-making is passed down by mothers. Material implications for this research allow for a deeper understanding of children's values regarding human lives and can thus be used in educational spaces.

The research done by Goodwin and Landy (2014) on valuing different human lives drives this study. Using a sample of undergraduate students, their experimental design effectively incorporated various life-or-death scenarios and decision-making processes. The design demonstrated a practical means of understanding the valuation of human lives because "the willingness to choose one individual over another are all good proxies for the value of a life" (Goodwin & Landy, 2014, p. 799). The current project's sinking-ship task is influenced by Goodwin and Landy's design through the use of the concept of saving or giving up individuals in a life-or-death scenario. Goodwin and Landy's key takeaway found that children's lives were valued over adult lives and, more specifically, that older children were prioritized over younger children. Social relations were the strongest predictor of the prioritization of older children's lives, as they were deemed to hold greater value. This study succeeded in pointing out how one group was selected based on subjective values. With a grasp of one way that valuations are made, it remains unclear how the role of preferential selection translates into the transmission of value. With Goodwin and Landy's (2014) study in mind, the current behavioral study aims to supplement the current understanding of valuation transmission between mothers and children.

Transmission of Value. The transmission of human life valuations from mother to child is a complex process shaped by a variety of factors such as cultural and societal norms, personal beliefs, and individual experiences. The view that parents directly instruct values to their children is a longstanding and widely held view by developmental psychologists. Though direct teachings can certainly inform children's values, the degree to which parents and children perceive and comprehend each other's dispositions and intentions is increasingly recognized as a crucial factor in their reciprocal influence (Maccoby, 2000). To this end, an alternative perspective to the view that parents are the dominant force in value construction in children is how values are influenced more strongly by socialization processes. The capacity of parents and other socializing agents to sculpt social behavior evolves more from their role in the designation of children to settings than from their role in providing explicit direction through reward and punishment (Whiting, 1980).

The previously mentioned diverging evidence appears to converge in the work of Rogoff and Whiting, who explain that values can be derived through parents and socialization. Parents possess the ability to work in conjunction with socialization factors, as seen in how the social behavior of children evolves more from their settings than from their parents providing explicit direction through reward and punishment (Whiting, 1980). Whiting also gives valuable insight that many of our beliefs and behaviors come from early childhood experiences shared by members of a society that are ultimately reinforced through the lifespan just by the very fact that these ideals are shared.

Children's individual experiences are a source of values and beliefs they later internalize (Rogoff, 1981). To elaborate, some children are subject to child-rearing responsibilities, working from a very young age, and/or primary school attendance. In industrialized societies, children's

exposure to adult activities is limited, causing an unusual need for adults to employ more formal methods for transmitting skills and values to children (Rogoff, 1981). Rogoff's observational work on parent-child socialization explains how children can be influenced by their parents but to a lesser extent in non-industrialized societies than in industrialized ones. Whiting's work on cultural impacts on mundane socialization emphasizes that parents do have a role in sculpting their children's mentalities but not necessarily because of explicit teachings of value. Discussing the transmission of value necessitates acknowledging children's experiences and parental involvement, though the degree of parental influence on their values remains uncertain.

Barni et al. (2011) discuss value transmission within a family context, specifically how adolescents formulate their values. It most closely resembles the focus of this project due to its focus on value transmission between adolescents and parents. Barni et al.'s work guided our understanding that whether a child takes on the values of their parents mostly relies on the quality of the parent–child relationship. They explained that a close and supportive family context may increase adolescents' willingness to accept their parents' values because it promotes the child's desire to comply with parental wishes (Barni et al., 2011). A deepened understanding is gained of the influence of value agreement between mothers and fathers, closeness of children to parents, and promotion of volitional functioning as being the strongest predictors of whether adolescents will accept the value their parents impose on them. Specifically, Barni et al. explained that parents' agreement with each other's values influenced whether their adolescents also agreed with those values. Minimal parent-to-parent contradiction leaves little means for adolescents to contradict in parent-to-child contexts. The relationship between parents and their adolescents also influences whether the adolescents will accept the values promoted to them. Barni et al. emphasized closeness in the parent-child relationship, which is explained as the

union between parent and child. With more closeness established, adolescents were more likely to accept their parents' value promotion. Finally, the promotion of volitional function influenced adolescents' acceptance. Volitional function is parents' ability to empathize with their child's perspective and allot them choices that allow them to act on their values or volition. When parents practiced this with their children, those adolescents were found to agree with their parent's values more often than those rated lowly on volitional function in their study. This study made clear that the relational variables between parents and children have a stronger impact on value transmission than personal characteristics, such as parent identity or the child's gender.

The relational variables between parents and their children are particularly interesting for this study, as we are interested in the empirical evidence of whether the gender of our targets and the gender of the child participants show trends in their responses when compared to their mothers. However, the data from Barni et al.'s study are not generalizable or representative of the population due to their non-randomly selected sample, and that the sample came only from one region of Italy. This developmental project collected a more diversified sample and added perspective on value transmission among young children as opposed to adolescents.

Value. In the context of human life, it is important to distinguish between the three concepts of value and valuation. Values refer to the moral lessons and beliefs that individuals hold, which can be acquired through teachings or observations. On the other hand, the valuation of human life refers to the worth or importance that is placed on human life, which is a value in itself. The definition of value that most closely works with the transmission of value was provided by Rozin et al. (1997): objects or activities that were previously viewed as morally neutral can undergo moralization, a process that transforms preferences into values. This can affect intergenerational transmission, heighten emotional reactions, and secure support from

cultural establishments (Rozin et al., 1997). An alternative explanation for values is provided by Higgins (2006), who views value as a hedonic pleasure-seeking experience, but also an experience of motivational force. Value is the force of attraction toward something or repulsion away from something. A third perspective of value views it as something that uses regulatory mechanisms to guide choices, physiology, and behavior in the right direction. It can be seen as the "essential computational elements that enable the life-supporting operations of humans and other organisms" (Sznycer, 2021, p. 19). The three definitions of value vary dramatically despite having been operationalized by psychologists, which sheds light on its complexity, and is further complicated when coupled with the transmission of valuation. With these definitions of values and of valuation in mind, the research on how values are enacted concerning valuations is detailed as follows.

To understand how people inform their decisions, we must first look at what comprises the decision-making process. This would involve looking into what *matters* to people. Value is a core contribution that deals with "mattering" and "wanting" (Higgins, 2015). A different field outside of psychology that looks into values and how they inform our decision-making process is neuroeconomics. Neuroeconomics observes the neurobiological and computational basis of how humans make value-based decisions. One framework from the field breaks down the basic computations that play a role in decision-making. These basic computations are presented as five essential processes: representation, valuation, action selection, outcome evaluation, and learning (Rangel et al., 2008). These five basic processes curate a useful framework because it breaks down the decision-making process into measurable constituent processes, it organizes the neuroeconomics literature based on the computations studied, and it generates hypotheses regarding the neurobiology of decision-making. Using the understanding of values provided by

neuroeconomics, we gain an understanding that the brain must encode distinct value signals at the decision and outcome stages and that it calculates a value signal for each possible action under consideration (Rangel et al., 2008).

Value-Based Decision-Making. Research suggests a linear relationship between the number of lives and their determined values (Dickert et al., 2012). The number of lives affected in a given scenario is seen to play a large role in how value is distributed, which is observed when an individual's life is valued less in a scenario in which there are several lives at risk. As a result, intuitive valuations based on prosocial emotions, such as empathy and compassion, can lead to scope insensitivity, defined as "the tendency to be relatively unresponsive to the number of people at risk in large-scale humanitarian catastrophes" (Dickert et al., 2015, p. 248). Scope insensitivity can lead to suboptimal responses to lives at risk, stemming from the intention of wanting to improve the welfare of as many people as possible but the intention not being met to the greatest extent. A similar theory is the axiom of equal-valued lives, which explains that human lives are regarded as equal regardless of the individual's identities, such as demographics (Cohen et al., 2019). This theory ties value to human lives similar to that of Dickert et al. Despite efforts to cater to the largest group of people in need, we tend to fall short of these desires. This is an important matter to consider because valuations underlie and assist decisions involved in the welfare of others (Dickert et al., 2015, p. 253). In sum, Dickert et al. inform this study by discussing how valuations of human lives can vary depending on the number of lives at risk in a given scenario, which is a helpful insight into the matter of how valuations are allocated.

In terms of value allocation, recent research by Long and Krause (2017) added a critical contribution to linking values to altruism. The age of a respondent and their target, as well as social proximity, play a role in the extent of altruistic sentiments (2017). However, these

sentiments are not equally shared between health and wealth altruism. Through two surveys, Long and Krause measured the respondent's willingness to sacrifice their health for another person's health and the respondent's willingness to sacrifice their wealth for another person's wealth. Long and Krause found that health altruism was higher toward young children, and wealth altruism was higher toward adults. Put simply, respondents show less health altruism as they age, with the lowest level of altruism being found among those aged 60 to 79. This informs our current study by showing the variability of responses correlated with the respondent's age and the age of the individual they selected. This supports the conclusions from Goodwin and Landy's work, which also found differential perceptions depending on the target's age. The findings of Long and Krause, and Goodwin and Landy are examples of how different conceptions of altruism and value can affect an individual's choices regarding the lives of others.

Taking into account the processes that comprise the decision-making process, Henseler Kozachenko and Piazza (2021) looked into developmental differences in how people subjectively value life in a decision-making task. Their work compared children's and adults' decisions in the valuation of animal lives, and helped guide our understanding of what attributes are considered when asked about the value of an animal's life. Adults and children were compared to gain a better understanding of how humans' value of animal lives may change developmentally through elementary age up through adulthood. This study informed us about the traits that adults and children prioritize in their moral decisions. Specifically, we saw that both younger and older children did not account for sentience in their valuation of animals, but adults did. Additionally, adults considered sentience in their view of what makes animals similar to humans and deserving of moral concern, while children did not. The knowledge gap is when and how the shift to valuing sentience develops between childhood and adulthood. Children's

perceptions of animals and ideas of their worth vary in important ways from those of adults, but little work has been conducted on how children's appraisals of particular traits and characteristics may impact their judgment of worth. Henseler Kozachenko and Piazza's piece provided insight as to how adults' valuations compare to children's valuations, and specifically how valuation differed developmentally across the children's group. Whether these developmental differences are replicated is an additional aspect of interest for the current project, and assists in the research question of how children value lives based on subjective attributes and traits.

Considering differences seen in value-based decision-making among different age groups, differences are also seen among sexes. The work of Schwartz and Lifschitz (2006) addressed the variation in sex differences across representative national samples from 25 countries. Schwartz and Lifschitz (2006) focused on the cross-national variation in the size of sex differences in values, with the magnitude of the differences substantial across the sampled countries. Schwartz and Lifschitz provided background to the current study on the observation of response differences between females and males and inspired the question as to how male children may respond when compared to female children and how these differences compared to mothers.

In addition to the developmental and sex differences observed in value-based decision-making, the final consideration that produces differences is ageism. In a study on neural responses to empathy, young adults' responses were measured concerning older adults depicted as experiencing pain. Through the use of various questionnaires and fMRI testing, Cao et al. (2019) found the biased effects of age when exposed to a harmful scenario (pain inflicted by needle touches) in young adults compared with older adults. The young adult participants had higher rates of neural activation when observing pain inflicted upon another young adult, but

significantly lowered when participants observed pain inflicted upon older adults. This study provided another factor that plays a role in valuations that can consequently influence participants' responses. With all differences in decision-making and values considered, we see differential attitudes based on the age group of a given target (Goodwin & Landy, 2014; Cao et al., 2019), varied perceptions of the worth of a target (Henseler Kozachenko & Piazza, 2021), and skewed values depending on the sex of the participant (Schwartz & Lifschitz, 2006).

Moral Development. The concept of moral development is most closely tied to psychology but has a substantial grounding in neuroscience, philosophy, and behavioral economics. Research investigating how children choose between the lives of one over the other in a trolley problem-esque situation is not as extensive as adult studies. The term is often used more loosely concerning any choice that seemingly has a trade-off between what is good and what sacrifices are "acceptable". Judgments provoked by trolley problems are correlated with levels of empathy, specifically, utilitarian moral judgments show significantly lower levels of empathic concern (Gleichgerrcht & Young, 2013).

Gold et al. (2014) address moral development by expanding the trolley problem to Eastern cultures to examine how outcomes may differ. The experiments involved choosing between feeding one child or five others at the cost of withholding a meal from the unselected option. The participant had the option to let automated selection occur or to intervene and alter who the meal should be designated. They found that between the Chinese and British participants, Chinese participants had a mindset to just let things run their course, so they often participated in the questionnaire more neutrally and were more likely to use the midpoint of a rating scale than Westerners. An important contribution of Gold et al.'s work was providing an additional experiment for their study, which was conducted in the first language of the

participant. The outcomes were different when Chinese participants originally participated in the study in English compared with participants who did it in their native language.

This aspect of moral development is a fruitful conversation to be held, as it provides valuable insight into how moral development may not be as generalizable as it is portrayed. Substantial variation in moral development is evident across age, gender, social class, and culture. Further research is needed to say anything definitive about the differences between moral judgment and behavior or cultural differences in moral behavior. Gold et al.'s article was a reminder that variations exist across cultures and that moral compasses are not as generalizable as we would presume. "A cultural difference that is potentially very relevant to trolley problems is Chinese fatalism—a cluster of beliefs, deeply rooted in Chinese culture, according to which one should allow events to run their natural course without active interference" (Gold et al., 2014, p. 66). Response differences may be tied to cultural and language variations, which are informative when considering moral development studies because they can diversify the current body of research. This study incorporated a variety of backgrounds, so it would be of future interest to see how these different backgrounds answer similarly or differently from one another.

Empathy. Empathic concern is defined as feelings of warmth and compassion in response to distress (Gleichgerrcht & Young, 2013). Empathy can result in overvaluing some people while disregarding others, which is presented as the prioritization of an individual over the group. Ethical values often work in the interest of the greater good, so by choosing one over the many, empathy can display itself as a lapse in ethical judgment. Reasoning can mitigate the extent to which empathy serves only a few people. Reasoning is an effective tool for filtering and evaluating emotionally driven impulses that influence moral decisions (Decety, 2021). The gradual development of empathy as an interpersonal skill is the outcome of complex biological

processes that involve the detection of distress cues, emotional exchange, emotional regulation, and mental state comprehension, which continuously interact with a child and their social context (Decety & Holvoet, 2021). Empathy evokes motivations for enacting cooperative, helpful, compassionate, and altruistic activities, or for giving ourselves to benefit others (Padilla-Walker & Carlo, 2014). Empathy is an important consideration for the project in discussion, as it allows for gauging the mothers' and children's valuation decisions. The evaluation questions presented regarding each stimulus after the sinking-ship task were formulated with empathy in mind and assisted the conclusions drawn and understanding derived from the data.

Current Research

Prior literature seems to suggest that children gain their values through the experiences they encounter in their day-to-day lives, and this signified that valuations are not mutually exclusive from the impact of parental influence. Children learn their moral values and social understanding through socialization, much of which comes from parenting (Grusec, 2011). Children come to value different human lives based on how they are socialized; therefore, variability in moral development is influenced by matters such as social status, personality, emotionality, and cultural upbringing. It is important to dissect the multitude of differences in learning how these judgments are formed in young children. The previously mentioned research is adjacent to how people come to gain their understanding of the value of different human lives, but there is still more to determine whether it is something that derives directly from mothers, and to what extent. I hypothesize that mothers and their children will show similar decision patterns and thus possess similar conceptions of the values of different human lives based on previous research emphasizing how values are passed down to children from parental influence.

Study

Methods

Participants. For data collection, we recruited mothers and their child/children from the University of Chicago's Infant Lab Database. The ages of interest for this study were children between the ages of five and nine years, inclusive, who spoke English 50 percent or more of the time. This study was specific to participants in the United States and had varied demographic backgrounds.

The sample included 150 five through nine-year-old children (M age = 7.39 years, SD = 1.53 years, range = 5.01 to 9.99 years, female = 68, male = 82) and their mothers (n = 124). There were 34 five-year-olds, 29 six-year-olds, 26 seven-year-olds, 31 eight-year-olds, and 30 nine-year-olds in total. Some child participants had siblings within the predetermined age range and were included in the study's sample (n = 26). One child was not included in the final analysis due to an incomplete consent form for the study, which led to a final sample size of 149 children and 123 mothers. The majority of the participants were White (female = 40, male = 48) and mixed (female = 8, male = 16), followed by Asian (female = 8, male = 12), Black or African American (female = 9, male = 4), and Latino or Hispanic (female = 3, male = 2). The religious makeup of the participants was a majority Christian (n = 79), followed by Secular/Nonreligious/Agnostic/Atheist (n = 47), Islam (n = 8), Buddhist (n = 1), and Hindu (n = 1), and some preferred not to say or were other/unknown (n = 11).

In terms of the education level of the guardians, a majority of the mother participants had a master's degree (n = 66), followed by a bachelor's degree (n = 41), a doctorate (n = 21), professional (n = 7), some college but no degree (n = 7), or an associate degree (n = 5). The education level of grandmothers had a majority with a bachelor's degree (n = 47), followed by a master's degree (n = 35), a high school diploma (n = 25), some college but no degree (n = 11), a

few with only primary school level education (*n* = 8), some with an associate degree (*n* = 7), and the fewest number of grandmothers completed up until secondary school (*n* = 6) or a professional degree (*n* = 6), and a minimal number had a doctoral degree (*n* = 1) or were reported unknown (*n* = 1). As for the education level of the other parent of the children participants, the majority held a bachelor's degree (*n* = 47), followed by a master's degree (*n* = 41), a doctoral degree (*n* = 16), some college but no degree (*n* = 14), an associate degree (*n* = 10), a professional degree (*n* = 6), a high school diploma (*n* = 5), some were reported as unknown (*n* = 4), and a few completed secondary school (*n* = 3) or primary school (*n* = 1).

For reported family income, the majority of participants made $100,000 and greater annually (*n* = 85), then between $75,000 and $99,999 (*n* = 32), some between $50,000 and $74,999 (*n* = 11), a few between $35,000 through $49,000 (*n* = 4), a few reported $16,000 through $24,999 (*n* = 3), then some at $12,000 through $15,000 (*n* = 1), and at $5,000 through $11,999 (*n* = 3).

Apparatus. The mothers were contacted via email or Google Voice. Should they express interest, they were provided with the study to complete on their own time. This study used a survey design conducted over Qualtrics. Upon the mother's submission of consent and completion of the study, she scheduled a time slot for her child/children through Calendly to complete the study with an experimenter over Zoom. After both portions of the study were completed, the mother was emailed an Amazon gift card valued at $10. The analyses involved in this study were performed on the RStudio Desktop software.

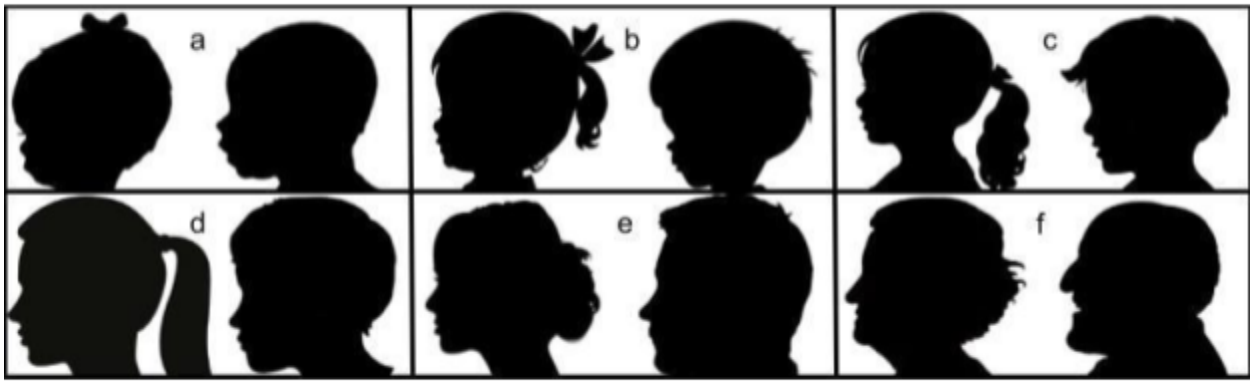
Design & Procedure. The study used a between-subjects design. After mothers were sent information about the research study and agreed to participate, they were asked to complete a Qualtrics questionnaire estimated to take 10 to 15 minutes to complete the study detailed

below. Mothers were randomly assigned to either the positive or negative conditions; after completion of the questionnaire, the mother filled out a consent form and demographics form and then scheduled their child/children to take the questionnaire with an experimenter. The condition the mother was randomly assigned to was the same condition for the child's questionnaire (negative condition = 68 children, positive condition = 81 children), which took between 30 and 50 minutes to complete.

Before the testing phase of the experiment began, a training phase was conducted to ensure an understanding of the study's questions. The training phase first checked if the child could see where the experimenter directed their cursor on the screen. This was followed by an explanation of the study's scenario, where there was a sinking ship and none of the passengers knew how to swim. The child was named the captain of the ship and was asked to make decisions regarding the ship's passengers. A practice trial was conducted by presenting two stimuli and posing the question of who the child would like to save or give up, according to their condition, between the two stimuli. After their selection, they were asked a reworded question about who they just saved/gave up and were provided feedback if necessary. They were then asked which of the two options was saved/given up from the ship, and the experimenter provided feedback if necessary. These questions were asked to ensure the child understood the task at hand. The testing phase began after the practice round.

Figure 1

Stimuli used in study design



The stimuli are as follows: (a) baby girl and baby boy, (b) little girl and little boy, (c) young girl and young boy, (d) teenage girl and teenage boy, (e) middle-aged woman and middle-aged man, (f) old woman and old man.

The study consisted of six blocks of trials, with each block containing 11 questions presenting a different combination of two of the above stimuli. This study had two conditions. The positive condition frames the sinking-ship task to ask who should be saved, whereas the negative condition asks who should be given up. The participants were again presented with stimuli of two individuals who differed in age and/or gender. A total of 12 stimuli were presented: baby girl/boy, little girl/boy, young girl/boy, teenage girl/boy, middle-aged woman/man, and old woman/man. A randomized combination of two stimuli was presented for each sinking-ship question, where the child would then announce who they selected. After the 11 questions, the children were allowed the option for a small break before continuing with the next block of questions.

At the end of the four blocks of questions, evaluation questions were administered. The participants were asked a short series of five questions for each of the 12 stimuli they had previously seen. The questions asked about how much help the person needs from others, how helpful that person is to others, how much time the person has to live, how familiar the person is to the child, and how much the person looks like the child. These questions aimed to gauge the

participants' empathy levels and understand their perspective as to why they may have selected one person over the other. This portion of the study was motivated by Goodwin and Landy's (2014) Study 1 experimental design, where, at the end of that study, the participants were presented with the ages they made selections about and were asked questions about the ages. The purpose of the end-of-study questions was to determine how participants were guided in their choices. The total duration of the experiment for the sinking-ship task and evaluation questions took an estimated 30 to 50 minutes to complete.

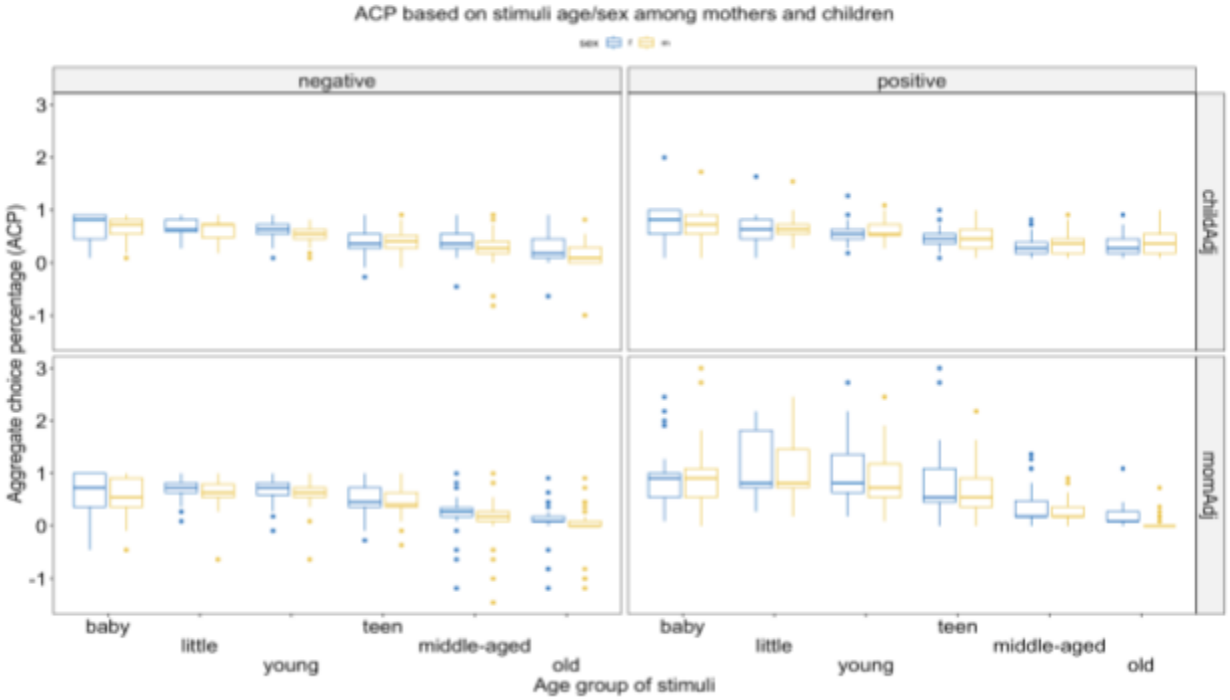
Results

Approximative General Independence Test. To compare mothers' sinking-ship task selections with children's selections, an independent test was conducted to compare trends. Dworazik et al.'s (2019) data analysis procedure informed this analysis. The analysis, known as the approximative general independence test, aimed to investigate the relationship between the choices made by mothers and their children. The study examined this relationship by considering all 12 stimuli groups: baby boy, baby girl, little boy, little girl, young boy, young girl, teenage boy, teenage girl, middle-aged man, middle-aged woman, old man, and old woman. To account for variations across the sample, the data was stratified based on the Mom's randomly administered ID values. The results produced a test statistical value of 59.133. Furthermore, the obtained p-value was found to be less than 0.0001, which indicated a strong rejection of the null hypothesis, which suggests independence between the mother's selection and the children's selection.

ANOVA. An analysis of variance (ANOVA) test was used to understand the main effects and interactions of the explanatory variables on the aggregate choice percentage (ACP). ACP calculated the number of times a particular stimulus was selected out of the 11 times it was

randomly presented. The Type III Analysis of Variance (ANOVA) table with Satterthwaite's method provides information about the statistical significance of various factors in the analysis. The age group of the stimuli had a significant effect on the dependent variable (ACP). The F-value was 1387.6632, which indicated a highly significant relationship ($p < 2.2e-16$). The gender of the children also had a significant effect on ACP. The F-value was 16.5261, which suggested a significant relationship ($p = 4.91e-05$). The experimental conditions of negative or positive framing had a significant impact on ACP. The F-value was 12.7232, which indicated a significant relationship ($p = 0.0004881$). The age group of the children (5, 6, 7, 8, or 9 years) did not have a significant effect on ACP. The F-value was 0.2816, which suggested that the relationship was not statistically significant ($p = 0.5958930$). The overall analysis suggests that the age group of the stimuli, the sex of the child participants, and the experimental condition significantly influence the aggregate choice percentage (ACP). However, the age group of the children did not have a significant effect. The p-value (6.185547e-254) indicated extremely strong evidence against the null hypothesis.

Figure 2
Box plot of ANOVA



Boxplot of averages of the aggregate choice percentage (ACP). The graph is faceted by participant (mom and child) and condition (negative or positive). The x-axis are the age groups of the presented stimuli, and the y-axis is the ACP. The legend indicates the sex of the stimuli presented, blue indicating female and yellow indicating female. For example, the top leftmost box plot represents the ACP for the female baby girl in the negative condition as selected by the child participants.

Welch's Two-Sample T-Test. A Welch's two-sample t-test was conducted to compare the ratings given by mothers and children about each of the five evaluation questions posed after the sinking-ship task. In each t-test, we assessed whether there was a statistically significant difference in the mean "rating" between the child and mother group. The p-value associated with each t-test indicated the likelihood of observing an observed difference in means or a more extreme difference if the null hypothesis was true. The null hypothesis stated no difference in the mean rating between the child group and the mother group, and the alternative hypothesis stated the true difference in means between the two groups is not equal to 0.

For the first evaluation question, “How much help does this [stimulus] need from others?”, the first t-test found a t-value of 1.0376, with a p-value of 0.2995. This suggests that there is no strong evidence to reject the null hypothesis, indicating that the true difference in means between the child ratings and mother ratings may be zero. The 95% confidence interval for the difference in means spanned from -0.0361 to 0.1172, indicating a range of plausible values for the true difference.

For the second question, “How helpful is this [stimulus] to others?”, the second t-test obtained a t-value of 9.6897, with a p-value smaller than 2.2e-16, indicating strong evidence against the null hypothesis. This suggests that there is a significant difference in the mean "rating" between children and mothers. The 95% confidence interval for the difference in the means ranged from 0.2938 to 0.4428, indicating that the true difference was likely positive.

The third evaluation question was “How much time does this [stimulus] have to live?”, the third t-test obtained a t-value of -1.0578, with a p-value of 0.2902. This indicated that there was no strong evidence to reject the null hypothesis, suggesting that the true difference in the means between the two groups may be zero. The 95% confidence interval for the difference in means ranged from -0.1166 to 0.0349.

The fourth test involved the question “How familiar are you with this [stimulus]?”, the fourth t-test obtained a t-value of 2.3087, with a p-value of 0.02102. This indicated evidence to reject the null hypothesis and suggested a significant difference in the mean "rating" between children and mothers. The 95% confidence interval for the difference in the means ranged from 0.0142 to 0.1741.

The final t-test was about the evaluation question, “How much does this [stimulus] look like you?”, and the t-test obtained a t-value of 5.49, with a p-value of 4.333e-08, providing

strong evidence against the null hypothesis. This indicated a significant difference in the mean "rating" between the two groups. The 95% confidence interval for the difference in the means ranged from 0.1255 to 0.2650. Based on these results, we can conclude that the mean "rating" differs between children and mothers in some cases, while in other cases, there is no substantial evidence of a difference.

General Discussion

Conclusion. Based on the results presented, it can be concluded that mothers and children did not make their sinking-ship task selections independently and that there was a relationship between the choices made by mothers and their children. The approximative general independence test rejected the null hypothesis, which suggested independence between mothers' selections and children's selections, with a p-value less than 0.0001. Furthermore, the age group of the stimuli, sex of the child participants, and experimental condition significantly influenced the aggregate choice percentage (ACP), but the age group of the children did not have a significant effect. In terms of the ratings given by mothers and children with each of the five evaluation questions posed after the sinking-ship task, there were significant differences between the mean ratings given by the two groups for some questions but not others. Specifically, for the second question ("How helpful is this [stimuli] to others?") and the fourth question ("How familiar are you with this [stimulus]?"), there were significant differences in the mean rating between children and mothers, whereas, for the first, third, and fifth questions, there was no strong evidence to reject the null hypothesis. Overall, the results suggested a relationship between mothers' and children's sinking-ship task and evaluation selections and that certain factors influence the participant's choices. There is statistically significant evidence of the

transmission of values from mothers to children on the basis of similarly reported responses in the sinking-ship task and evaluation questions.

The results of the rating questions suggest that there are variations in perceptions and evaluations between mothers and children. These insights contribute to a deeper understanding of the decision-making processes and intergenerational differences in the context of moral dilemmas. It is important to note that further analyses, such as post hoc tests and effect size calculations, could provide additional insights and should be considered for a comprehensive understanding of the data. These findings provided valuable insights into the decision-making dynamics within the mother-child relationship, offering potential avenues for further exploration and research focus.

Future Research and Limitations. Future research should compare international data to investigate whether cultural differences produce response trends. It would be interesting to see how individuals from monoethnic countries compare to one another. For example, in Korean culture, there is a large emphasis on respect for the elderly since elders hold the authority to make decisions (Lee, 2020). There is an etiquette in their culture regarding the age hierarchy. How these customs might be compared to countries that emphasize youth or those that are polyethnic would be an insightful direction for this study. Another direction could be to compare whether mothers respond similarly to their daughters and fathers to their sons. This could add a new dimension to value transmission and also provide insight as to whether one parent generally has a more impactful role in their child's decision-making about valuation than the other parent.

Some limitations of this study include the possibility of decision fatigue for the child participants, but it was mitigated by providing the option for a break between trial blocks that the child could choose to take. Recency bias may also factor in participants' choices, especially for

the children's portion of the study, since they were read aloud to the pair selections, unlike their mothers who read the selections. This was accounted for through counterbalancing and randomization of the stimulus pairs. Because the study was a between-subjects design, we were limited in our ability to observe how participants would respond in different framing conditions. With a within-subjects design, it would be more advantageous, as it makes it less probable that a genuine difference between conditions will go undiscovered or be obscured by random noise. Each participant brings their history, previous knowledge, and context to the test, so the transmission of value from the mother down to their child/children would be better explained through a within-subject design. Future research can adapt this study to extend these findings.

Recommendations for Policy and Practice. The research described above has material application in real-life contexts. Keeping moral decision-making, empathy, and values in mind, these are all matters that can be heavily influenced during youth. Much of the experience of youth in industrialized societies is spent in educational systems, which are spaces that can foster moral decision-making, empathy, and values. As described by Gierczyk et al. (2017), moral development is a task that educators can and should instill in their students. They explained that both formal and informal teaching can internally and externally develop a child's moral compass. Educators should demonstrate and teach through proper examples and instruction on what is right from wrong. This can be done through adequate methods of conduct, and from there, "the student should be able to develop the ability to exercise individual attitudes and moral values" (Gierczyk et al., 2017, p. 22). They pose the expectation that teachers articulate an ethos in schools, "where confidence, respect, and empathy are the key prerequisites for stimulating moral development" (Gierczyk et al., 2017, p. 22). Moral education is emphasized as taking on the form of character education to foster the development of a moral compass.

Barni et al. (2011) also speak to this same call for action, that parents and educators can facilitate adolescents' moral development, specifically through promoting relationships that have a positive quality and encouraging the adolescents' volitional functioning. Based on the research presented, there is a call to instill moral education in school curricula, as character development is an essential component when addressing the development of a moral compass. Behaviors indicating children's resistance have been attributed to socialization problems stemming from relationship management, particularly poor relationship history (Barni et al., 2011). This makes it pertinent for interventions to move away from the focus on utilizing specific techniques and strategies to manage children's misbehavior to emphasize marital and parent-child relationships.

Through the information on moral development, educators can take this into account regarding the strength of parents' influence on their children's attitudes. This can be helpful when needing parent-teacher conferences and addressing the root causes of whatever the student in discussion has misconduct over. Youth educators can gain a substantial understanding of their students through their knowledge of moral development. Understanding of moral development can be implemented in socioemotional curricula in schools to help nurture young children's moral compasses.

Children are viewed as the byproducts of the people in their surroundings and environments (Calarco, 2018). Calarco writes how "... children's actions—in conjunction with those of parents and teachers—helped perpetuate inequalities in school… that children's agency is more nuanced and more consequential than sociologists of childhood have previously suggested" (Calarco, Chapter 3, 2018, p. 100). On a similar note to Gierczyk et al., Calarco addresses the evidence of children's agency in interactions with peers and parents, that even young children can shape their opportunities and experiences in school (Calarco, Chapter 3,

2018). Schools are where children can obtain much of their moral development since they experience a substantial amount of social interaction with their peers and teachers.

An interesting observation made by Calarco was how working-class students adopted alternative (character-based) definitions of success, but also worked hard to comply with what they perceived as their teachers' expectations. Students from working-class backgrounds tried to do well in school; avoid reprimands; and be viewed by their teachers as respectful, responsible, and hard-working (Calarco, Chapter 3, 2018). The way working-class children behave in school seems to be strongly influenced by authority and the set rules in early childhood. Calarco compares the manners of working-class children to that of middle-class children, who were "willing to challenge teachers' authority" (Calarco, Chapter 3, 2018, p. 101). Middle-class children were seen to push subtle resistance to a teacher's authority and were more willing to persist for a "yes" despite a teacher being frustrated and wanting to say "no". The difference in school behavior was explained by Calarco as reflections of lessons that children learned at home. The help-seeking behavior that Calarco expands on in her book could translate into moral development, in the sense that how a child thinks and behaves are direct products of their home environment and upbringing. Schools can mend differential class-based mannerisms by incorporating into the curriculum lessons on being more empathetic, being deferential toward teachers, and lessening self-centeredness.

Another perspective to consider in moral development in school settings is student misbehavior. In chapter 4 of Duncan & Murnane's (2014) book, they addressed that with an increased concentration of low-income students in a certain school, there is a prevalence of behavioral issues that pair with low socioeconomic status. This was attributed to peer influence, and from this correlation arises one argument that the increasing achievement gap in schools

between affluent and low-income students stems from the role of peer effects. On a similar note to that of Calarco's work, there appears to be a difference in behavior correlated to class status. With this correlation, one might assume that poor children have a less developed moral compass compared to their more privileged counterparts. The question then is, what is the relationship, if any, between social class and moral development? When considering the factors that impede a low-income student's educational attainment, it is important to understand that children are products of their environments. The externalizing behavior that Duncan & Murnane point out as being prevalent among low-income students is deduced from several factors they cover. Outside of school walls, factors include parental income inequality, residential mobility, and immigration, to name a few. Inside school walls, teachers' classroom management strategies, behavioral expectations, and standard-based educational reform are all matters that affect student performance and behavior. It is not clear if one can claim that children of lower socioeconomic families are less morally developed than their high socioeconomic peers, but it is undeniable that schools can play an instrumental role in either exacerbating or diminishing class-based educational outcomes.

Finally, Hassrick et al. (2017) emphasize providing social and emotional support in schools aimed at the needs of each student. The intention behind this was to reduce or eliminate barriers to learning. The objective of instilling school-wide strategies for continuously gathering and analyzing each child's development academically and socially would be an ideal practice for schools nationwide. To seek out where kids may fall short and then give them individualized assistance is extremely important, as it addresses each child's emergent needs.

If all schools were to take the initiative to ensure academic, social, and emotional support, this could foster healthy moral development in children. The research supports the idea

that moral compasses are sourced from external social accounts and comes to be understood via emotional processing. Schools taking extra steps to ensure each child's positive path of healthy social and emotional development would simultaneously address moral development. In understanding moral development in children, it becomes pertinent to foster nourishing environments in their formative years, most specifically in educational settings.

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