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**THEORY OF MIND AND MORAL THEME COMPREHENSION IN
PRESCHOOL CHILDREN AGES 3-4**

by

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**SUBMITTED TO SCRIPPS COLLEGE IN PARTIAL FULFILLMENT
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Theory of mind and moral theme comprehension in preschool children ages 3-4

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Abstract

Research suggests that there is a relationship between theory of mind and moral development in young children. However, the nature of this relationship is still unclear, specifically in regards to the relationship between theory of mind and moral theme comprehension, which has yet to be studied. The current study attempted to begin to fill this gap in the research by examining the relationship between 8 preschool children's false belief understanding, as determined by the Sally-Anne task, and moral theme comprehension. Results were not significant, but suggest a trend that children who pass the false belief task may be more able to understand the moral themes of stories. A larger sample size and further research on this topic is necessary.

Keywords: theory of mind, moral development, moral theme comprehension

Theory of mind and moral theme comprehension in preschool children ages 3-4 years old

It is often assumed that when we read stories to children, they are always able to understand and learn from the themes. However, research has begun to shed light on the possibility that this is not necessarily the case. Narvaez, Gleason, Mitchell, and Bentley (1999) conducted a study that examined moral theme comprehension in 3rd and 5th grade children. They found that younger children were significantly less able to understand moral themes in stories than older children, even after accounting for differences in reading comprehension. This finding raises many questions about what factors influence a child's ability to comprehend moral themes in stories. Research has suggested that there is a relationship between theory of mind and moral development (Killen, Mulvey, Richardson, Jampol, & Woodward, 2011; Lane, Wellman, Olson, LaBounty, & Kerr, 2010; Leslie, Knobe, & Cohen, 2006; Smetana, Jambon, Conry-Murray, & Sturge-Apple, 2011). This study will examine this relationship in the context of moral theme comprehension.

Theory of mind

Theory of mind is commonly defined as the ability to recognize and understand one's own and others' mental states (Premack & Woodruff, 1978; Wellman, Fang, & Peterson, 2011; Wellman & Liu, 2004). Wimmer and Perner (1983) were the first to establish an understanding of false beliefs as a measurement of theory of mind in children. They defined false belief understanding as the ability to recognize that you may have a piece of knowledge about a situation that another individual may not have, therefore leading this individual to act in a way that is contrary to what you know to be

true. For example, they created a story about a boy named Maxi and a bar of chocolate. Maxi put the bar of chocolate in the blue cupboard in the kitchen and then left the kitchen. While he was out, his brother moved the chocolate to the green cupboard. Maxi then comes back to get the chocolate. An understanding of false beliefs would enable the reader of the story to realize that Maxi does not know that the chocolate was moved, and would therefore look in the blue cupboard. However, if one does not have a theory of mind, one would be unable to separate one's own knowledge about the situation from Maxi's lack of knowledge (or false belief) about where the chocolate is, leading to the belief that Maxi will look in the green cupboard. Wimmer and Perner argued that theory of mind and an understanding of false beliefs develop at around 4 years old, when a child is able to recognize the difference between their own knowledge and another person's lack of knowledge.

Baron-Cohen, Leslie, and Frith (1985) furthered this research on false beliefs, and established the Sally-Anne task, one of the most commonly used tasks for assessing theory of mind and false belief understanding in children. This task is very similar to Wimmer and Perner's (1983) Maxi story, but uses dolls to act out a scene where, when one doll (Sally) is outside and unable to see what is going on inside, the other doll (Anne) moves a ball from one location to another. Then the child is asked where they think Sally will look for the ball. If the child has theory of mind and understands false beliefs, he/she will say that Sally will look in the first location because that child is able to separate his/her correct knowledge from Sally's false belief about where the ball is. If the child does not have theory of mind, he/she will say that Sally will look in the second location because he/she is unable to distinguish between his correct knowledge and her lack of

knowledge. At 3 years old, children have similar difficulties with false belief tasks, including when the subject in question is a doll, another individual, a character, or even themselves previously in time (Flavell, Mumme, Green, & Flavell, 1992). This establishes a fair amount of generalizability in this concept as a developmental ability that does not form until around 4 years of age.

More recently, however, researchers have begun to argue that theory of mind does not occur all at once, but rather as a sequence of related cognitive understandings (Wellman & Liu, 2004; Wellman et al., 2011). Wellman and Liu established a cross-sectional sequence of theory of mind development: first, a child develops an understanding of diverse desires (DD: others have desires that differ from one's own), then diverse beliefs (DB: others have beliefs that differ from one's own), then knowledge access (KA: others may not know the same things as oneself), then false beliefs (FB: others may believe something that is incorrect based on their lack of knowledge), and finally real-apparent emotion (HE: others may display an emotion that is different from what they actually feel). They found that, while 3- and 4-year-olds had much diversity in their position on the scale, the largest group of 3-year-olds understood diverse desires and beliefs, and the largest group of 4-year-olds also understood knowledge access and false beliefs.

Wellman et al. (2011) followed up on this study by testing the same scale longitudinally and across different groups of children (from the U.S., from China, and deaf children). They found that even longitudinally and across groups, children progressed in the predicted manner along the scale. These studies suggest that theory of

mind quite likely develops sequentially, and is more nuanced than previously thought, involving many different aspects and types of theory of mind.

Theory of mind and culture. Wellman and Liu's (2004) scaling of theory of mind development has been consistently shown to accurately depict the majority of children's development in this area. Even when this scale was tested with participants from different countries and cultures, it remained consistent: the majority of children followed the same progression and reached each stage at around the same age. However, one marked difference has been found: children in Beijing, China developed KA before DB, rather than the other way around (Wellman, Fang, Liu, Zhu, & Liu, 2006; Wellman et al. 2011). It is likely a cultural difference in emphasis and input that may account for this variation on the theme: Chinese parents typically have a more authoritarian parenting style and emphasize obedience to and respect for authority, rather than the more authoritative parenting style of the United States which encourages children to question authority and develop their own beliefs about a situation (Shahaeian, Peterson, Slaughter, & Wellman, 2011). Similarly, Chinese culture tends to emphasize gaining knowledge (Shahaeian et al., 2011; Wellman et al., 2006). Taken together, these cultural emphases may contribute to Chinese children's earlier understanding of KA and children from the United States and Europe's earlier understanding of DB.

Shahaeian et al. (2011) further solidified this cultural hypothesis by testing the exact same scale with children from Iran—a country which Shahaeian et al. argues is very culturally similar to China in its parenting style and emphasis on practical knowledge acquisition. They found the same reversal of DB and KA in these children.

Despite these cultural differences in the DB and KA aspects of theory of mind development, there is clearly a large amount of consistency across countries and cultures in the acquisition and timing of all other aspects, including false belief, which is the focus of this study. Aside from the swap in sequence for DB and KA, the rest of the sequence occurs in the same order and at the same time for children in the United States, Australia, Canada, Iran, and China, and false belief understanding in isolation has also been shown to develop at around the same age for children in all of those cultures as well as in India, Peru, Samoa, Thailand, and the Baka culture in a rainforest in Cameroon, Africa (Avis & Harris, 1991; Callaghan et al., 2005; Shahaieian et al., 2011; Wellman et al., 2006). Clearly, there is a strong cross-cultural consistency among many different countries and cultures across the world. This provides strong evidence for the claim that theory of mind develops in a similar progression for the majority of children, and that false belief understanding specifically develops at around the same age for most children.

Theory of mind and the present study. The present study will focus on false beliefs because it encompasses all of the previous aspects of theory of mind that are most relevant to moral development (that is, that others may have different beliefs or understandings of knowledge from one's own, and they may make choices or act in ways according with these understandings). As many researchers point out, and as will be later discussed, this ability to understand another's intentions and perspectives is an important component to moral judgments and reasoning (Greuneich, 1982; Nuñez & Harris, 1998; Leslie, Knobe, & Cohen, 2006; Killen et al., 2011).

Moral development

Kohlberg (1984) outlined his moral stages as having three levels, with two stages within each level, as follows. The first level is the pre-conventional, which is described as pertaining to most children younger than 9. Within the first level is the stage of heteronomous morality, which maintains a focus on rules and authority and avoiding punishment, and the stage of individualism, instrumental purpose, and exchange, which relates to an awareness that other people have different interests from one's own, and an emphasis on fairness and obeying rules when they comply with one's own interests. Level II is the conventional level, which involves stage 3: mutual interpersonal expectations, relationships, and interpersonal conformity, and stage 4: social system and conscience. Stage 3 relates to being a "good person" for the sake of living up to expectations and being seen as "good" by oneself and others (Kohlberg, 1984). Stage 4 takes society and societal duties into account. Finally, Level III, the post-conventional level, contains stage 5: social contract or utility and individual rights, and stage 6: universal ethical principles. Stage 5 relates to a sense of values that should be upheld for society as a whole and for the wellbeing of others, and stage 6 involves the belief and action upon one's own moral principles, regardless of whether they are in accordance with the law. Kohlberg argues that very few adults ever reach the post-conventional level.

The first stage, the stage of heteronomous morality, is of particular interest to this study because this is where most children 3-4 years old reside. This stage relates in particular to Piaget's theory of egocentrism, and the idea that children of this age do not understand that others' interests may be different from one's own, and therefore they do

not take others' interests into consideration when acting (Kohlberg, 1984). Some researchers argued that children do not take intentionality into account when making moral judgments until around 9 years old (Piaget, 1932; Stephenson, Power, Kelleher, & Richardson, 1976). However, this has been commonly disputed, with most researchers arguing that it occurs between 3-5 years old, around the time that theory of mind develops (Greuneich, 1982; Killen et al., 2011; Nuñez & Harris, 1998; Leslie, Knobe, & Cohen, 2006). This suggests there may in fact be a link between theory of mind and moral development, since the two appear to develop around the same time.

An important question in the study of moral development is what exactly affects a child's moral development. Dawson (2002) argues that age and level of education or other experiences in social contexts are the biggest indicators of a child's placement in the moral stages. She also notes that an important aspect of moral development is a child's exposure to and experience with actual moral issues in a social context. These two ideas are related: as a child gets older, he or she has more experience in social contexts; similarly, a child's time in school is inevitably positively correlated with the amount of his or her social experiences (Dawson, 2002). Related to this idea, many educators believe that reading moral stories to children will also enhance their moral development by increasing their familiarity with moral issues and causing them to think more often and more deeply about moral conflicts. This question has recently become a popular topic of study for many researchers.

Moral development and culture. The issue of the universality of Kohlberg's theory of moral development has recently been questioned by researchers. In particular,

the cross-cultural validity of the hierarchical, step-wise progression and structural consistency of the stages has been doubted (Boom, Wouters, & Keller, 2007). Researchers argue that Kohlberg's stages were developed based on a Western society and Western values, and these values may not translate to other cultures, therefore rendering Kohlberg's stages as not representative of the moral development of children in other cultures (Baek, 2002). However, Baek argues that despite some differences between cultures, such as emphasizing one's duty to one's community over one's individual rights versus an emphasis on individual rights, Kohlberg's theory still provides a consistent outline of moral development across cultures. Along these lines, Baek examined the moral development of a group of Korean children and a group of children from the U.K. and found no significant differences in the development of Kohlberg's moral stages. There were, however, some slight differences that are important to note, even if they do not interfere with the overall applicability of Kohlberg's stages. These differences include an emphasis on fairness and rewarding good behavior or punishing bad behavior among the Korean children. In addition, some Korean children produced answers to questions that could not be scored on Kohlberg's scale because they simply didn't fit. This suggests that even though Kohlberg's stages may provide a good overall view of how moral development occurs in children all over the world, it does not by any means cover every possibility for differences in morality and cultural emphases.

Moral theme comprehension. Tappan and Brown (1989) argue that people best understand the actions of others through narrative because this is the most natural form of relating and understanding the experiences of ourselves and others. Leming (2000) also

accepts the assumption that children learn values primarily through stories. Stories are undeniably a critical and deeply entrenched aspect of our society—however, these researchers, along with many educators, do not seem to acknowledge the complexities involved in theme comprehension, particularly among children. Researchers are beginning to acknowledge that there are many factors that affect whether a child is able to understand moral themes in stories, and that the process is much more complex than previously thought (Johnson & Goldman, 1987; Narvaez et al., 1999; Narvaez, 2002; Bock, 2006). Johnson and Goldman claim that both adults and children do not tend to mention morals when asked to recall a story, suggesting that moral themes are not always comprehended or remembered. They also argue that even if a moral theme is understood, kindergarten children are not usually able to generalize the moral to different situations and to their own lives.

Narvaez (2002) also disputes the commonly accepted idea that children innately and automatically extract the intended themes and messages from stories they hear or read. She argues that the process of understanding themes in stories is more complex than a simple two-step process of hearing/reading and then understanding. Narvaez asserts that reading is not a passive activity, but rather an active one, to which readers bring their own experiences and cognitive attitudes. Within the area of reading comprehension, moral theme comprehension maintains its own unique position that depends upon the reader's cognitive development, moral development, and own experiences.

As an illustration of this concept, Narvaez et al. (1999) performed a study which examined moral theme comprehension in third graders, fifth graders, and college students. Each participant read four stories and then selected the messages or vignettes

that had the same theme as each story respectively. Results showed a significant increase in correct selections as age increased, even after reading comprehension was accounted for. For example, for one story, 10% of third graders were correct, 48% of fifth graders, and 93% of adults. This pattern was similar across all four stories. Narvaez et al. argued that these findings suggest that moral theme comprehension increases with age—therefore supporting the idea that moral themes are not always and automatically understood by children. In fact, as few as 2% of third graders selected the proper vignettes or messages for one story—an extremely low number considering the common conception that these themes are always comprehended by children.

In addition, Narvaez (2002) argues that children's reading comprehension involves integrating the information in stories into their well of already existing knowledge, and they come to understand the text through their own experiences and understanding of the world. This suggests that reading moral stories to children does not necessarily affect their moral development; rather, their current moral stage and current stage in other cognitive domains likely affects their understanding of the stories.

At the end of their article, Narvaez et al. (1999) pose the question of what exactly affects a child's ability to extract the moral theme, and believe an answer to this question is necessary in order to gain further insights into children's abilities to understand stories. Clearly, moral theme comprehension in children is more complex than simply reading stories to children and having them understand the themes and advance morally. Johnson & Goldman (1987), Narvaez et al. (1999), and Narvaez (2002) all argue for the complexity in children's moral theme comprehension, and call for further investigation to continue to answer questions about how children understand these stories. The current

study is an attempt to answer Narvaez et al.'s (1999) question by focusing on theory of mind as a possible factor that may affect children's moral theme comprehension.

However, before exploring this relationship, it is important to first examine the relationship between theory of mind and moral development more generally.

Theory of mind and moral development

Many researchers have recognized the possible link between these two aspects of development. As mentioned previously, research is leaning toward the idea that moral judgment and moral reasoning develop most strongly between 3-5 years of age (Greuneich, 1982; Killen et al., 2011; Nuñez & Harris, 1998; Leslie, Knobe, & Cohen, 2006). This is around the same time developmentally that children begin to understand theory of mind, suggesting that the two relate to each other in some way. One way in which psychologists have examined this is through the relationship between an understanding of intentionality and moral judgments (Greuneich, 1982; Nuñez & Harris, 1998; Leslie, Knobe, & Cohen, 2006). Understanding another's intentionality when performing an action is one aspect of theory of mind because it requires the ability to take on or understand the perspective of the actor when the action was performed. This understanding, or lack thereof, will affect moral judgments because the actor's intention should affect the morality of the action (for example, intending to hurt someone's feelings is judged as more immoral than hurting someone's feelings by accident) (Greuneich, 1982; Leslie et al., 2006).

Killen et al. (2011) termed this understanding of intention as "morally relevant theory of mind." They conducted a study in which they examined whether children ages

3.5, 5.5, and 7.5 determined a well-intentioned social misconduct involving false beliefs to be morally wrong. They found that it was not until 7.5 years old that children believed that the transgressor was well-intentioned. However, children who passed a separate, standard false belief task tended to believe the transgressor had more positive intentions than did their counterparts who did not pass the task. This supports the idea that an understanding of false beliefs contributes to a higher level of moral judgment. Killen et al. also found that children who passed the standard false belief task did not necessarily pass the false belief task when it was embedded in a moral context. This suggests that theory of mind as an isolated concept does not necessarily translate to social situations. In addition, this suggests a directionality in this relationship, and that theory of mind may necessarily develop before higher levels of moral judgment. In other words, higher moral judgment may depend on false belief understanding.

Flavell et al. (1992) examined the relationship between the developments of different types of beliefs in children (i.e. fact beliefs and moral beliefs) to determine whether these beliefs developed at around the same time, 3-5 years old. This is also the time that most researchers argue theory of mind develops. Flavell et al. found that many 3-year-olds could not correctly identify the belief of a character in a story they had just heard, even when it was explicitly said twice, while most 4- and 5-year-olds were able to do so. This suggests that theory of mind is an important part of interpreting stories and understanding characters because the children needed to understand that someone's belief was different from their own. Clearly there is a link between theory of mind and understanding others' beliefs in stories, based on this finding by Flavell et al. that this moral belief understanding develops around the same time as theory of mind.

Directionality in the relationship between theory of mind and moral development. It was often assumed that in the relationship between theory of mind and moral development, theory of mind would have to come first (Leslie et al., 2006; Killen et al., 2011; Smetana et al., 2011). However, researchers are beginning to examine the possibility that the relationship is more reciprocal, and that these two aspects of development perhaps influence each other or something occur in the opposite pattern (Leslie et al., 2006; Killen et al., 2011; Smetana et al., 2011). For example, Smetana et al. performed a longitudinal 2-wave study. Children were 2.44-4.27 years old at the first wave, and then were re-interviewed 6 months later. They hypothesized that it is possible that children's advancing moral development may lead them to think more about why others act in certain ways, therefore contributing to an advancing theory of mind. They also hypothesized that children's social and moral experiences may lead them to better understand other's perspectives and states of mind, generally suggesting that the relationship may be more reciprocal. In their study, Smetana et al. found interesting results that did in fact suggest a possibly reciprocal relationship: for example, they found that children who believed moral transgressions were wrong regardless of whether they were seen by authority figures had more advanced theory of mind 6 months later, implying that perhaps this more advanced moral reasoning led to a more advanced theory of mind.

Lane et al. (2010), on the other hand, argued that the perspective-taking abilities that come with theory of mind are important to moral development, rather than the other way around. They performed a 2-wave longitudinal study, and hypothesized that

emotional and cognitive perspective-taking in Wave 1 (when children were approximately 2.5-3.8 years old) would predict the level and quality of moral reasoning in Wave 2 two years later (when children were approximately 5-6.7 years old). They found that the stages of moral reasoning that children undergo mirror the development of their theory of mind: as perspective-taking abilities and understanding of others' mental states advances, so does their moral judgment. Flavell et al. (1992), as discussed previously, similarly found in their research that an understanding of moral beliefs occurs around the same time as false belief understanding—that is to say, around 3-5 years old.

Lane et al. (2010) also provide a model of the levels of moral reasoning that are similar to Kohlberg's (1984). This model suggests that children gradually takes others' perspectives into account more as the stages progress, thereby requiring a more advanced theory of mind at each stage (for example, Level 1 involves self-oriented reasoning, while Level 2 involves other-oriented reasoning, and finally Level 3 involves societally-oriented reasoning). Lane et al. found that children's theory of mind understanding was predictive of higher level moral reasoning, such that those with theory of mind used more Level 2 reasoning. They also argued that children with theory of mind have a better understanding of others' perceptions and how those perceptions affect people's mental and emotional states. This supports the hypothesis that theory of mind is an important contributor to moral development.

Clearly, there is some dispute in the field over the directionality of the relationship between theory of mind and moral development.

The present study

This study will examine the relationship between theory of mind and moral theme comprehension in preschool children. Research clearly supports a relationship between theory of mind and moral development, even if the directionality of this relationship cannot be agreed upon (Greulich, 1982; Lane et al., 2010; Leslie et al., 2006; Killen et al., 2011; Nuñez & Harris, 1998; Smetana et al., 2011). However, no research to date has looked specifically at this relationship in the context of moral theme comprehension. As Narvaez et al. (1999) points out, moral theme comprehension is an under-studied area, and there are many questions about what exactly affects a child's ability to comprehend moral themes in stories. This study is an attempt to begin to answer this question by focusing on the relationship between these two developmental concepts.

There are two hypotheses for the present study: a) children will be more likely to correctly identify the theme of the non-moral story than the theme of the moral story due to the added complexity of moral themes, and b) children who pass the false belief task will be more likely to correctly identify the theme of the moral story.

Methods

Participants

Eight children between the ages of 3 years and 4 months and 4 years and 7 months participated. Half of the participants were male and half were female. Participants were recruited from a preschool in a suburban neighborhood in Southern California as well as through personal interactions with parents. Participants' parents were recruited through email, and then children were approached in person with the parent present.

Pilot testing with college students was also conducted to establish a baseline for adult responses to the stories. 10 college students between the ages of 18-22 participated in this pilot test. Pilot test participants were recruited through personal interaction with the researcher, through email, or through Facebook.

All participants were treated within the APA Ethical Principles of Psychologists.

Materials

Stories. The researcher composed two short stories, one with a moral theme and one with a non-moral theme (see Appendix A). The characters in the stories were gender matched to the participant with names changed accordingly. Each story depicted what could be assumed to be a typical day at school for most preschool and kindergarten children. The moral story involved a child sharing his/her favorite toy with a friend to make him/her happy. The non-moral story was about a child who did not want to go to school, but then had fun when he/she got there.

Theory of mind. The Sally-Anne false-belief task, established by Baron-Cohen et al. (1985) was also used to assess theory of mind. This task involves a short skit performed by the researcher with two dolls. The outline of the skit is as follows:

“There is a bag, a bucket, and a ball. Sally and Anne are inside playing with the ball, and Sally puts the ball in the bucket [the researcher handles Sally so that the doll puts the ball into the bucket]. Then Anne goes outside for a little while, and she cannot see what is happening inside [the researcher moves the Anne doll away and under the table so she is no longer visible]. While Anne is outside, Sally moves the ball from the bucket to the bag [the researcher manipulates the Sally doll so that the doll moves the ball to the bag]. Then Anne comes back inside to get the ball [the researcher brings the Anne doll back onto the table]. Where will she look for the ball?”

If the child answers that Anne will look in the box—where the ball actually is—then that child fails the task because he/she is unable to separate his/her own knowledge from Anne’s lack of knowledge. If the child answers that Anne will look in the basket—where the ball was when Anne left—then that child passes the task.

Procedure

The study occurred in an empty room at the preschool with the parents present or in a classroom at the college if participants were not recruited through the preschool. Parents provided informed consent prior to the study (see Appendix B). Each participant was asked if it would be alright if the researcher read them some stories and asked them some questions. If they gave verbal assent, they were brought individually (along with the parent) to the empty room.

The participants were read the two stories. The order in which they were read was switched for each participant. After each story was read, the participant was asked what the story was about. If necessary, follow-up questions were asked to help focus the children’s responses or help them remember the story (e.g. “What happened in the

story?"; "What did Ben do at school?"). After both stories were read, participants underwent the Sally-Anne task. Then they were thanked, given a sticker, and dismissed. Parents were also given a debriefing document (see Appendix C).

For the pilot test, participants were brought to a private room at the college. They first provided informed consent prior to testing (see Appendix D). Then they were read the two stories and asked what they thought was the theme of each story, respectively. Then they were thanked, given the debriefing document (see Appendix E), and dismissed.

Results

Hypothesis 1

The first hypothesis was that children would be more likely to accurately identify the non-moral theme than the moral theme. To begin, the pilot test was conducted to determine a baseline for adults, who all should have theory of mind. The hypothesis was that college students—who represent the population that has theory of mind—would be equally likely to correctly identify the themes of both the moral and non-moral stories. A chi-square test for independence was conducted, and results were significant $\chi^2(1) = 10.000, p < .005$.

For the children, a chi-square test for independence was conducted to determine whether there was a relationship between the results for the moral and non-moral story, and results were not significant, $N = 8, \chi^2(1) = 1.600, p = .206$. As seen in Table 1, only 62.5% ($N = 5$) children accurately identified the non-moral theme, while 75% ($N = 6$) accurately identified the moral theme. For participants who failed the false belief task (N

= 4, 50%), the same percentage correctly identified both the moral and non-moral theme (50%; see Table 2). For the participants who passed the false belief task (N = 4, 50%), more were able to correctly identify the moral theme (100%) than the non-moral theme (75%). This does not provide support for the first hypothesis.

Table 1: Percentage of total participants (N=18) who correctly identified the themes of each story

	Children (N = 8)	College Students (N = 10)
Moral Story	75%	90 %
Non-Moral Story	62.5%	90%

Hypothesis 2

The second hypothesis was that children who passed the false belief task would be more likely to correctly identify the theme of the moral story than would children who failed the task. A chi-square test for independence was conducted to determine the relationship between performance on the false belief task and understanding of the themes of the moral story. Results were not significant $\chi^2(1) = 2.667, p = .102$. However, there is a clear trend in the data, as seen in Table 2. All of the participants who passed the false belief task also correctly identified the theme of the moral story (N = 4, 100%), while only half of those who did not pass the task correctly identified the moral theme (N = 2, 50%).

Table 2: Percentage of participants (N = 18) who correctly identified the themes of the stories

	Passed FBT (N = 4)	Failed FBT (N = 4)	College Students (N = 10)
Moral Story	100%	50%	90 %
Non-Moral Story	75%	50%	90%

For example, when participants who passed the false belief task were asked what the moral story was about, they would often first say “A bear” or the name of the main character. However, after being asked a follow up question (“What happened in the story?”), the participants would then say, “S/he shared.” Participants who did not pass the false belief task and who did not correctly identify the moral theme would first respond that the story was about Boo Boo the bear, and then would respond to the follow-up questions that they did not know. They were seemingly unable to get beyond this surface-level element to the story.

The only difference between the responses of the children who passed the false belief task and the adults was that adults were immediately able to access the moral theme, and responded to the first question that the theme was sharing, while the children often required a follow-up question to further their thinking about the story beyond the characters.

This suggests that there may in fact be a relationship between theory of mind and moral theme comprehension. Cramer’s V was conducted to determine the strength of this relationship, $V = .577$. Clearly, there is a somewhat strong association. If more data were

collected that continued to follow this trend, the strength of the relationship would improve.

Similarly, the scores of the children who passed the false belief task resemble the scores of the college students, as can also be seen in Table 2. There is a larger discrepancy between the scores of the children who did not pass the false belief task and the college students.

Discussion

The goal of this study was to begin to fill a gap in the research by addressing the question of how theory of mind and moral theme comprehension may relate. Researchers agree that theory of mind and moral development are connected and may affect each other; however, the nature of this relationship is under dispute, and has never been studied in the context of moral theme comprehension.

It is unclear why the participants were less able to identify the non-moral theme than the moral theme, because, as discussed previously, moral themes tend to be more complex and involve an integration of other types of cognitions and understandings (Johnson & Goldman, 1987; Narvaez et al., 1999; Narvaez, 2002; Bock, 2006). One possible explanation could simply be due to the story itself; perhaps the theme was simply not clear. Pilot testing these stories with children would have been one way to solve this question by presenting multiple versions of the story or different stories altogether to determine which stories and themes were clear and which were too complex. However, with adults, there was no difference between the correct responses

for both stories (90%), so it is clear that there was some difficulty specifically for the children in identifying the theme of the non-moral story.

As for the relationship between theory of mind and moral theme comprehension, even though the chi-square was not significant, there is a clear trend in the data that is leaning towards a positive relationship between theory of mind and moral theme comprehension. The responses of the children support this idea: children who did not pass the false belief task and who also were unable to identify the moral theme were not able to understand the story beyond the surface-level answer that the story was about a bear. This suggests that perhaps these children were simply unable to access the moral theme. Even though it took some prompting for the children who did pass the false belief task to identify the moral theme, they were still able to quickly access and express it.

However, contrary to the hypothesis, some participants who did not pass the false belief task were still able to correctly identify the moral theme. One possible reason for this is that perhaps these children were utilizing a lower level theory of mind than false belief understanding. As mentioned previously, studies suggest that theory of mind develops in a sequential progression (Wellman & Liu, 2004; Wellman et al., 2011). False belief understanding develops around four years old, but before this understanding can solidify, the child must also have an understanding of diverse desires, diverse beliefs, and knowledge access. It is possible that, for those children that did not pass the false belief task, but still identified the moral theme, the development of their theory of mind is still being honed, but was developed enough to allow them to access the moral theme of the story. In other words, even though these children do not yet have a false belief understanding, they still have a developing theory of mind according to Wellman and

Liu's sequential progression. According to this data, false-belief understanding may be an important turning point in moral theme comprehension, but may not be the only aspect of theory of mind to affect moral theme comprehension. Perhaps the moral theme of sharing is a slightly more accessible theme to children with a less developed theory of mind. An interesting direction for further research could be to look into how each level of theory of mind development relates to moral theme comprehension. Another direction for future studies would be to examine how the progression of the theory of mind relates to the progression of moral development in the context of moral theme comprehension. This could be done by having multiple stories, each with a moral theme that corresponds to a level of moral development, and then conducting a theory of mind task that corresponds to each level to determine where on the theory of mind scale the child falls. This could help determine whether there is a parallel development along each of these progressions.

In addition, these children who did not pass the false belief task and still identified the moral theme may perhaps have been referring to their knowledge of sharing in general. All of the children in the study were attending preschool. In preschool, children quickly gain experience interacting with other children, including sharing toys. As a result, even if these children did not fully understand the moral theme, they may have been able to identify it based on their personal experiences. This limitation—that all the participants were attending preschool—will be discussed further later on.

As seen in Table 1, 90% of the college students correctly identified both themes. One out of the ten did not correctly identify either theme. This suggests that even as adults, who presumably have a fully developed theory of mind and much broader social, moral, and academic experiences, people sometimes do not fully comprehend the themes

of stories. In this sense, it is in fact surprising that 100% of participants who passed the false belief task were able to correctly identify the moral theme, considering that not even 100% of adults were able to do so. This does suggest, however, that once a child has a more developed theory of mind as determined by the false belief task, his or her moral theme comprehension may even be adult-like. In other words, these results suggest that false belief understanding may represent an important milestone in moral theme comprehension that marks a transition into adult-like understanding of certain moral themes. Once again, however, these results are limited in scope and generalizability due to the small sample size and the fact that only one moral story and theme was used.

Limitations

As mentioned previously, a significant limitation to this study was sample size. As a result, the power of the study is very low. While a trend appears to be forming, it is important to gain more participants before this trend can be generalized. Similarly, the variability among participants was low in terms of socio-economic status and exposure to education. While parental income was not specifically recorded, the area from which participants were recruited is a fairly affluent area near five prestigious liberal arts colleges. In fact, many participants were children of professors. Parental income and the level of parental education may affect the results because it is possible that parents with higher education levels may perhaps be more inclined to read to their children. If this is the case, then these children would have more exposure to stories in general, and may therefore simply be more adept at identifying the themes of stories.

Along these lines, all of the participants were attending preschool. This may also have affected the results in a similar way, because in preschool, children may have more exposure to stories. In addition, children who attend preschool likely have more experience interacting with other children than those who do not attend preschool. As a result, these children may have more experience dealing with moral situations similar to that presented in the story, and may have more experience taking others' perspectives into account when making decisions. This increased experience in social and moral situations likely contributes to the development of theory of mind and moral understanding (Dawson, 2002; Narvaez, 2002; Smetana et al., 2011). This may also account for the correct identification of the moral theme by children who did not pass the false belief task. It would be important for future research to include a more diverse sample with children from a variety of backgrounds, and children who do and do not attend preschool.

Conclusions and Further Research

Even though the results of this study were not significant, there is a clear trend in the data that suggests that children with a more developed theory of mind may be more able to comprehend the moral themes of stories. The limited sample size severely reduces the power of this study and the generalizability of the trend. If more data could be collected that continued to follow this trend, the generalizability and power would improve and provide further support for the relationship between theory of mind and moral theme comprehension.

The results of this study are important for parents and educators. Clearly, children do not always understand the themes of the stories we read to them or integrate these themes into a greater schema. Parents and educators should not assume that simply reading a story to a child will enrich that child's understanding of a topic; instead, it is important that parents and educators interact with the child on the topic to assist in the child's understanding.

Future research should examine a larger and more diverse sample size, and should include participants who both do and do not attend preschool. An interesting direction for this research could include examining the effects of attending preschool on moral theme comprehension, due to the suggestion that increased exposure to social and moral situations may contribute to moral development (Dawson, 2002; Narvaez, 2002; Smetana et al., 2011). In addition, future research should continue to look into the relationship between theory of mind and moral theme comprehension by comparing development along the scales established by Kohlberg (1984) and Wellman and Liu (2004). This would provide a deeper understanding of how these two concepts develop together and affect each other.

The relationship between theory of mind and moral theme comprehension is an under-studied area in the field of development. This study provides an important starting point for future research on this topic, and, while results were not conclusive, suggests a direction for further research and proposes many important questions that will provide a clearer understanding of how children think about and understand the world around them.

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Appendix A: Stories**Moral Story**

Once there was a young girl/boy named Sarah/Ben. She had lots of toys, like dolls and cars and trains, but her favorite toy in the world was a stuffed bear named Boo Boo. She brought him with her everywhere and he slept in her bed with her, tucked in tight right next to her.

Sarah was about to start school. She was so excited for her first day, and she held on tight to Boo Boo as her mother drove her to school.

At school, Sarah made lots of new friends. She had a lot of fun playing with them, and especially with a girl/boy named Amy/Freddy. The whole time, Sarah held on tight to Boo Boo. She noticed that Amy was looking at Boo Boo a lot.

After a while, Amy said, "I like your bear. What's his name?"

"His name is Boo Boo," Sarah said happily.

Amy was quiet for a moment, and then she said, "Can I play with him?"

Sarah was nervous at first. She'd never let anyone else play with Boo Boo before, and he was her special friend. But she knew that it would make Amy happy to play with him, so she decided to share with Amy.

"We can play with him together," Sarah said.

And together they shared Boo Boo and played happily for the rest of the day.

Non-Moral Story

Once there was a girl/boy named Emily/Josh. One morning, she woke up and ate breakfast before going to school. She didn't always like to go to school in the morning.

"Do I have to go to school?" she asked her mother.

"Yes, Emily. But it will be fun, I promise," her mother said.

So Emily got in the car and her mother drove her to school. At school, she liked to play with her friends and she liked to read stories. Every morning her teacher would read a story to the class. Story time was always so much fun, and it was Emily's favorite part of the day.

After her teacher read, Emily liked to play with blocks or with the toy kitchen at school. During outside play time, Emily's favorite thing to do was ride on the swings. It was so much fun, and she would swing up in the air and pretend she was a bird flying high in the sky. Sometimes she would wave at airplanes or other birds, pretending she was flying right next to them.

At the end of the day, Emily's mother came to pick her up.

"How was school?" her mother asked.

"So much fun!" Emily replied. "I can't wait to go tomorrow!"

Appendix B: Informed Consent DocumentInformed Consent Form: Moral Theme Comprehension in Children 3-4 Years Old

Your child is invited to participate in this research study about perspective-taking abilities and moral theme comprehension. The following information is provided in order to help you to make an informed decision about whether or not to allow your child to participate. If you have any questions please do not hesitate to ask.

This research is being conducted as part of a thesis project by Cara Shpizner, a senior at Scripps College. Your child is qualified to participate in this research because he/she is between 3.5 and 4.5 years of age. The purpose of this research study is to examine whether children's understanding of others' states of mind and perspectives affects their ability to understand moral themes in stories.

This study will take place at your child's school in his/her classroom while you are present, and participation will take approximately 10-15 minutes. His/her participation is completely voluntary. If you grant your informed consent by signing and returning this form, your child will be approached by the researcher in his/her classroom while you are present and asked if he/she would like to participate. Your child's verbal assent will be acquired before he/she can participate, and if he/she does not assent, he/she will not be forced or pressured in any way. With your permission, however, your child may be re-approached later that day or on another day while you are present. Your child will only be approached if you sign and return this informed consent form. You and he/she are free to decide not to participate in this study or to withdraw at any time without losing any benefit to which your child is entitled or adversely affecting your relationship with the investigators or with Scripps College. Your child will be told that he/she can stop participation at any time.

If you return this informed consent form, and your child agrees to participate, the study will proceed as follows: After making an appointment with the researcher, and after your child agrees to participate, he/she will be able to choose a sticker from a set as compensation for his/her participation. Then he/she will be read two short stories involving either a moral or a non-moral situation. Neither story will involve a negative situation nor will they involve any harm or negative emotion to any of the characters in the story. Your child will then be asked what he/she believes is the theme of each story, and asked follow-up questions as necessary. Then the researcher will act out a short skit with dolls that is intended to determine the child's ability to understand other's states of mind and perspectives. The risks of this research are expected to be minimal. The information in the stories and the skit is similar to what might be depicted in a typical children's story. Your child will be told that he/she can stop participation at any time, and you may also choose to withdraw your child from the study at any time. In the event of any problems resulting from participation in the study, you can seek counseling for your child through a service to search for counselors provided by the American Psychological Association by visiting <http://locator.apa.org>.

One of the benefits to your child's participation is that your child will be given a sticker if he/she chooses to participate. The sticker will be given before the study begins so that your child may discontinue participation at any point without a losing this benefit. He/she may also enjoy hearing the stories and seeing the skit. In addition, the information gained from this study may help us better understand whether perspective-taking affects children's ability to understand moral themes in stories, and may provide information for educators about what affects their students' learning from stories.

Any information obtained during this study that could identify your child (such as name or birthday) will be kept strictly confidential. Your child's identity will be kept separate from his/her responses to the questions. Your child's responses will only be associated with the 6-month age range that matches your child's age (either 3 ½-4 or 4-4 ½). His/her responses to the questions will be anonymous.

Please do not discuss the details of this study with your child prior to participation, or with any other parents or children in order to prevent possible data contamination. You may discuss the information in this informed consent form with other parents if you wish.

You may ask questions concerning the research at any time. If you have any questions regarding this research, you may contact the researcher, Cara Shpizner, at cara.shpizner@scrippscollege.edu, or at (650)-740-9911. You may also contact the IRB chair Jennifer Groscup at jgroscup@scrippscollege.edu, at (909) 607-0913 or in room 116 in Steele Hall at Scripps College, or the IRB administrator Gretchen Edvalds-Gilbert at gedvalds@scrippscollege.edu. If you have any questions about you or your child's rights as a research participant that have not been answered by the investigator you may contact Pamela Rowland, the Administrator of the Scripps College Institutional Review Board at prowland@scrippscollege.edu or at (909) 607-3249.

Your signature certifies that you have decided to allow your child to participate having read and understood the information presented. You are voluntarily making a decision whether or not to allow your child to participate in this research study. You will be given a copy of this consent form to keep.

Signature of Parent

Printed Name

Date

Email address

Child's Name

Cara Shpizner, Principal Investigator
(650)-740-9911
Scripps College
cara.shpizner@scrippscollege.edu
1030 Columbia Ave. Box 980
Claremont, CA 91711

Appendix C: Debriefing Form

Debriefing Form: Theory of Mind and Moral Theme Comprehension in Children 3-4 years old

Thank you for your child's participation in this study. This debriefing is given as an opportunity for you to learn more about this research project, how your child's participation plays a part in this research, and why this research may be important to society.

It is often assumed that when we read stories to children, they are always able to understand and learn from the themes of these stories. However, research has begun to shed light on the possibility that this is not necessarily the case. One possible factor that may affect a child's ability to understand moral themes in stories is that child's ability to understand other's perspectives or states of mind—called theory of mind. This study was designed to examine the relationship between theory of mind and children's moral theme comprehension.

Children were each read two stories. One story had a moral theme, and one story had a non-moral theme. For example, the moral story was about a child sharing her favorite toy. The moral theme of this story was sharing and making others happy. The non-moral story recounted a child's day at school. The theme of this story was that school can be fun. After each story was read, the child was then asked what he/she thought the theme of the story was. Because children often answer this question by retelling the events of the story rather than discussing the theme, follow-up questions were asked to help focus their answers on the theme.

After this, each child watched the researcher put on a short skit with two dolls that assessed the child's ability to understand other's states of mind and perspectives, called a false-belief task, or the Sally-Anne task.

The first hypothesis was that children would be more likely to understand the theme of the non-moral story because moral themes are more complex and require a certain higher level of thinking. The second hypothesis was that children who passed the false-belief task, and therefore who have theory of mind, would be more likely to understand the moral theme because of the relationship between understanding other's states of mind and perspectives, and moral judgment. This research is important because

it provides a deeper understanding of what affects children's abilities to understand moral themes in stories, which may affect how educators wish to approach moral education.

Your child's responses will be kept anonymous. If you are interested in the results of this study or if you have any additional questions or comments, please contact Cara Shpizner by email at cara.shpizner@scrippscollege.edu, by phone at (650)-740-9911, or by mail at Scripps College, 1030 Columbia Ave., Box 980, Claremont, CA 91711. You may also contact the IRB chair, Jennifer Groscup, by email at jgroscup@scrippscollege.edu, or by phone at (909) 607-0913, or the IRB administrator, Gretchen Edvalds-Gilbert at gedvalds@scrippscollege.edu. If you have any questions about your child's rights as a research participant, please contact Pamela Rowland at prowland@scrippscollege.edu or (909) 607-3249. In the event of any problems resulting from participation in the study, you can seek counseling for your child through a service to search for counselors provided by the American Psychological Association by visiting <http://locator.apa.org>.

Thank you again for allowing your child to participate!

Appendix D: Pilot Test Informed Consent

Pilot Test Informed Consent Form: Theme Comprehension in 3-4-year-old Children

You are invited to participate in this pilot test for a research study about children's perspective-taking abilities and theme comprehension. The following information is provided in order to help you make an informed decision about whether or not to participate. If you have any questions please do not hesitate to ask.

This research is a pilot test that is being conducted as part of a thesis project by Cara Shpizner, a senior at Scripps College. You are qualified to participate in this research if you are above 18 years of age. The purpose of this pilot test is to provide information to the researcher that may help her determine the validity of her research materials before they are used in the actual research study.

You will be read two stories and asked about the theme of the stories. You may then be asked follow-up questions to help the researcher determine the validity of the stories. The risks of this research are expected to be minimal. The information in the stories and the skit is similar to what might be depicted in a typical children's story.

You are free to decide not to participate in this pilot test or to withdraw at any time without adversely affecting your relationship with the investigator or with Scripps College. In the event of any problems resulting from participation in the study, you can seek counseling through a service to search for counselors provided by the American Psychological Association by visiting <http://locator.apa.org>.

Any information obtained during this study that could identify you (such as name) will be kept strictly confidential. Your identity will be kept separate from your responses to the questions, and your responses to the questions will be anonymous.

You may ask questions concerning the research at any time. If you have any questions regarding this research, you may contact the researcher, Cara Shpizner, at cara.shpizner@scrippscollege.edu, or at (650)-740-9911. You may also contact the IRB chair, Jennifer Groscup at jgroscup@scrippscollege.edu, at (909) 607-0913 or in room 116 in Steele Hall at Scripps College, or the IRB administrator Gretchen Edvalds-Gilbert at gedvalds@scrippscollege.edu. If you have any questions about you or your rights as a research participant that have not been answered by the investigator you may contact Pamela Rowland, the Administrator of the Scripps College Institutional Review Board at prowland@scrippscollege.edu or at (909) 607-3249.

Your signature certifies that you have decided to participate having read and understood the information presented. You are voluntarily making a decision whether or not to participate in this pilot test. You will be given a copy of this consent form to keep.

Printed Name

Signature

Date

Cara Shpizner, Principal Investigator
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Appendix E: Pilot Test Debriefing Form**Debriefing Form: Theory of Mind and Moral Theme Comprehension in Children 3-4 years old**

Thank you for your participation in this pilot test. This debriefing is given as an opportunity for you to learn more about this research project, how your participation plays a part in this research, and why this research may be important to society.

It is often assumed that when we read stories to children, they are always able to understand and learn from the themes of these stories. However, research has begun to shed light on the possibility that this is not necessarily the case. One possible factor that may affect a child's ability to understand moral themes in stories is that child's ability to understand other's perspectives or states of mind—called theory of mind. The study for which the results of this pilot test will be used is designed to examine the relationship between theory of mind and children's moral theme comprehension.

You were read two stories. One story had a moral theme, and one story had a non-moral theme. The moral story was about a child sharing her favorite toy. The moral theme of this story was sharing and making others happy. The non-moral story recounted a child's day at school. The theme of this story was that school can be fun. After each story was read, you were asked what he/she thought the theme of the story was. If you did not give the correct answer, you were asked how the story could have been different to make the theme clearer. This was to help the researcher determine the validity of the stories, and whether the intended themes were clear to adults who should be able to comprehend them.

The first hypothesis of the research study is that children will be more likely to understand the theme of the non-moral story because moral themes are more complex and require a certain higher level of thinking. The second hypothesis is that children who do have theory of mind (as determined by a false-belief task, which is a short skit acted out with dolls, followed by a question that is intended to determine whether the child is able to understand another person's perspective and state of mind), will be more likely to understand the moral theme because of the relationship between understanding others' states of mind and perspectives, and moral judgment. This research is important because

it provides a deeper understanding of what affects children's abilities to understand moral themes in stories, which may affect how educators wish to approach moral education.

Your responses will be kept anonymous. If you are interested in the results of this study or if you have any additional questions or comments, please contact Cara Shpizner by email at cara.shpizner@scrippscollege.edu, by phone at (650)-740-9911, or by mail at Scripps College, 1030 Columbia Ave., Box 980, Claremont, CA 91711. You may also contact the IRB chair, Jennifer Groscup, by email at jgroscup@scrippscollege.edu, or by phone at (909) 607-0913, or the IRB administrator Gretchen Edvalds-Gilbert at gedvalds@scrippscollege.edu. If you have any questions about your child's rights as a research participant, please contact Pamela Rowland at prowland@scrippscollege.edu or (909) 607-3249. In the event of any problems resulting from participation in the study, you can seek counseling for your child through a service to search for counselors provided by the American Psychological Association by visiting <http://locator.apa.org>.

Thank you again for participating in this pilot study! Your participation has been extremely helpful to the researcher.