Toddlers' Theory of Mind skills, Parental Ratings of their Child's Empathy, Mental State Language, and Executive Functioning in Relation to Observable Empathic Behaviours

Sabrina Sarah Chiarella

A Thesis

In

The Department

Of

Psychology

Presented in Partial Fulfillment of the Requirements for the Degree of
Master's of Arts in Psychology (Clinical Psychology) at
Concordia University
Montreal, Quebec, Canada

September 2010

Your file Votre référence
ISBN: 978-0-494-71043-2
Our file Notre référence
ISBN: 978-0-494-71043-2

ABSTRACT

Empathy has commonly been associated with a person's ability to engage in prosocial actions. Yet, the understanding of how one's ability to recognize others' emotional and non-emotional mental states is related to the experience of empathy in very young children remains unexplored. The present study examined how both emotional (understanding another's emotion), and non-emotional (understanding another's visual perception) theory of mind related to expressions of empathy when an actor simulated distress in sixty-six, 29-38 month-old toddlers. Children were tested for their ability to identify the relation between people's emotions and desires (emotional ToM) and for visual perspective-taking abilities (non-emotional ToM). Children's empathic behaviours were recorded during a period in which an actor experienced distress. Parents also completed questionnaires about their children's effortful control/executive functioning and empathic behaviours. Results revealed that children with better emotional ToM skills also had a significant greater likelihood of displaying sympathy. No significant results emerged between the non-emotional ToM tasks and empathy. Children who were rated as having better effortful control/executive functioning displayed more concern and hypothesis testing, and tended to show more sympathy. Moreover, children described as more empathic displayed more sympathy and concern and tended to display more hypothesis testing. Finally, relationships between mother-reported empathy and observed empathic behaviours were stronger for girls than boys. The current findings provided the first direct evidence that the understanding of others' *emotional states* and empathic development begin to interrelate early in life and provide evidence for a possible link between young children's executive functioning and empathic responses.

ACKNOWLEDGEMENTS

First and foremost I would like to thank my supervisor, Dr. Diane Poulin-Dubois, for her incredible support and encouragement throughout the development of this project. Second, I would like to thank Dr. Paul Hastings, who has been an integral part of this research process. Without their guidance, this project would not have taken form. Moreover, I would like to extend my gratitude to Dr. Petra Hauf, and to Dr. Elena Geangu in Antigonish, Nova Scotia, for their aid in collecting participants and input throughout this project. Thank you to all the Poulin-Dubois lab members for always being there in times of need, and to Amanda Aldercotte and Marie-Pier Gosselin, who were extremely helpful in reliability and testing. To my family, no words can express how your support and patience has been appreciated; Grazie con tutto il cuore. To my friends and to Markos, thank you for always being so "empathic" and for always making me smile. I would also like to thank the following research funding agencies: Le Fonds québécois de la recherche sur la société et la culture (FQRSC), Social Sciences and Humanities Research Council of Canada (SSHRC), CRDH and Concordia University for grants awarded to Diane Poulin-Dubois, le Fonds québécois de la recherche sur la société et la culture (FQRSC), and the Centre for Research in Human Development (CRDH) master's level fellowships awarded to the author to help fund the project. Finally, I would like to express my gratitude to the research participants whose contribution allowed this project to be possible.

Table of Contents

List of Tables

Introduction

The act of experiencing empathy is universal to the human condition (Hoffman, 2000). Throughout development, empathy has commonly been associated with a person's ability to engage in prosocial actions, such as helping others, and reducing aggressive behaviour towards others (Eisenberg, Fabes, & Spinard, 2006; Baston, 1991). By experiencing and understanding another's emotional state, one is said to be motivated to show concern for that person and be inclined to help by eliminating or reducing the distress (Eisenberg et al., 2006). In addition, directing one's attention to others allows one to reorganize his or her ways of thinking about others' needs, and assess the implications of one's behaviour on others (Hoffman, 2000; Eisenberg et al., 2006). This attention to other people's emotional states is an integral part of development and is reflected in human social behaviour (Batson, 1991; Hoffman, 2000; Eisenberg et al., 2006). Yet, the understanding of how one's understanding of others' mental states is related to the experience of empathy in very young children, remains virtually unexplored in research.

While one may have an intuitive sense of how empathy is experienced, its definition is one that has been debated in the literature. There is some consensus that empathy can exist in two distinct but integrated forms (Knafo, Zahn-Waxler, Van Hulle, Robinson, & Hyun Rhee, 2008). *Affective empathy* has been described as "vicarious emotional reactions that occur within the individual as a result of observing another's emotional state or situation" (Losoya & Eisenberg, 2001, p. 22). That is, an individual displays and experiences the same emotion as that of another. For instance, one sees a person crying and feels sadness akin to that person's sadness. As children develop, affective empathy commonly leads to expressions of concern for the victim (known as sympathy) and they

may subsequently engage in helping behaviours for the victim later on in development (Eisenberg et al., 2006). *Cognitive empathy* has been defined as an "ability to effectively comprehend a distressing situation as well as recognize another's emotions and assume that person's perspective" (Volbrecht, Lemery-Chalfant, Aksan, Zahn-Waxler, & Goldsmith, 2007, p.106). That is, to *understand* how that person feels, without necessarily taking on that person's affective state, and trying to decode the cause of the distress. For instance, a child understands that his friend is sad because his toy was taken away from him by his mother. Yet, the child does not feel the sadness that his friend does. Cognitive empathy involves some component of perspective-taking: the ability to take on another's point of view. In the present thesis, empathy is defined as the experience of other's emotional, physiological, or psychological state, "having both affective and cognitive components reflected in the capacity to understand, imagine, and affectively share the other's state" (Young, Fox, & Zahn-Waxler, 1999).

Many researchers agree that some form of empathy, or some attention to another's emotional state, is evident as early as birth (Hoffman, 2007). This evidence first emerged with studies showing newborns' reflexive crying to the sound of other newborns' cry signals, identical to cries of infants in actual pain or distress (Sagi & Hoffman, 1976; Simmer, 1971; Hoffman, 2007). While there are many explanations to infants' reflective cries (see Hoffman, 2000), researchers generally agree that these cries are the earliest observable precursors to empathy.

By the end of their first year, infants continue to cry in response to others infants' cries, but they also whimper, watch the victim, and engage in activities to try to reduce their own distress (Hoffman, 2007). By the second year, however, infants' cries and

whimpers occur less often (i.e., less self-oriented reactions) and they begin to make helpful gestures or approaches towards the victim. (e.g., kissing, hugging) (Hoffman, 2007; Eisenberg et al., 2006). At this stage, typically before 24 months of age, while children's actions clearly have an underlying prosocial motive and reflect an understanding that others are physically different from themselves, their helpful actions are of limited effectiveness because they lack insight about the inner states of others, and assume that what helps them will also help another. However, by the third year of life, children have a better understanding of the needs of others in distress. This comes concurrently with the development of role-taking abilities, as well as children's increasing awareness that other people's perspectives may differ from their own. They begin to show a more distinct knowledge of others' internal states, such as thoughts, beliefs, desires, allowing them to empathize with others in a more productive and effective way (Hoffman, 2007; Eisenberg et al., 2006).

Developmental research has shown that higher levels of empathy in children toward a person in distress is related to more prosocial actions towards that individual (Knafo et al., 2008; Young, et al., 1999; Eisenberg & Fabes, 1998; Roberts & Strayer, 1996; Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992; Barnett & Thompson, 1985). Moreover, empathy has been positively related to lower levels of aggression in children, greater social competence, and higher levels of moral reasoning (Sallquist, Eisenberg, Spinrad, Eggum, & Gaertner, 2009; Eisenberg et al., 2006; Miller & Eisenberg, 1988). Evidence from van der Mark and colleagues (2002) demonstrates that as early as 16 months children show some empathic concern for both strangers and for their mothers, and by 18 months, concern for a stranger even in the absence of emotional facial cues

from the stranger (Vaish, Carpenter & Tomasello, 2009). Interestingly, children between 12 and 24 months show less concern for another and less self-distress (such as avoidance and whimpering) if they themselves caused the other's distress (Zahn-Waxler, Robinson, & Emde, 1992), but engage in more reparative behaviours if they were themselves the cause of the distress after 24 months (Zahn-Waxler et al., 1992).

The belief that more sophisticated empathy emerges in later infancy stems from some evidence that empathy related responses to a victim's distress increase with cognitive maturation (Hoffman, 1982), such as changes in self-awareness and self-other differentiation (Zahn-Waxler et al., 2001). More specifically, children's developing perspective taking abilities have been theorized to be directly linked to empathic development (Eisenberg et al., 2006; Eisenberg & Fabes, 1998). This ability to take on another's point of view, and have an understanding that others have different intentions, beliefs, goals, thoughts, emotions and desires as one's own has been labelled as having a Theory of Mind (Wellman, 2010). There is general consensus that children's internal state understanding develops in the early childhood period, specifically before the age of 4 or 5 (Wellman, 2010). In addition, evidence has shown the existence of a developmental progression as to exactly *which* internal states develop first (Wellman, 2010). For example, there seems to be some evidence that children understand other's intentions and goal-directed actions (such as reaching for a wanted object) as early as 10 months (Baldwin, Baird, Saylor, & Clark, 2001), and experiences (such as reaching for the newly presented objected one has never see before) at 12 months (Tomasello & Haberl, 2003). Infants' understanding that others' desires are different from their own soon follows, emerging at about 18 months of age (Repacholi & Gopnik, 1997).

Children`s understanding of beliefs has commonly been found to emerge between 3-4 years of age, although recently, researchers have argued that infants can attribute false belief (the perception or knowledge of another character who holds incorrect information about an object) as early as 13 months of age (Surian, Caldi, & Sperber, 2007; Onishi & Baillargeon, 2005; Poulin-Dubois, Brooker & Chow, 2009). In essence, for children to understand that others have internal states that differ from their own, they must have an understanding that others have a separate differential *experience* from their own.

The internal experiences of others extend into a vast range of emotional and non-emotional domains. Therefore, children's theories of mind about these experiences mature by developing an understanding that others have different emotional states (affective or emotional perspective taking), or by understanding another's perception or knowledge (cognitive or non-emotional perspective taking). Children's understanding of others' emotions has commonly been assessed using tasks that require a child to identify a character's emotion after expression of a personal desire (Wellman & Woolley, 1990; Wellman, Phillips, & Rodriguez, 2000). For example, Wellman and Woolley (1990) examined 2-year-old toddlers' abilities to attribute emotions to a character after they found an object they desired, did not find the desired object, or found an irrelevant object. Their findings showed that 2-year-old children were able to attribute the correct emotion to a character based on the character's initial desires. Repacholi and Gopnick (1997) also examined infants' abilities to attribute desire in 18-month-old infants by presenting two bowls of food in front of the infant: one with a snack typically desired by children (crackers) and one that is typically undesired (broccoli). After the experimenter expressed disgust to the crackers and a liking towards the broccoli, the infant was then asked to

hand the experimenter one of the two food items. At 18 months, infants were able to successfully override their own desires and hand the item that was preferred by the experimenter. Vaish and colleagues (2009) found that even infants as young as 14 months have some understanding of emotion through a particular form of affective perspective taking.

While children can have an understanding of other's emotional states at a young age, their abilities to comprehend that others may have different non-emotional experiences from themselves, such as perceptions and knowledge, also begin to develop. Visual perspective taking skills, typically examined using picture identification tasks, have often been administered to assess children's non-emotional theory of mind (Flavell, Everett, Croft & Flavell, 1981). Flavell and colleagues have shown that there are two levels of knowledge concerning other people's perceptions. At Level 1, achieved by the age of 3 years, children are able to understand that they can see an image or object that another cannot see. At Level 2, achieved between 4 and 5 years, children understand that although they can see the same image or object as another, the two may have different visual experiences of that object – they may see a different orientation of that object (Flavell et al., 1981; Wellman et al., 2000).

Interestingly, Wellman, Phillips and Rodriguez (2000) examined how children integrate others' emotional expressions and visual perceptions. They asked children to place a present for an experimenter (who was out of sight) in one closed box, while the other closed box remained empty. The boxes were then presented to the experimenter, who was instructed to choose only one of the boxes. The experimenter expressed either joy or sadness, and the child was asked to identify the contents of the box based on the

experimenter's expression. Children as young as 2 ½ years successfully completed this task, showing that they are able to infer one's perceptual state based on that person's expressed emotions (Wellman et al., 2000).

Hoffman (1982) suggested that the development of perspective taking abilities was critical in order for children to understand others' emotions and emotion-related reactions. The importance of comprehending other's internal states in relation to emotion understanding is emphasized by children's developing empathic responses. These skills are considered to be critical to moral and empathic development, as an understanding of another's internal state would be an important step in order to empathize with others.

The Understanding of Others' Internal States and Empathy

According to Hoffman's theory of empathic development (1979; 2000), developmental changes in empathy are based on the psychological foundation of social perspective-taking and emotional states. That is, with an increased understanding that other's experiences may differ from their own, children are hypothesized to be more capable of correctly identifying and sympathizing with other's emotional states in a variety of social contexts. The importance of this internal state understanding in moral development has been outlined throughout the literature (Hoffman, 2000; Decety, 2005; Batson, 1991), and children's ability to take on others' perspectives is considered to be critical to feeling empathy and engaging in empathic related responses (Eisenberg et al., 2006; Eisenberg & Fabes, 1998; Roberts & Strayer, 1996; Hoffman, 2000; Decety, 2005).

Although numerous studies have examined children's abilities to understand other's emotions in relation to prosocial behaviour, the results have been mixed when examining

other types of empathy related reactions (Hinnant & O'Brien, 2007), For example, Strayer and Roberts (1989) found a positive relationship between 6-and 7-year olds' emotional understanding skills during a story telling task, and their likelihood to engage in prosocial actions and concerned reactions. In contrast, Hughes and colleagues (2000) found no relationship between 5-and 6-year olds understanding of emotions and empathic responding and prosocial actions, whereas some have found only marginal relationships (see Eisenberg & Fabes, 1998). Interestingly, the relationship between younger children's understanding of others' emotions and their empathic reactions has not been thoroughly explored, despite the possible implications that emotional understanding skills may have on children's abilities to empathize/sympathize with a person in distress.

While research on the relationship between the understanding of others' emotions and young children's empathic reactions is greatly warranted, the literature investigating non-emotional theory of mind skills (such as an understanding of other's perceptions and knowledge) and empathy remains much scarcer. Astington and Jenkins (1995) and Hughes and colleagues (2000) examined preschoolers' performance on false beliefs tasks in relation to their empathic concern (a measure of affective empathy) and hypothesis testing skills (a measure of cognitive empathy), but found no significant results. Hinnant and O'Brien (2007) examined both emotional (using a puppet story task) and non-emotional (using a visual perspective taking task with pictures) theory of mind skills and empathy in 5- and 6- year-old children. Their results showed that the relationship between emotion understanding and empathic related reactions was only positive when children passed the non-emotional theory of mind tasks, but the non-emotional theory of mind tasks were not themselves significantly related to empathy (Hinnant & O'Brien,

2007). Notably, their measure of empathy, based on Strayer's (1993) scoring system, examined children's verbal responses to different videos in which actors displayed happy and distressed emotions, and therefore children's own empathic related reactions were not assessed.

In summary, research on the relationships between children's theory of mind skills and both affective and cognitive empathy remain scarce in childhood and unexplored in toddlers. The ability to understand others' internal states has been studied in relation to prosocial behaviour, yet its links to children's empathic development, and, more specifically, empathic related responses, has revealed mixed results (Hinnant & O'Brien, 2007; Hughes et al., 2000). Despite the lack of consistency of the research that exists, studies has focused mainly on children's understanding of emotions with respect to children's concern for others, while virtually no research exists on non-emotional state understanding and empathy (Hinnant & O'Brien, 2007), in very young toddlers.

Empathy and other-related factors

Although research examining the relationship between theory of mind abilities and empathic behaviours remains highly warranted in young toddlers, one cannot dismiss other factors that may play a critical role in the empathy development. One of those factors, which include certain temperamental characteristics, has been linked to later empathic behaviours (Young et al., 1999; van der Mark et al., 2002). Characteristics such as inhibitory control (one's ability to inhibit or control their behavioural responses in a given situation), together with other cognitive processes including attention focus (one's ability to sustain attention to an object or situation of interest and to avoid distractions) and attentional shifting (one's ability to transfer attention from one activity or situation to

the next), are descriptive of a child's executive functioning capabilities, or as a construct of *effortful control* (Kochanska, Murray, & Harlan, 2000; Murray & Kochanska, 2002). The relationship between executive functioning, described as the "higher order, self-regulatory, cognitive processes that aid in the monitoring and control of thought and action" (Carlson, 2005, p. 595), and empathy is unclear, with some researchers findings no relationship (Hughes et al., 2000; Hinnant & O'Brien; 2007) and others finding positive relationships (Rothbart, Ahadi, & Hershey, 1994; Valiente et al., 2004) in children. Since these associations are vague in preschoolers, the relations between younger children's effortful control/executive functioning abilities and empathic related reactions were examined in the present study, and were considered as possible control factor to account for individual differences in children's cognitive functioning.

Another prominent factor that may play a critical role in the development of empathy in children is language about the mind (labelled "mental state language" and expressed in words such as *I know, I remember, I am hungry*). The relationship between mental state language and empathy is less clear in the literature (Moreno, Klute, & Robinson, 2008). Research has documented some evidence that mental state language is related to theory of mind development (Bartsch & Wellman, 1995; Bretherton & Beeghly, 1982; Wellman et al., 2000; Olineck & Poulin-Dubois, 2005), and may be predictive of certain theory of mind abilities (Olineck & Poulin-Dubois, 2005; Bloom, 2000; Garfield, Peterson & Perry, 2001). Moreover, toddlers' mental state talk has been shown to emerge at the same time as empathy is observed (Garner, 2003) and has been positively related to their empathic related responses in some studies (Lamb, 1991; Ricard, Girouard, & DeCarie, 1999; Thompson, 1998) but not others (Garner, 2003). Garner (2003) compared 25-

month-old infants' internal state talk to their empathic related reactions during a live simulation of distress. While children's mental state talk was related to maternal ratings of child sympathy, it was not related to the observed empathic reactions during the live simulation of distress. Taken together, research on young toddlers' mental state language and empathy is scarce, and more research is warranted to understand the association between these two developmental milestones.

While effortful control/executive functioning and mental state language may be two important factors in empathic development, it was also deemed necessary to investigate one of the most discrepant relationships in the empathy literature: the association between empathic development and gender. Research has revealed a wealth of mixed results on gender differences in empathy related responding. From birth, infant girls have been shown to cry more often and harder than boys when presented a tape of a crying baby (Zahn-Waxler, Radke-Yarrow, & King, 1983). However, these sex differences in reflexive crying at birth have not been shown to be precursors of stable differences in empathetic reactions at a later age (Zahn-Waxler et al., 1983). Research relying on others to rate empathy in children (such as parents and teachers) tend to show a bias in favour of girls (Eisenberg et al., 2006; Eisenberg et al., 1998). In contrast, measures assenting to observational empathic cues (such as children's facial reactions, actions, etc.) in an empathy inducing situation generally do not show significant differences between males and females (Eisenberg et al., 2006; Eisenberg et al., 1989; Eisenberg & Lennon, 1983). However, some studies on differences between males' and females' facial expressions during a distressing situation (such as brow furrow, intense interests, hypothesis testing) have reported some sex differences in facial responses in preschoolers (Eisenberg et al.,

2006; Strayer & Roberts, 1997; Hastings, Zahn-Waxler, & McShane, 2006; Zahn-Waxler et al., 2001; Zhou et al., 2002).

Recently, evidence has shown that girls tend to display higher affective empathy but that no gender differences emerge when cognitive empathy is concerned (Volbrecht et al., 2007). These findings suggest that two forms of empathy are at play, which may in turn affect empathic development. In fact, research has shown that there are differential developmental outcomes for both affective and cognitive empathy. Studies with children have shown that a lack of cognitive empathy has implications for a child's later psychological well-being (Sallquist et al., 2009; Cohen & Strayer, 1996). For example, Jolliffe and Farrinington's (2004) meta-analysis of offending and empathy found that higher rates of violent offending was related to lower rates of cognitive empathy, while affective empathy was more weakly related to rates of violent offending, suggesting possible implications of the development of perspective taking to empathic behaviours.

Taken together, prosocial behaviours are believed to be motivated by empathic-related responses (Eisenberg, Losoya, & Guthrie, 1997), yet the age at which the processes that aid in the development of empathic responses become interrelated is still a matter of debate, and little research has focused on these facets in young children. These developmental processes are essential to understanding the nature of socio-cognitive abilities in young children, since it allows for the attainment of a better understanding of how the development of a theory of mind (i.e., knowledge and understanding of other other's internal states, including desires, intentions, goals, and emotions) progresses in relation to empathy.

The current study

The present study examined how both affective (understanding a person's emotion), and non-emotional (understanding a person's visual perception) theory of mind related to expressions of empathy (both affective and cognitive) in 29-38 month old children when an actor simulated distress. First, it was hypothesized that children's theory of mind skills, specifically in the emotional domain, would be positively associated to children's empathic responses to the distressed actor. Second, with respect to the relationship between effortful control/executive functioning and empathy, it was expected that mothers' ratings of child's empathy and the more *adaptive* maternal ratings of child effortful control/executive functioning scales would be related to their child's empathic responses. Finally, the present study aimed to further examine the role of gender in empathic responses during live simulations of distress in young toddlers. Since parental ratings of girls' empathy have been shown to differ from those of boys, the third hypothesis was that a positive relationship would emerge between parental ratings of their daughter's empathy and observable empathic responses.

Method

Participants

Sixty-seven toddlers participated in this study, with 32 females and 35 males. One child was excluded from the study for fussiness, leaving a total of 66 children in the final sample. The children's mean ages was 31.88 months (SD = 2.62 months, range = 29 – 38 months), with 31 females and 35 males. The data were collected in Montréal, Québec (n = 42) and in Antigonish, Nova Scotia (n = 24). Maternal and paternal education was only available from the Montreal sample, and the break-down was as follows: High school (4 mothers, 5 fathers), CEGEP/Trade School (11 mothers, 14 fathers), undergraduate

university degrees (18 mothers, 19 fathers), graduate university degree (9 mothers, 2 fathers). Information for two of the fathers was not available. Out of the 66 children in the final sample, parents of 56 children returned the ECBQ questionnaires, while 54 returned the Mental State Lexicon Questionnaires and the My Child. Accordingly, the analyses with the parental questionnaires were conducted on the available sample data. The participants in Montreal were recruited from birth records provided by a government service agency, while the children in Antigonish were recruited by telephone from birth announcements in a local area newspaper.

Materials

Theory of Mind Tasks. The batteries of tasks typically used to measure theory of mind abilities in children have been designed for children above the age of 3 years (Wellman & Liu, 2004). In the current study, a set of theory of mind tasks that would ensure an assessment of young toddlers' theory of mind abilities in the emotional and non-emotional domains were selected from the literature. A visual perspective taking task assessing non-emotional theory of mind was used as a control measure for theory of mind abilities and a set of 3 emotional theory of mind tasks were chosen in order to measures emotional state understanding. The tasks used in the current study were purposely chosen because they did not require child to have advanced verbal abilities.

Emotional perspective-Taking: Puppet Story Task. A (75cm x 40cm) white cardboard sheet with a curtain along three sides was used to present scenes which included pictures of a garden, a playroom, a red barn, a garage, a backpack, and a toychest. Each scene was a cut out of the image, glued to a plastic box that allowed for objects to be hidden out of the child's view. The back of the cardboard was visually

similar to the front, so that a second experimenter could prepare the next test trial while a first experimenter was telling a story to the child. The faceless characters included four boys, and four girls (2 warm-up trials and 6 test trials), fixed on wooden sticks in order to hold each character up. Magnets were fixated behind each character's head in order to change their faces during the test trials. Happy and sad faces were round cut outs (8cm). A Styrofoam square stand (5x14x8cm) with a small straight insert (2cm) was used to hold up the character during the test trials.

Desire Task: Broccoli Task. Two pairs of appealing food (Pepperidge crackers, raisins, Arrowhead cookies, Fruit Loop cereal) and unappealing foods (broccoli, celery, lettuce, cauliflower) were presented in two plastic orange bowls.

Emotion-to-Perception Task: Snack Boxes. Two pairs of appealing and unappealing food were used for this task and presented in the same bowls as for the Broccoli task. This task included the same cardboard and stand used for the puppet task, except that no background scene was present. This allowed for the second experimenter to be hidden from the child's view. Two identical purple polka-dot boxes with lids (10cmx10cmx10cm) were used as the snack boxes.

Visual Perspective Taking Task: Cat/Dog (Level 1a) and Turtle (Level 1b) Task. The administration of the Level 1a task required an 8 ½ x 11 inch cardboard with a picture of a grey, cartoon cat on one side, and a yellow-black cartoon dog on the other. An 8 ½ x 11 inch cardboard with a colourful picture of a cartoon turtle was used to administer the Level 1b task (see Appendix A).

Empathy Measure: Live Simulation. The live simulation was administered using a standard clipboard, with a timer attached at the top in order to monitor the time.

Questionnaires

Early Childhood Behaviour Questionnaire- Short Form (Putnam, Gartstein, & Rothbart, 2006). The ECBQ is a parental questionnaire that is designed to assess temperament in early toddlers between the ages of 18-36 months of age. The short form contains 36 items on a 7-point scale ranging from *never* to *always*, and assesses 3 temperamental domains: 1) *Attentional Focusing*: this includes the child's ability to sustain attention to an object or situation of interest and to avoid distractions (e.g. "When playing alone, how often does your child become easily distracted?"; 2) *Attentional Shifting*: The child's ability to transfer attention from one activity or situation to the next (e.g., "While you were talking to someone else, how often does your child easily switch attention from one speaker to speaker?"); 3) *Inhibitory Control*: The child's ability to refrain, stop or moderate his behaviour when instructed to do so (e.g. "When asked to do so, how often is your child able to lower his or her voice?"). The ECBQ has been shown to have excellent validity and reliability (Putnam et al, 2006).

My Child-Short Form (Kochanska, DeVet, Goldman, Murray, & Putnam, 1994). The My Child is a parent report questionnaire designed to assess temperamental and conscience behaviours, such as empathy, in toddlers aged 17-46 months of age. The short form used in our sample included 28 items on a 7-point scale ranging from *Extremely Untrue/Not at all Characteristic* to *Extremely True/Very Characteristic,* and assessed the child's empathic behaviours in four domains: 1) *Empathic Concern*: The child will show concerned expressions when another is in distress (e.g. "My child is upset by stories in which characters are hurt or die"); 2) *Apology*: The child demonstrates that s/he is sorry for something negative that occurred that was caused by him or herself (e.g. "My child

will spontaneously say 'sorry' to a playmate or sibling when necessary"); 3) *Reparation*: The child tries to make amends when s/he has done something wrong (e.g. "My child seems relieved when given an opportunity to repair a damage s/he has caused"); 4) *Empathic Prosocial:* The child will show behaviours of care, prosocial acts, or remorse (e.g., "My Child will try to comfort or reassure another in distress"). The My Child questionnaire has been shown to have good validity and reliability (Kochanska et al., 1994).

Mental Lexicon Questionnaire (Bretherton & Beeghly, 1982; Poulin-Dubois, Chiarella, & Polonia, 2009). The Mental Lexicon Questionnaire was adapted from Bretherton and Beeghly (1982) Internal State Language Questionnaire and includes a checklist of 78 internal states words.

Design and Procedure

The children and their parents were first taken to a waiting room where they were familiarized with the two experimenters. Parents were given information about each of the tasks that their child would take part in, and then asked to sign a consent form and complete a demographic information form. Following this familiarization period, the children were brought into the testing room and seated in a high chair or booster seat. The parents sat behind their children, and were asked not to interfere in the procedure. If the children refused to sit in the chair, they were allowed to sit in the parents' lap. The tasks were counterbalanced except for the live simulation of distress that was always administered last: this decision was made in order to avoid any possible carry-over effects of the accident simulation into the theory of mind tasks, such as possible distress. It was concluded that if the accident simulation increased the child's own distress, it

followed that he or she was immediately reunited with their parent/s after this point and allowed to play in the waiting room, thereby decreasing the distress. All of the interactions lasted approximately 45 minutes and were videotaped. The participants were given 30$ for their participation and for the completion of the questionnaires. The children received a stuffed animal and a certificate of merit at the end of the session for their participation.

Desire-Emotion Reasoning: Puppet Story Task. In order to assess children's ability to reason about others' emotions, a procedure modified from Wellman and Woolley's (1990) puppet story task was utilized. Children were presented with 8 characters (Alex, Bobby, Sam, Betsy, Johnny, Annie, Peter, Linda), one at a time. During the warm up trials, children were shown the first character (Alex) and told "Look! This is Alex. But look, Alex has no face. She has no face. Can you put a face on Alex?" Alex was then placed in the Styrofoam square (so that she could stand on her own) and a happy face was held by the experimenter next to Alex within reach of the child. The child was given the opportunity to place the face on Alex (held on magnetically). If the child did not successfully place the face, the experimenter demonstrated how to put it on, and allowed the child to copy her. Once the child successfully placed the face, s/he was thanked, and was asked "Now how does Alex *feel* with this face?" If the child correctly answered "Happy", then the experimenter praised the child and said "Alex is happy so she has the happy face!" and moved on to the second warm up trial (Bobby), using the sad face. If the child did not respond to the warm up trial, the experimenter helped the child by saying "Do you think Alex is happy (experimenter displayed a happy affect, with an increase in tone in the word *happy*) or sad (experimenter displayed a sad affect,

with a decrease in tone in the word *sad*)". If the child, after the query, still did not respond then the experimenter moved to the second warm up trial (Bobby), and repeated the above questions using the sad face. The warm up trials were both in counterbalanced order. If the child failed both warm up trials, s/he was taught which face was happy, and which was sad. All children successfully identified the happy and sad faces and continued onto the test trials. Table 1 depicts all of the 6 stories used in the test trials, consisting of 3 possible outcomes: In the Finds-Wanted conditions, the character finds what s/he was looking for; in the Finds-Nothing conditions, the characters find nothing and in the Finds-Substitute conditions, the characters find something, but it is not the object they were looking for. The order of administration ensured that 1) the gender of the character interchanged in each story; 2) the outcomes were placed so that they would be counterbalanced (i.e., Finds-Substitute, Finds-Nothing, Finds-Wanted, Finds-Substitute, Finds-Nothing, Finds-Wanted); and 3) the test trials would end on a happy note (character finds what she was looking for). During each test trial, the experimenter would announce what the character was looking for, and point to the place where it might be. Then, she would playfully walk the character to the scene, look inside (and behind) the picture, and then use her own hand (or pretend, depending on the story) to grab the object from the box behind the scene. In all of the test trials, the experimenter maintained a neutral tone and affect. The experimenter then asked "Is ____ happy or is s/he sad?" If the child answered, the experimenter repeated the emotion the child chose (i.e. "S/he's happy/sad!"), placed the character in the Styrofoam square, held up the happy and sad faces on each side of the character and said "Can you put a face on ___ that shows how s/he feels?", and thanked the child. The order of the queried emotion was

Table 1

Understanding of Emotion Task (adapted from Wellman and Woolley, 1990)

Here's Sam.
He wants to find his rabbit.
His rabbit might be in the garden.
So, he's looking for his rabbit.
Watch, he's looking for his rabbit in the garden. Look. He finds a sock.
So Sam was looking for his rabbit, and found a sock.

Here's Betsy.
Betsy wants to find her bike. Her bike might be in the playroom.
So, she's going to look for her bike.
Watch, she's looking for her bike in the playroom. Look. She doesn't find her bike.
So Betsy was looking for her bike, and didn't find her bike.

Here's Johnny.
Johnny wants to find his dog.
His dog might be in the garage.
So, he's looking for his dog.
Watch, he's looking for his dog in the garage. Look. He finds his dog.
So Johnny was looking for his dog, and found his dog.

Here's Annie.
Annie wants to find her horse.
Her horse might be in the green barn.
So, she's going to look for her horse.
Watch, she's looking for her horse in the green barn. Look. She doesn't find her horse.
So Annie was looking for her horse, and didn't find her horse.

Here's Peter.
He wants to find his crayons.
His crayons might be in the toybox.
So, he's going to look for his crayons.
Watch, he's looking for his crayons in the toybox. Look. He finds a hat.
So Peter was looking for his crayons, and found a hat.

Here's Linda.
Linda wants to find her mitten.
Her mitten might be in her backpack. So, she's going to look for her mittens.
Watch, she's looking for her mitten in her backpack. Look. She finds her mitten.
So Linda was looking for her mitten, and found her mitten.

counterbalanced for each story (e.g. "Is Sam *happy*, or is he *sad*?", "Is Betsy *sad*, or is she *happy*?"), and the cut-out face of the first queried emotion (e.g. *sad* in Betsy's case) was always placed on the right of the character (and left of the child). Since 4 of the 6 stories had a correct answer of *sad,* this allowed for the correct face to be presented in counterbalanced order on each side of the character. As experimenter #1 told a story, experimenter #2, who was seated next to experimenter #1, was hidden behind the scene and prepared the set for the next story (the scenes were depicted on each side of the cardboard, with only one side being visible to the child at once). The child's answer was coded as correct if s/he chose the correct cut-out face or verbally expressed the correct emotion of the character.

Desire: Broccoli Task. Adapted from Repacholi and Gopnik (1997), children's abilities to infer desire from emotional expressions were assessed. Children were first presented with a tray with three toys; a fire truck, a cup, and a cow, and allowed to play with them for 35s. Then, the experimenter presented her hand and asked the child for one of the toys (except for, if any, the one in the child's hand). If the child successfully handed the requested toy, the experimenter thanked the child and repeated the question for another toy. These initial trials were administered in order to familiarize the children to handing over objects to the experimenter. The test trials consisted of 4 food items, presented in 2 pairs (appealing / unappealing items) in counterbalanced order. To ensure that there would be food items that the majority of the children liked, Pepperidge farm Goldfish Crackers, Arrowhead Cookies, Fruit Loop Cereal, and Raisins were counterbalanced and presented with a typically unappealing food item to children: Broccoli, Lettuce, Cauliflower, and Celery. The appealing-unappealing paired food items

were presented one pair at a time in two separate bowls. The experimenter began by saying "Here's a snack for you! You can eat it. You can have whichever one you'd like" and gave the child 35s to try the food items and to determine the child's food preference. After the 35s, the experimenter said "Okay! Now it's *my* turn!" and tasted the food item. When holding the child's preferred food item (e.g. crackers), the experimenter said "Ew! Crackers! Ew! I tasted crackers! Ew!" and displayed an expression of disgust. When holding the child's non-preferred food item (e.g. Broccoli), the experimenter said "Mm! Broccoli! Mm! I tasted Broccoli! Mm!" as she displayed a happy face. Each demonstration trial lasted approximately 10s and the disgust and happy face were counterbalanced (i.e., the experimenter always began by tasting the food item on the left, which was the preferred food item on trial 1 (or non-preferred) and non-preferred (or preferred) on trial 2). The bowls were then returned to the child, and the experimenter held out her right hand at equal distance between the two bowls and asked "Can I have one please?". If the child did not respond, the experimenter said "I'm hungry, Can I have one please?". The child's answers were coded as correct if s/he chose the experimenter's preferred food item.

Emotion-to-Perception Understanding: Snack Boxes Task. This task was an adaptation from Wellman and colleagues (2000). Using the remaining 2 pairs of appealing-unappealing food items from the Broccoli task, the child's abilities to infer a visual experience from an emotional reaction was assessed. After completing the Broccoli task, the child was then told that Experimenter #2 was to return into the room to play. Experimenter #2 took the place of Experimenter #1 in front of the child while Experimenter #1 sat at the end of the table at a 90 degree angle from the child. The child

was told that Experimenter #2 was going to disappear, and a large cardboard was placed in front of Experimenter #2 to hide her from the child. Then the child was presented with 2 more appealing-unappealing food pairs, one set at a time. The child was told "Look! Here's some *more* food for you! You can eat it! You can have whichever one you'd like" and given 35s to try the foods. Then, the child was asked "which one do *you* think is the better snack? Do you think it's the (food item 1) or the (food item 2)? Which one is yummier?" After the child chose his or her preferred food item, Experimenter #1 repeated that the chosen food item was the better snack, and asked the child to help her to prepare snacks for Experimenter #2 by putting some of each of the food items into two separate boxes covered with a lid. The child was given the opportunity to help the experimenter fill the boxes, while some remainders of the two food items were left in the bowls, and taken out of the child's sight for later use. When this part of the task was complete, Experimenter #1 said "Ok. So now one box has (food item #1) and one box has (food item #2). Now we are going to give a snack to (name of experimenter #2)" and placed the two identical boxes on Experimenter #2's side of the barrier (hidden from the child). Then, Experimenter #1 slid the barrier so that Experimenter #2 was visible, with the two snack boxes, to the child and said "Hi (name of Experimenter #2)! Here's a snack for you but *don't* peek! You can only look inside *one* box and see what your snack will be. Are you ready? Ok look inside!" Experimenter #2 then chose a box, picked it up, removed the lid, looked inside (with the contents being invisible to the child), and said either "Oh boy!" with a smile and happy affect, or "Oh No!" with a frown and a sad affect, and held the facial expression until the end of the trial. Experimenter #1 then asked the child "Oh! What snack is in the box? What snack can (name is Experimenter #2) see? Do you think

it's the (unappealing food item 1) or (appealing food item 2)?" and presented the two food bowls that had been put aside to the child for easy reference (and in case the child had forgotten the items). A child's answer was labelled as correct if s/he chose the appealing food item to the happy facial expression, and vice versa, by either naming or pointing to the food item. Since the box's content was invisible to the child throughout this task, the child was always provided with positive feedback when s/he answered, despite the correct or incorrect responses.

Visual Perspective-Taking task (Level 1a). This task, adapted from Flavell and colleagues (1981), was administered to assess the children's visual perspective taking abilities. The child was seated in front of the experimenter, and presented with a board that had a picture of a cat on one side and a dog on the other. The board was placed on the table so that the child could only see one side (and one animal), and the child was then asked "What animal is this?" If the child responded correctly (which included answers such as "cat", "miaou miaou", "kitty" for the cat, or "dog", "doggy", "woof woof" for the dog), the experimenter praised the child and repeated the name of the animal. If the child did not answer, the experimenter aided the child by saying "what sound does this animal make?" and re-asked the name of the animal. If the child still did not respond, then the experimenter asked the child if it was a cat (or a dog). All of the children in this sample identified the animals, whether it was directly or through query. Once the child's knowledge of the animal was established, the experimenter then flipped the card over and asked the child to name the next animal in the same manner as indicated above (either a cat, or a dog). After the child indentified both animals, the experimenter then placed the card upright on the table with the picture of the first animal

toward the child and asked "Now, what animal can *you* see?" and then "What animal can *I* see on my side?". The child was not given any praise for either answer. The experimenter then flipped the card over and asked the same question for the next animal. At the end of this task, the child was given praise for their efforts. The answers were coded as correct if the child correctly answered the name of the animal that faced the experimenter's.

Visual Perspective-Taking task (Level 1b). This task was meant to assess visual perspective taking skills, and to be slightly more challenging for the child than the Level 1 task by examining the child's perspective taking skills on the differential *parts* of a same animal visible to both the child and an experimenter, rather than identifying two different animals, one visible to the participant and the other to the experimenter. Following Flavell and colleagues (1981), the child was shown a picture of a cartoon turtle flat on a table. The child was asked "What animal is this?" and praised for their answer. Once the child identified the animal, the experimenter pointed to the turtle's feet and said "Look! These are the turtle's feet! Can you say feet?" once the child said *feet*, the experimenter then said "Good job! Can you show me where the turtle's feet are?" Then, the experimenter pointed to the turtle's shell and said "Look! This is the turtle's shell! Can you say shell?" once the child said *shell* (or *back*, in a few cases where the experimenter noted this would be easier for the child) then was asked again to point to the shell of the turtle on the picture. This was done to confirm that the child was able to name the part of the animal, and was able to identify its location on the picture. The experimenter then took a blank card and held it perpendicular to the picture of the turtle, splitting the turtle so that the feet were only visible to the child, and that the shell was

only visible to the experimenter. The child was then asked "What part of the turtle can *I* see?" and the card was then rotated so that the opposite parts were visible to the child and experimenter. The child was asked the same question about the next part (feet). Children's answers were coded as correct if they responded with the name of the correct part visible to the experimenter.

Accident Simulation Task. The accident simulation procedure (Zahn-Waxler, Cole, Welsh, & Fox, 1995; Hastings et al., 2006) was used to assess the children's behavioural and emotional empathic responses during a scene in which an actor pretends to hurt herself by clamping her thumb in a clipboard. Children's responses were coded using an adapted version of Zahn-Waxler and colleagues' coding system. The new codes for *Concern for victim* included a 3 point scale, instead of the original 4 (Zahn-Waxler et al., 1995). In addition, *The Global Rating of Concern* was kept on a 7 point scale as in Hastings and colleagues (2000), but the operational definitions of the codes were slightly modified. All other codes remained unchanged.

At the beginning of the testing session, the parent was informed that this task was a simulation and was instructed to ignore their child's behaviours during the task by filling out a questionnaire given to them at the beginning of the testing session. All of the parents in our sample complied with the instructions and ignored the child and experimenter (100%). At the end of each testing session, the experimenter said to the child "Ok! That was our last game, now I'm just going to -" and in the child's view, pretended to pinch her right thumb in the clasp of the clipboard. For 30s, the experimenter proceeded to demonstrate both affective (by having a distressed facial expression) and verbal distress ("Ow I pinched my finger in the clipboard! That really

hurt!") while rubbing her right thumb with her left thumb, directly in front of the child's view. The experimenter looked down at her thumb during this time, and only glanced at the child once or twice. The 30s of distress was followed by 30s of assurance that the thumb was going to be alright, and ended with her thumb being back to normal. The entire simulation lasted 60s. The script to this procedure is shown in Table 2. The accident simulation coding scheme includes 11 codes for the child's empathic related responses: 1) *Concern for victim;* 2) *Positive affect*; 3) *Anger*; 4) *Distress/Fear*; 5) *Proximity to victim*; 6) *Hypothesis-testing*; 7) *Callous or Hostile*; 8) *Self-Referencing*; 9) *Number of prosocial acts*; 10) *Social referencing*; 11) *Global rating of concern for others*. In addition, the scheme also includes codes for specific behaviours to be documented only within the first 30s, as well as during the entire 60s: a) Ignores; b) Active play; c) Self-soothing; d) Masks affect; e) Distracts; f) Shares; g) Helps; h) Offending objects; i) Imitation; j) Vocal/Verbal sympathy. All of the children in the sample completed the accident simulation. Two of the children were standing due to fussiness, but the task was completed successfully. Appendix Y includes the operational definitions.

Reliability.

Two independent observers coded 15% of the sample (n=10) of the video tapes in order to assess inter-observer reliability for the empathy coding codes of interest. Since they were the variables of interest, only the Cronbach's alphas for the *vocal sympathy, concern for victim, hypothesis testing, and global rating of concern* were calculated. These were found to be significant at $p < .10$, ranging from .80 to .98. While no significant differences emerged in the credibility, intensity or duration of distress between

Table 2

Accident Simulation Procedure (60s)

- "Okay, that was our last game."

Turn toward child, lifting clip with left hand, right hand holding clipboard. Start to say:

- "Now we're just going to …."

Release clip, pretending to catch finger. Exclaim:

- "OW!"

Put clipboard down with left hand, then hold right hand in left hand, rubbing thumb. Looking at thumb with sad and pained expression, say:

- "Oww, I pinched my thumb! …. Ouch, that really hurts."

Continue to look at thumb, rubbing gently with left hand, looking pained and saying "ooo" or "ouch" occasionally, FOR 20 SECONDS.

After 20 seconds, slowly & deliberately say:

- "I pinched my thumb in the clipboard. That really hurt. It's starting to feel a little better now, but that hurt a lot. I guess it's going to be okay."

After ANOTHER 10 SECONDS, say:

- "Yes, I think it's going to be okay. I'm alright."

* ***If*** Child laughs or makes a comment like "Silly!"
Do <u>not</u> respond.

* ***If*** C says anything like "What happened?"
Respond with:
- "Oh, I pinched my thumb in the clipboard."

* ***If*** C asks "How did that happen?"
Respond with:
- "I guess I wasn't paying attention."

* ***If*** C asks "Are you okay?" or "Do you need help?"
CE responds with:
- "It kind of hurt my thumb."

---

the samples tested in Montreal and in Antigonish, an independent group of undergraduate students from both Montreal and Antigonish (N = 44), rated the live simulation of distress in both samples. Findings from the Antigonish and Montreal samples revealed that the most rated expressions were pain and sadness (n = 18, n = 26), and that the intensity of the two actors was not statistically different from one another (Antigonish 3.35/5; Montreal 2.9/5, $t(1, 43) = 1.44$. $p > .05$).

Results

In order to assess the relationship between the theory of mind and empathy tasks, Pearson Zero-Order, Point-Biseral, and Partial Correlations were used to analyse the data, as well as *t*-tests. The critical cut-off point for significant results was set at an alpha level of $p < .05$. During the live accident simulation task, the following variables did not have sufficient variability, and therefore were excluded from the analyses: 1) *ignores,* 2) *active play,* 3) *self-soothing,* 4) masked-affect, 5) *positive affect,* 6) *anger,* 5) *distress/fear,* 6) *distracts,* 7) *shares,* 8) *helps,* 9) *offending object,* 10) *imitation, and* 11) *callous/hostile*, 12) *number of prosocial acts.* Since one of the objectives of the current study was to assess both affective and cognitive empathy in children during a live simulation of distress, there were four variables of interest during the accident simulation that were used in the analyses of the present data: 1) *Vocal/Verbal Sympathy,* 2) *Concern for Victim*, 3) *Hypothesis Testing*, 4) *Global Rating of Concern.* Independent sample *t*-tests revealed that the only significant differences in key measures between the two city samples were in the visual perspective taking tasks (see Table 3). Research has shown that older children typically perform better on the visual perspective taking tasks (Flavell et al, 1991). Since the age range of the Antigonish sample was 31-38 months, the

Table 3

Contrast between the Antigonish and Montreal Samples on the Variables of Interest

Theory of Mind Tasks	Antigonish		Montreal			
	M	SD	M	SD	*T*(64)	*p*
Age	34.8	1.71	30.2	1.11	-13.4	.00
Emotional Perspective Taking	56.3	22.1	59.5	22.1	.608	.55
Desire Perspective Taking	60.4	39.0	48.8	39.0	-1.16	.25
Emotion-to-Perception	50.0	39.0	53.6	15.0	.359	.72
Visual Perspective Taking Level 1a	79.2	32.7	40.5	44.5	-3.72	.00
Visual Perspective Taking Level 1b	64.6	40.3	16.7	30.6	-5.44	.00
Average Emotional ToM	55.8	13.5	56.2	15.0	.097	.92
Visual Perspective Taking Combined	71.9	29.8	28.6	27.9	-5.91	.00
Concern for Victim	1.96	.69	1.95	.73	-.032	.97
Hypothesis Testing	2.71	.75	2.98	.64	1.53	.13
Global Concern	3.67	1.40	3.67	1.28	.000	1.0

significant age differences were expected as well as the better performance on the visual perspective taking tasks. Therefore, age was controlled for in the critical analyses in the current sample.

Theory of Mind Tasks. The descriptive statistics for the theory of mind tasks are depicted in Tables 4 and 5. Since one objective of the study was to examine emotional and non-emotional theory of mind tasks in relation to children's empathic behaviours, the theory of mind scores were recombined in two ways. First, the emotional theory of mind tasks (i.e., emotional perspective taking, desire, and perception-to-emotion) were aggregated into a single emotional ToM score (labelled "*average emotional ToM Tasks*"). Second, the VPT Level 1a and Level 1b visual perspective-taking tasks were strongly correlated with one another ($r = .36$, $p<.001$), therefore the scores on these two tasks were combined in order to increase the variability in scores for this task (named "*Visual Perspective-Taking Combined*"). These two new variables were used in the remainder of the analyses in order to calculate the correlations.

Empathy Measures. The descriptive statistics for the continuous Empathy measures during the live accident simulation are depicted in Table 6. Furthermore, a frequency analyses revealed that Vocal/Verbal Sympathy was present in 25% of the children during the accident simulation.

Age and Gender. As seen in Table 7, Zero-Order Pearson correlations revealed that both age and gender were significantly correlated with the aggregated emotional and non-emotional theory of mind tasks. As expected, age was significantly correlated with the VPT Combined scores while a trend emerged between gender and the average emotional ToM tasks. In contrast, age and gender were not significantly correlated with

Table 4

Means and Standard Deviations for the Theory of Mind Tasks (Percent Correct)

Theory of Mind Tasks	M	SD	Range	Median
Emotional Perspective Taking	58.3	21.0	17-100	58.3
Desire Perspective Taking	53.0	39.1	0-100	50.0
Emotion-to-Perception	52.3	38.7	0-100	50.0
Visual Perspective Taking Level 1a	54.6	44.5	0-100	55.0
Visual Perspective Taking Level 1b	34.1	41.3	0-100	00.0
Average Emotional ToM	56.1	14.4	20-80	60.0
Visual Perspective Taking Combined	44.3	35.3	0-100	50.0

Table 5

Frequencies for the Theory of Mind Tasks

Theory of Mind Tasks		N	Percent of Total Sample
Emotional Perspective Taking			
	1/6	2	3.00%
	2/6	12	18.2%
	3/6	22	33.3%
	4/6	17	25.8%
	5/6	7	10.6%
	6/6	6	9.10%
Desire Perspective Taking			
	0/2	18	27.2%
	1/2	26	39.4%
	2/2	22	33.3%
Emotion-to-Perception			
	0/2	18	27.2%
	1/2	27	41.0%
	2/2	21	31.8%
VPT Level 1a			
	0/2	23	34.8%
	1/2	14	21.2%
	2/2	29	43.9%
VPT Level 1b			
	0/2	36	54.5%
	2/2	15	22.7%
	2/2	15	22.7%
VPT Combined			
	0/4	17	25.8%
	1/4	13	20.0%
	2/4	14	21.2%
	3/4	12	18.2%
	4/4	10	15.2%

Table 6

Means and Standard Deviations for the Continuous Empathy Measures

Empathy Measures	M	SD	Range
Concern for Victim	1.95	.71	1-3
Hypothesis Testing	2.88	.69	1-4
Global Rating of Concern	3.67	1.32	1-6

Table 7

Correlation Matrix for the Theory of Mind Tasks, Empathy Measures, Age and Gender

	Age	Gender	Vocal Sympathy	Concern for Victim	Hypothesis Testing	Global Rating of Concern	Average Emotional ToM Scores	VPT Combined Scores
Age	-	-.11	-.06	.07	-.15	.07	-.02	.56***
Gender	-	-	.11	.06	-.06	.05	-.19t	.02
Vocal/Verbal Sympathy	-	-	-	.54***	.31**	.47***	.23*	-.01
Concern for Victim	-	-	-	-	.52***	.87***	.01	.07
Hypothesis Testing	-	-	-	-	-	.53***	.12	.00
Global Rating of Concern	-	-	-	-	-	-	.05	.04
Average Emotional ToM scores	-	-	-	-	-	-	-	-.02
VPT Combined Scores	-	-	-	-	-	-	-	-

t < .10 *p< .05 ** p< .01 *** p < .001

the Empathy variables. Moreover, it was also revealed that age was significantly correlated with the ECBQ *Attentional* Focus scores ($r = .22, p = .05$) and with the My Child *Concern* variable ($r = .34, p<.01$). With respect to the above mentioned results, the analyses were conducted by using Pearson Partial Correlations, in order to control for the significant correlation between age and gender and the variables of interest.

Empathy vs. Theory of Mind Tasks

To address the first objective of the study, partial correlations were conducted on the accident simulation task variables of interest (i.e., *Vocal/Verbal Sympathy, Concern for Victim, Hypothesis Testing, and Global Rating of Concern for others*) and the composite theory of mind scores (average emotional ToM and VPT combined) (see Table 8). Results revealed that *Vocal/Verbal Sympathy* was significantly correlated with the average emotional ToM Scores.

Empathy vs. Parental Questionnaires

In order to address the second objective of the study, consisting of the relations between children's empathic behaviours and parental ratings of child temperament/executive functions, mental state language, and empathy, 1-tailed partial correlations were conducted on the ECBQ, My Child, and MLQ questionnaires. Only the significant results are outlined in the following sections and are depicted in Table 9.

ECBQ. With regards to the children's temperament and executive functions, results revealed that Attentional Focus was positively related to both *Concern for Victim* and *Hypothesis Testing*, while a trend emerged with both *Global Concern* and *Vocal/Verbal Sympathy*. Second, a trend also emerged between *Hypothesis Testing* and both Inhibitory control and Attentional Shift. Finally, when the three ECBQ scales were

Table 8

Correlations between the Theory of Mind Tasks and Empathy Measures, Controlling for Age and Gender

	Vocal Sympathy	Concern for Victim	Hypothesis Testing	Global Rating of Concern
Average Emotional ToM scores	.26*	.03	.11	.07
Visual Perspective Combined	.02	.03	.12	-.01

t < .10 *p < .05 ** p < .01 *** p < .001

Table 9

Correlations Between the Questionnaires and the Empathy Measures, Controlling for Age and Gender

	Vocal/Verbal Sympathy	Concern for Victim	Hypothesis Testing	Global Concern
ECBQ (n=56)				
Inhibitory Control	.17	.15	.23t	.-.10
Attentional Shift	.13	.11	.19t	.13
Attentional Focus	.20t	.28*	.27*	.22t
Average Scores	.21t	.23*	.29*	.14
MLQ (n=54)				
Total Words	.18	.13	.04	.10
MY CHILD (n=54)				
Apology	.35**	.28*	.03	.23*
Reparation	.11	.03	.20t	.01
Concern	-.08	-.11	.10	-.05
Empathy-Prosocial	.21t	.14	.05	.05

t < .10 *p< .05 ** p< .01 *** p < .001

averaged into a single overall composite score, significant correlations between the Average ECBQ scores and the *Concern for Victim* and *Hypothesis Testing* emerged, while its relationship with *Vocal/Verbal Sympathy* revealed a trend.

ECBQ as a possible third variable for ToM Abilities and Empathy Measures. The ECBQ Attentional Focus and Average ECBQ scores were found to be significantly correlated with the VPT Combined ToM scores ($r = .38$ $p < .01$, $r = .24$ $p < .05$, respectively). Moreover, Table 9 shows that the ECBQ scores were also significantly correlated with the Empathy measures. Thus, in order to determine if executive functioning abilities played a third variable role in the link between children's theory of mind skills and empathic responses, children's ECBQ scores were also partialled out of the correlations along with age and gender. A third order partial correlation was conducted and the results continued to show a significant positive relationship between average emotional ToM scores and *Vocal/Verbal Sympathy* measures but not for the other variables (see Table 10).

My Child. Results from parents' rating of their child's empathic behaviours revealed that children who were more apologetic, as rated by their parents, displayed more *Vocal/Verbal Sympathy, Concern for Victim,* and *Global Concern* during the accident simulation. Moreover, children who were rated as more empathic and prosocial by their parent also tended to display more *Vocal/Verbal Sympathy*, while those who engaged in more Reparation tended to show more *Hypothesis Testing* (see Table 9).

Gender Differences in Empathy

In order to address the third objective of the study, a series of *t*-tests were

Table 10

Correlations between the ToM Tasks and Empathy measures, controlling for Age, Gender and Executive Functioning measures (n=56)

	Vocal/Verbal Sympathy	Concern for Victim	Hypothesis Testing	Global Concern
Average Emotional ToM scores	.24*	-.06	.02	-.01
VPT Combined	-.04	-.01	.04	-.02

t < .10 *p< .05 ** p< .01 *** p < .001

conducted to assess if there were any significant interactions between the 3 continuous empathic behaviours (*Concern for Victim, Hypothesis Testing,* and *Global Concern*) of both males and females during the live accident simulation. Then, a χ^2 was conducted on the *Vocal/Verbal Sympathy* variable and gender. No significant main effects or interactions emerged in either analyses, revealing no significant gender differences in the Empathy measures for these children. These results are illustrated in Tables 11 and 12.

Gender Differences in the Theory of Mind skills vs. Empathy

Subsequent to the initial analyses, it was hypothesized that a gender difference may have emerged in the relationship between the ToM and Empathy scores. Second Order Partial correlations (controlling for age and ECBQ scores) were conducted for both boys and girls separately. Average emotional ToM Scores were found to be significantly correlated to *Vocal/Verbal Sympathy* for girls. No other significant results emerged. The results are illustrated in Tables 13 and 14.

Gender Differences in the Empathy vs. Questionnaires

The gender differences between children's empathic behaviours during the live accident simulation and the parental questionnaires were also explored. The results from the following analyses can be found in Tables 15 and 16.

ECBQ. When controlling for age, Attentional Shift in Boys was significantly correlated with *Vocal/Verbal Sympathy* and *Hypothesis Testing*, while Attentional Focus was significantly correlated with *Hypothesis Testing*. The average EBCQ scores were also correlated with *Vocal/Verbal Sympathy* and *Hypothesis Testing.* Finally, a trend emerged between Inhibitory Control and *Vocal/Verbal Sympathy* for boys.

When controlling for age in girls, a different pattern was revealed. The

Table 11

Means Scores for the Empathy Measures for Boys and Girls

	Gender			
	Boys	Girls	*T*	*df*
Concern for Victim	1.91 (.742)	2.00 (.683)	-.486	64
Hypothesis Testing	2.91 (.702)	2.84 (.688)	.441	64
Global Concern	3.60 (1.35)	3.74 (1.29)	-.434	64

t < .10 *p< .05 ** p< .01 *** p < .001

Table 12

Crosstabulations Between Gender and Vocal/Verbal Sympathy

	Gender			
	Males	Females	X^2	Φ
Present	7 (.123)	9 (.123)	.730	105
Absent	28 (.123)	22 (.123)		

t < .10 *p< .05 ** p< .01 *** p < .001

Table 13

Correlations Between the Theory of Mind Tasks and Empathy Measures for Boys, Controlling for Age and ECBQ scores (n = 29)

	Vocal Sympathy	Concern for Victim	Hypothesis Testing	Global Rating of Concern
Average Emotional ToM scores	.04	-.15	-.04	-.10
VPT Combined	.01	-.06	.14	-.07

t < .10 *p< .05 ** p< .01 *** p < .001

Table 14

Correlations Between the Theory of Mind Tasks and Empathy Measures for Girls, Controlling for Age and ECBQ scores (n=27)

	Vocal Sympathy	Concern for Victim	Hypothesis Testing	Global Rating of Concern
Average Emotional ToM scores	.36*	.02	.05	.04
Visual Perspective Combined	-.15	-.01	-.07	-.08

t < .10 *p< .05 ** p< .01 *** p < .001

Table 15

Correlations Between Boys' Empathy Measures and the Parental Questionnaires (ECBQ, MLQ, My Child), Controlling for Age

	Vocal/Verbal Sympathy	Concern for Victim	Hypothesis Testing	Global Concern
ECBQ (n=29)				
Inhibitory Control	.31t	.18	.12	.10
Attentional Shift	.41*	.14	.37*	.18
Attentional Focus	.20	.19	.49**	.14
Average Scores	.39*	.22	.40*	.18
MY CHILD (n=28)				
Apology	.42*	.28t	.05	.18
Reparation	-.00	-.04	.28t	-.07
Concern	-.25	-.09	.04	-.03
Empathic Prosocial	.15	.09	-.00	-.01
MLQ (n=28)				
Total Words	.28t	.22	-.11	.10

t < .10 *p< .05 ** p< .01 *** p < .001

Table 16

Correlations Between Girls' Empathy Measures and Parental Questionnaires (ECBQ, MLQ, My Child), Controlling for Age

	Vocal/Verbal Sympathy	Concern for Victim	Hypothesis Testing	Global Concern
ECBQ (n=27)				
Inhibitory Control	.05	.18	.35*	-.06
Attentional Shift	-.16	.03	.00	.01
Attentional Focus	.18	.35*	.06	.26
Average Scores	.03	.24	.16	.10
My Child (n=26)				
Apology	.31t	.30t	.00	.34*
Reparation	.25	.23	.14	.23
Concern	.02	-.29t	.15	-.27
Empathic Prosocial	.40*	.35*	.18	.27t
MLQ (n=26)				
Total Words	.07	-.00	.18	.07

t < .10 *p< .05 ** p< .01 *** p < .001

Attentional Focus was significantly correlated with *Concern for Victim*, and the correlation between Inhibitory Control and *Hypothesis testing* also emerged as significant.

My Child. With respect to the parental ratings of boys' empathy, only one significant correlation emerged, in that boys' who were more apologetic, as rated by their parents, also displayed more *Vocal/Verbal Sympathy* during the accident simulation. The relationship between Reparation and *Hypothesis Testing* as well as Apology and *Concern for Victim* emerged as a trend for boys. For girls, Apology was significantly correlated with *Global Concern*, and tended towards significance for both *Vocal/Verbal Sympathy* and *Concern for Victim*. Moreover, girls who were rated as more Empathic and Prosocial by their parents also displayed more *Vocal/Verbal Sympathy* and *Concern for Victim* during the accident simulation, and tended towards significant for the *Global Concern* measure. In addition, a negative relationship emerged in girls between Concern ratings by their parent and *Concern for Victim*.

MLQ. With respect to boys' mental state language, those who were rated as having a larger mental lexicon also tended to display more *Vocal/Verbal Sympathy*.

In contrast to boys, girls' mental lexicon was not significantly correlated with their empathic behaviours during the accident simulation.

Theory of Mind vs. Empathy Measures: Follow-up analyses.

Since significant associations emerged between the theory of mind variables and the empathy measures, Hierarchal Multiple Regressions and a Logistic Regression were conducted on the data to assess the predictive power of the children's theory of mind abilities to their empathic behaviours during the actor's distress. Age, gender and the

theory of mind variables (VPT Combined and Average emotional ToM) were entered in Step 1, while gender and age interactions with the theory of mind variables were added in Step 2. The outcome variables included *Concern for Victim, Hypothesis Testing, and Global Rating of Concern,* for the Hierarchal Multiple Regression, and the *Vocal/Verbal Sympathy* outcome measure for the Logistical Regression (see Tables 17-20).

When the *Concern for Victim* was analysed as the outcome variable, the overall model was not significant, adj R^2 = -.06, F(4. 59) = .17, p >.10. Moreover, no significant age or gender interactions emerged. *Hypothesis Testing* and *Global Concern for Victim* were also found to have no significant predictors, (adj R^2 = -.01, F(4. 59) = .78, p >.10, adj R^2 = -.05, F(4. 59) = .25, p >.10, respectively). No significant age or gender interactions emerged in either analysis. Results from the logistic regression analysis, which included the *Vocal/Verbal Sympathy* as the outcome measure, revealed that the 9-predictor model was not significant, χ^2 (8, n=66) = 10.7, p>.10). However, further examination of the individual variable predictors, children who had higher average emotional ToM were significantly 1.10 times more likely to show *Vocal/Verbal Sympathy* (p<.05).

Discussion

The present study was designed to examine the cognitive and temperamental correlates of empathic behaviours in 29-to 38-month-old toddlers. There were three main objectives. The first objective was to examine whether a range of theory of mind abilities was related to toddlers' empathic behaviours during a live simulation of distress. It was hypothesized that children's theory of mind skills, particularly in the affective domain, would be positively related to children's empathic responses to the distressed actor. The

Table 17

Theory of Mind Skills as a predictor of Concern for Victim during the Accident Simulation

		β	SE *b*	T	R^2_{ch}	F^2_{ch}
Step 1					.01	.17
	Gender	.07		.59		
	Age	.06		.39		
	Emotional P.-T.	.03		.21		
	VPT Combined	.03		.19		
Step 2					.00	.06
	Gender	.12		.45		
	Age	.13		.50		
	Emotional P.T.	.03		.23		
	VPT Combined	.03		.18		
	Gender x Emotional P.-T.	.02		.12		
	Gender x VPT Combined	.05		.21		
	Age x Emotional P.-T.	-.04		-.29		
	Age x VPT Combined	.08		.33		
		R = .11		adj R^2 = -.05		F = .167

t < .10 *p< .05 ** p< .01 *** p < .001

Table 18

Theory of Mind Skills as a predictor of Hypothesis Testing during the Accident Simulation

		β	SE *b*	T	R^2_{ch}	F_{ch}
Step 1					.05	.78
	Gender	-.09		-.66		
	Age	-.20		-1.28		
	Emotional P.-T.	.11		.88		
	VPT Combined	.07		.47		
Step 2					.02	.22
	Gender	-.22		-.88		
	Age	-.16		-.66		
	Emotional P.T.	.11		.81		
	VPT Combined	.09		.56		
	Gender x Emotional P.-T.	-.08		-.58		
	Gender x VPT Combined	-.15		-.61		
	Age x Emotional P.-T.	-.02		-.12		
	Age x VPT Combined	.05		.22		
		R = .23		adj R^2 = -.01		F = .784

t < .10 *p< .05 ** p< .01 *** p < .001

Table 19

Theory of Mind Skills as a predictor of Global Concern for Victim during the Accident Simulation

		β	SE *b*	T	R^2_{ch}	F_{ch}
Step 1					.02	.25
	Gender	.09		.64		
	Age	.10		.63		
	Emotional P.-T.	.07		.56		
	VPT Combined	-.01		-.08		
Step 2					..04	.62
	Gender	.21		.82		
	Age	.32		1.31		
	Emotional P.T.	.08		.58		
	VPT Combined	-.01		-.04		
	Gender x Emotional P.-T.	-.04		-.32		
	Gender x VPT Combined	.15		.61		
	Age x Emotional P.-T.	-.12		-.89		
	Age x VPT Combined	.28		1.20		
		R = .13		adj R^2 = -.05		F = .251

t < .10 *p< .05 ** p< .01 *** p < .001

Table 20

Theory of Mind Skills as a predictor of Vocal/ Verbal Sympathy during the Accident Simulation

	Vocal/Verbal Sympathy		
Predictor	*B*	*SE B*	e^B
Mother			
Gender	-0.44	1.28	0.65
Age	0.29	0.24	1.33
Emotional ToM	0.06*	0.03	1.06
VPT Combined	0.00	0.01	0.99
Gender X emotional ToM	0.18	0.37	1.20
Gender X VPT	-3.18	3.25	0.04
Age X Emotional ToM	-0.15	-.35	0.68
Age X VPT	6.76	4.14	866.2
Constant		-13.71	
χ^2		7.74	
df		8	

t < .10 *p< .05 ** p< .01 *** p < .001

second objective was to examine how parental ratings of effortful control/executive functioning using the ECBQ questionnaire, mental state language, and child empathy were related to toddlers' observable empathic behaviours. It was expected that mothers' ratings of child's empathy and more *adaptive* effortful control/executive functioning would be related to their children's empathic responses during the accident simulation. The third objective of the study involved the examining the association between gender and children's empathic behaviours during a live simulation of distress. Based on the previous literature, no specific differences were expected to arise between boys and girls during the live simulation. However, it was speculated that gender differences between parental ratings of child empathy and empathic behaviours during the live simulation would be observed, with parental ratings of girls' empathy being significantly linked to observable empathic behaviours.

With regard to the first objective of the study, a significant positive association was observed between children's expressions of *Verbal/Vocal Sympathy* and their affective theory of mind skills, and these results were significant even after partialling out the effects of age, gender, and parental rating of effortful control/executive functioning. Moreover, follow-up analyses revealed that while the overall regression model was not significant, the association between the two variables was significantly predictive; that is, children who had better affective theory of mind skills were significantly more likely to express sympathy to the actor in distress. Previous results have been mixed when comparing children's abilities to understand other's emotional states and their own empathy related reactions (Hinnant & O'Brien, 2007; Strayer & Roberts, 1989; Eisenberg & Fabes, 1998; Hughes et al., 2000). Interestingly, results from the current study

provided some evidence, in the youngest age group ever examined, that children's knowledge of others' internal emotional states and their own sympathetic responding are positively related, and that a predictive relationship is likely to exist between the two variables. Moreover, the absence of significant results between the performance on the non-emotional theory of mind tasks and sympathetic behaviours suggests that children who have an understanding of others' *emotional* states, and not their vision-based knowledge, are likely to display these sympathetic behaviours towards others. Preschoolers' understanding of others' beliefs and visual perceptions have not been shown to be associated to their empathic responses (Astington & Jenkins, 1995; Hughes et al., 2000; Hinnant & O'Brien, 2007). The present study provides some evidence for similar findings, in that visual perspective taking was not found to be associated with 29- to 38- months-old toddlers' empathic behaviours.

Noteworthy was the lack of relationship between *Hypothesis Testing*, a cognitive empathy measure, and the emotional theory of mind tasks. *Sympathy* or concern for others forms the components of affective empathy while *Hypothesis Testing* forms a component of cognitive empathy (Zahn-Waxler et al., 1992). As expected, findings did not reveal any relationship between the non-emotional theory of mind skills and the cognitive empathy measure, supporting the fact that it is children's *emotional* theory of mind abilities that play a unique role in their expressions of sympathy for others. The lack of a relationship between *Hypothesis Testing* and the non-emotional theory of mind tasks may possibly be due to different cognitive processes that are involved in the development of these two abilities. Thus, it would be essential for future research to examine additional non-emotional theory of mind tasks, such as a false-belief task, and to assess

the relationship between different cognitive perspective-taking correlates and how they relate to both cognitive and affective empathy.

Aside from the *Vocal/Verbal Sympathy* measure, the results did not reveal any other significant findings when the other affective empathy measures (*Concern for Victim, Global Rating of Concern*) were compared to the affective and non-emotional theory of mind tasks. These findings may be explained in a few ways. First, while children's *Vocal/Verbal Sympathy* was related to their averaged emotional theory of mind skills, it may be that children's C*oncern for Victim* or *Global Concern* for the victim may not be directly related to emotional theory of mind abilities. Previous results have been mixed when comparing children's understanding of emotion with their empathy and empathic related responses (Hughes et al., 2000; Eisenberg & Fabes, 1998; Strayer & Roberts, 1989; Hinnant & O'Brien, 2007). However, the nature of the empathy measures in the present study is notable. Specifically, the *Global Concern* empathy measure combined emotional, cognitive, and behavioural measures into a single overall score. The present findings propose that better emotional theory of mind is related *specifically* to the affective component of empathy, sympathy. The current study is the first of its kind to provide evidence of an association between emotional theory of mind and affective empathy in very young children.

Second, Wellman and Liu (2004) and Wellman (2010) described a developmental progression in theory of mind skills that ended with understanding how emotions are linked with beliefs and desires during the later preschool period. Interestingly, Wellman and Woolley (1990) showed that the majority of 2-year-old children could identify a character's emotion based on her desire as revealed by 5 of 6 correct responses. In the

current sample, only 20% of the children received a score of 5 or 6 correct in the emotional perspective taking task (see Table 4). However, the mean age of Wellman and Woolley's sample of children was slightly higher than the one from the current sample (2 years, 10 months and 2 years, 7 months, respectively). In essence, these mean age differences may have impacted the outcome of the results. In fact, a pilot study revealed that the original method that Wellman and Woolley used in their study, which included two scenes instead of one, was too difficult for the children in this sample. Therefore, the procedure was modified to include only one picture scene for the characters in the story to search for the desired object. Future studies may want to replicate Wellman and Woolley's findings that 2 ½-year-old children are capable of succeeding in their puppet task. Moreover, it may be crucial for a future study to develop a novel task to assess understanding of other people's internal emotional states in very young toddlers, perhaps by use of entirely non-verbal methods such as eye-tracking measures during an emotional eliciting situation.

Using Repacholi and Gopnik's (1997) broccoli procedure, the understanding of desire has been shown to be present at 18 months of age (76% passed the desire queries). With respect to these findings, one would speculate that between 29 and 38 months, children would be likely to succeed at this task. In the present sample, 72% of the children succeeded on at least 1 of the 2 trials, while 28% did not obtain any of the trials correct (see Table 4). The present results are consistent with Repacholi and Gopnik's findings, as well as Carlson and colleagues (2004) who used this task to test desire understanding in 24- and 39- month-old toddlers. In that latter study, 49% of 24-month olds and 65% of 39-month-olds displayed an understanding of desires. Moreover, Laranjo and colleagues

(2010) who recently examined 26-month-olds during this procedure and found a success rate of 56%. Notably, the children's number of correct responses on Laranjo and colleagues' task may have been slightly lower than the previous studies due to the fact that the procedure was modified using piles of attractive and unattractive books that the child was asked to choose from rather than food items. However, despite the modified desire procedure in Laranjo and colleagues' study, their results are comparable to previous findings in that the majority of children at this age succeeded on this task. Therefore, the desire task used in the current study did not seem to promote a methodological problem in the final results in our sample.

While the results on the desire task were consistent with previous findings, some differences were observed in the performance on the visual perspective taking tasks as compared to the literature. In Flavell and colleagues' (1981) original study, they examined VPT Level 1 using Cat/Dog and Turtle picture cards in children who were 3 years, 6 months. They found that the children performed at ceiling for the VPT Level 1 tasks (100% correct in identifying what the experimenter saw). In Carlson and colleagues (2004) task, the VPT Level 1 task based on Flavell and colleagues was only examined in 39-month-old children. At this age, 88% of the children passed the VPT Level 1 task. In addition, Wellman and Colleagues (2000) reported that 2 ½-and 3-year-olds were correct on 94% and 92% on Level 1 perspective taking tasks, respectively. In the present study, the 2-year-olds performed more poorly on these tasks (see Table 4). For the Cat/Dog (VPT Level 1a), the mean percent of correct responses was 55%, while the Turtle (VPT Level 1b) was even less successful, at 34%. When the Level 1a and 1b were combined (to obtain a score out of 4 trials), the mean correct responses was 44%.

When the data were examined through frequencies (see Table 4), 65% of the children obtained *at* least 1 correct response on the VPT Level 1a task, and 45% on the Level 1b task (both were on 2 trials). One possible discrepancy between the current findings and those of Wellman (2000) may be due to the choice of stimuli. While the latter study examined VPT in 2 ½-and 3-year-olds, they used toys (a car and a cup) instead of the original picture cards used in Flavell and colleagues' study (1981). To the author's knowledge, this study is the first of its kind to examine VPT in such a young sample using Flavell and colleagues' (1981) picture cards. In essence, most studies examining Level 1 and Level 2 visual perspective taking has examined these facets in children over 3 years of age. It may be that at 2 ½ years, the picture card task may be too difficult for these children. Moreover, the VPT Level 1b task required that the turtle be oriented right side up for the child, but upside down for the experimenter. With respect to the fact that reasoning about the orientation of the picture is a VPT Level 2 task and correctly responded only by children over 3 years of age, the orientation of the picture may have confounded the children's responses on this task, hence decreasing the number of correct responses on the VPT Combined measure.

Regarding the third theory of mind task (i.e., emotional-to-perception), Wellman and colleagues (2000) found that 70% of the 2 ½-year-olds in their sample correctly identified what the experimenter could see based on her emotion, while the mean correct responses in the current sample was 52%. However, these results become similar if the frequencies of correct responses are examined; that is, 73% of the children in the current study obtained *at least* 1 correct response on this task (over two trials, see Table 4). A slight difference between the current study and that of Wellman and colleagues' (2000) was in

the trials included for analyses. Wellman and colleagues did not include trials in which the child responded "don't know" to the target question, and they included a third trial if this occurred. In contrast, the current data included children's answers such as "don't know" as incorrect, and a third trial was not administered. With this aforementioned difference in methodology, our pass rate criteria was more stringent than in Wellman and Woolley (1990), and it is speculated that with more test trials on this task, the percent of correct responses would have increased. It is important to note that to date, no other study has examined the emotion-to-perception task in the literature despite its integration of both affective and non-emotional nature of the understanding of others' internal states. Therefore, the current study has taken an important first step in examining how very young toddlers integrate their understanding of both affective and non-emotional internal states of others, and its relationship to empathic responding.

Overall, the success rates on the theory of mind tasks in the current study seem to be consistent with the previous literature. Thus, it may be that the limited number of significant results between the theory of mind and empathy may be due in part to separate factors than the ones listed above. First, to our knowledge, this is the first study to examine Hastings and colleagues' (2000) *Global Rating of Concern* variable in such a young sample. This measure incorporates vocal, facial, and expressions of empathy, sympathy, helpfulness and hypothesis testing (Hastings et al., 2000). It may be that for children this young, the aggregation of these separate empathy variables into one code may not be fully representative of their behaviours during the live simulation.

In addition, results may have been confounded by some methodological issues in the empathy measures during the live simulation. First, the simulation of distress was always

performed last in the testing session. This was done to avoid any potential carry over effects of the theory of mind tasks that were administered beforehand. The children were also seated in the high chair in the presence of a parent, which is not the typical procedure for this task. The administered set up of the task may hold certain limitations. To begin, the parent was requested to stay in the room so that the child would feel comfortable during the testing sessions. It was speculated that if the parent would have been asked to leave during this time, this departure would have caused disruptions during the testing session and the child may have become fussy. Furthermore, children during this task are usually able to walk free around the room. However, it was concluded that if the children were removed from the high chair and allowed to be mobile, they would orient themselves towards the parent since social referencing occurs frequently at this age (Eisenberg et al., 2006). The reduced mobility of the child may have possibly confounded our results by restricting the opportunities for the child to engage in *prosocial acts.* At 2 ½ years, children commonly engage in helping behaviours, from handing a distressed person an object, aiding by comforting, or seeking help from another individual (Eisenberg et al., 2006; Eisenberg & Fabes, 1998). In our sample, only 4 children out of 66 (6%) engaged in some form of prosocial acts. By definition, a *prosocial act* includes anything that children do in order to help the victim's distress, such as a pat on the hand, or bring them a band-aid or a toy; the children in this study did not have access to any distracters, toys, or a clear ability to approach or withdraw from the distressed actor, making the option of engaging in any prosocial acts, difficult to achieve. Importantly, however, prosocial behaviour has not always been linked to empathic behaviours (see Eisenberg et al., 2006; Thompson; 1998), and its relation to the understanding of emotion

is unclear. Therefore, it may be that acts such as sympathy, and not prosocial behaviour, may be linked to emotional understanding of other's internal emotional states, and not vice versa (see Eisenberg et al., 2006).

Notably, empathic behaviours of interest such as *Concern for Victim, Hypothesis Testing, Global Rating of Concern*, and *Vocal/ Verbal Sympathy*, did not require the child to be mobile around the room. These behaviours were coded based on children's facial reactions and vocalizations. Therefore, while the child's limited mobility may have reduced prosocial behaviours, the methodological set up of the task was ideal for the observations of the children's behavioural (facial and vocal) reactions to the distressed actor.

A possible limitation to the live accident simulation was in the nature of the modified codes. The *Concern for Victim* and *Global rating of Concern* were both modified in order to aid in the coding reliability, as well as increase the range of variability in the data. It is possible that this change may have affected the behavioural observations included in the original codes.

Some may question the credibility of the distressed actors in the live simulation. While each experimenter was trained on how to administer and display the distressed emotion, only 10% of the sample was coded on the credibility and intensity of the actors, as well as the duration of the distress. However, the ratings by independent observers revealed that both of the actors were displaying pain, and that the intensities of the emotional reactions were not significantly different from one another. Notably, the actors facial expressions during the live simulation were consistent with Ekman's (1971; 1973; 1987) studies, in that each of the actors was clearly expressing pain according to his

descriptions of a pained facial expression. Taken together, these analyses demonstrate that the actors' during the live simulation of distress were clearly credible to the children.

Regarding the second objective of the study regarding the parental questionnaires and empathy measures, the hypotheses were supported by the data. Specifically, parental measures of their children's effortful control/executive functioning and empathy were positively related to children's empathic responses to a live simulation of distress, even when controlling for age and gender. First, the findings provided evidence that 2 ½-year-old children's Attentional Focus was related to their behavioural expression of *Concern for Victim* and *Hypothesis Testing*, with its relation to *Vocal/Verbal Sympathy* and *Global Concern* tending towards significance. Inhibitory Control and Attentional Shift also tended towards significance with *Hypothesis Testing*. Moreover, the composite ECBQ score was also significantly related to both *Concern for Victim* and *Hypothesis testing*, and tending towards significance with *Vocal/Verbal Sympathy*. Previous research on the relationship between children's executive functioning and empathy has been mixed (Hinnant & O'Brien, 2007). Both Hughes and colleagues (2000) and Hinnant and O'Brien (2007) found no direct or indirect relationship between children's executive functioning and their empathic or prosocial behaviours, while Rothbart (1994) and Valiente (2004) and colleagues found a positive relationship between children's effortful control and empathic related behaviours. There has also been evidence that toddlers who scored low in inhibitory control were also low on levels of conscience and in some cases, empathy (see Valiente et al., 2004; Kochanska et al., 2000; 1997). Miller and Jansen Op de Jaar (1997) examined 4 ½-year-old children and found that highly empathic children were also higher on Attentional Focus and Inhibitory Control. However, these studies

have examined these facets in slightly older children. The present study is the first to provide evidence of a possible link between very young children's effortful control/executive functioning and empathic responses.

Regarding the gender differences in the parental effortful control/executive functioning questionnaire, the present findings revealed that parental ratings of various aspects of effortful control/executive functioning were related to boys' empathic responding more than girls, even when controlling for age. During tasks that involved a direct examination of executive functioning, studies have found that girls typically score higher than boys (e.g., Carlson et al., 2004; Carlson & Moses, 2001; Kochanska et al., 1996). The present results reveal that girls did not score higher than boys on parental rating of effortful control/executive functioning. However, effortful control/executive functioning was more significantly related to empathic responses in boys than in girls. It may be that better executive functioning skills at this age contribute to the development of empathic-related responses for boys, but less so for girls. Notably, the possible discrepancies may be due to the lack of direct executive functioning measures in this study. It will be relevant for future studies to directly examine different components of *young* children's executive functioning (e.g., item-selection task, Carlson, 2005) and monitor how these are linked to their empathic responses during a distressing situation.

As expected, parental ratings of child empathy were related to their children's empathic related responses. Supporting our hypothesis, Apology in children was significantly related to *Vocal/Verbal Sympathy, Concern for Victim* and *Global Concern*, while rating of Empathic/Prosocial behaviours tended towards significance with *Vocal/Verbal Sympathy*, and ratings of Reparation tended towards significance with

Hypothesis Testing, regardless of age or gender. These findings are in accordance with the research showing that rating of children's empathy by parents is associated with empathic related reactions of their children in a laboratory setting (Hastings et al., 2000).

Studies that have examined parental reports on child empathy have also investigated gender differences among reports. When parents and teachers are asked to rate children's empathic behaviours, there is a strong bias towards rating girls as higher in concern, hypothesis testing, sympathy and overall empathy; a phenomenon also found cross-culturally (Eisenberg et al., 2006; Eisenberg et al., 1998; Hastings et al., 2000; Carlo, Reoesch, Knight, & Koller, 2001; Russel, Hart, Robinson, & Olsen, 2003). Stereotypical gender roles have generally highlighted that girls are expected to be more empathic than boys (see Eisenberg et al., 2006). It has been suggested that asking children to self-report empathy might invoke attention to what is being assessed (empathy and/or prosocial behaviours) and lead to responses that fit with gender stereotypes (Eisenberg & Lennon, 1983; Eisenberg et al., 2006). However, when other measures of empathy are used in the place of reports or questionnaires, the differences between boys and girls are greatly reduced (Eisenberg et al., 2006; Eisenberg et al., 1989; Eisenberg & Lennon, 1983). These include objective measures such as observations to distressing situations, documentation of facial cues, etc. While some studies on differences between males' and females' facial expressions during a distressing situation (such as brow furrow, intense interests, hypothesis testing) have reported some sex differences in facial responses in preschoolers (Eisenberg et al., 2006; Strayer & Roberts, 1997; Hastings et al., 2000; Zahn-Waxler et al., 2001; Zhou et al., 2002), the evidence for younger children remains scarce.

In the current study, parental ratings of girls' empathy were in accordance with the literature showing that girls are rated as more empathic than boys. For the girls, Empathic/Prosocial behavioural ratings were significantly related to their expressions of *Vocal/Verbal Sympathy* and *Concern for Victim*, and tended towards significance with *Global Concern*. In contrast, parents' ratings of boys' Empathic/Prosocial behaviours were not related to any of the empathic responses during the live simulation. Boys' Apology was significantly related to *Vocal/Verbal Sympathy*, and tended towards significance for *Concern for Victim*, while Girls' Apology was only significantly related to *Global Concern*, and tended towards significance to both *Vocal/verbal Sympathy* and *Concern for Victim*. A negative relationship between girls' rating of Concern and their expressions of *Concern for Victim* during the accident simulation also emerged as a trend. The standardized means for these two measures were -.09 (SD = 1.1) and -.04 (SD = .97), respectively, suggesting that the parents tended to underestimate their daughters' expressions of Concern. Taken together, these findings lend support to the fact that while others' rating of empathy in children typically favour girls, these ratings may not be as biased as expected: girls' reported empathy was more significantly related to their empathic responses than those of boys, and the relationship between boys' rating of empathy was only marginally related to their empathic behaviours. These findings suggest that even at 2 ½ years, parents may not recognize their sons' empathic impressions as readily as they do their daughters.

With respect to the third objective of the study, no gender differences emerged when testing differences in the mean level of empathy during the live simulation. As expected, observable measures of empathy did not reveal any difference between boys and girls.

Interestingly however, when affective and non-emotional theory of mind skills were compared to the empathy scores for boys and girls in two separate analyses, only the girls' emotional theory of mind skills were significantly related to *Vocal/Verbal Sympathy* scores. Recent evidence has shown that girls tend to display higher affective empathy (affectively responding to another's emotions) but that no gender differences emerge when cognitive empathy (perspective taking) is concerned (Volbrecht et al., 2007). Moreover, while gender differences in theory of mind abilities do not typically emerge (Walker, 2005; Wellman, 2010), there is some evidence to suggest a slight advance for girls over boys (Charman, Ruffman, & Clements, 2002), particularly for emotion understanding (Dunn et al., 1991; Banerjee, 1997). In a study examining 11-year-old girls, results showed that they were better at predicting a person's feelings and motives in a story than were boys (Charman et al., 2002; Bosacki & Astington, 1999). While this is the first study to directly examine theory of mind and empathic reactions in such a young age, results revealed that there may be some gender differences in the association between emotional theory of mind skills and empathy, even at 2 ½ years of age.

Finally, no significant relationship emerged between mental state words and empathic related reactions. As previously mentioned, research has documented that internal state language is related to theory of mind development (Bartsch & Wellman, 1995; Wellman et al., 2000; Olineck & Poulin-Dubois, 2005). Moreover, findings on the relationship between toddlers' mental state talk and their empathic related responses have been mixed (Lamb, 1991; Ricard et al., 1999; Thompson, 1998; Garner, 2003). Results from the current study indicated that the total number of mental state words was not related to the

empathic behaviours of 2 ½-year-old children. Moreover, only a trend emerged between boys' mental state language and *Vocal/Verbal sympathy*, but the same was not found for girls. Interestingly, the current results suggest that while girls may precede boys in mental state talk in early development, it is the boys' total mental vocabulary that is related to their empathic related responding. Since mental state language has been shown to be predictive of later theory of mind, future research is warranted to examine the predictive abilities of early mental state language on empathic reactions in both boys and girls.

Taken together, the current study offers some evidence that some aspects of very young children's empathic reactions during a live simulation of distress were related to their abilities to understand others' emotional internal states, but less so for their understanding of non-emotional states. These findings provide the first direct evidence that the understanding of others' *emotional states* and empathic development, two importantly related components, begin to interrelate early in life. Future studies should continue to examine these components in children, in order to further investigate when emotion understanding and empathic-related responses begin to co-occur. Eye-tracking techniques, for example, would allow for a more direct examination of children's developing cognitive empathy abilities, by investigating how children scan a video scene in which an actor displays pain and sadness. Moreover, these techniques will allow researchers to observe how children's understanding of distressed facial reactions is related to their empathic related responses. Investigating these cognitive processes will permit a direct observation of infants *and* toddlers' socio-emotional and cognitive competencies. Ultimately, these investigations will allow for a better understanding of how these competencies may impact children's socialization processes through socio-

cognitive functioning in everyday situations (e.g., home and school settings) and detail how different social contexts may play a role in the development of these processes.

References

Astington, J. W., & Jenkins, J. M. (1995). Theory of mind development and social understanding. *Cognition and Emotion, 9,* 151-165.

Baldwin, D. A., Baird, J. A., Saylor, M., & Clark, M. A. (2001). Infants parse dynamic action. *Child Development, 72*, 708-717.

Banjeree, M. (1997). Hidden emotions: Preschoolers' knowledge of appearance-reality and emotion display rules. *Cognition, 15*(2), 107-132.

Barnett, M. A., & Thompson, S. (1985). The role of perspective taking and empathy in children's Machiavellianism, prosocial behaviour, and motive for helping. *Journal of Genetic Psychology, 146*(3), 295-305.

Bartsch, K., & Wellman, H. M. (1995). *Children talk about the mind.* New York: Oxford University Press.

Batson, C. D. (1991). *The altruism question: Towards a social-psychological answer.* Hillsdale, NJ: Lawrence Erlbaum Associates.

Bloom, P. (2000). *How children learn the meaning of words.* Cambridge, MA: MIT Press.

Bosacki, S., & Astington, J. W. (1999). Theory of mind in pre-adolescence: Relations between social understanding and social competence. *Social Development, 8*(2), 237-255.

Bretherton, I., & Beeghly, M. (1982). Talking about internal states: The acquisition ofd an explicit theory of mind. *Developmental Psychology, 18,* 906-921.

Carlo, G., Roesch, S. C., Knight, G. P., & Koller, S. H. (2001). Between- or within-culture variation? Culture groups as a moderator of the relations between individual differences and resource allocation preferences. *Applied Developmental Psychology,*

22, 559-579.

Carlson, S. M. (2005). Developmentally sensitive measures of executive function in pre-school children. *Developmental Neuropsychology, 28,* 595-616.

Carlson, S. M., & Moses, L. J. (2001). Individual differences in inhibitory control and children's theory of mind. *Child Development, 72,* 1032-1053.

Carlson, S. M., Mandell, D. J., & Williams, L. (2004). Executive function and theory of mind: Stability and prediction from ages 2 to 3. *Developmental Psychology, 40*(6), 1105-1122.

Charman, T., Ruffman, T., & Clements, W. (2002). Is there a gender difference in false belief development? *Social Development, 11*(1), 1-10.

Cohen, D., & Strayer, J. (1996). Empathy in conduct-disordered and comparison youth. *Developmental Psychology, 32,* 988-998.

Decety, J. (2005). Perspective taking as the royal avenue to empathy. In B. F. Malle & S. D. Hodges (Eds.) *Other minds: How humans bridge the divide between self and others* (143-157). New York: Guildford Press.

Dunn, J., Brown, J., Slomkowski, C., Tesla, C. et al. (1991). Young children's understanding of other people's feelings and beliefs: Individual differences and their antecedents. *Child Development, 62*(6), 1352-1366.

Ekman, P. (1971). Universals and cultural differences in facial expressions of emotion. *Nebraska Symposium on Motivation, 19,* 207-283.

Ekman, P. (1973). *Darwin and facial expression: A century of research in review.* Oxford, England: Academic Press.

Ekman, P. (1987). Universals and cultural differences in the judgments of facial expression

of emotion. *Journal of Personality and Social Psychology, 53*(4), 712-717.

Eisenberg, N., & Lennon, R. (1983). Sex differences in Empathy and related capacities. *Psychological Bulletin, 94 (1),* 100-131.

Esienberg, N., & Fabes, R. A. (1998). Prosocial Development. In W. Damon (Series Ed.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Vol. 3. Social emotion and personality development, 5th edition* (pp. 701-778). New York: John Wiley & Sons.

Eisenberg, N., Fabes, R. A., & Spinrad, T. L. (2006). Prosocial Development. In W. Damon (Series Ed.,) & N. Eisenberg (Vol. Ed.) *The handbook of child psychology: Vol. 3. Social, emotional, and personality development, 6th edition* (pp. 646-718). New York: Wiley.

Eisenberg, N., Fabes, R. A., Miller, P. A., Fultz, J., Mathy, R. M., Shell, R., et al. (1989). The relations of sympathy and personal distress to prosocial behaviour: A multimethod study. *Journal of Personality and Social Psychology, 57,* 55-66.

Esienberg, N., Losoya, S., & Guthrie, I. K. (1997). Social cognition and prosocial development. In S. Hala (Ed.), *The Development of Social Cognition* (pp. 329-363). Hove, England: Psychology Press/Erlbaum, Taylor & Francis.

Flavell, J. H., Everett, B. A., Croft, K., & Flavell, E. R. (1981). Young children's knowledge about visual perception: Further evidence for the level 1-Level 2 distinction. *Developmental Psychology, 17*(1), 99-103.

Garfield, J. L., Peterson, C. C., & Perry, T. (2001). Social cognition, language acquisition and the development of the theory of mind. *Mind & Language, 16,* 494-541.

Garner, P. W. (2003). Child and family correlates of toddlers emotional and behavioural responses to a mishap. *Infant Mental Health Journal, 24*(6), 580-596.

Hastings, P. D., Zahn-Waxler, C., Robinson, J., Usher, B., & Bridges, B. (2000). The development of concern for other in children with behaviour problems. *Developmental Psychology, 26*(5), 531-546.

Hastings, P. D., Zahn-Waxler, C., & Mcshane, K. (2006). We are, by nature, moral creatures: Biological bases of concern for others. In M. Killen & J. G. Smetana (Eds.) *Handbook of moral development* (pp. 483-516). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

Hinnant, J. B., & O'Brien, M. (2007). Cognitive and emotional control and perspective taking and their relation to empathy in 5-year-old children. *Journal of Genetic Psychology, 168*(3), 301-322.

Hoffman, M. L. (1982). Affect and moral development. *New Directions for Child Development, 16*, 83-103.

Hoffman, M. L. (2000). *Empathy and Moral Development: Implications for caring and justice.* New York: Guildford Press.

Hoffman, M . L. (2007). The origins of empathic morality in toddlerhood. In C. A. Brownell & C. B. Kopp (Eds.), *Socioemotional development in the toddler years: Transitions and transformations* (pp. 132-145). New York: Guildford Press.

Hughes, C., White, A., Sharpen, J., & Dunn, J. (2000). Antisocial, angry, and unsympathetic: "Hard-to-manage" preschoolers' peer problems and possible cognitive influences. *Journal of Child Psychology and Psychiatry, 41*(2), 169-179.

Jolliffe, D., & Farrington, D. P. (2004). Empathy and offending: A systematic review and meta-analysis. *Aggression and Violent Behaviour, 9,* 441-476.

Kochanska, G. (1997). Multiple pathways to conscience for children with different

temperaments: From toddlerhood to age 5. *Developmental Psychology, 33*(2), 228-240.

Kochanska, G., DeVet, K., Goldman, M., Murray, K, T., & Putnam, S. P. (1994). Maternal reports of conscience development and temperament in young children. *Child Development, 65*, 852-868.

Kochanska, G., Murray, K. T., Jacques, T. Y., Koenig, A. L., & Vandegeest, K. A. (1996). Inhibitory control in young children and its role in emerging internalization. *Child Development, 67,* 490-507.

Kochanska, G., Murray, K. T., & Harlanm E. T. (2000). Effortful control in early childhood: Continuity and change, antecedents, and implications for social development. *Developmental Psychology, 36,* 220-232.

Knafo, A., Zahn-Waxler, C., Van Hulle, C., Robinson, J. L., & Hyun Rhee, S. (2008). The developmental origins of a disposition toward empathy: Genetic and environmental contributions. *Emotion, 8*(6), 737-752.

Lamb, S. (1991). Internal state words: their relation to moral development and to maternal communication about moral development in the second year of life. *First language, 11,* 391-406.

Laranjo, J., Bernier, A., Meins, E., & Carlson, S. M. (2010). Early manifestations of children's theory of mind: The role of maternal mind-mindedness and infant security of attachment. *Infancy, 15*(3), 300-323.

Losoya, S. H., & Eisenberg, N. (2001). Affective Empathy. In Hall, J. A. & Bernieri, F. J. (Eds), *Interpersonal Sensitivity Theory and Measurement* (pp. 21-43). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

Miller, P., & Eisenberg, N. (1988). The relation of empathy to aggression and externalizing/antisocial behaviour. *Psychological Bulletin, 103*, 324-344.

Miller, P. A., & Jansen op de Haar, M. A. (1997). Emotional, cognitive, behavioural and temperament characteristics of high-empathy children. *Motivation and Emotion, 21*(1), 109-125.

Moreno, A. J., Klute, M. M., & Robinson, J. L. (2007). Relational and individual resources as predictors of empathy in early childhood. *Social Development, 17*(3), 613-637.

Murray, K. T., & Kochanska, G. (2002). Effortful control: Factor structure and relation to externalizing and internalizing behaviours. *Journal of Abnormal Child Psychology, 30,* 503-514.

Olineck, K. M., & Poulin-Dubois, D. (2005). Infants' ability to distinguish between intentional and accidental actions and its relation to internal state language. *Infancy, 8,* 91-100.

Onishi, K. H., & Baillergeon, R. (2005). Do 15-month-old infants understand false beliefs? *Science, 308*(5719), 255-258.

Poulin-Dubois, D., Brooker, I., & Chow, V. (2009). The precursors of naïve psychology in infancy. In P. Bauer (Ed), *Advances in Child Development and Behaviour. Vol. 37* (pp. 55-104). Elsevier.

Poulin-Dubois, D., Chiarella, S. S., & Polonia, A. (2009). Parental reports of internal state language in French and English speaking toddlers. *Rivista di Psicolinguistica Applicata/Journal of Applied Psycholinguistics*, *9*(3), 47-60.

Putnam, S. P., Gartstein, M. A., & Rothbart, M. K. (2006). Measurement of fine-grained

aspects of toddler temperament: The early Childhood Behaviour Questionnaire. *Infant Behaviour & Development, 29*(3), 386-401.

Repacholi, B. M., & Gopnik, A. (1997). Early reasoning about desires: Evidence from 14- and 18-month-olds. *Developmental Psychology, 33*(1), 12-21.

Ricard, M., Girouard, P. C., & DeCarie, T. G. (1999). Personal pronouns and perspective taking in toddlers. *Journal of Child Language, 26,* 681-697.

Roberts, W., & Strayer, J. (1996). Empathy, emotional expressiveness, and prosocial behaviour. *Child Development, 67*, 449-470.

Rothbart, M. K., & Ahadi, S. A., & Hershey, K. L. (1994). Temperament and social behaviour in childhood. *Merrill-Palmer Quarterly, 40*, 21-39.

Russell, A., Hart, C. H., Robinson, C. C., & Olsen, S. F. (2003). Children's sociable and aggressive behaviours with peers: A comparison of the United States and Australia, and contributions of temperament and parenting style. *International Journal of Behavioural Development*, 27, 74-86.

Sagi, A., & Hoffman, M. L. (1976). Empathic distress in the newborn, *Developmental Psychology, 12*(2), 175-176.

Sallquist, J., Eisenberg, N., Spinrad, T. L., Eggum, N., & Gaertner, B. M. (2009). Assessment of preschoolers' positive empathy: concurrent and longitudinal relations with positive emotion, social competence, and sympathy. *The Journal of Positive Psychology, 4*(3), 223-233.

Simner, M. L. (1971). Newborn's response to the cry of another infant. *Developmental Psychology, 5* (1), 136-150.

Spinrad, T. L., & Stifter, C. A. (2006). Toddlers' empathy-related responding to distress:

Predictions from negative emotionality and maternal behaviors in infancy. *Infancy, 10*(2), 97-121.

Strayer, J. (1993). Children's concordant emotions and cognitions in response to observed emotions. *Child Development, 64,* 188-201.

Strayer, J., & Roberts, W. (1989). Children's empathy and role taking: Child and parental factors, and relations to prosocial behaviour. *Journal of Applied Developmental Psychology, 10,* 227-239.

Surian, L., Caldi, S., & Sperber, D. (2007). Attribution of beliefs by 13-month-old infants. *Psychological Science, 18*(7), 580-586.

Thompson, R. A. (1998). Early socio-personality development. In W. Damon (Series Ed.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Vol. 3. Social, emotional and personality development, 5th edition* (pp. 25-104). New York: Wiley.

Tomasello, M., & Haberl, K. (2003). Understanding attention: 12- and 18-month-olds know what is new for other persons. *Developmental Psychology, 39,* 906-912.

Vaish, A., Carpenter, M., & Tomasello, M. (2009). Sympathy through affective perspective taking and its relation to prosocial behaviour in toddlers. *Developmental Psychology, 45*(2), 534-543.

Valiente, C., Eisenberg, N., Fabes, R. A., Shepard, S. A., Cumberland, A., & Losoya, S. H. (2004). Predition of children's empathy-related responding from their effortful control and parents' expressivity. *Developmental Psychology, 40*(6), 911-926.

Van der Mark, I. L., van Ijzendoorn, M. H., & Bakermans-Kranenburg, M. J. (2002). Development of empathy in girls during the second year of life: Associations with parenting, attachment, and temperament. *Social Development, 11*(4), 451-468.

Volbrecht, M. M., Lemery-Chalfant, K., Aksan, N., Zahn-Waxler, C., & Hill Goldsmith, H. (2007). Examining the familial link between positive affect and empathy development in the second year. *Journal of Genetic Psychology, 168*(2), 105-129.

Walker, S. (2005). Gender differences in the relationship between young children's peer-related social competence and individual differences in theory of mind. *Journal of Genetic Psychology, 166*(3), 297-312.

Wellman, H. M. (2010). Developing a Theory of Mind. In U. Goswami (Ed.) *The Wiley-Blackwell handbook of childhood cognitive development, 2nd Edition* (pp. 258-284). Oxford, United Kingdom : Wiley-Blackwell Publishers Ltd.

Wellman, H. M., & Liu, D. (2004). Scaling theory of mind tasks. *Child Development, 75*, 523-541.

Wellman, H. M., & Woolley, J. D. (1990). From simple desires to ordinary beliefs: The early development of everyday psychology. *Cognition, 35*(3), 245-275.

Wellman, H. M., Phillips, A. T., & Rodriguez, T., (2000). Young children's understanding of perception, desire, and emotion. *Child Development, 71*(4), 898-912.

Young, S. K., Fox, N. A., & Zahn-Waxler, C. (1999). The relations between temperament and empathy in 2-year-olds. *Developmental Psychology, 35(5), 1189-1197.*

Zahn-Waxler, C., Cole, P., Welsh, J. D., & Fox., N. A. (1995). Psychophysiological correlates of empathy and prosocial behaviours in preschool children with behavioural problems. *Development and Psychopathology, Special Section: Emotions in Developmental Psychopathology, 7*(1), 27-48.

Zahn-Waxler, C., Radke-Yarrow, M., & King, R. A. (1983). Early altruism and guilt.

Academic Psychology Bulletin, 5, 247-259.

Zahn-Waxler, C., Radke-Yarrow, M., Wagner, E., & Chapman, M. (1992). Development of concern for others. *Developmental Psychology, 28*(1), 126-136.

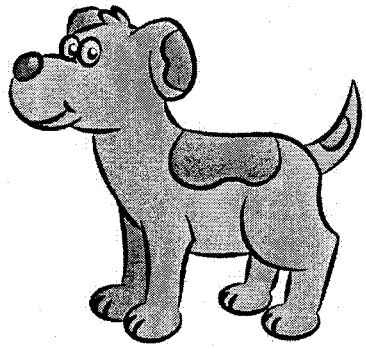
Zahn-Waxler, C., Robinson, J. L., & Emde, R. N. (1992) The development of empathy in twins. *Developmental Psychology, 28(6)*, 1038-1047.

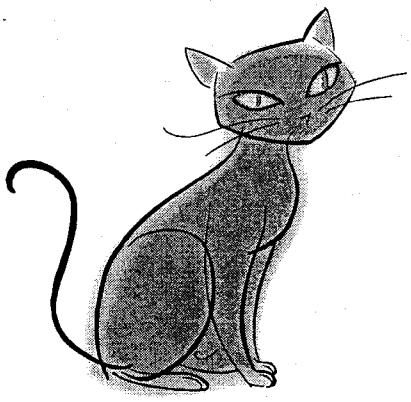
Zahn-Waxler, C., Schiro, K., Robinson, J. L., Emde, R. N., & Schmitz, S. (2001). Empathy and prosocial patterns in young MZ and DZ twins: Development and genetic and environmental influences. In R. N. Emde & J. K. Hewitt (Eds.) *Infancy to early childhood: Genetic and environmental influences on developmental changes* (pp. 141-162). New York: Oxford University Press.

Zhou, Q., Eisenberg, N., Losoya, S. H., Fabes, R. A., Resier, M., Guthrie, I. K., et al. (2002). The relations of parental warmth and positive expressiveness to children's empathy-related responding and social functioning: A longitudinal study. *Child Development, 73*(3), 893-915.

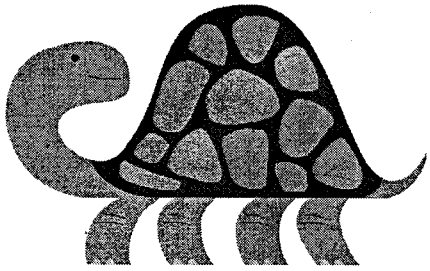
Appendix A

Stimuli for the Visual Perspective Taking Tasks Level 1a and Level 1b





Visual Perspective Taking Task Stimuli Level 1a



Visual Perspective Taking Task Stimuli Level 1b

Appendix B

Operational Definitions for the Accident Simulation Task

MALTS-FETZER
EMPATHY CODING FOR CHILDREN
JoAnn Robinson & Carolyn Zahn-Waxler

In the HURT FINGER simulation, the experimenter pretends to hurt herself and child's responses are coded. The distress period lasts approximately 30 seconds and ends when the experimenter recovers ("That hurt a lot, but I think I'm going to be okay." / "Ça a fait mal, mais je pense que je suis correct maintenant."). The subsequent 30 seconds are considered the "recovery" period.

The following codes pertain to the child's behavior during the exact length of the "distress" portion only - stop coding for these once the victim starts to recover.

Specific behaviors - circle any and all that occurred during the distress portion only.

a. **Ignores** - minimal disruption of child's ongoing behavior for at least 15 seconds
b. **Active play** - child is actively involved in play, object or game engages child's full attention for at least 5 seconds.
c. **Self-soothing** - rocking, stroking self, mouthing an object or self
d. ***Age Three & up: Masks affect*** - *attempts to dissimulate, often apparent through grotesque facial movements, covering face, twisted smile*

Assign the child a score on EACH of the following scales for the distress portion only:

1. CONCERN FOR VICTIM (facial, vocal, and or gestural/postural expressions; sadness, not pain)*
1. Absent
2. Concerned facial expression present in face.
3. Concerned facial expression present in face and vocalizations.

2. POSITIVE AFFECT**
1. Does not occur
2. Tenuous smile
3. Broad smile, laughs briefly
4. Broad smile, lusty laugh

3. ANGER
1. Does not occur
2. Child has tight lips, may also bang or throw toy **4. DISTRESS/FEAR**
1. Does not occur
2. Fear clearly apparent, wide eyes, open mouth wariness or shock; may also be cowering away from victim, but NOT surprise).
3. Grimacing, teeth barred
4. Whimpering, whining
5. Full blown crying

The following codes are to be assigned during THE ENTIRE 60 SECONDS.

Specific behaviors - circle any and all that occurred during the entire 60-second episode.

e. **Distracts** - tries to divert victim's attention away from distress through various means, may bring toy, bring attention to self.
f. **Shares** - child gives something to victim which seems to be in response to the distress
g. **Helps** - child performs an action to relieve distress ("I will put a band-aid on"), suggests actions to_ relieve distress ("You need a band-aid" or "Do you want a band-aid?"), child attempts to soothe, patting victim, code also when actions appear prosocial but unclear,
h. **Offending object** - defensive action or verbalization toward clipboard or chair (e,g., hits clipboard or says "bad chair"
i. **Imitation** - imitates sounds, facial expressions or gestures of victim (e.g. mouthing "ow"), count if behaviors are performed on dolls.
j. **Vocal or verbal sympathy** - concerned tone in voice, child says "I'm sorry" or "you'll be okay"; this may also include the child responding to the experimenter's "I'll be okay" statements with a "Yeah" in a concerned tone => Reassurance; statements with questioning intonation should be scored as **Hypothesis Testing.**

Assign the child a score on EACH of the following scales for the entire 60-second episode:

5. PROXIMITY TO VICTIM (peak incidence in 90 seconds)
1. Moves away from victim (child leans back towards the chair, slides down in seat, turns away).
2. Stays stationary.
3. Moves forward towards the victim (leaning against table).
4. Both 1 and 3.

6. HYPOTHESIS TESTING (attempt to cognitively understand/ interpret the distress circumstances; Note if there is a question, it is hypothesis testing, not concern)***
1. None
2. Brief, non-verbal gestures, touches on own body parts analogous to victim, [2 verbal inquiring without looking] looks back and forth from victim's face to hurt part or other adult, looking very intently (head does not need to move).
   - looks back and forth between face, finger, and clipboard less than 4 times.
3. Same as above but prolonged OR one or more moderate non-verbal attempts or looking plus at least one clear verbal attempt.
   - looks back and forth between face, finger, and clipboard 4 or more times.
4. Repeated and/or relatively intense/sophisticated attempts to understand the distress, both verbal, e.g" "Owie?" "Hurt?" "Okay?" and non-verbal attempts such as looking at another person in the room, intent looking at own or victim's injured body part, etc.

7. CALLOUS OR HOSTILE

1. Does not occur
2. Child hits nearby object, throws something on the floor intentionally, a callous laugh (not just embarrassed giggling)
3. Child is judgmental or hostile, may hit victim, say "You shouldn't have done that" or "That was stupid".

8. *Age Three & up:* SELF-REFERENCING (referring to own injuries or self-blaming)

1. No self-referencing.
2. One brief self-reference or attempt to draw attention to self
3. Several self-references or one prolonged one

9. NUMBER OF PRO-SOCIAL ACTS (must include help-oriented content, not just hypothesis testing or approaching)

0. None, hypothesis-testing only, nothing help-oriented
1. Brief assistance, one pat or verbalization
2. Moderate assistance, more than one pro-social verbalization, physical assistance for 3-5 seconds
3. Prolonged assistance, more than 5 seconds.

10. SOCIAL REFERENCING

1. None
2. One glance at mom/dad.
3. More than one glance at mom/dad.
4. Glances at mom/dad with vocalizations to non-injured adult.

11. GLOBAL RATING OF CONCERN FOR OTHERS

1. Inattention; OR attention with some uninterested, amused, callous, angry, or distress present (e.g. crying with no concern).
2. Sustained attention without concern, only hypothesis testing; or brief concern but with the presence of something off (e.g. child shows mild concern but also a callous laugh).
3. Sobered, sustained attention, with facial concern (very subtle).
4. Sustained attention with a clear display of concern (e.g. prolonged facial concern). Prolonged without anything "off".
5. Sustained attention with a clear display of concern and along with another response indicating concern (e.g. helping, distracting, prosocial acts, verbal sympathy, offending object, etc.).
6. Sustained concerned expressions and more than one other response indicating concern. Absence of any selfish, callous, or angry responses
7. Proactive concerned responses including help behaviors as well as emotional and physical attention directly to the victim such as an approach and a query "are you okay?" or a hug, Absence of any selfish, callous, or angry responses .

The following codes pertain to the VICTIM'S behavior during the 30-second distress: Assign the victim a score on EACH of the following scales,

12. CREDIBILITY

1. Not credible, victim breaks character (e,g" mother laughs)
2. Appears believable, passable, probably would not strike a child as fake
3. Particularly believable or authentic, (i,e" mother asks experimenter, "Are you okay?")

13. AFFECTIVE INTENSITY

1. Little or no affect
2. Moderate
3. High (any shrieking however brief)

14. PROMPTING

1. No prompts used, no directives made to child
2. One prompt, perhaps calls child's name or visually engages child (do not count brief glances)
3. Two prompts
4. Three or more prompts

15. DURATION OF DISTRESS (for mothers the distress portion is considered over as soon as experimenter enters the room, even if she continues to feign distress)

1. 28 or less seconds
2. 28-32 seconds
3. 32+ seconds

Rate how difficult the videotape was to code. **16. DIFFICULTY**

1. easy 2.moderate 3. difficult

17. Parent Prompting

1. None.
2. Parent looks or reacts.
3. Parent actively prompts the child to help.

Appendix C

Coding Sheets

Sad/Happy Puppet Stories
Wellman & Woolley (1990)
Warm-Up Trials

Trial	Scenario	Face Given	Verbal Response Correct		Comments
			Yes	No	
1	Alex	Happy / Sad	O	O	_____
2	Bobby	Happy / Sad	O	O	_____

Test Trials

Trial	Verbal Response	Correct **VERBAL**		Facial Response	Correct **FACIAL**		Verbal and facial Correct (0=none; 1=unmatched 2=matched)
		Yes	No		Yes	No	
Finds-Substitute Garden **Sam** → sock	Happy / ***Sad***	O	O	Happy / Sad	O	O	0 1 2
Finds-Nothing Playroom **Betsy** → Nothing	Happy / ***Sad***	O	O	Happy / Sad	O	O	0 1 2
Finds-Something Garage **Johnny** → dog	***Happy*** / Sad	O	O	Happy / Sad	O	O	0 1 2
Finds-Nothing Barn **Annie** → Nothing	Happy / ***Sad***	O	O	Happy / Sad	O	O	0 1 2
Finds-Substitute Toybox **Peter** → Hat	Happy / ***Sad***	O	O	Happy / Sad	O	O	0 1 2
Finds-Something Backpack **Linda** → Mitten	***Happy*** / Sad	O	O	Happy / Sad	O	O	0 1 2

*Correct emotion responses are **bolded.***
TOTAL Warm-Up Correct: ___ / 2
TOTAL Verbal Correct: ___ / 6
TOTAL Facial Correct: ___ / 6
TOTAL Verbal/Facial Unmatched: ___ / 6
TOTAL Verbal/Facial Matched: ___ / 6

Broccoli Task
(Repacholi & Gopnik, 1997)
Coding Sheet: Order A1

Warm-up Trials

1. Asked for: _____ Gave: Truck _____
   Cup _____
   Cow _____

2. Asked for: _____ Gave: Truck _____
   Cup _____
   Cow _____

Food Request Task

Trial 1:

Baseline Preference:

Appealing: Taste _____ Touch _____

Unappealing: Taste _____ Touch _____

Task refusal: _____

Food Desired:

Appealing _____ Unappealing _____

Response:

First food touched _____ Latency _____

First food given _____ Latency _____

Task refusal _____

Trial 2:

Baseline Preference:

Appealing: Taste _____ Touch _____

Unappealing: Taste _____ Touch _____

Task refusal: _____

Food Desired:

Appealing _____ Unappealing _____

Response:

First food touched _____ Latency _____

First food given _____ Latency _____

Task refusal _____

Snack Boxes Task
(Wellman, Phillips & Rodriguez, 2004)

Food Request Task

Trial 1:

Baseline Preference:

Appealing: Taste _____ Touch _____

Unappealing: Taste _____ Touch _____

Task refusal: _____

Preferred Snack:

Appealing _____ Unappealing _____

Response:

Experimenter Affect: SAD / HAPPY

Child's response: CORRECT / INCORRECT

Latency: _____

Trial 2:

Baseline Preference:

Appealing: Taste _____ Touch _____

Unappealing: Taste _____ Touch _____

Task refusal: _____

Preferred Snack:

Appealing _____ Unappealing _____

Response:

Experimenter Affect: SAD / HAPPY

Child's response: CORRECT / INCORRECT

Latency: _____

Accident Simulation

ID: _____
Total Time: _____

1st 30 Seconds Circle if applies

a) Ignores Present / Absent
b) Active play Present / Absent
c) Self-soothing Present / Absent
d) Mask affect Present / Absent

Rate

1) Concern for victim:		1	2	3	
2) Positive affect:	1	2	3	4	
3) Anger:		1	2		
4) Distress/Fear:	1	2	3	4	5

Full 60 Seconds
Circle if applies

e) Distracts Present / Absent
f) Shares Present / Absent
g) Helps Present / Absent
h) Imitation Present / Absent
i) Vocal/verbal sympathy Present / Absent
j) Offending Object Present / Absent

Rate

5) Proximity to victim:	1	2	3	4			
6) Hypothesis testing:	1	2	3	4			
7) Callous or hostile:	1	2	3				
8) Self-referencing:	1	2	3				
9) Number of pro-social acts:	0	1	2	3			
10) Social-referencing	1	2	3	4			
10) Global Rating of Concern:	1	2	3	4	5	6	7
11) Credibility:	1	2	3				
12) Affect Intensity:	1	2	3				
13) Prompting:	1	2	3	4			
14) Duration of Distress: 1	2	3					
15) Difficulty:	1	2	3				
16) Parent Prompting: 1	2	3					

Appendix D

Parental Questionnaires

Early Childhood Behaviour Questionnaire
Short Form
(Putnam, Gartstein, & Rothbart, 2006)

Participant ID: _____ Child's birth date: Mo:____ Day:____ Yr:____

Today's date: Month: ____ Day: ____ Yr: ____ Child's age: _____Yrs, _____Months

Relation to child: _____ Sex of child (circle one): Male Female

INSTRUCTIONS: **Please read carefully before starting.**

As you read each description of the child's behaviour below, please indicate how often the child did this during the last two weeks by circling one of the numbers in the right column. These numbers indicate how often you observed the behaviour described during the last two weeks.

never	very rarely	less than half the time	about half the time	more than half the time	almost always	always	does not apply
1	2	3	4	5	6	7	NA

The "Does Not Apply" column (NA) is used when you did not see the child in the situation described during the last two weeks. For example, if the situation mentions the child going to the doctor and there was no time during the last two weeks when the child went to the doctor, circle the (NA) column. "Does Not Apply" (NA) is different from "NEVER" (1). "Never" is used when you saw the child in the situation but the child never engaged in the behavior mentioned in the last two weeks. Please be sure to circle a number or NA for every item.

When asked NOT to, how often did your child

1. run around your house or apartment anyway? 1 2 3 4 5 6 7 NA
2. touch an attractive item (such as an ornament) anyway? 1 2 3 4 5 6 7 NA
3. play with something anyway? 1 2 3 4 5 6 7 NA

While playing outdoors, how often did your child

4. look immediately when you pointed at something? 1 2 3 4 5 6 7 NA

When engaged in play with his/her favorite toy, how often did your child

5. play for 5 minutes or less? 1 2 3 4 5 6 7 NA
6. play for more than 10 minutes? 1 2 3 4 5 6 7 NA
7. continue to play while at the same time responding to your remarks or questions? 1 2 3 4 5 6 7 NA

After having been interrupted, how often did your child

8. return to a previous activity? 1 2 3 4 5 6 7 NA
9. have difficulty returning to the previous activity? 1 2 3 4 5 6 7 NA

When engaged in an activity requiring attention, such as building with blocks, how often did your child

10. move quickly to another activity? 1 2 3 4 5 6 7 NA
11. stay involved for 10 minutes or more? 1 2 3 4 5 6 7 NA
12. tire of the activity relatively quickly? 1 2 3 4 5 6 7 NA

During everyday activities, how often did your child

13. pay attention to you right away when you called to him/her? 1 2 3 4 5 6 7 NA
14. stop going after a forbidden object (such as a VCR) when you used a toy to distract her/him? 1 2 3 4 5 6 7 NA

When told "no", how often did your child

15. stop an activity quickly? 1 2 3 4 5 6 7 NA
16. stop the forbidden activity? 1 2 3 4 5 6 7 NA
17. ignore your warning? 1 2 3 4 5 6 7 NA

During everyday activities, how often did your child seem able to

18. easily shift attention from one activity to another? 1 2 3 4 5 6 7 NA
19. do more than one thing at a time (such as playing with a toy while watching TV)? 1 2 3 4 5 6 7 NA

When playing alone, how often did your child

20. become easily distracted? 1 2 3 4 5 6 7 NA
21. play with a set of objects for 5 minutes or longer at a time? 1 2 3 4 5 6 7 NA

When asked to wait for a desirable item (such as ice cream), how often did your child

22. seem unable to wait for as long as 1 minute? 1 2 3 4 5 6 7 NA
23. go after it anyway? 1 2 3 4 5 6 7 NA
24. wait patiently? 1 2 3 4 5 6 7 NA

When interrupted during a favorite TV show, how often did your child

25. immediately return to watching the TV program? 1 2 3 4 5 6 7 NA
26. not finish watching the program? 1 2 3 4 5 6 7 NA

While looking at picture books on his/her own, how often did your child

27. stay interested in the book for more than 10 minutes at a time? 1 2 3 4 5 6 7 NA
28. become easily distracted? 1 2 3 4 5 6 7 NA

When asked to do so, how often was your child able to

29. lower his or her voice? 1 2 3 4 5 6 7 NA
30. be careful with something breakable? 1 2 3 4 5 6 7 NA

While you were talking with someone else, how often did your child

31. easily switch attention from speaker to speaker? 1 2 3 4 5 6 7 NA

When you were busy, how often did your child

32. find another activity to do when asked? 1 2 3 4 5 6 7 NA

When playing alone, how often did your child

33. move from one task or activity to another without completing any? 1 2 3 4 5 6 7 NA
34. have trouble focusing on a task without guidance? 1 2 3 4 5 6 7 NA

MY CHILD
Short Version
(Kochanska, et al., 1994)

This questionnaire includes 28 statements that describe how some children react to different situations or events. Please read each statement and think about how accurately the statement describes your child's typical behaviours or reactions. Then, describe your child by circling a number from 1: "Extremely Untrue, or Not At All Characteristic of My Child," to 7: "Extremely True, or Very Characteristic of My Child."

Please answer every question. If you have never had the opportunity to see your child engage in the behaviour or react to the situation depicted in the statement, please think about how your child would probably react, and respond to the question according to what you would expect from your child. There are no "right" or "wrong" answers.

Extremely Untrue/ Not at all characteristic	Quite Untrue	A Little Untrue	Neither True nor Untrue (neutral)	A Little True	Quite True	Extremely True/ Very Characteristic
1	2	3	4	5	6	7

My Child...

1. Will try to comfort or reassure another in distress.	1 2 3 4 5 6 7
2. Is likely to scold another child who violates a household rule.	1 2 3 4 5 6 7
3. Will spontaneously say "sorry" after having done something wrong.	1 2 3 4 5 6 7
4. May occasionally tease a pet if unsupervised.	1 2 3 4 5 6 7
5. Feels good when good things happen to movies characters.	1 2 3 4 5 6 7
6. Unless specifically asked to do so, s/he is not likely to apologize on his/her own.	1 2 3 4 5 6 7
7. Acts upset when s/he sees a hurt animal.	1 2 3 4 5 6 7
8. Does not seem upset when s/he breaks a new toy.	1 2 3 4 5 6 7
9. Has to be reminded to say "sorry" when s/he has done something wrong.	1 2 3 4 5 6 7
10. When s/he has hurt a playmate, will try to make up for it by offering toys or prized possession to the other child.	1 2 3 4 5 6 7
11. Rarely cries or looks upset when watching a sad TV show.	1 2 3 4 5 6 7

12. Likely to show spontaneously nurturing and care-giving behavior towards an animal.	1 2 3 4 5 6 7
13. Seems relieved when given an opportunity to repair a damage s/he has caused.	1 2 3 4 5 6 7
14. Can tell at just a glance how others are feeling.	1 2 3 4 5 6 7

Extremely Untrue/ Not at all characteristic	Quite Untrue	A Little Untrue	Neither True nor Untrue (neutral)	A Little True	Quite True	Extremely True/ Very Characteristic
1	2	3	4	5	6	7

15. Not particularly likely to offer to clean up if s/he has caused a mess (for example, a spill).	1 2 3 4 5 6 7
16. On his/her own, is likely to promise not to do it again after doing something wrong.	1 2 3 4 5 6 7
17. Does not need to be reminded to say "sorry" when s/he does something bad.	1 2 3 4 5 6 7
18. Likely to ask "what's wrong?" when seeing someone in distress.	1 2 3 4 5 6 7
19. Will spontaneously say "sorry" to a playmate or sibling when necessary.	1 2 3 4 5 6 7
20. Gets angry at aggressor, "bad guy", who hurt a TV character.	1 2 3 4 5 6 7
21. Eager to make amends for doing something naughty.	1 2 3 4 5 6 7
22. After breaking something, doesn't seem particularly concerned about fixing the damage.	1 2 3 4 5 6 7
23. Is upset by stories in which characters are hurt or die.	1 2 3 4 5 6 7
24. When s/he has caused some damage (for example, dropped or broken an object), will try to put the pieces together, clean up, etc.	1 2 3 4 5 6 7
25. When s/he breaks a toy during play, simply moves to another activity or other toys.	1 2 3 4 5 6 7
26. Will feel sorry for other people who are hurt, sick, or unhappy.	1 2 3 4 5 6 7
27. Is not likely to become upset if a playmate cries.	1 2 3 4 5 6 7
28. Is casual about spills or damages that s/he has caused (for example, may suggest that the spill will dry by itself).	1 2 3 4 5 6 7