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Self–other overlap is a multi-dimensional construct; however, little is known about the characterization of these dimensions through early to middle childhood. The present work introduced several adapted measures for investigating the early development of two self–other overlap dimensions: Perceived Closeness (claimed similarity with a target other) and Overlapping Representations (cognitive confusion or merging of self and other). Children aged 5-6 ( $n = 45$ ) and 7-8 ( $n = 45$ ) completed measures of these dimensions of overlap between themselves and a close (best friend) and distant (acquaintance) target other.

Children in both age groups had higher Perceived Closeness for a close than a distant target other, with larger distinction between the target others by the older group than the younger group. No Target Relationship differences were found for Overlapping Representations measures; however, exploratory analyses revealed patterns of self-enhancement in ratings of self and others, as well as a tendency for younger children to make more favorable misattributions to the self than to others in a trait memory game. An Age effect for one Overlapping Representations measure suggested that younger children have higher Overlapping Representations with others than do older children. These patterns are discussed in terms of the emergence of self-concept and cognitive abilities, the development of implicit personality theories, and self–other overlap's relations with person perception and biases, as well as considerations for future measurement.

PATTERNS OF SELF-OTHER OVERLAP IN CHILDREN

by

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## CHAPTER I

### INTRODUCTION

“What is a friend? A second self,” Aristotle asserted (Diogenes Laertius, trans. 1925). Since early philosophy about human relationships, the idea of closeness has included the notion that others can be very much incorporated in the self. In psychology, the extent to which there is confusion between the mental representations of self and other (Aron, Aron, Tudor, & Nelson, 1991; Batson et al., 1997) and the amount of closeness or interdependence subjectively perceived between self and other (Berscheid, Snyder, & Omoto, 1989) have traditionally been grouped into the construct of self–other overlap. In simple terms, self–other overlap can be defined as a continuum of viewing others as incorporated in the self, either consciously or subconsciously. Researchers have therefore been interested in examining how the experience and potential manipulation of self–other overlap may impact people’s thoughts, feelings, and behavior, and have explored these questions in areas such as empathy and altruistic action (Batson et al., 1997; Cialdini, Brown, Lewis, Luce, & Neuberg, 1997), intergroup relations and opinions (Craemer, 2008, 2009; Laham, Tam, Lalljee, Hewstone, & Voci, 2010), and complexity of views about others (Waugh & Fredrickson, 2006).

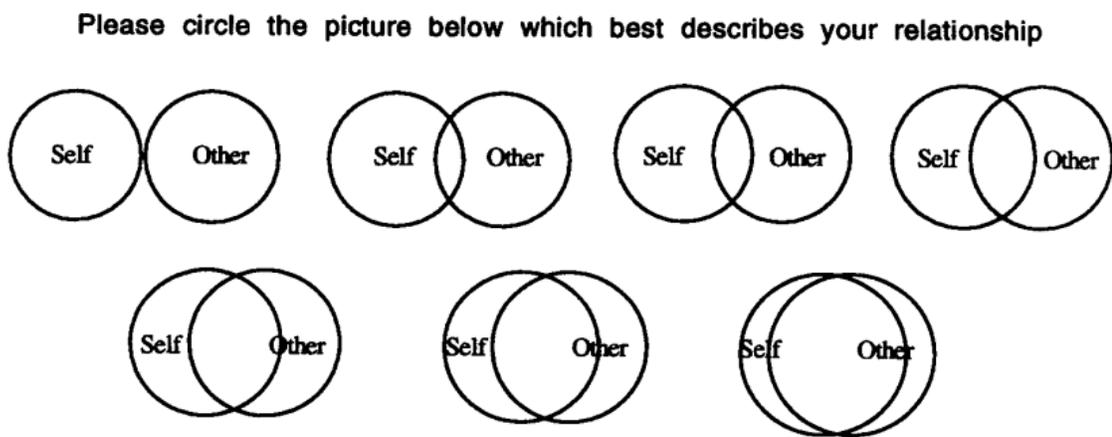
One key finding is that self–other overlap plays a central role in the process by which perspective-taking effectively increases prosocial behavior (Cialdini et al., 1997; Neuberg et al., 1997) and decreases prejudicial thoughts (Galinsky & Moscovitz, 2000).

A second, related key finding is that higher self–other overlap decreases negative emotions and actions toward outgroup members (Laham et al., 2009). Thus, although self–other overlap occurs within one’s own cognitive processing, it has noteworthy implications for social functioning, and may be of interest in interventions aimed at promoting optimal interpersonal and intergroup relations. Furthermore, self–other overlap impacts people’s self-views: just as the self’s attributes are more readily ascribed to close others as self–other overlap increases, so close others’ attributes become more readily ascribed to the self in this process. Slotter and Gardner (2009) highlighted this effect, finding that new attributes of close others become quickly integrated into the self once they are discovered. Because of this, self–other overlap may directly change a person’s perspective on him- or her- self.

Researchers have proposed a multidimensional view of self–other overlap to capture the different manifestations of self–other overlap that have been observed. In Myers and Hodges’ (2012) evaluation, seven different self–other overlap measurements were assessed in application to multiple target others (a best friend, an acquaintance, and a stranger). Factor analysis revealed three main subcomponents of self–other overlap: Behaving Close (not considered further in the present study), Perceived Closeness, and Overlapping Representations.

Perceived Closeness is based on the subjective evaluation of one’s closeness with and similarity to target others, judged by responses to questions such as, “To what extent would you use the word ‘we’ to describe your relationship with [Target other’s name]?” (Cialdini et al., 1997), or statements such as, “This person influences important things in

my life” (RCI; Berscheid et al., 1989). Perceived Closeness is also measured by asking participants to select the amount of overlap that best describes their relationship using a visual representation of self and other as converging circles, as in the popular Inclusion of Other in Self (IOS) measure developed by Aron, Aron, and Smollan (1992; see Figure 1). A recent variation of this measure, the Dynamic IOS, is an endeavor to make a more sensitive, continuous scale by allowing participants to manipulate the distance between the representational circles on a computer screen using a joystick (Hodges, Sharp, Gibson, & Tipsord, 2013; Myers & Hodges, 2012). Each of these measures assesses participants’ expressed level of overlap with target others.



*Figure 1. Inclusion of Other in the Self (IOS) Scale. From Aron et al. (1992).*

Overlapping Representations refers to the extent to which participants ascribe similar personality descriptions to themselves and a target other, demonstrating the degree to which their cognitive representations of their own and the target other’s attributes are shared. One method to assess Overlapping Representations employs an

extensive adjective checklist, from which participants first endorse descriptive words for themselves, and later do the same for the target other. The percentage of adjectives used for the self that are then used for the target other serves as a measure of Overlapping Representations (Davis, Conklin, Smith, & Luce, 1996; Myers & Hodges, 2012). Another method involves asking participants to rate themselves and then the target other on a shorter list of attributes on a scale from “not at all” to “extremely” representative. An absolute difference score is then taken; lower absolute difference scores show greater cognitive similarity, and therefore higher Overlapping Representations (Batson et al., 1997).

Myers and Hodges’ (2012) test of the various self–other overlap measures with a best friend (close target other), acquaintance (distant target other), and stranger (unknown target other) consistently supported a multifactor structure for self–other overlap. Given the likelihood that self–other overlap is a multidimensional construct, research to explore the development of self–other overlap early in life should consider that the different subcomponents of self–other overlap may exhibit different developmental trajectories. Similarly, many developmental processes, such as changes in person perception and social understanding, categorization and biases, and cognitive ability to represent self and others complexly, may relate in distinct ways to these subcomponents of self–other overlap. Increased knowledge about the relations between these processes and self–other overlap in childhood could further inform our understanding of the social and cognitive development of children.

## **Self–Other Overlap in Children**

Despite the fact that the majority of research on self–other overlap has been done with an adult population, self–other overlap may have important implications for earlier development. High self–other overlap early in life may be adaptive by fostering several interrelated outcomes: namely, motivation for social engagement, a sense of belonging, and optimal social learning. Research on relationships during childhood has supported the conclusion that affiliative ties with others are extraordinarily impactful on children’s development (Hartup, 1996). High self–other overlap during early social development may promote this important social engagement by increasing the perceived self-relevance of others’ actions. Furthermore, it may facilitate social functioning by promoting more prosocial behavior. A sense of similarity to and connectedness with others could help to engender an important sense of belonging. Attentiveness to and feeling of personal involvement with others’ actions may also motivate and provide opportunities for increased social coordination and competence. Indeed, Galinsky, Ku, and Wang (2005) asserted that self–other overlap can assist in “increasing behavioral mimicry and coordinating social behavior” (p. 110), thus contributing to self–other overlap’s signature feeling of “one-ness”.

Relatedly, self–other overlap could also impact social learning. Higher self–other overlap has been shown to elevate neural sensitivity to negative social situations experienced by others; a study by Meyer et al. (2013) demonstrated greater activation of brain regions associated with pain when people witnessed high rather than low self–other overlap targets experiencing social rejection. Thus, children’s social knowledge and

functioning is likely to be more impacted by observing the social situations of people with whom children have higher self–other overlap. Similarly, studies of neural responses to others’ actions have shown that high self–other overlap increases the brain’s reactivity to others’ mistakes (Kang, Hirsh, & Chasteen, 2010). This could be adaptive for facilitating children’s observational learning in many domains. Finally, the social influence of self–other overlap may generally improve learning outcomes by promoting levels of peer engagement important for children’s exploration, imaginary play, task-focused discussion, and improved memory during the learning process (see Hartup, 1996).

Various skills in early childhood could be related to self–other overlap. Due to age-related changes in children’s skills and the social and cognitive demands they face (Eccles, 1999), it is also relevant to consider how patterns of self–other overlap may emerge and change adaptively with age. For young children, the need for abilities such as observational learning and broad social engagement may make “target-unspecific” high self–other overlap adaptive. In this case, at least some components of self–other overlap may be high regardless of how objectively close the target other is (e.g., a best friend target may have the same high overlap as an acquaintance). This casts a wide net for information acquisition at an early age. However, older children could begin to experience greater need for “target-specific” self–other overlap, in which self–other overlap would be more highly discriminated based on identification of target closeness. More selective self–other overlap in older children may be appropriate for their learning environment, helping to filter the increased quantity and specificity of self-relevant

feedback. Indeed, older children and adolescents do seem to filter feedback based on overlap with others, placing far more weight on feedback about self (e.g., self-worth) from close than from distant others (see Gorrese & Ruggieri, 2013). Paired with the finding that adults incorporate attributes of close others into their view of self (Slotter & Gardner, 2009), this implies that it may be best for children's perceptions of self if they are influenced by a more select group of others; this may be especially relevant and adaptive as children experience increased social exposure with age.

Finally, adults exhibit target-specific self–other overlap, showing higher self–other overlap for friends rather than acquaintances (Myers & Hodges, 2012) and for immediate rather than distant kin (Tan et al., 2015). It is not known when this pattern emerges; it could be that children exhibit target-specific self–other overlap from a young age, or it could be (as I have suggested) that young children have less target-specific self–other overlap patterns, and greater target-specificity emerges with age. If this latter suggestion is the case, it is important to learn more about how and when this occurs so that its associations with other developmental processes and outcomes can be better understood.

In summary, self–other overlap may be related to appropriate socialization, self-views, and learning across early development, but the way in which self–other overlap interacts with these processes may change with age. Research into the self–other overlap construct (and its subcomponents) can begin to provide an exploration of its developmental patterns. Up to this point, I have discussed mainly the development of self–other overlap as a unified construct. However, as mentioned previously, self–other

overlap is best understood as multidimensional; furthermore, these distinct dimensions could relate differentially to developmental processes and outcomes. The discussion that follows therefore takes a more specific view of the Perceived Closeness and Overlapping Representations aspects of self–other overlap and their relations to development.

### **Overlapping Representations**

To formulate ideas about the development of these subcomponents, it is useful to examine research that specifically addresses self and other views through early development. For instance, the attachment-based relationship in infancy seems to be characterized by high sharing of emotion (as in emotional synchrony; Hutman & Dapretto, 2009), sharing of attention (joint attention; Mundy & Newell, 2007), and imitation (Marshall, Saby, & Meltzoff, 2013), types of “overlap” that may serve as precursors for cognitive self–other overlap later in development. Interestingly, research has also shown that adult relationships with high self–other overlap are characterized by higher imitation (Maister & Tsakiris, 2016). Therefore, imitation habits and self–other overlap may have an ongoing, bidirectional association across development. These early-emerging processes may undergird the development of Overlapping Representations, and later-emerging cognitive processes could support its differentiation. Similarly, Bowlby (1969) attested that infant-caregiver relationships have lasting impact on mental representations of self and other, and especially on the expected interrelation of self and other. However, more developed or conscious expressions of these representations may emerge later in development, with the support of other processes.

One might argue that young children very evidently do not exhibit high self–other overlap with all others. In particular, young children have been shown to display early-emerging biases such as ingroup preference; these may adaptively constrain their automatic high self–other overlap to within their social group (Dunham, Baron, & Banaji, 2008). In other words, ingroup biases create a possible constraint on self–other overlap by providing categorical us-them divisions for children, creating group-level differentiations of self–other overlap. I therefore must limit my discussion of self–other overlap to relationships occurring within one’s ingroup, and hope that future work can begin to address the qualifiers and nuances to the development of self–other overlap which will certainly lead to greater understanding of the phenomenon. Indeed, as much of the interest in self–other overlap involves promoting positive intergroup relationships, this is an important next step.

Research on older children’s social cognitive development can also inform theories about the development of the subcomponents of self–other overlap in childhood. Early on, person perceptions are characterized by simplistic and broad descriptors, and are often affected by a positivity bias, in which children do not easily maintain negative cognitive representations of their own or others’ personalities and actions (Boseovski, 2010). If young children do have high Overlapping Representations, positivity bias about others could reflect a rejection of information that is self-threatening because of these others’ cognitive incorporation with the self.

However, as children progress through middle childhood, they become more sophisticated in formulating personality perceptions. During this period, children develop

more complex psychological descriptions of self and others (Livesley & Bromley, 1973). The ability to label a greater variety of psychological traits as children develop in their linguistic and social skills means that knowledge structures about the self and others can become more complex; consequently, patterns of overlap between self and other can also become more complex. For instance, younger children might predominantly use just a few broad trait labels (e.g., good, nice, smart, dumb, mean), such that their mental model of their own personality and that of others is fairly simplistic. Thus, for example, if others were judged to be mainly good, nice, and/or smart, they could fall easily into a “like me” category and therefore share high Overlapping Representations. In contrast, older children might understand and employ more nuanced trait labels in their mental models of self and others, creating a more varied spectrum of overlap. Although older children might judge themselves and another person as both good, nice, or smart, they might use more specific terms (e.g., I am outgoing and friendly and he is shy but generous), resulting in the potential for lower Overlapping Representations with others.

Therefore, with age, a change from target-unspecific to more target-specific Overlapping Representations may occur, due in part to an expanded array of potential personality descriptors. Relatedly, diminishment of positivity bias (Boseovski, 2010) may serve as an indicator of this new ability to separate cognitive representations of self and other — as more differentiation between self and other occurs, the bias to reject negative views of others because of threat to the self would also diminish. Because of children’s biases and age-related changes in processing positive versus negative trait information,

exploration of self–other overlap development should consider the association of trait valence with the emergence of patterns of self–other overlap in childhood.

### **Perceived Closeness**

In contrast to Overlapping Representations, Perceived Closeness, may be a simpler aspect of self–other overlap to examine: both younger and older children have been shown to express different conscious levels of closeness with various others (Meurling, Ray, & LoBello, 1999; Newcomb & Bagwell, 1995; Sturgess, Dunn, & Davies, 2001). Thus, target-specific Perceived Closeness can be expected to exist in all age groups. This qualifies the previous statement that in general, high, target-unspecific self–other overlap may be adaptive in younger children. Perceived Closeness may address the core issues of socialization, self-views, and learning differently than Overlapping Representations. For instance, although Overlapping Representations may promote social attunement (Hutman & Dapretto, 2009), Perceived Closeness may represent ways in which children act on their social situation (e.g., by expressing relationships with others) to establish and maintain social ties. Like Overlapping Representations, it may facilitate collaborative learning and belongingness, but may do so in a narrow affiliative group, perhaps laying the groundwork for later expression of differentiated Overlapping Representations. Nonetheless, while explicit relationships might be acknowledged by children in this age range, overlap may not yet be established through cognitive organization of attribute information. Therefore, although younger children are predicted not to differentiate Overlapping Representations, they are expected to differentiate levels of Perceived Closeness with others.

## **Self–Other Overlap and Social Cognitive Development**

Both components of self–other overlap may be related to skills broadly representative of the increased ability to understand distinctions as well as relations between others and the self. In the present study, I began the exploration of the links between self–other overlap and other social cognitive abilities by assessing Theory of Mind (ToM) and relational vocabulary, which served as indicators of children’s overall relational cognitive ability. ToM is suitable for this because it includes the ability to understand that others’ mental states may not directly reflect one’s own thoughts or observations. Thus, with greater ToM, children are better able to appropriately distinguish the feelings or beliefs of others as different from their own or from their perceptions of reality (Wellman, Fang, & Peterson, 2011). Relational vocabulary refers to the ability to identify the group membership shared by two items, demonstrating a recognition of categories (Newcomer & Hammill, 2008). This reflects a more general cognitive ability to recognize the relations between two items, noting how they are similar and correctly rejecting ways in which they are not similar. Because both measures assessed children’s ability to cognitively organize and understand relationships, I combined these two measures to create a measure of overall Relational Cognitive Ability. Although many other social and cognitive variables could be considered, these were selected as especially relevant to understanding the relationship of self and other.

Despite the potential connections to important developments in social skills, person perception, and learning, self–other overlap has received very little attention in the developmental literature. However, studies of self–other overlap may be valuable in

offering further detail about the development of children's social cognitions. I designed the current study to take an initial step toward this goal.

### **Hypotheses**

I hypothesized that both younger (ages 5-6) and older participants (ages 7-8) would demonstrate target-specific Perceived Closeness (specifically, higher Perceived Closeness scores for a best friend than for an acquaintance) because of children's ability to express differences in their closeness with others throughout this age range (Meurling et al., 1999; Newcomb & Bagwell, 1995; Sturgess et al., 2001). I further hypothesized that only older participants would demonstrate target-specific Overlapping Representations (again with higher scores for a best friend than an acquaintance), whereas younger participants would have equivalent scores for a best friend and an acquaintance. This is because the social and learning needs of younger children may be benefitted by less target-specific Overlapping Representations, whereas those of older children may be more likely to benefit from more target-specific Overlapping Representations. Additionally, the cognitive abilities of younger children may be less suited to creating differentiated levels of self-other overlap than are those of older children. Following this logic, I hypothesized that increases in Relational Cognitive Ability would account for Age-related differences in which older children showed more differentiation.

## CHAPTER II

### METHOD

#### **Participants**

Data were collected from two age groups: 5-6 year-olds ( $n = 45$ , 17 females,  $M_{age} = 5.90$ ,  $SD = .543$ ) and 7-8 year-olds ( $n = 45$ , 21 females,  $M_{age} = 8.03$ ,  $SD = .570$ ).

Participants were recruited from a database of families from the community, representative of a diverse range of racial, ethnic, and SES backgrounds. Of the participants, 71.1% were White, 12.2% were African American, 11.1% were multiracial, 2.2% were Asian, and 3.3% opted not to indicate race; 3.3% of participants also identified as Hispanic. Furthermore, annual family incomes of the participants ranged from less than \$15,000 to more than \$90,000, with 40.0% of participants earning below \$60,000, 56.7% earning above \$60,000, and 3.3% opting not to indicate income. The sample size was estimated from a G-Power analysis (effect size = .15, power = .8, and  $\alpha = .05$ ). Participants were tested at a university laboratory.

#### **Materials**

##### **Target others.**

Participants were asked to generate one best friend (close target other) and one liked but lesser-known acquaintance (distant target other), both of the same sex as the participant. The use of real target others was consistent with Myers and Hodges' (2012)

method and is likely to have greater ecological validity than the use of hypothetical target others. However, it must be acknowledged that real target others may differ in the similarity of their actual attributes to those of the participant; because sharing similar attributes is more often a component of close friendships than it is acquaintanceships, close friends may objectively be more similar in their traits to the participant than are acquaintances (Haselager, Hartup, van Lieshout, & Riksen-Walraven, 1998). Although sex-matching the target others may have excluded the most natural best friend or acquaintance selection of some children, this design eliminated the chance that children would tend to identify same-sex best friends and opposite-sex acquaintances, and so prevented an ingroup-outgroup confound in interpreting observed differences in self-other overlap measures for the target others.

**Self-other overlap.**

*Perceived Closeness.* The Inclusion of Other in Self (IOS) scale was used for measuring Perceived Closeness (Aron et al., 1992). This scale presents 7 Venn-diagram-like depictions of two circles at varying degrees of convergence, and participants are traditionally instructed to select the picture that “best describes your relationship”. Participants in the present study were shown this scale and asked to indicate which one “best shows how you and [Target’s name] are”.

An additional measure of perceived similarity was taken by asking children, “How much do you think [Target name] is like you?” Participants responded to the reported similarity question on a 5-point picture scale from 1 (*not at all*) to 5 (*very much*).

Participants were also asked a “We”-ness question (modified from Cialdini et al., 1997), rating their response to “How much would you use the word ‘we’ to talk about you and [Target name]?” on a 5-point picture scale from 1 (*never*) to 5 (*always*).

***Exploratory Perceived Closeness measure.*** The Story Inclusion of Other in Self scale (Story IOS) was collected as an additional exploratory measure for the Perceived Closeness self–other overlap factor. For this measure, participants colored figures on cards to represent themselves and each target other. Participants were asked to place the card showing themselves and a card showing one of the target others on a large play mat on the floor depicting a farm or city scene, and relational distance was measured as the amount of physical distance between the figures. This task was performed for both self and target other pairs. Pairings were counterbalanced across participants, as was the order of the scenes (farm or city) into which the figures were placed. This procedure was akin to the Dynamic IOS (Myers & Hodges, 2012), in which participants have the freedom to manipulate figures’ proximity to one another in a continuous fashion, rather than preset increments (i.e., the standard 7 selectable options). However, instead of being done on a 2D computer screen with a blank background, the present activity was done on a mat on the floor of the study room with a depicted farm or city background. This was more engaging for the children and required less abstract comprehension of the task than would the Dynamic IOS.

***Overlapping Representations.*** A trait misattribution task was used to judge Overlapping Representations (modified from Mashek, Aron, & Boncimino, 2002, see also Bennett & Sani, 2011). In this task, people show greater cognitive confusion (i.e.,

overlap) between themselves and other entities that are meaningfully incorporated into the self, thus misattributing more information as referring to the self that was actually referring to a close other, or vice versa. Three sets of six cards are provided that contain different personality adjectives; each set consists of three positive and three negative words. Participants rate one set of adjectives for self and one set per target other on a 5-point picture scale from 1 (*not at all*) to 5 (*very much*). Pairings between adjective sets and targets were counterbalanced across participants, such that the same adjectives were not always rated for the same target. Furthermore, word order within each adjective set was randomized. After a distraction period, participants were presented with all words in randomized order and prompted to recall for which target each word was rated (note that Bennett & Sani, 2011, found no significant differences between free recall and prompted recall). Misattributing words rated for self as belonging to a given target other or words rated for that target other as belonging to the self indicated higher cognitive confusion in the representations between those two individuals, and thus higher Overlapping Representations. Scores were calculated as the proportion of words misremembered between self and a given target other out of total words misremembered. Thus, scores could range from 0 (none of the memory errors occurred between self and this target other, indicating low cognitive confusion) to 1 (all of the memory errors occurred between self and this target other, indicating high cognitive confusion). Proportions were used rather than raw numbers in order to compare across age groups while accounting for the higher frequency of errors made by younger children.

Following the trait misattribution task, participants completed self-ratings for the words previously rated only for the target others, using the same 5-point picture scale as before. This trait rating task was comparable to an adjective rating task used by Batson et al. (1997), and was more appropriate for children than lengthier and more lexically challenging adjective checklists (e.g., those used by Davis et al., 1996; and Myers & Hodges, 2012). Absolute difference scores between self and other ratings were calculated and totaled for each target other. Higher absolute difference scores represented lower levels of self–other overlap, and lower scores represented higher levels of self–other overlap. Scores could range from 0 (no difference in ratings) to 24 (the largest possible difference in ratings on each attribute in the set for that target).

***Relational Cognitive Ability.*** Further measures were collected to examine the potential mediating effects of Relational Cognitive Ability on the development of self–other overlap. The ToM component of Relational Cognitive Ability was tested using Peterson, Wellman, and Liu’s (2005) false belief and hidden emotion tasks, as well as Peterson, Wellman, and Slaughter’s (2012) sarcasm task, which are appropriate for distinguishing ToM abilities in the 5 to 8 age group (see Peterson et al., 2012). These were presented in order from the least to most challenging. The false belief task was first. Children were shown a Band-Aid box and asked what they thought it contained, and then the unexpected contents of the box (toy frogs) were revealed. After these were returned to the box, children were shown a picture of a boy, told that the boy had not looked in the box, and asked what the boy would think was in the box. To pass the false belief task, children must identify that the boy would think that the box contained Band-Aids. The

hidden emotions task came next. Children were shown a picture of a boy from the back (so that his face was hidden), and were told that he had been made fun of in front of his friends, but did not want to seem upset because his friends would call him a baby. Children were then asked to point to the picture of a face representing how the boy really felt (sad, okay, or happy), and then, from the same options, a picture of how the boy tried to look on his face when he was made fun of. To pass this task, children must correctly identify that the boy tried to look happier than he felt. Finally, children completed the sarcasm task, which contained a story about a boy and a girl going on a picnic that was unexpectedly interrupted by bad weather. Children were told a comment the girl made about the “lovely” weather and were asked to explain why she made this comment. To pass the task, children had to allude to sarcasm or joking in their response. The number of tasks passed was used to create an overall ToM score.

The task to measure relational vocabulary was a subtest of the Test of Language Development Primary, fourth edition (TOLD-P:4), a test designed to measure linguistic development in children ages 4 to 8 years (Newcomer & Hammill, 2008). The relational vocabulary subtest consists of 34 word pairs (e.g., “tin” and “iron”) verbally presented one pair at a time by the experimenter. Children were asked how the two items named were alike. Appropriate answers were scored as 1; all other answers were scored as 0. After five incorrect responses in a row, no more pairs were presented and the score was calculated by totaling correct responses up to that point.

## **Procedure**

All measures were verbally administered to participants in the laboratory, with visual aids provided as appropriate. Parents helped children to identify a best friend and an acquaintance target other. The experimenter wrote each target other's name above a figure outline on a card, and children were given the opportunity to color in the figure to look like the person they identified. Children then performed initial adjective ratings to be used in the adjective confusion and adjective rating tasks. Following this, children engaged in the Story IOS procedure for both target others. They were then asked to recall for whom each adjective had been rated, thus completing the trait misattribution task. Next they provided self-ratings on the adjectives initially rated for the target others, thus completing the trait rating task. Finally, they completed the IOS, reported similarity, and "We"-ness measures for each target other. Following these main measures, children completed the ToM and relational vocabulary measures. At the end of the session, participants were thanked, debriefed, and awarded a small prize for their participation.

## CHAPTER III

### RESULTS

Means and standard deviations of all measures can be found in Table 1.

*Table 1*

*Descriptive Statistics for All Perceived Closeness and Overlapping Representations Measures.*

Measures	Best Friend		Acquaintance	
	Younger <i>M(SD)</i>	Older <i>M(SD)</i>	Younger <i>M(SD)</i>	Older <i>M(SD)</i>
<b>Perceived Closeness</b>				
IOS	4.73(2.26) <sup>a</sup>	6.18(1.42)	4.18(2.28)	4.38(1.89) <sup>b</sup>
Reported similarity	4.07(1.30)	4.18(.94)	3.20(1.70)	2.78(1.24)
“We”-ness	3.80(1.46)	3.87(1.04)	3.18(1.59)	3.02(1.27)
Story IOS (exploratory)	15.34(13.91)	17.49(13.96) <sup>c</sup>	18.13(14.90)	25.03(13.01) <sup>c</sup>
<b>Overlapping Representations</b>				
Absolute difference in trait ratings	5.36(4.24) <sup>d</sup>	4.69(3.44)	5.93(5.28)	5.13(3.49)
Trait misattribution (as proportion)	.30(.18) <sup>e</sup>	.28(.21)	.33(.19) <sup>e</sup>	.25(.18)
Trait misattribution (as raw scores)	2.59(1.72) <sup>e</sup>	1.56(1.10)	2.71(1.52) <sup>e</sup>	1.49(1.31)

*Note.*  $N = 90$ , except where noted.

<sup>a</sup> $n = 89$ ; one participant excluded for not completing IOS measure for best friend.

<sup>b</sup> $n = 89$ ; one participant excluded for not completing IOS measure for acquaintance.

<sup>c</sup> $n = 89$ ; one participant excluded for experimenter error on Story IOS measure.

<sup>d</sup> $n = 89$ ; one participant excluded for not completing all trait ratings for self.

<sup>e</sup> $n = 89$ ; one participant excluded for misinterpreting adjective memory task.

After it was determined that the standard IOS, reported similarity, and we-ness measures were sufficiently correlated (see Table 2), the z-scores of these measures were averaged to create a composite Perceived Closeness score. (The exploratory Story IOS measure was not sufficiently correlated with the other measures, and thus was not included in the composite score.)

Because the scores from the trait misattribution task and the absolute differences in trait ratings task were not adequately correlated (for self and best friend,  $r = .149$ ,  $p = .165$ , and for self and acquaintance,  $r = -.053$ ,  $p = .619$ ), z-scores of each measure were analyzed separately. The absolute difference in trait ratings scores were positively skewed for both best friends (possible range: 0-24,  $M = 5.02$ ,  $SE = .408$ , skewness = .751,  $SE_{skewness} = .255$ ) and acquaintances (possible range: 0-24,  $M = 5.53$ ,  $SE = .471$ , skewness = 1.463,  $SE_{skewness} = .254$ ). A square root transformation resulted in acceptable skewness (skewness less than twice the  $SE_{skewness}$ ) for best friends' (skewness =  $-.427$ ,  $SE_{skewness} = .255$ ) and acquaintances' (skewness =  $-.186$ ,  $SE_{skewness} = .254$ ) scores; transformed scores were used in the analyses.

ToM and relational vocabulary scores were highly correlated with one another ( $r = .493$ ,  $p < .001$ ), and so were combined into a composite score (hereafter "Relational Cognitive Ability") by taking an average of the z-scores of each measure.

No effects of Sex were found in the main analyses; it is therefore excluded from the below results.

Table 2

*Correlations of Perceived Closeness Measures between Self and Target Others.*

Measures for Best Friend	2.	3.	4.
1. Reported Similarity	.173 (.115, .283)	.412** (.358*, .557**)	-.122 (-.262, .059)
2. We-ness Question	-	.095 (.091, .125)	.056 (.022, .100)
3. IOS		-	-.185 (.385**, -.006)
4. Story IOS			-

Measures for Acquaintance	2.	3.	4.
1. Reported Similarity	.552** (.509**, .623**)	.432** (.303*, .677**)	.015 (.095, -.023)
2. We-ness Question	-	.300** (.129, .556**)	-.044 (-.007, -.073)
3. IOS		-	.061 (.184, -.127)
4. Story IOS			-

*Notes.* Higher overlap is indicated by higher scores for the Reported Similarity, We-ness question, and IOS measures, and by lower scores (i.e., less distance) in the Story IOS measure. Correlations from the younger and older age groups are provided underneath correlations from the entire group.

\*  $p < .05$ , \*\*  $p < .01$ .

## Perceived Closeness

Did Perceived Closeness differ by target? Was this difference the same for both age groups, as predicted? A 2 X 2 (Age, between subjects X Target Relationship, within subjects) mixed ANOVA for Perceived Closeness provided partial support for the expected pattern in Perceived Closeness scores (see Figure 2). One participant was excluded from analyses for not completing a measure contributing to the Perceived Closeness composite score. The absence of a main effect of Age showed that, as predicted, younger children did not exhibit significantly different overall Perceived Closeness scores ( $M = -.037, SE = .081$ ) than did older children ( $M = .040, SE = .080$ ),  $F(1, 87) = .455, p = .502, \eta^2_p = .005$ . Also as predicted, a significant main effect of Target Relationship showed that regardless of age, Perceived Closeness for a best friend ( $M = .316, SE = .064$ ) was higher than that for an acquaintance ( $M = -.313, SE = .086$ ),  $F(1, 87) = 40.121, p = .000, \eta^2_p = .316$ .

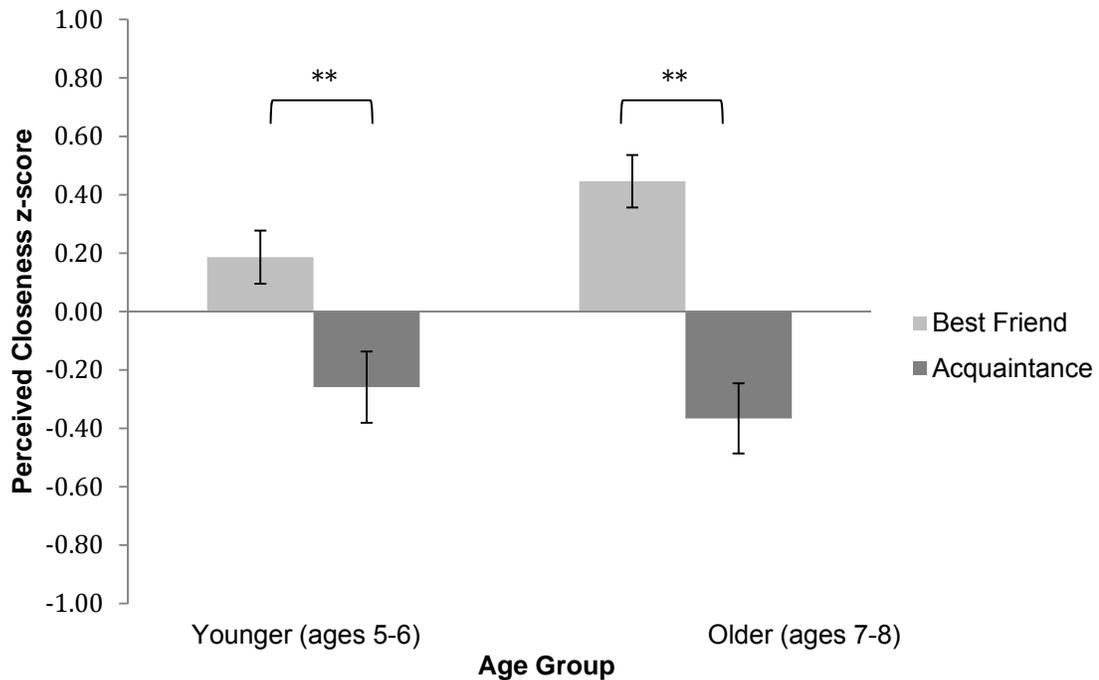


Figure 2. *Perceived Closeness z-scores.* Perceived Closeness as a function of age and target relationship.

\*  $p < .05$ , \*\*  $p < .01$ .

Thus, Perceived Closeness with both others overall did not increase or decrease with age, but for both age groups, Perceived Closeness was greater for best friends than for acquaintances. However, the Target Relationship main effect was qualified by a marginally significant interaction effect of Age X Target Relationship,  $F(1, 87) = 3.410$ ,  $p = .068$ ,  $\eta^2_p = .038$ : older children showed a marginally larger differentiation of Perceived Closeness for a best friend versus acquaintance ( $M_D = .812$ ,  $SE_D = .154$ ) than did younger children ( $M_D = .446$ ,  $SE_D = .126$ ),  $t(87) = -1.847$ ,  $p = .068$ ,  $d = .391$ . This runs counter to the original hypothesis that the magnitude of the Perceived Closeness differentiation between a best friend and acquaintance is equivalent across age – in

contrast, with age, children demonstrated a wider differentiation of Perceived Closeness between these target others.

A follow-up analysis was performed to assess the role of Relational Cognitive Ability in the distinction of Perceived Closeness between self and others. I performed a hierarchical linear regression on a Perceived Closeness difference score created by subtracting the Perceived Closeness score of the acquaintance from that of the best friend. At the first step I entered Age as a continuous variable; Age significantly predicted variance in Perceived Closeness difference scores,  $R^2 = .057, p = .04$ . At the second step I entered Relational Cognitive Ability. This did not result in a significant  $R^2$  change,  $R^2 = .261, \Delta R^2 = .012, p = .355$ ; further, Age maintained its significance,  $\beta = .256, t(71) = 2.186, p = .032$ , thus demonstrating that Relational Cognitive Ability was not a better predictor of distinction in Perceived Closeness than was Age.

### **Overlapping Representations**

Did Overlapping Representations differ by target for older children only, as predicted? I ran separate ANOVAs for each Overlapping Representations outcome. The first outcome was the absolute difference in trait ratings of self and a given target other; the second outcome was the trait misattribution between self and a given target other. Trait misattribution was measured as the amount of memory errors that occurred because of confusion between the self and a particular target. Errors between self and target other could result from misremembering that target other's traits as belonging to oneself, or from misremembering one's own traits as belonging to that target other. These errors

were quantified by representing the number of errors between self and target other as a proportion of all misremembering errors.

**Main result: Absolute differences in trait ratings.** Did younger children show the same level of absolute difference in trait ratings between themselves and both target others, and older children show lower absolute difference between themselves and a best friend than between themselves and an acquaintance? I performed a 2 X 2 (Age, between subjects X Target Relationship, within subjects) mixed ANOVA on the transformed absolute difference scores. One participant was excluded for not completing all positive trait ratings for self. The analysis revealed no main effect of Age: younger children showed the same overall level of absolute difference with the target others ( $M = 2.068$ ,  $SE = .127$ ) as did older children ( $M = 2.060$ ,  $SE = .125$ ),  $F(1, 87) = .002$ ,  $p = .966$ ,  $\eta^2_p = .000$  (see Figure 3). There was also no main effect of Target Relationship: children's absolute difference in ratings between self and best friend ( $M = 2.000$ ,  $SE = .108$ ) was not significantly different from children's absolute difference in ratings between self and acquaintance ( $M = 2.127$ ,  $SE = .110$ ),  $F(1, 87) = 1.006$ ,  $p = .319$ ,  $\eta^2_p = .011$ . Furthermore, there was no interaction effect of Age X Target Relationship,  $F(1, 87) = .038$ ,  $p = .847$ ,  $\eta^2_p = .000$ , failing to offer support for the hypothesis that with age, children have higher differentiation between themselves and an acquaintance but still have low differentiation between themselves and a best friend. Instead, the absolute difference in

trait ratings between self and best friend and between self and acquaintance were equivalent, regardless of age.<sup>1</sup>

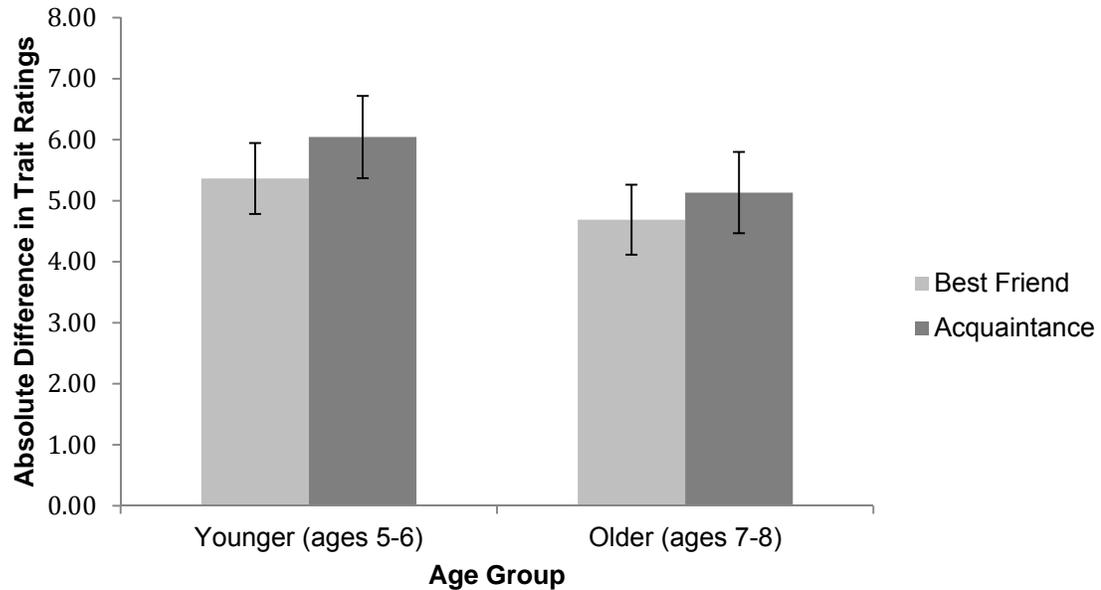


Figure 3. Raw Absolute Difference in Trait Ratings Scores (Hypothesized Component of Overlapping Representations) as a Function of Age and Target Relationship.

**Exploratory analyses: Differences in trait ratings.** I performed additional analyses to search for patterns in children’s ratings between self and target others for trait words of a specific valence (i.e., only positive or only negative words). Splitting these analyses by trait valence to view potential patterns was merited because of children’s biased treatment of negative trait information. Furthermore, instead of looking at absolute difference scores, I created scores that retained information about the magnitude of the

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<sup>1</sup> This lack of difference was not due to floor or ceiling effects: possible absolute difference scores ranged from zero to 24, and the mean raw absolute difference scores for both targets were moderately above floor and well below ceiling ( $M_{BF} = 5.022$ ,  $SD_{BF} = 3.845$ ,  $M_{AQ} = 5.533$ ,  $SD_{AQ} = 4.468$ ).

difference between self and target other, but were also sensitive to whether the target other was being rated more or less favorably than the self. Thus, in the following analyses, negative scores represent the other person receiving a less favorable score in relation to the self (whether more negative than the self on negative traits or less positive than the self on positive traits) and positive scores represent the other person receiving a more favorable score in relation to the self (whether less negative than the self on negative traits or more positive than the self on positive traits).

*Comparative favorability for positive words.* Did younger children distinguish others from the self differently when rating positive words than did older children? A 2 X 2 (Age, between subjects X Target Relationship, within subjects) mixed ANOVA revealed no effect of Age on differences in positive trait ratings, meaning that younger children ( $M = -1.375, SE = .352$ ) and older children ( $M = -.811, SE = .348$ ) had the same pattern of distinction between self and others when rating positive traits,  $F(1, 87) = 1.295, p = .258, \eta^2_p = .015$  (see Figure 4); older and younger children alike rated others equally less favorable than the self on positive traits. There was no main effect of Target Relationship: the difference between positive trait ratings for an acquaintance and the self ( $M = -1.349, SE = .314$ ) was not significantly different than the difference between positive trait ratings for a best friend and the self ( $M = -.837, SE = .309$ ),  $F(1, 87) = 1.844, p = .178, \eta^2_p = .021$ , and there likewise was no Age X Target Relationship interaction effect,  $F(1, 87) = 1.117, p = .294, \eta^2_p = .013$ .

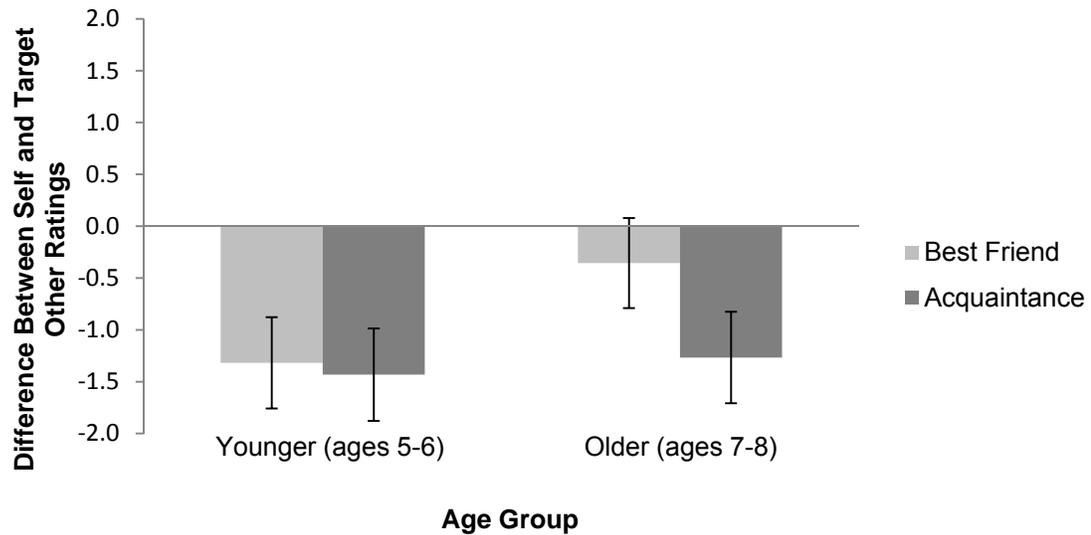


Figure 4. Comparative Favorability Ratings Between Self and Other for Positive Words. Exploratory analysis of Overlapping Representations trait ratings difference scores.

**Comparative favorability for negative words.** Did younger children distinguish others from the self differently when rating negative words than did older children? A 2 X 2 (Age, between subjects X Target Relationship, within subjects) mixed ANOVA on differences between others and the self on ratings of negative trait adjectives showed a significant effect of Age: younger children demonstrated significantly less favorable negative trait ratings of others compared to themselves ( $M = -.411, SE = .400$ ) than did older children ( $M = .833, SE = .400$ ),  $F(1, 88) = 4.832, p = .031, \eta^2_p = .052$  (see Figure 5). As evidenced by the mean scores, younger children rated others less favorably than the self on negative traits, whereas older children rated others more favorably than the self on negative traits. Interestingly, there again was no significant effect of Target Relationship: the difference between an acquaintance and the self on ratings of negative words ( $M = .011, SE = .387$ ) was not significantly different from the difference between a

best friend and the self on ratings of negative words ( $M = .411$ ,  $SE = .335$ ),  $F(1, 88) = .788$ ,  $p = .377$ ,  $\eta^2_p = .009$ , implying that on negative traits, both age groups experienced the same level of distinction between self and best friend as they did between self and acquaintance. There was no Age X Target Relationship interaction effect,  $F(1, 88) = .002$ ,  $p = .961$ ,  $\eta^2_p = .000$ .

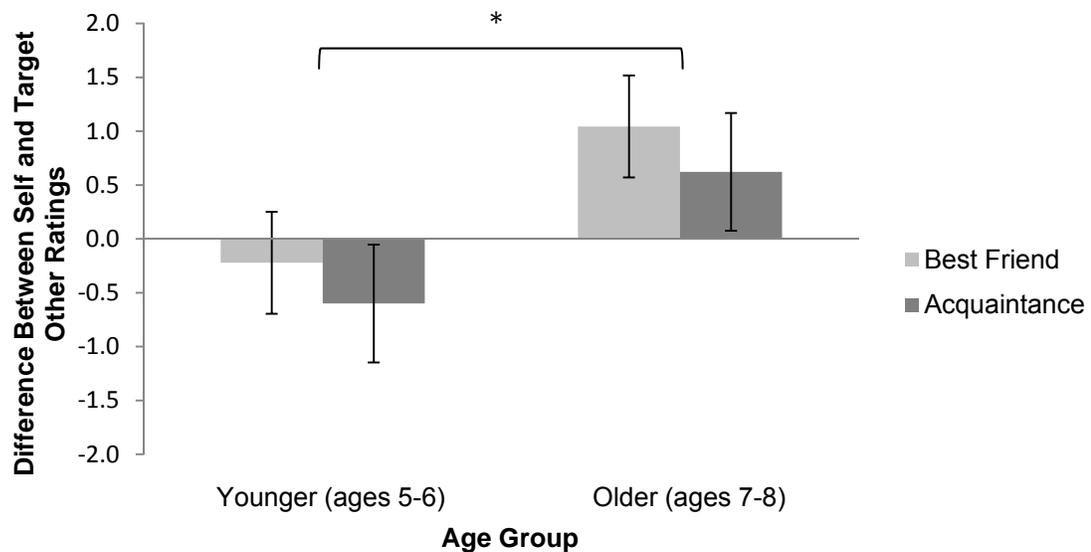


Figure 5. Comparative Favorability Ratings Between Self and Other for Negative Words. Exploratory analysis of Overlapping Representations trait ratings difference scores. \*  $p < .05$ , \*\*  $p < .01$ .

**Main result: Trait misattribution.** Did younger children confuse trait adjectives between themselves and both target others equally? Did older children confuse more trait adjective between themselves and a best friend than between themselves and an acquaintance? I conducted a 2 X 2 (Age, between subjects X Target Relationship, within subjects) mixed ANOVA on trait misattribution. One participant was excluded for verbally expressing misunderstanding of the trait misattribution task. Results showed a

main effect of Age, meaning that the proportion of misremembered traits that occurred between self and both target others was greater for younger children ( $M = .314$ ,  $SE = .016$ ) than for older children ( $M = .262$ ,  $SE = .016$ ),  $F(1, 87) = 5.062$ ,  $p = .027$ ,  $\eta^2_p = .055$  (see Figure 6). However, there was no main effect of Target Relationship: the proportion of errors occurring between self and best friend ( $M = .289$ ,  $SE = .021$ ) was the same as the proportion of errors occurring between self and acquaintance ( $M = .286$ ,  $SE = .020$ ),  $F(1, 87) = .009$ ,  $p = .923$ ,  $\eta^2_p = .000$ . Furthermore, there was no interaction effect of Age X Target Relationship,  $F(1, 87) = .749$ ,  $p = .389$ ,  $\eta^2_p = .000$ , failing to offer support for the main hypothesis that with age, children differentiate more between themselves and an acquaintance, thus having less confusion or misremembering between themselves and an acquaintance than between themselves and a best friend.

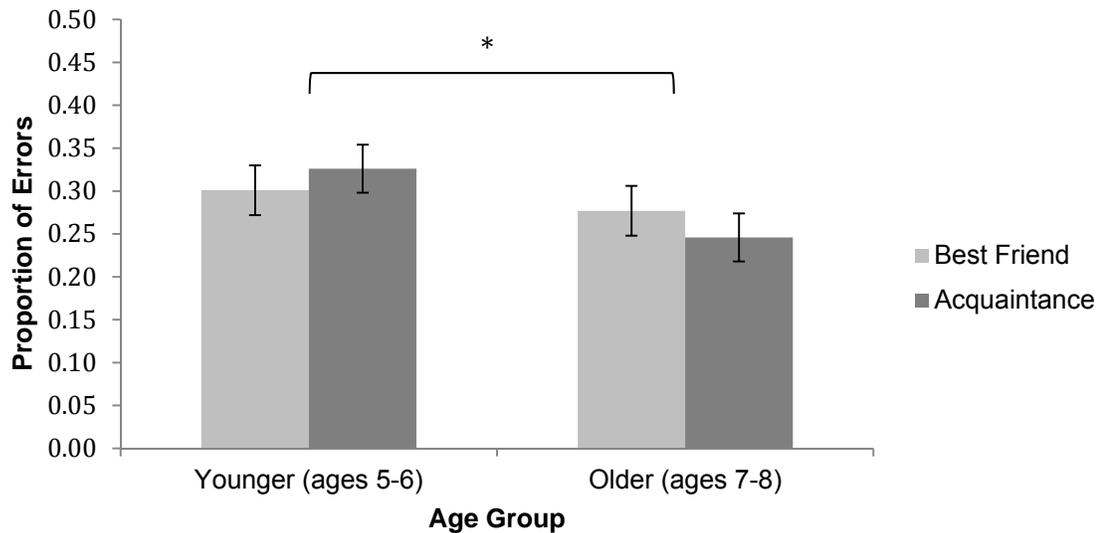


Figure 6. Trait Misattribution Memory Errors (Hypothesized Component of Overlapping Representations) Between Self and Each Target Other as a Function of Age and Target Relationship.

\*  $p < .05$ , \*\*  $p < .01$ .

**Exploratory analyses: Trait misattribution.** Despite the finding that younger and older children appeared to have no general patterns of memory errors differentiating self and best friend from self and acquaintance, more nuanced patterns could be discovered by considering the characteristics of the errors occurring. Specifically, the valence of the trait adjectives (positive or negative) being misremembered and the direction of the misattributions (i.e., misremembering a self-assigned word as applying to a target other versus misremembering an other-assigned word as applying to the self) could be considered in a more detailed exploration for meaningful patterns.

To examine these possibilities, I conducted a 2 X 2 X 2 X 2 (Age, between subjects X Target Relationship, within subjects X Misattribution Direction, within subjects X Word Valence, within subjects) ANOVA with the proportion of errors as the

outcome variable. I examined Misattribution Direction by characterizing error types as away from the self (self to best friend or self to acquaintance) or to the self (best friend to self or acquaintance to self); therefore, only self-related errors were included in analysis. Word valence was categorized as positive or negative. (For complete results, see Table 3; key findings are discussed below.)

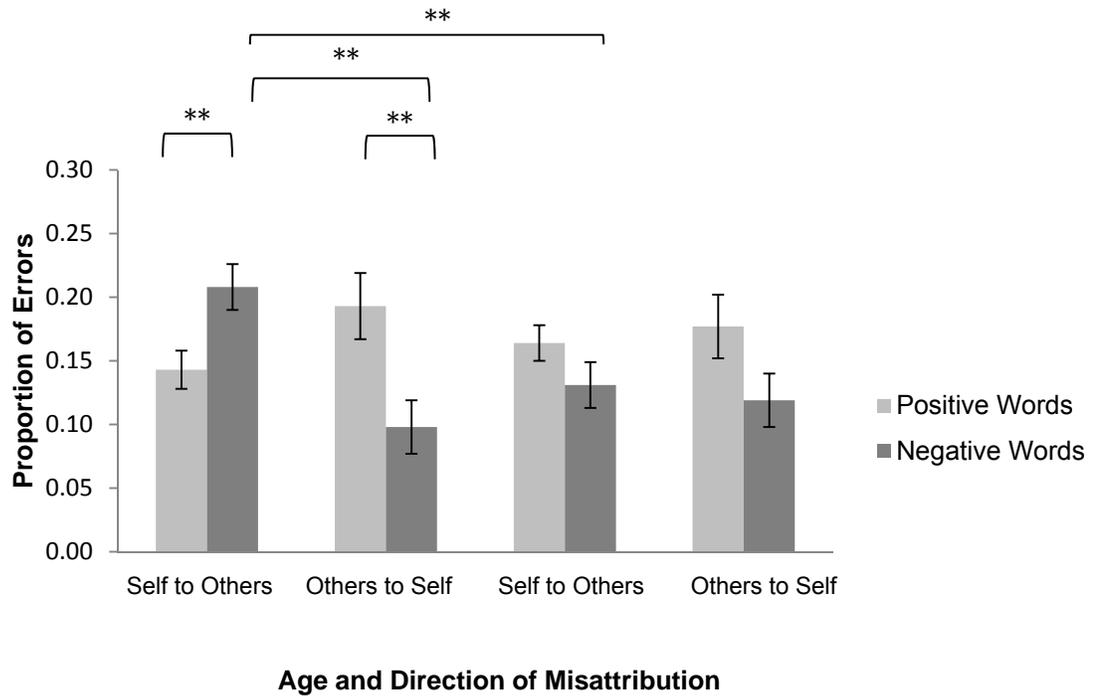
Table 3

*A 2 X 2 X 2 (Age, between subjects X Misattribution Direction, within subjects X Word Valence, within subjects) ANOVA on Proportion of Total Trait Misattribution Errors.*

Variables	<i>df</i>	<i>F</i>	$\eta^2_p$	<i>p</i>
Age (between)	1	23.138	.210	.000**
Between-Subjects Error	87			
Target Relationship	1	.294	.003	.589
Target Relationship X Age	1	.103	.001	.749
Misattribution Direction	1	2.879	.032	.093
Misattribution Direction X Age	1	.832	.009	.364
Word Valence	1	2.419	.027	.124
Word Valence X Age	1	2.419	.027	.124
Word Valence X Misattribution Direction	1	15.816	.154	.000**
Word Valence X Misattribution Direction X Age	1	9.361	.097	.003**
Target Relationship X Misattribution Direction	1	.451	.005	.504
Target Relationship X Misattribution Direction X Age	1	.792	.009	.376
Target Relationship X Word Valence	1	.041	.000	.839
Target Relationship X Word Valence X Age	1	.397	.005	.530
Target Relationship X Word Valence X Misattribution Direction	1	.232	.003	.631
Direction				
Target Relationship X Word Valence X Misattribution Direction X Age	1	.448	.005	.505
Direction X Age				
Within-Subjects Error	87			

*Note.* \*  $p < .05$ , \*\*  $p < .01$ .

There was a significant three-way interaction of Word Valence X Misattribution Direction X Age,  $F(1, 87) = 5.557, p = .021, \eta^2_p = .060$ . Bonferroni-adjusted pairwise comparisons revealed that younger children misattributed significantly more negative ( $M = .104, SE = .009$ ) than positive ( $M = .072, SE = .007$ ) words from self to others  $F(1, 87) = 8.926, p = .004, \eta^2_p = .093$  (see Figure 7), and misattributed significantly more positive ( $M = .096, SE = .013$ ) than negative ( $M = .049, SE = .010$ ) words to the self from others,  $F(1, 87) = 8.616, p = .004, \eta^2_p = .090$ . In contrast, older children misattributed the same proportion of negative ( $M = .066, SE = .009$ ) as positive ( $M = .082, SE = .007$ ) words from the self to others,  $F(1, 87) = 2.286, p = .134, \eta^2_p = .026$ , and the same proportion of positive ( $M = .088, SE = .013$ ) as negative ( $M = .060, SE = .010$ ) words to the self from others,  $F(1, 87) = 3.241, p = .075, \eta^2_p = .036$ .



*Figure 7. Word Valence X Misattribution Direction X Age.* Exploratory analysis of Overlapping Representations trait misattribution errors.  
 \*  $p < .05$ , \*\*  $p < .01$ .

Interestingly, there were no effects (main or interaction) involving the Target Relationship variable. It may be that the current analysis was underpowered to detect such differences, or this may be indicative of an unexpected lack of target-specificity in Overlapping Representations in both Age groups. This finding is further addressed in the discussion section.

## CHAPTER IV

### DISCUSSION

In the present research, I investigated the developmental patterns characterizing the Perceived Closeness and Overlapping Representations subcomponents of self–other overlap in young, school-aged children (ages 5-6 and 7-8). In this analysis, I hoped to discover how these two distinct self–other overlap aspects may differ by age according to their theoretical ties to other aspects of social and cognitive development identified in these age groups. As a part of this, I also endeavored to pave the way for future research by pioneering research measures of self–other overlap newly adapted for use with young children. I believe that it is possible to discover more about the emergence of children’s ideas about their own and others’ personality traits, as well as how views of self and other are importantly interrelated, if we continue to pursue the simultaneous development of research questions and measures. Unfortunately, very little research exists to specifically examine self–other overlap in children, resulting in a paucity of these questions and measures in the current literature. Below I discuss how the present research takes a step toward resolving this gap.

#### **Perceived Closeness**

In summary, I found partial support for my hypothesis that Perceived Closeness with a best friend would be higher than Perceived Closeness with an acquaintance for both age groups. This is consistent with research demonstrating that even young children

distinguish expressed levels of closeness based on their relationship with a target other (Meurling et al., 1999; Newcomb & Bagwell, 1995; Sturgess et al., 2001). I also found an unanticipated age-related increase in the magnitude of the distinction between Perceived Closeness with a best friend versus an acquaintance. Below I discuss some possibilities for why children (even in the younger group) are able to have target-specific Perceived Closeness, as well as why children's Perceived Closeness with target others may become even more differentiated with age.

What supports children's ability to differentiate Perceived Closeness with target others? One possibility is that young children rely in part on conclusions drawn from observing their own behavior with a target other (such as frequency of playing or doing other activities together): Myers and Hodges (2012) found that Behaving Close was correlated with Perceived Closeness ( $r = .47$ ). Similarly, from young ages children have been shown to use observations of a variety of behaviors to detect relationships between others, such as shared gaze (Nurmsoo, Einav, & Hood, 2012), expressions and body language, and approach or avoidance behaviors (see Platten, Hernik, Fonagy, & Fearon, 2010 for overview). Therefore, children may draw conclusions about their closeness with others based in part on their perceptions of their own interactions with those others.

Children also may begin consciously to express different levels of affiliation at an early age in order to serve social goals (e.g., fitting in or avoiding social threat), as they do at a group level (see Nesdale, Durkin, Maass, & Griffiths, 2005). Furthermore, they may become more adept at establishing different levels of closeness with others to meet social needs as they develop more social acuity with age (Fine, 1981). The social

situations of older children are likely to elicit greater attunement to levels of closeness, as middle childhood often signals a rise in the significance of peers and the complexity of peer relations (Eccles, 1999; Rubin, Bukowski, & Parker, 2006). One result is that older children may have an increased awareness of the advantages and disadvantages of association with different peers. For example, Bennett, Yuill, Banerjee, and Thomson (1998) found that children become more sensitive to the consequences of association with age – around age 7, children began to express feelings of guilt for the actions of self-associated others. Therefore, older children may (intentionally or not) modulate their levels of Perceived Closeness in order to optimize on beneficial associations and minimize costs of less beneficial associations.

In the present analysis, Relational Cognitive Ability was considered as a possible factor in increasing the distinction of Perceived Closeness for different target others. However, although Relational Cognitive Ability was correlated with increased distinction of Perceived Closeness, it was not a better predictor of this increase than Age. Thus, it appears that although Relational Cognitive Ability does have a moderate association with Perceived Closeness distinction, other unmeasured factors also contribute to the increase in Perceived Closeness distinction with Age. Relational Cognitive Ability identifies some specific social and cognitive skills that develop in children and may contribute to the Age-related increase in differentiation of Perceived Closeness. ToM (one component of Relational Cognitive Ability) has previously been found to increase with more opportunities for communication with and about close others, such as siblings (Kennedy, Lagattuta, & Sayfan, 2015). This supports the idea that increased social demands and

complexity can play a role in increased differentiation in Perceived Closeness. It is also consistent with findings that engaging in perspective taking increases one's Perceived Closeness with others (Myers & Hodges, 2012). Relational Vocabulary (the other component of Relational Cognitive Ability) is based on the ability to establish mental models of relationships between two items; it is argued that more elaborated knowledge structures lead to increased ability to characterize these relations (see Newcomer & Hammill, 2008). Thus, more experience in social settings may lead to more specific social categorizations regarding levels of closeness. Together, these findings imply that Perceived Closeness may be influenced by bi-directional relations with several social and cognitive factors, such as those represented by Relational Cognitive Ability, to produce greater differentiation in peer relationships. Again, however, researchers need to consider additional social and cognitive variables to account for this change, as Relational Cognitive Ability did not fully explain Age differences in Perceived Closeness.

### **Overlapping Representations**

I predicted that younger children would have the same level of Overlapping Representations for both a best friend and an acquaintance (i.e., target-unspecific Overlapping Representations), but that older children would have lower Overlapping Representations for an acquaintance than for a best friend (i.e., target-specific Overlapping Representations). This hypothesis was not supported by the main analyses. This could indicate that there is simply no difference in how children in the studied age groups differentiate between themselves and different target others in terms of Overlapping Representations. Alternatively, it could mean that the measures adapted and

used in the current study did not adequately detect Overlapping Representations differences in the age groups studied. Below I discuss both possibilities. I begin by considering the possibility that both younger and older children have target-unspecific Overlapping Representations, and explain why I believe it is premature to draw strong conclusions regarding this. Relatedly, I then discuss some of the limitations of the current measures and make suggestions of ways in which future methods and measurements may better detect patterns of differentiation with target others in childhood.

Why might both younger and older children have target-unspecific Overlapping Representations, as the current results appear to support? What could this mean about the development of self–other overlap in childhood? I proposed that older children were likely to have more target-specific Overlapping Representations due to changes in social settings and demands with age, as well as changes in cognitive competencies. Perhaps, however, these changes are only beginning to emerge in this age group, and become more pronounced later in middle childhood (e.g., around ages 9 to 10).

One possibility regarding children’s self-concept structures is that 7- to 8- year-olds, although demonstrating increased usage of personality descriptors (Livesley & Bromley, 1973), may not yet have advanced self-knowledge structures involving these. In other words, perhaps children in this age range do not create personality theories for themselves and others, and do not self-reflect on personality characteristics enough to create a unified, structured self-concept using these trait labels. These descriptors may acquire more meaning and stronger self-incorporation in adolescence. Indeed, Harter (2012) attested that it is in adolescence that children truly begin to search for meaning,

congruence, and organization in personality descriptors for the self. However, research has shown that 7- to 8- year-old children do view psychological traits as less malleable than do younger children (ages 5 to 6; Lockhart, Chang, & Story, 2002). As traits are viewed as more stable and predictive, this may lead to more organizational structure; however, this structure may still be emerging in the 7- to 8- year-old age range. Indeed, adults show even greater perceptions of trait stability, implying that this continues to change with age (Lockhart et al., 2002). Additionally, it is not until children are older (around age ten) that they begin to expect others to behave consistently with their perceived personality characteristics (Erdley & Dweck, 1993). In other words, by ages 7 to 8, children may have begun to acquire the building blocks for organizing trait information, but may not have yet formulated complex knowledge structures of how personality information fits together. If perceptions of personality characteristics are still somewhat fluid at this age, this may contribute to children having target-unspecific Overlapping Representations; children have yet to establish personality-trait-based knowledge structures for themselves and others, and therefore are unlikely to have complex gradations of overlap with others based on this. Future work could assess the age at which children demonstrate organized knowledge structures for their own personality traits by testing when children begin to project patterns of personality traits to others based on their perceptions of their own personality traits (Critcher, Dunning, & Rom, 2015). If no projection of one's own patterns is present at ages prior to adolescence, this could provide some evidence that children indeed may not have complex personality organizations or knowledge structures at these ages.

Another possibility for explaining children's target-unspecific Overlapping Representations in this study is the similarity and desirability of the targets in this study. To parallel adult research, the present study was designed to compare a close other (best friend) with a distant other (acquaintance), rather than to contrast liked and disliked peers. In the present study, participants reported liking both targets either "a little" or "a lot". Thus, children's general liking of the target others may have led to highly similar characterizations of how much those others were "like them" in terms of personality. Research on the "density hypothesis" with adults supports the idea that liked others are often seen in more homogenous ways than are disliked others (Alves, Koch, Unkelbach, 2016). Children in the present study could have had relatively high liking for both targets, which could contribute to the perception that both others were highly similar to the self. Therefore, it is possible that children in this study had the cognitive capabilities to have target-specific Overlapping Representations, but the targets used simply did not elicit this distinction. Future research may better demonstrate the extent of children's ability to have target-specific Overlapping Representations by evaluating overlap with a wider array of peers and using a more sensitive rating for liking.

Were there any age differences at all in Overlapping Representations for younger and older children? One difference did emerge in the main analysis of Overlapping Representations for younger and older children: younger children showed a higher overall proportion of self-related errors than did older children. This implies that older children may have established more distinction between themselves and others as a whole, being less likely to confuse self and other and more likely to confuse the others

(best friend with acquaintance) than were younger children. This is consistent with the decline of egocentrism with age (Piaget & Inhelder, 1956), as well as the finding that, with age, children become more aware of differences between their own and others' thoughts (e.g., ToM, Wellman et al., 2011). Thus, older children were more able to distinguish their own personality traits from those of the target others than were younger children. The lack of distinction between the target others may have been due to targets being overly similar (and similarly liked), or to measurement insensitivity. On the other hand, it may be that children ages 7 to 8 are in a period of development in which distinguishing themselves from others is a more general, target-unspecific goal. Ruble and Goodnow (1998) asserted that establishing a sense of a separate but connected self is central to social development. Forming more detailed comparisons and contrasts with particular others may occur later in development than I originally hypothesized.

However, findings at this point are highly speculative. I hope that this research will open doors for further pursuits into these questions, and I emphasize that further corroborative and explanatory evidence is needed before drawing conclusions about Overlapping Representations in these Age groups. Furthermore, I urge that measures of Overlapping Representations receive further development and refinement to be validly and reliably employed in this future research.

**Current measures.** This was the first study to employ a set of Overlapping Representations measures with children. The number of trait words to be rated (for the absolute differences task) and recalled (for the trait misattribution task) was determined based on pilot testing, which revealed that participants remained engaged for a list of 18

words total (6 each for self, best friend, and acquaintance) within the present protocol. This meant that the measurement of absolute difference in trait ratings was based on a comparison of 6 words between self and each target other, rated on a scale from 1 to 5. Admittedly this is a highly truncated version of the adult measure, which consisted of 16 words, rated on a scale from 1 to 9. Having fewer words in the children's version diminished the opportunity for variation in the absolute difference scores. This low variability may have also contributed to the low correlation between the Overlapping Representations measures. Increasing the number of points on the rating scale would be unlikely to improve the measure, given that younger children tended to anchor predominantly on the extreme points of the scale and underutilize the middle options; a higher number of middle options might counterproductively decrease their meaningfulness and their likelihood of being chosen. However, future work could improve the measure by soliciting ratings for a higher quantity of words. Although not feasible within the current study, this would be truer to the adult version and thus more comparable, and could feasibly be achieved by spacing out the word ratings more with other activities or by performing ratings in multiple sessions.

Were children effectively using the rating scale, or can the lack of variation in absolute differences be attributed to misunderstanding or misuse of the scale?

Exploratory analyses of children's ratings of self and others revealed a self-serving response pattern in both age groups, in which younger and older children alike rated themselves more favorably on positive words than they did others. The fact that both younger and older children reported enough variation to systematically and effectively

self-enhance suggests that they are successfully using the incremental rating scale. Given that this scale appears to be an effective tool for use with children of this age group, perhaps a measure with more words would be sensitive to absolute difference scores that were too small to detect in the present work.

The second core measurement of Overlapping Representations, trait misattribution between self and the target others, also did not reveal the expected pattern of increasing target-specific differentiation with Age. The measure used should have been effective for detecting different affiliation with the different targets; previous use of such a measure for determining children's confusion between self and their sex or race/ethnicity (i.e., their overlap with these identities) was effective in this age group with the five words per target (Bennett & Sani, 2011). However, it may be that the hierarchical nature of that task (e.g., self does fall within the overarching category of "female" or "Scottish") facilitated greater confusion than comparison of two items on the same level (e.g., self and another person), categorized less saliently under varying degrees of association. Thus, although the construction of the measure has previously been shown to be effective, it may be that greater strength is needed to detect differences in personal affiliations than in larger social identities.

Finally, although these two measures may yield some information about the larger construct of self–other overlap, it is notable that they did not strongly correlate to create a cohesive scale of Overlapping Representations. As mentioned above, it may be that this lack of correlation was impacted by a restriction of range problem from the absolute differences scale. However, it is also possible that these two measures addressed

theoretically distinct aspects of self–other overlap. The trait misattribution task had not been previously verified with adults as a measure of Overlapping Representations (Myers & Hodges, 2012); instead, it was included in the present study on a theoretical basis. However, the absolute difference in trait ratings measure required consciously expressed opinions about one’s own and others’ traits, whereas the memory measure relied on the implications of patterns of misremembering trait information about the self and other people – patterns which, in contrast to the trait ratings, were not consciously-generated evaluations. It could be that the trait misattribution task was most true to the conceptualization of self–other overlap as confusion between self and other, whereas the absolute difference in trait ratings measure represented Overlapping Representations more specifically as a sense of similarity on specific attributes (Myers & Hodges, 2012). Despite their distinctions, however, these two measures (when considered carefully, expanded further, and used properly) have the potential to provide important information about children’s perceptions of themselves and others and could direct future research on self–other overlap in childhood.

**Exploratory findings.** What can the current Overlapping Representations measures reveal about children’s self–other overlap? In the trait ratings task, I found that children of both Age groups rated self more favorably than others on positive words, but for negative words, younger children rated others similarly to the self and older children rated others more favorably than the self. These results concur with findings that older children are more likely to make negative comments about the self than are younger children, and are also less likely than younger children to negatively criticize peers (Frey

& Ruble, 1987). This may relate also to older children's ability to recognize self-presentation and social evaluation motives (Aloise-Young, 1993; Gee & Heyman, 2007, Watling & Banerjee, 2007); older children are more likely to know that they possess negative traits to some degree, and may also know that completely hiding this would be perceived by others (such as the experimenter) as bragging or dishonesty. Thus, older children admitted to greater possession of negative traits than did younger children, which may reflect both a greater ability to note and incorporate negative information into their self-concepts as well as a greater social inclination to confess these traits.

Does this mean that older children have negative traits more strongly incorporated into their view of themselves than into their views of others? It appears that this is not the case; results from the trait misattribution task demonstrated that older children were as likely to misremember their own negative traits as belonging to others as they were to misremember others' negative traits as belonging to themselves. This suggests that older children's knowledge structures of themselves and others contained roughly similar incorporation of negative information. Therefore, it appears that although older children provided more socially adept responses when directly asked about others' traits, rating others generously and the self humbly, they may have had more equal perceptions of self and other on a less consciously expressed cognitive level. This equality may be important for older children's ability to establish overlap, even as their greater awareness of their own and others' flaws emerges.

This also shows that older children genuinely incorporate negative information into their ideas of themselves, rather than merely expressing it for social motives;

otherwise, older children would claim to possess negative traits but would not also misremember negative traits as self-relevant. Older children appear to have created more elaborated self-concepts, containing both positive and negative information. This is consistent with findings that older children employ more negative perceptions of the self than do younger children in their evaluative and affective reports about themselves (see Burnett, 1996), and also corresponds with the more complex self-concept patterns of adolescence (Harter, 2012). In contrast, younger children had more strongly incorporated positive than negative trait information into their self-concept, as demonstrated by tendencies to misattribute more positive than negative words from others to the self, while misattributing more negative than positive words from the self to other people. Thus, although younger children have been found to be resistant to accepting negative trait information about themselves and others (Boseovski, 2010), the present findings suggest that young children are more inclined to attribute negative information to others than to the self.

Patterns away from the self may have emerged because children used others as a scapegoat for negative information that children did not accept or process as relevant to themselves. By the nature of the task, children were required to attribute negative traits as having applied to one of the three targets (themselves, the best friend, or the acquaintance), and it may have been easier for children to fit negative information into the less familiar and possibly more flexible concepts of others than into the familiar and positive concepts of themselves, even if the child did not view the others particularly negatively. Future work needs to determine how much children have truly internalized or

self-identified with a trait before testing its misattribution, to know whether misattribution indicates that it is a shared (confused) trait or whether it is merely being rejected as self-relevant. This is an important concern as measurement of Overlapping Representations continues to be explored with children.

Finally, and relatedly, the self-serving bias shown in these patterns for younger children may represent a stronger reliance on bottom-up processing by younger children than by older children. Research on response times has shown that people are faster at accepting words as self-relevant when they are positive, and as non-self-relevant when they are negative (Watson, Dritschel, Obonsawin, & Jentsch, 2007). Younger children may be most susceptible to this processing bias, creating more self-serving errors, whereas older children may employ more reflection and top-down processing in the attempt to properly remember trait-target pairs.

In summary, older children expressed more favorable views of others than themselves when providing ratings of negative traits. Evidence from the trait misattribution measure shows that older children do appear to have incorporated more negative information into their self-concepts than have younger children, but also that they have incorporated negative information into their concepts of other people. This hints that older children may be better able than younger children to establish Overlapping Representations that include negative information, but may verbally express differences for social reasons on more explicitly evaluative measures. In contrast, younger children rated the self equivalently to others on negative traits; however, despite this apparent equality, younger children's memory associations were self-serving in ways

that older children's were not, and appear to have been less reflective than older children's. This implies that younger children may have somewhat less sophisticated Overlapping Representations than do older children, in that their cognitive connections to others appear to be based on self-serving biases more than they are on shared trait information in their knowledge networks of themselves and the other person.

Why do greater overall levels of Overlapping Representations emerge with Age, and why are there different patterns in Overlapping Representations measures with Age? Younger children's overlap patterns with others may serve their maintenance of an overwhelmingly positive self-concept, whereas older children's overlap with others may be self-serving in other socially adaptive ways. For example, in older children's social environment, elevating others - especially best friends with whom the children are most strongly associated - may be a socially acceptable manner of elevating the self. This could explain the descriptive pattern in which best friends were more strongly elevated compared to older children's self than were acquaintances, and fits with older children's higher Perceived Closeness with best friends compared to acquaintances. People can and do "bask in the glory" of others' favorable traits or accomplishments when they share high self-other overlap with those others (e.g., Gardner, Gabriel, & Hochschild, 2002), and having close friends that one perceives as representing one's own positive aspects leads to higher self-liking (Gabriel, Carvallo, Jaremka, & Tippin, 2008). Thus, older children may appraise others' negative traits more favorably for self-elevating reasons.

## **Future Directions**

It appears that there are patterns of self–other overlap emerging in the age groups studied. However, the theory surrounding these patterns could be further developed by manipulating self–other overlap in childhood. For instance, many analyses of intergroup relationships introduce social threat to test how children’s affiliations and identities are impacted. A similar approach could be taken with self–other overlap to assess this at the dyadic level; if children experience threat to a trait they believe themselves to possess, will they affiliate more strongly with someone linked to them who is believed to similarly possess this trait? Will they dissociate from someone believed to be dissimilar in their possession of this trait? Answering these questions would provide information about how children connect self and others in regard to their shared traits.

It may also be important to consider the possible differences between children with big versus small friendship networks, or children whose friendships are of different or lower quality than others (e.g., Engle, McElwain, & Lasky, 2011; Laghi et al., 2014). These different groups of children may show different developmental patterns of self–other overlap. Considering the possibilities generates many interesting and sometimes contradictory hypotheses: for instance, children with larger friendship networks may experience an earlier need to distinguish between self and others, as they are presented with more opportunity and may not profit from all of the friends in their social network giving equal input to their own sense of self. On the other hand, children may have formulated larger friendship networks in part as a result of their high self–other overlap enhancing their own social adeptness and prosocial behavior; thus, perhaps children with

larger social networks maintain high self–other overlap because of its early benefits. Children with small social networks may be likely to have more target-specific self–other overlap, which could be adaptive for generating high investment and maintenance in the few relationships that these children have, and less investment and maintenance directed outside of close relationships. Friendship quality could interact with network size, causing increases or decreases in perceptions of closeness and similarity.

Clearly there is also a need for more varied, specific, and verified measurements of self–other overlap in childhood. Beyond this, there is the simple need for a better understanding of children’s self- and other- concept structures. Implicit memory measures are promising for the future of this research. Future work in this area will provide a richer understanding of identity development in childhood extending beyond group and cultural identities to specific personality and trait theories. Children have been identified as holding several theories about personality: fixed or malleable, positive or negative, congruent or not with a social category. It is now time to revisit the contents and organization of children’s trait knowledge of themselves and others to fill the gap in understanding how self- and other- concepts develop and impact relationships and behavior prior to adolescence. There are patterns of knowledge and responding in the current work that necessitate further exploration and expansion of theory to cover the development of self and other perceptions during this time of abundant cognitive development.

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