

THE BULLY IN MY MIND: INVESTIGATING
CHILDREN'S NEGATIVE RELATIONSHIPS WITH
IMAGINARY COMPANIONS

by

MELISSA ALYSE MCINNIS

ANSLEY TULLOS GILPIN, COMMITTEE CHAIR
FRANCES A. CONNERS
JASON M. SCOFIELD

A THESIS

Submitted in partial fulfillment of the requirements
for the degree of Master of Arts
in the Department of Psychology
in the Graduate School of
The University of Alabama

TUSCALOOSA, ALABAMA

2012

Copyright Melissa Alyse McInnis 2012
ALL RIGHTS RESERVED

ABSTRACT

Although research has explored the social environments in which imaginary friends are created and their benefits to socioemotional development, no work has specifically explored the role of children's negative interactions with imaginary companions and whether they also provide benefits to socioemotional development. The present study explored the role of these interactions in regards to children's socioemotional development. One hundred seven children between the ages of 3 and 8 were interviewed about their imaginary companions and social skills, with teacher and parent reports on the target child. It was hypothesized that having an imaginary companion—regardless of whether the relationship is negative—is beneficial to socioemotional development because it allows the child to role-play and practice taking different perspectives. However, results suggest that the relationship valence (positive or negative), regardless of friend type (real or imaginary) is most important in terms of socioemotional development. Children with negative relationships had lower overall social competence scores than children with positive relationships.

DEDICATION

For Dogue.

LIST OF ABBREVIATIONS AND SYMBOLS

β	Beta: probability of producing a false-negative error; Type II error
F	Fisher's F ratio: a ratio of two variances
M	Mean: the sum of a set of measurements divided by the number of measurements in the set; arithmetic average
N	Sample size
η_p^2	Partial eta-squared: measure of the strength of a relationship
p	Probability associated with the occurrence under the null hypothesis of a value as extreme as or more extreme than the observed value
r	Pearson product-moment correlation
R^2	Coefficient of determination: the proportion of variability in the data accounted by the statistical model
SD	Standard deviation: value of variation from the mean
χ^2	The chi-square distribution
$<$	Less than
$>$	Greater than
$=$	Equal to

ACKNOWLEDGEMENTS

I am very fortunate to be surrounded by such loving and supporting people. First, I could not have completed this thesis without the guidance and support provided by incredible advisor, Ansley Gilpin. Nor could I have collected and entered data on so many children without the help of my small army of RAs in the KID Lab. I also could not have made it through two years of graduate school without the support of my family and friends. From my mother, who has counseled and consoled me through countless anxious nights...to my sister, who brought the most precious baby boy into this world. From my father, who has always been there to lighten my heart and encourage me to live life to its fullest, with gentle reminders that “life is always better with sound effects” and that I should be good, but in a “bad sort of way”... to my sweet Sophie, who I could always count on to rest her head on my shoulder during those many sleepless nights spent typing away at my computer. From my grandmother, who has always been an endless fountain of encouragement and love...to Cody, who has always put up with my neuroses and has never failed to bring me back to sanity. I could not have done it without any of you!

CONTENTS

ABSTRACT.....	ii
DEDICATION.....	iii
LIST OF ABBREVIATIONS AND SYMBOLS.....	iv
ACKNOWLEDGEMENTS.....	v
LIST OF TABLES.....	vii
LIST OF FIGURES.....	viii
1. INTRODUCTION.....	1
2. METHODOLOGY.....	16
3. RESULTS.....	26
4. DISCUSSION.....	36
REFERENCES.....	41
APPENDICES.....	46

LIST OF TABLES

1. Number of imaginary companions and number of negative imaginary relationships by age group and gender.....	29
2. Correlations for component one of the PCA: “Teacher Report”.....	32
3. Correlations for component two of the PCA: “Parent Report”.....	33
4. Logistic regression analysis of child report’s of friend valence ($N = 61$).....	35

LIST OF FIGURES

1. Distribution of scores on final 12 questions of Friend Interview.....	28
--	----

INTRODUCTION

The creation of an imaginary companion is known to be a healthy form of pretend play in early childhood (Taylor, 1999). This type of pretend play has been shown to provide various cognitive, emotional, and social benefits, such as advanced theory of mind, narrative skills, and the ability to get along well with others (Taylor, 1999; Trionfi & Reese, 2009). While research has explored the social environments in which imaginary companions are created and their benefits to social development, no work has specifically explored the role of children's negative interactions with imaginary companions and whether they also provide benefits to socioemotional development. Mean or non-compliant imaginary companions have typically only shown up in clinical or high-risk samples and their existence has never been examined in a typically developing population (Taylor et al., 2010; Sawa, Oae, Abiru, Ogawa, & Takahasi, 2008; Shapiro, Prince, Ireland, & Stein, 2006). Additionally, no research has investigated situations in which the child is mean to the imaginary companion. The aim of the present research is to provide a broader examination of children's imaginary companions in relation to socioemotional development in early childhood.

Children and their Imaginary Companions

Definition of Imaginary Companion

In one of the earliest studies of children's imaginary companions, Svendsen (1934) defined imaginary companions as "an invisible character, named and referred to in conversation with other persons or played with directly for a period of time, at least several months, having an air of reality for the child but no apparent objective basis" (p. 988). She examined 40 children

between the ages of 3 and 16 from a Chicago suburb who had at least one imaginary companion for several months and 40 kindergarten children from the same community who served as a control group. Thirty-one of the 40 children with imaginary companions were under the age of 10. In 37 cases the imaginary companion appeared before the fourth birthday, in 39 before the fifth birthday, and in all cases before the sixth birthday. The median age at appearance was 2 years, 5 months. The first appearance was found to be sudden and unexpected by the child, whereas later appearances occurred at the will of the child. Names of imaginary companions were found to be both common (e.g., Berry, Auntie, Mississippi) and highly creative (e.g., Tagar, Curly Stockings, Bing and Bung, Katsch, Tubba).

Svendsen (1934) found no evidence for a uniform course of development for these companions. Some companions were persons, some were animals, some appeared in pairs, and others appeared as families. The relationship shared between child and companion was found to be socially determined, and more often than not, the companion assumed a subordinate role to its creator. Some companions were viewed as siblings, some as spouses, some as other relatives, and others as friends. In 33 of the 40 cases, the imaginary companion was the same gender as the child. The imaginary companions occupied physical space—they were chased, spoken to directly, and received place settings at the table. They most frequently lived elsewhere than the child's home, but the locations (if definite at all) were usually of some significance to the child. In regards to the type of activities shared with imaginary companions, Svendsen (1934) commented that they typically were “highly charged emotionally by virtue of being novel and pleasurable, or humiliating and consequently painful” and reflected “parental attitudes, particularly disciplinary attitudes and the child's reaction to them” (p. 995-6). The companions were talked about freely, but were not shared with others. Disappearance of the imaginary

companions was attributed to increased opportunities for real companionship (e.g., enrollment in kindergarten). In regards to perceived reality status of imaginary companions, Svendsen (1934) argued that it is not until five to six years of age that children understand their make-believe nature.

In a more recent study, Taylor, Cartwright, and Carlson (1993) studied the types of imaginary companions children create, the extent to which they change over time, and if young children comprehend their fantasy status. Furthering Svendsen's (1934) definition, Taylor et al. (1993) also acknowledged that many children categorize stuffed animals as imaginary friends and included this in their definition. In the study, twelve children who had imaginary friends were asked to describe their imaginary friend's physical appearance, to interact with them, and to indicate who could see or touch them. They also interviewed fifteen children who did not have imaginary friends about a real friend they had in order to provide a comparison group. Children with imaginary friends described them without hesitation and eagerly interacted with them in the lab. Notably, these descriptions were stable when the same children were interviewed 7 months later. Taylor et al. argued that, when children respond that other people can see and touch their imaginary friend, this should not be interpreted as confusion about fantasy and reality. Rather, in these instances children are engaged in the fantasy, and thus answer appropriately. When compared to children who did not have an imaginary friend, there was no difference between their ability to make the fantasy/reality distinction (Taylor et al., 1993). In sum, children understand that no one else can see or touch their imaginary friends (i.e., when they are not engaged in the fantasy) and thus that they are not real in the physical sense.

Functions of Imaginary Companions

Imaginary companions can serve a myriad of functions. These functions often depend upon the special needs of the child who creates it. From his studies of children with imaginary companions at his clinic, Nagera (1969) suggested that imaginary companions are frequently used as “superego auxiliaries,” in which they instruct or help control the impulses or behaviors of the child. Nagera asserted that imaginary companions are frequently used as scapegoats of the child’s misdeeds and also as vehicles through which a child can overcome fears or anxiety. Further, he suggested that an imaginary companion can serve as a “developmental buffer,” that “mitigates for the child’s primitive ego what is at times an impossible situation” (p. 181), arguing that they help the child resolve conflicts and restore equilibrium. Finally, Nagera suggested that imaginary companions could also reduce feelings of loneliness, neglect, and rejection, and alleviate the stress of painful situations.

In a qualitative study on the functions of imaginary companions, Hoff (2005) conducted semi-structured interviews with twenty-six 10-year-old children. Two independent coders analyzed interview transcriptions for patterns, themes, and intuitive categories. Hoff found that the median reported time of play with the companion was three years. Most children said that loneliness was their main reason for inventing their companion. The most common response regarding the companion’s function was that of “inner mentor” (p. 161). Additionally, Hoff derived five other categories from the interviews for the functions of the companions: comfort or substitute for company, motivation (e.g., for mischief) and self-regulation (e.g., moral guide), self-esteem enhancement (e.g., projected negative characteristics onto companion, scapegoat, protégé, self-ideal), extended personality (e.g., extended gender roles), and life quality enhancement (e.g., paracosms—colorful imaginary worlds). One interesting finding was that for

some children, the imaginary companion functioned to make them more competent in their interactions with other real friends as well as provided them with a chance to practice social exchanges, all within their own control and in a safe environment. In some cases, the imaginary companion sometimes encouraged the child to work through a particular social issue (e.g., prompted child to make up with real friends).

Characteristics of Children Who Create Imaginary Companions

Manosevitz, Prentice, and Wilson (1973) investigated the factors related to the presence or absence of an imaginary companion. They presented the parents of 222 preschool children a self-administered two-part questionnaire. Sixty-three (28%) children (32 boys) were reported by their parents as having had one or more imaginary companions. The questionnaire was designed to elicit specific data about the home setting and play activities of the children. Results indicated that nuclear family disruption (e.g., divorce) was not a contributing factor to the presence of an imaginary companion. Seventy-three percent of the children who had an imaginary companion and only 49% of the children who did not have an imaginary companion were only and firstborn children and 61% of the children who had an imaginary companion had no siblings at the time of the companion's first appearance. Manosevitz et al. argued that these findings indicated that family structure was an important contributing factor to the presence of an imaginary companion. No significant differences were found between children who had an imaginary companion and children who did not regarding number of male and female playmates, number of hours spent with playmates, and number of pets in the household. Children who had an imaginary companion were significantly more likely to be described by their parents as frequently self-initiating play. No differences were found regarding children's ability to play well with others. Boys who had an imaginary companion were rated by their parents as being significantly more capable at

interacting with adults than boys who did not have an imaginary companion. Girls had significantly more imaginary companions than did boys. Boys were more likely to have a male companion, but girls only showed a slight tendency to have a same-sex companion. Fifty-seven percent of the children had only one imaginary companion and 23% had two imaginary companions. The age of the imaginary companions was unknown in 44%, the same age as the child in 32%, and older than the child in 24% of the cases.

Bouldin, Bavin, and Pratt (2002) examined the language use of 40 children with imaginary companions and 40 children without imaginary companions. Children were asked to describe a monster and talk about whether a monster could exist in the real world. Transcriptions of the interviews were coded for the following language variables: modals (e.g., opinions regarding probability of an event, recognition of various social constraints) and adverbial, relative, complement, and compound clauses. Results indicated that children with imaginary companions used a significantly greater amount of adverbial and relative clauses. Bouldin et al. argued that these results possess more mature language skills, an essential component of socio-cognitive competence. These results coincide nicely with the results of a referential language skills study, conducted by Roby and Kidd (2008). Twenty-two children with imaginary companions and 22 children without imaginary companions completed the Test of Referential Communication (Lloyd, Camaioni, & Ercolani, 1995), a task that measures the ability to encode and decode verbal information. Their findings indicated that children with an imaginary companion were significantly better at identifying a specific referent to the experimenter than were children who did not have an imaginary companion.

Existence of Negative Relationships with Imaginary Companions

Taylor (1999) reported that while most imaginary companions are often described as loving friends, a few might be more accurately termed “imaginary enemies.” Alansky (1987) reported that 34% of children who had an imaginary companion sometimes felt angry toward them, 8% expressed fear of their companion, and 4% expressed hate. In her follow-up study 4 years later, 11% of children who retained their imaginary companion sometimes felt angry toward them and 4% expressed fear, and 7% of children who had created a new companion felt angry toward them and 14% expressed fear (Mauro, 1991). In a second follow-up, 43% of children who had created a new imaginary companion sometimes felt angry toward them, 14% expressed fear, and 7% expressed hate (Mauro, 1991).

Taylor, Hulette, and Dishion (2010) investigated the longitudinal outcomes of young high-risk adolescents with imaginary companions. An ethnically diverse sample of 152 middle school children designated as being at high risk for developing problem behaviors (e.g., externalizing, internalizing) were interviewed about imaginary companions, coping styles, and problem behaviors. When the children were in the sixth grade, peer nominations were collected, as well as teacher, parent, and self-report measures from the Child Behavior Checklist (CBCL; Achenbach, 1991a, 1991b). Children were also interviewed using the Life Events and Coping Inventory (Dise-Lewis, 1998) and asked to provide more information if they had an imaginary friend. Six years following the middle school assessment, Composite International Diagnostic Interviews—a structured diagnostic interview developed by the World Health Organization to assess for mental health disorders—were conducted. Results from the assessment during middle school indicated that children with a current imaginary companion scored higher on measures of

positive coping strategies, but had high numbers of externalizing behaviors and received lower social preference scores.

For the longitudinal follow-up at the end of high school, an aggregate measure of positive outcome was derived from the diagnostic interview, a systematic search of court records, and school graduation records (i.e., no illegal drug use, no *DSM-IV* psychiatric diagnoses, graduation from high school, and no history of police arrest). For the adolescents who had an imaginary companion during middle school, 72.7% exhibited a successful outcome pattern, compared with 32% of children who indicated during the middle school assessment that they previously had an imaginary companion but were no longer communicating with it, and 26.2% of the adolescents who indicated that they never had an imaginary companion. Taylor et al. (2010) argued that these results indicated that having an imaginary companion during middle school was not necessarily a marker for early pathology. They further proposed that perhaps the imaginary companions potentially served as a vehicle for coping for high-risk children.

Four 7th grade participants from this study described negative characteristics of their current imaginary companions (Taylor et al., 2010). One child did not like that her imaginary companion “starts many problems,” while another reported that her imaginary companion “sometimes gets angry at me and throw things at me” (p. 5) A third child described her companion as “shady, small, and greedy” and frequently takes the child’s stuff away from her. Perhaps the most striking example of a negative relationship with an imaginary companion from this study is a child whose imaginary companion was named Jack the Ripper and looked liked the real Jack the Ripper. This child did not like that “he killed people in the past.” Little is known about the exact nature of these kinds of imaginary companions, or what brings about their existence. One reason that negative relationships with imaginary companions have not been

further explored is that the standard questionnaire commonly used to assess imaginary companions (Taylor et al., 1993; Taylor & Carlson, 1997) only has one question that might elicit descriptions of negative interactions with imaginary companions (i.e., “What do you not like about X?”). To date, there is no measure that assesses potentially negative qualities of the relationship between typically developing children and their imaginary companions.

There is also evidence of negative relationships with imaginary companions in popular culture. Samuel Clemens (i.e., Mark Twain) is thought to have had an imaginary companion that was a devil named “Satan” (Singer & Singer, 1990). In his autobiography, he described his mother’s continual references to Satan when he was a young child and in his novel, *The Mysterious Stranger*, Satan was the imaginary companion of the male protagonists. In the novel and film versions of the psychological horror, *The Shining*, five-year-old Danny Torrance had an imaginary companion named “Tony,” “a little boy who lives in [his] mouth,” who at first is an imaginary playmate that gives him advice whenever he needs it. By the end of the movie, however, Danny becomes so traumatized by the events unfolding around him that he is no longer able to function. His mother finds him in a trancelike state and tries to wake him by shaking him and saying his name. When Danny responds, however, it is in the distinctive monotonic voice of Tony saying, “Danny can’t wake up, Mrs. Torrance...Danny’s gone away Mrs. Torrance.”

Although the imaginary companion literature provides a comprehensive examination of the definition and functions of imaginary companions as well as the characteristics of the children who create them, no work has specifically explored the negative interactions children have been shown to have with their pretend friends.

Socioemotional Development in Early Childhood

Emotional Development

Advances in children's awareness of their own emotional states as well as others' and in children's ability to regulate their emotional expressions characterize emotional development in early childhood. Fabes, Eisenberg, Nyman, and Michealieu (1991) interviewed preschool children about their understanding of others' spontaneous emotional reactions in a naturalistic setting (e.g., playground, free time in classroom). The accuracy of children's appraisals (i.e., how well they corresponded with experimenters' appraisals) varied with age and the type and intensity of the emotion. Overall, children were most accurate in identifying others' positive over negative emotions, and these appraisals were biased toward external events rather than internal factors. Children were least accurate in identifying the causes of others' emotions. Fabes et al. suggested that children's use of naturally occurring information concerning others' emotions depends on the type of emotion and the relative salience of its situational cues.

Emotional regulation refers to the ability to inhibit, enhance, maintain, and modulate emotional arousal to accomplish a goal (Eisenberg, Fabes, & Spinrad, 2006). Effortful control contributes to children's ability to regulate emotions. Effortful control is the ability to withhold a dominant response in order to make a non-dominant response, to engage in planning, and to regulate reactive tendencies (Kochanska, Coy, & Murray, 2001). In a longitudinal study on the development of self-regulation during the first 4 years of life, Kochanska et al. (2001) observed children's committed compliance (e.g., eager embrace of parental request) and situational compliance (e.g., cooperation without a sincere commitment) at 22, 33, and 45 months of age by observing the child's behavior in two contexts—a "Do" context (e.g., mother requested that the child sustain an unpleasant behavior or activity) and a "Don't" context (e.g., mother requested

that the child suppress a pleasant behavior or activity). At all ages, the “Do” context was much more challenging than the “Don’t” context. Results indicated that children’s effortful control correlated positively with committed compliance. Committed compliance was also linked to internalization of maternal rules, which was observed when the child was alone in both contexts.

Aggression

Aggression can take many forms in early childhood, including physical aggression (e.g., fighting, damaging another’s possessions), verbal aggression (e.g., threats, name-calling), and relational aggression (e.g., damage to another’s peer relationships or social standing) (Dodge, Coie, & Lynam, 2006; Vitaro, Brendgen, & Barker, 2006). Longitudinal investigations indicate that childhood aggression is an excellent predictor of future maladjustment (Loeber, 1990; Parker & Asher, 1987). All three types of aggression may occur for various reasons. Reactive aggression is a defensive response to provocation. It is an immediate, impulsive response designed to hurt the perpetrator of the threat or provocation (Vitaro et al., 2006). Conversely, proactive aggression, synonymous with instrumental aggression, is aggression that is designed to achieve a goal for oneself (e.g., push someone aside in order to get a better place in line).

Crick, Casas, and Mosher (1997) investigated relational and overt aggression in preschool-age children. Sixty-five preschoolers between the ages of 3 and a half and 5 and a half were presented with a peer nomination measure using pictures. Teachers also completed a rating measure of their students’ social behavior and social-psychological adjustment. Results indicated that relationally aggressive behaviors appear at between the ages of 3 and 5 and that relational aggression is significantly associated with social-psychological maladjustment. Children and their teachers viewed relational aggression as distinct from overt aggression. Crick et al. also found that preschool girls are significantly more relationally aggressive and less overtly

aggressive than preschool boys. Crick et al. argued that the assessment of relational aggression plays an important role in the early detection of child maladjustment.

Social Relationships

Gleason (2002) examined how children perceive the quality of their different social relationships, including those with parents, best friends, siblings, and imaginary companions. Using Weiss's (1974) theoretical framework for considering the differentiated nature of social relationships, she argues that relationships are specialized according to the nature of the interaction they provide. Weiss (1974) termed these qualities of relationships social "provisions," because they are supports or forms of interaction provided by relationships. Gleason (2002) interviewed sixty 4-year-old children using a modified version of Furman and Buhrmester's (1985) Network of Relationships Inventory (NRI), that measured the child's perceptions of the degree of conflict, nurturance, instrumental help, and power available in their relationships (real or imaginary). Three groups of children were compared: children with (1) invisible friends, (2) companions who were personified objects (e.g., stuffed animals, dolls), and (3) no imaginary companion. Parents were asked to complete a questionnaire that included the modified NRI (for parental corroboration of the child's responses) and asked whether or not the child had an imaginary companion who had been present for at least one month and who was either talked to, talked about, or played with by the child. Results confirmed the hypothesis that children differentiated relationships in their social networks according to provisions (e.g., conflict, instrumental help, power, nurturance). Results also indicated that the provisions of real and imaginary friendships were similar, although imaginary companions were preferred as objects of nurturance. Children with imaginary companions and personified objects did not differentiate significantly between real and imaginary companions by social provisions. Gleason (2002)

suggested that these results lend support to the notion that 4-year-old children can specify the social provisions associated with different relationships (real or imaginary) in their social networks.

Theory of Mind

Watson, Nixon, Wilson, and Capage (1999) explored the relationship between peer social skills and theory of mind understanding in young children. They observed children between the ages of 3 and 6 during a free play period outside with their peers, administered the Test for the Auditory Comprehension of Language-Revised (TACL-R; Carrow-Woolfolk, 1985), and a false belief task. They also collected teacher ratings of social skills with peers. After controlling for age and language comprehension ability, Watson et al. found that false belief understanding was a significant predictor of teacher ratings of positive social skills. A second study replicated these results, using a larger sample size, different false belief measures, and standardized teacher ratings of social competence. Watson et al. argued that false belief tasks tap children's ability to verbalize to self and to others using mentalistic language (e.g., perceptions, desires, beliefs, intentions) the relation between environmental events and human behavior.

Taylor and Carlson (1997) examined the relationship between fantasy orientation and mental state knowledge in 152 3- and 4-year-old children. Children were interviewed about their pretend play (e.g., imaginary companions, pretending to be an animal, another person, or a machine or plane) and were also given a series of theory of mind tasks (e.g., appearance-reality, false belief, representational change, perspective taking). Children were categorized based on the levels of fantasy into two groups: high and low fantasy. The high fantasy group was composed of children who created an imaginary companion and children who impersonated a character. The low fantasy group was composed of children who neither had an imaginary companion nor

impersonated a character. In the overall sample, results indicated significantly better theory of mind scores in the high fantasy group than in the low fantasy group, even when controlling for age and verbal intelligence. Among the 4-year-olds, the high fantasy group also had significantly better theory of mind scores than in the low fantasy group. Taylor and Carlson argued that these results substantiate the view that high fantasy orientation encourages the development of a theory of mind. They also argued that these results lend support to the relatively recent discussion of pretense as a precursor to theory of mind, contending that pretend play helps children to understand that mental representations are not always accurate reflections of the external world.

One potential explanation for these results is that children with imaginary companions receive extra practice taking perspectives due to creating an imagined being that has its own personality, thoughts, and emotions. This is supported by Singer and Singer's (1981) finding that high-fantasy children were more likely to get along well with others. The more children engage in pretend play the more opportunities they have to discover that other people possess different mental states and perspectives than they themselves do. Another possibility is that engaging in pretense promotes an earlier understanding that mental representations do not necessarily reflect reality. For example, fantasy often does not have a real life counterpart (e.g., a story about children who board a magical school bus that takes them on field trips to impossible locations) and children must learn to be conscious of this potential mismatch between fantasy and reality.

Purpose of the Present Study

The purpose of the present study was to explore the relationship between young children's negative interactions with imaginary companions and socioemotional development. Research has demonstrated that children with imaginary companions possess socio-cognitive (e.g., theory of mind) and linguistic advantages in relation to their same-aged peers (Taylor &

Carlson, 1997; Bouldin, Bavin, & Pratt, 2002; Roby & Kidd, 2008). There is also some evidence in atypical populations (e.g., middle school children at-risk for developing behavior problems) that having an imaginary companion (negative or positive) in middle school can be harmful to present, but not future socioemotional development (Taylor et al., 2010). However, no research has addressed the existence of negative relationships with imaginary companions in a typically developing preschool and young elementary school population. It was hypothesized that having an imaginary companion—regardless of whether the relationship is negative—is beneficial to socioemotional development because it allows the child to role-play and practice taking different perspectives. Thus, having a negative relationship with an imaginary companion might serve as an emotional outlet and proxy for real friendship in terms of socioemotional development.

METHODOLOGY

Participants

Participants were 107 typically developing children between the ages of 3 and 8. This included nineteen 3-year-olds ($M = 40.4$ months; range = 35.9 – 47.4 months; 14 girls and 5 boys), nineteen 4-year-olds ($M = 55.1$ months; range = 48.0 – 59.2 months; 9 girls and 10 boys), nineteen 5-year-olds ($M = 65.1$ months; range = 60.0 – 71.3 months; 12 girls and 7 boys), nineteen 6-year-olds ($M = 77.7$; range = 72.6 – 83.8 months; 10 girls and 9 boys), sixteen 7-year-olds ($M = 90.8$ months; range = 84.7 – 95.2 months; 10 girls and 6 boys), and fifteen 8-year-olds ($M = 103.1$ months; range = 99.1 – 107.9 months; 7 girls and 8 boys). Seventy-two percent of the children were Caucasian, 24% African American, and 4% were Asian or unspecified. Children were recruited from local preschools and after-school programs at public and private elementary schools in Tuscaloosa, Alabama and one after-school program at a private school in Montgomery, Alabama. The school principal or program director's consent was obtained before entering a school and recruiting participants. Parental consent and child assent were also obtained.

Parent questionnaires had a return rate of 73% and teacher questionnaires had a return rate of 92%. Forty-four percent of parents had annual individual incomes less than \$24,999, 27% had annual individual incomes ranging from \$25,000 to \$64,999, and 28% had annual individual incomes more than \$65,000. Fifty-two percent of parents had a Bachelor's degree or had graduate training/degrees, 26% had partial college experience or an associate's degree, 21% had

partial high school experience or had graduated high school, and 1% had completed junior high school.

Measures

Child Measures

Existence of imaginary companions. Children first completed a fantasy/reality distinction measure to assess their knowledge of the meanings of the words “real” and “pretend.” This task involved asking the child to identify the reality status of various real (e.g., cats, dogs) and pretend animals (e.g., purple cows, fish that sing). Children that passed received a score of 1; if not, they received a score of 0. The Imaginary Companion and Impersonation Interview (Taylor & Carlson, 1997) consists of questions about pretend friend(s), descriptions of these friends if they exist, and whether the child ever pretends to be an animal, a different person, or something else unrelated to the self (e.g., machine, plane). The first question assesses whether children have imaginary companion(s). If so, they received a score of 1; if not, they received a score of 0. Follow up questions were asked if children affirmed that they had an imaginary companion(s). Responses to these questions were used to support their initial response as to whether the imaginary companion(s) actually existed. Scores on this measure were 0 or 1. Scores on the additional questions about impersonation activities were scored by tallying the number of ‘yes’ responses. Scores on this measure ranged from 0 to 3, with higher scores indicating higher fantasy orientation levels.

Friend Interview. Because there is only one question from Taylor and Carlson’s Imaginary Companion and Impersonation Interview (1997) that might elicit descriptions of negative interactions with imaginary companions (i.e., “What do you not like about X?”), a new interview was presented that was designed to allow children to express both positive and

negative interactions with their imaginary companions (see Appendix A). Children who did not have an imaginary companion were asked the same questions about a real friend of their choice.

The interview began with several qualitative questions (e.g., “Tell me about what you do with X.” and “Tell me about what you talk about with X.”). Then children were asked if their friend was mean to them or if they were mean to their friend. If they answered yes to either of these questions, several follow-up questions were asked (e.g., “How is X mean to you? / How are you mean to X?”, “Why is X mean to you? / Why are you mean to X?”, and “When X is mean to you, how do you make up?” “Do you ever not listen to each other?” “Do you forgive each other?”). Children were then asked if they could make their friend be nice to them, how mean their friend was (e.g., not, a little, a lot), and how nice their friend was. They were also asked who was in charge in the relationship (e.g., the child [coded as 1], the friend [coded as -1], neither [coded as 0]). These qualitative questions were used to get at the directionality of any meanness and the general quality of the relationship.

The remaining 12 questions were based on the Preschool Peer Victimization Measure (PPVM; Crick, Casas, & Ku, 1999). The PPVM is made up of three subscales (physical/overt victimization, relational victimization, received prosocial behavior) with three questions per subscale. Because the 2 out of the 3 PPVM subscales are about negative behaviors/cognitions and therefore the measure is negatively skewed, an additional positive category called “positive reciprocated friendship behaviors” was created for balance. In order to keep the interview at a reasonable length for this age group, the questions were structured using “each other,” rather than asking each question twice to obtain directionality. Appendix B provides a list of the questions organized by subscale. Appendix C provides the original PPVM questions by subscale for comparison purposes.

These 12 questions were scored in a way to provide a negative-to-positive continuum for real and pretend relationships (“Friend Score”). This continuum has 13 discrete data points, from -6 to +6, with negative numbers indicating a negative relationship quality. “Yes” responses on positive questions were coded as a +1, and “Yes” responses on negative questions were coded as -1. “No” responses received a code of 0. These codes were summed to provide an overall score along the scale of very negative (-6) to very positive (+6).

Fantasy orientation. Singer’s Imaginative Play and Predisposition Interview (Singer, 1961; Singer & Streiner, 1966; Singer & Singer, 1981) was administered for continuity with previous research. Children were asked (1) their favorite game, (2) their favorite toy, (3) whether they talk to themselves in bed at night, and (4) what they think about before they go to sleep at night. Responses that involved fantastical toys or games (e.g., fairies, superheroes) received a score of 2, responses involving representational or animated toys or games (e.g., stuffed animals, toy cars) received a score of 1, and responses involving only realistic toys or games (e.g., physical activities, games with rules) received a score of 0. Scores on this measure ranged from 0 to 8, with higher scores indicating higher fantasy orientation. Raters referred to a list of standardized responses used to code this task in previous research (Boerger, Tullos, & Woolley, 2009; Woolley, Boerger, & Markman, 2004; Gilpin, 2010). Two independent raters coded each child’s responses and a third rater resolved any disagreements.

False belief. This task (“Band-Aid Box Task”) is a variant of the classic Perner, Leekam, and Wimmer (1987) “smarties” task. Each participant was presented with a box clearly labeled “Band-Aids”. After asking the child what he or she thought was inside the box, the child was allowed to open the box and discover that it did not have the expected contents (i.e., stickers instead of Band-Aids). Children were then asked about their own former belief (e.g., “When you

first saw this box, before you looked inside, did you think there were Band-Aids or stickers inside?”) (Representational Change Question) and about the belief of someone else not present (e.g., “Your teacher has not looked inside this box. Will she think there are Band-Aids or stickers inside?”) (False Belief Question). Correct responses to both the false belief and representational questions were coded as 1 and incorrect responses were coded as 0.

Socioemotional understanding. The Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (Pictorial Scales; Harter & Pike, 1984) was used to measure children’s perceived self-competence in four domains: cognitive competence, physical competence, peer acceptance, and maternal acceptance. Past research has indicated that the Pictorial Scales are related to various social and psychological variables (e.g., peer relationships, social behaviors, parental factors, attributions, locus of control, behavior problems, stress, anxiety, depression) (Rubin, Cohen, Houston, & Cockrel, 1996). Children were presented with two pictures of a child of the same gender and read a brief statement about the child in the pictures (e.g., girl on left is good at puzzles, girl on right is not very good at puzzles). Children were then asked to select which child they are more like, and whether they are a lot like that child, or just a little bit like that child. Internal consistency for the subscales ranges from .50 to .85 and reliability estimates range from .75 to .89 (Harter & Pike, 1984).

Children’s responses to these questions were scored using a 4-point scale, where a score of 4 indicates the most competent or accepted and a score of 1 indicates the least competent or accepted. For example, a child who indicated she is a lot like the girl who is good at puzzles received a score of 4 and a child who indicated she is a lot like the girl who is not very good at puzzles received a 1. Item scores were averaged across the six items in each of the four

subscales, and these four means indicate the child's profile of perceived competence and social acceptance.

Vocabulary level. Because research indicates that vocabulary is a robust predictor for victimization in preschool children (Dionne, Tremblay, Boivin, Laplante, & Pérusse, 2003; Barker, Boivin, Brendgen, Fontaine, Arseneault, Vitaro, Bissonnette, & Tremblay, 2008), vocabulary level, as well as age, will be used to control for individual differences. The Peabody Picture Vocabulary Test, Fourth Edition Form B (PPVT-4; Dunn & Dunn, 2007) was administered, which has a reliability rate of 90%. Children were presented with a colored book consisting of four pictures on each page. The experimenter stated a vocabulary word that corresponded to one of the four pictures, and the child was asked to select by pointing the picture that best illustrated the word. Children were first tested on training items (e.g., picture of a baby, candy) and after passing the training items, the experimenter continued with the following items, which were progressively harder. There were a total of 19 sets with 12 items in each set, totaling a maximum of 228 items. Once a participant committed 8 or more errors within one set, the experimenter ended the test.

The PPVT-4 was coded using the standard procedures listed in the Form B manual. First, the raw score was obtained by totaling children's errors (e.g., incorrect response or no response). The amount of errors was subtracted from the maximum item number within the highest set that the child completed. Once the raw score was calculated, the child's age and raw score was used to calculate a standard score, based on a scale of normed data from the scoring manual.

Parent Questionnaires

Demographic information. Parents were asked to provide demographic information, including questions related to income level in the last year, relationship status (e.g., married, single), and highest level of education completed.

Social Responsiveness Scale (SRS). The SRS (Constantino, 2005) is a 65-item rating scale that measures the severity of autism spectrum symptoms as they occur in natural social settings. It has five subscales, including social awareness, social cognition, social communication, social motivation, and autistic mannerisms. Reliability estimates are reported above .90 for both males and females, rated by both parents and teachers (Constantino, 2005). The SRS has also been used to measure socialization in typically developing populations (O'Brien, Barker, Gilpin, & Pierucci, 2012). Responses were coded using a 4-point scale, with 1 indicating "not true" and 4 indicating "almost always true". These scores were totaled by subscale to create a raw score for each subscale. The total raw score is calculated by summing the subscale raw scores. Both subscale raw scores and total raw scores were used to calculate a *T*-score, using tables provided in the scoring manual. Missing responses were replaced with the median value provided in the scoring manual. For the purposes of this study, all scores were reverse coded for interpretation purposes, such that higher scores indicated positive or "better" traits, except for the autistic mannerisms subscale.

Child Behavior Scale (CBS). The CBS (Ladd & Profilet, 1996) is a rating instrument containing 59 items. Respondents were asked to rate the behavior described in each item in terms of how characteristic or "applicable" it was for the target child. Items correspond to six subscales, measuring aggressiveness with peers, prosocial behavior with peers, exclusion by peers, asocial behavior with peers, hyperactive-distractible behavior, and anxious-fearful

behavior. Inter-rater reliability ranges from .81 to .88 and internal consistency ranges from .77 to .96 (Ladd & Profilet, 1996). Responses were coded using a 3-point scale, with 1 indicating “doesn’t apply” and 3 indicating “certainly applies”. Subscale scores were created by averaging the scores across the items included in each subscale, with higher scores implying that children more frequently exhibit the behaviors that correspond to the rated construct.

Preschool Peer Victimization Measure (PPVM). The PPVM (Crick, Casas, & Ku, 1999) assesses peer victimization that takes place between peers, measuring physical victimization, relational victimization, and receipt of prosocial behavior. Internal consistency ranges from .77 to .88 (Crick, Casas, & Ku, 1999). Responses will be coded using a 5-point scale, with 1 indicating “never or almost never true” and 5 indicating “always or almost always true”. Subscale scores were created by averaging the scores across the items included in each subscale, with higher scores implying that children more frequently exhibit the behaviors that correspond to the rated construct.

Callous Unemotional (CU) traits factor. The CU traits factor (Hawes & Dadds, 2007) combines items from the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) and Anti Social Personality Screening Device (APSD; Frick & Hare, 2002). The SDQ is a 25-item brief behavioral screening questionnaire that includes five subscales: hyperactivity, conduct problems, emotional symptoms, peer problems, and prosocial behavior. The APSD is a 20-item questionnaire that assesses childhood features of psychopathy on three subscales: callous unemotional traits, impulsivity, and narcissism. The resulting CU traits factor questionnaire consists of 9 items. Internal consistency estimates for the CU traits factor averages around .78 (Hawes & Dadds, 2007). Responses were coded using a 3-point scale, with 1 indicating “not

true” and 3 indicating “certainly true”. Scores on each of the items were averaged, with higher scores implying that children more frequently exhibit CU behaviors.

Fantasy Orientation Questionnaire. The Fantasy Orientation Questionnaire (Gilpin, 2010) measures children’s overall fantasy orientation. Questions address belief in fantastical figured, favorite books, games, television shows, and videogames, and overall interest in fantasy. An additional question was added to this questionnaire that addressed the existence of imaginary companions. Parents were asked if their child currently had an imaginary companion or had one in the past. If they answered affirmatively, they were asked to describe the companion and elaborate on their relationship.

Responses regarding the child’s beliefs in fantastical entities (e.g., fairies, Santa Claus) were coded using a 3-point scale, with 0 indicating “believes is pretend”, .5 indicating “belief unknown”, and 1 indicating “believes is real”. Children’s favorite books, games, television shows, and videogames were scored from a standardized list of responses used to code similar questions in previous research (Boerger, Tullos & Woolley, 2009; Gilpin, 2010; Woolley, Boerger & Markman, 2004). Similar to the coding scheme for Singer’s IPP, reality-based responses were scored as 0, low fantasy responses were scored as 1, and high fantasy responses were scored as 2. Ratings of their children’s level of fantasy orientation will be scored on a 5-point scale, with 1 indicating “strongly interested in reality (e.g., play sports)”, 2 indicating “sometimes interested in fantasy, but mostly interested in reality”, 3 indicating “equally interested in fantastical and reality play/media”, 4 indicating “mostly interested in fantasy, but sometimes interested in reality”, and 5 indicating “strongly interested in fantasy (e.g., often engages in pretense, enjoys fantastical books, etc.)”.

Teacher Questionnaires

Teacher questionnaires included all measures from the parent questionnaires (tailored appropriately for teachers), except demographic information, and with one additional measure.

Pictorial Scale of Perceived Competence and Social Acceptance for Young Children: Teacher Rating Scale. The Pictorial Scales (Harter & Pike, 1984) teacher rating scale parallels the child version, but excludes the maternal acceptance subscale. Teachers were given a brief verbal description of each item (e.g., good at puzzles) and were asked to rate how true that statement is for the target child. Responses were coded using a 4-point scale, with 1 indicating “not very true” and 4 indicating “really true”. Item scores were averaged across the six items in each of the three subscales, with these three means indicating the child’s profile of perceived competence and social acceptance.

Procedure

During one 30-minute session, children were presented with all child measures in one of six intelligently counterbalanced orders. Interviews occurred in a private room or area in the school that was designated for testing. If parents provided permission, sessions were videotaped for coding and inter-rater reliability purposes. Participants were seated next to the experimenter at a small table. After completing a session, research assistants accompanied participants back to their respective classrooms and passed out parent and teacher questionnaires to the teacher or an appropriate assistant. Parent and teacher questionnaires were collected as they became ready. Parents were compensated \$10, and teachers were compensated \$5.

RESULTS

Preliminary Analyses

The measures in the child interviews were counterbalanced into six intelligently designed orders. An analysis of variance was conducted to verify that there were no effects of task order on the main variables in question: having an imaginary companion, relationship control, making a friend be nice, and the composite social competence scores. No effects of order were found, all $ps > .15$.

Previous research has demonstrated that age is correlated with several of the variables used in these analyses, including social competence and fantasy orientation (Taylor & Carlson, 1997). In the current sample, age in months was significantly positively correlated with the following variables: three (i.e., teacher, parent, overall) of the four social competence composite scores (described below), Friend Score (final 12 questions of the Friend Interview), and relationship valence (negative, positive), all $ps < .02$. Thus, in the following analyses using these variables, age in months has been used as a covariate.

Imaginary Companions

Out of 107 children, 36 were classified as having an imaginary companion. Twenty-five of these children were girls, and 11 were boys (2 girls and 1 boy in the 3-year-olds group; 4 girls and 4 boys in the 4-year-old group; 7 girls and 1 boy in the 5-year-old group; 6 girls and 3 boys in the 6-year-old group; 2 girls and 1 boy in the 7-year-old group; 4 girls and 1 boy in the 8-year-old group). Consistent with past research (Taylor & Carlson, 1997), girls in the current sample

reported having a larger number of imaginary companions than did boys, though this difference was not statistically significant ($p = .325$).

Logistic regression was used to identify the variables that best predicted whether children have an imaginary companion. The model identified by Akaike's Information Criterion (AIC) as the best fit model for the data identified a Fantasy Orientation variable from Singer's (1961) Imaginative Play Predisposition scale, "pretending to be an animal," as a significant predictor of having an imaginary companion, ($\beta = 1.08$, Wald (1) = 4.89, $p = .027$, $\text{Exp}(\beta) = 2.93$), $y^{\wedge}_{\text{predicted IC status}} = -1.421 + 1.075 \cdot \beta_{\text{IPPanimal}}$. The overall model was significant, $\chi^2(1) = 5.41$, $p = .02$. Predicted values indicated that children who pretend to be an animal were more likely to have an imaginary companion.

Friend Interview

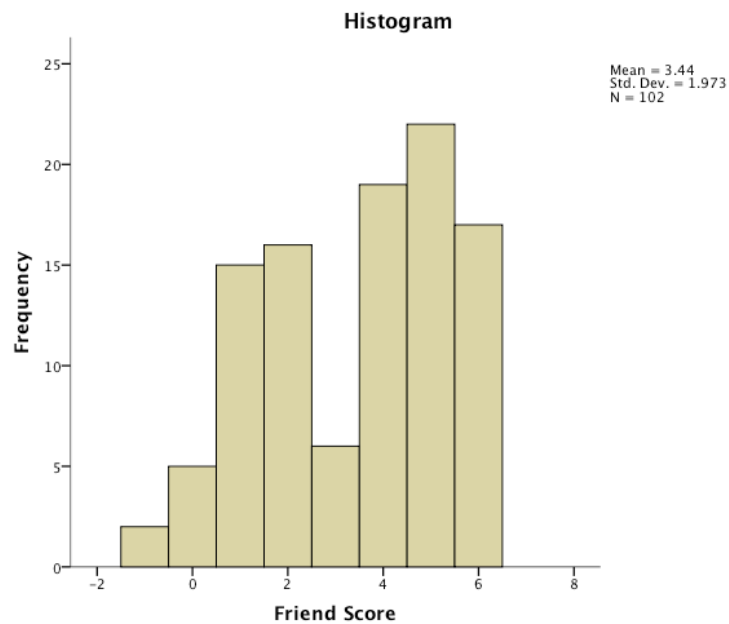
The Friend Interview was designed to mimic the Preschool Peer Victimization Measure (PPVM; Crick, Casas, & Ku, 1999) to allow for a similar categorization of both real and imaginary relationships in this sample. The PPVM has 3 subscales (i.e., physical/overt victimization, relational victimization, and received prosocial behavior). To determine if the new Friend Interview's questions clustered together to form subscales, a Principal Components Analysis (PCA) was conducted. This first unrestricted PCA analysis identified 5 components, which did not form meaningful subscales. However, when restricted, PCA clustered the Friend Interview questions into two meaningful components: the first component ("Negative Valence") consisted of all 6 questions from both the physical/overt victimization and relational victimization subscales (Eigenvalue = 2.72, factor loadings ranged from .563 to .740). The second component ("Positive Valence") consisted of all questions from the received prosocial behavior and positive reciprocated friendship behaviors subscales, excluding the "Do you and

_____ share toys together” question) (Eigenvalue = 1.88, factor loadings ranged from .360 to .736). Based on the PCA analysis, composite scores from the Friend Interview were calculated for these two components as well as for the four originally intended subscales (i.e., physical/overt victimization, relational victimization, received prosocial behavior, positive reciprocated friendship behaviors). Univariate analyses of variance on these six variables did not reveal significant differences between children with and without imaginary companions.

Scores from the 12 questions of the Friend Interview ranged from -1 to 6 on a bimodal distribution (See Figure 1 for histogram). Classification of relationships into “positive” or “negative” categories was based on the bimodal distribution of the data, with scores ranging from -1 to 2 classified as “negative” (coded as 1) and scores ranging from 3 to 6 classified as “positive” (coded as 0).

Figure 1

Distribution of scores on final 12 questions of Friend Interview.



Of the relationships with real friends found, 27 out of 75 were considered negative using this scale. Of the relationships with imaginary companions found, 12 out of 32 (four children with imaginary companions were asked about a real friend instead) were considered negative using this scale. Of these 12 negative relationships with imaginary companions, eight participants were females and four were males (See Table 1). Appendix D provides detailed descriptions of several participants' imaginary companions.

Table 1

Number of imaginary companions and number of negative imaginary relationships by age group and gender.

Age Group	Gender	Number of Imaginary Companions	Number of Negative Imaginary Relationships
3-year-olds	Female	2	1
	Male	1	1
4-year-olds	Female	2	2
	Male	3	2
5-year-olds	Female	7	3
	Male	1	0
6-year-olds	Female	6	1
	Male	2	1
7-year-olds	Female	2	0
	Male	1	0
8-year-olds	Female	4	1
	Male	1	0
Total		32	12

For those children who indicated having an imaginary companion, frequencies were calculated on their responses to the “Is X ever mean to you?” and “Are you ever mean to X?” questions to determine the direction of negativity in the relationship, if it existed. Seven children (19%) with imaginary companions answered yes to both questions, indicating that the negative relationship was driven by both the child and the imaginary companion. Five children (14%)

answered yes to “Is X ever mean to you?” only, indicating that the negative relationship was driven by the imaginary companion. Two children (6%) answered yes to “Are you ever mean to X?” only, indicating that the negative relationship was driven by the child. Eighteen children (50%) answered no to both questions. Similar percentages were given for children reporting on their relationships with real friends. Ten children (14%) answered yes to both questions, indicating that the negative relationship was driven by both the child and their friend. Thirteen children (18%) answered yes to “Is X ever mean to you?” only, indicating that the negative relationship was driven by the child’s friend. Four children (1%) answered yes to “Are you ever mean to X?” only, indicating that the negative relationship was driven by the child. Forty-five children (63%) answered no to both questions. A chi-square test of independence revealed no differences in the direction of the relationship valence between friend type with regards to answer choice (yes to both, yes to “Is X ever mean to you?” only, yes to “Are you ever mean to X” only, no to both), $\chi^2(3) = 6.07, p = .108$. This indicates that children with and without imaginary companion answered these questions similarly.

“Who’s in charge?”

Children’s responses to the question “Who’s in charge?” from the Friend Interview (child in charge, friend in charge, neither) were analyzed using a 2 (friend type: real, imaginary) x 2 (relationship valence: negative, positive) between-subjects univariate analysis of variance, using age in months as a covariate. This revealed a main effect of relationship valence, $F(1, 101) = 5.12, p = .025, \eta_p^2 = .049$. Children with negative relationships ($M = 1.11, SD = .83$) were significantly more likely to say that their friend was in charge of the relationship than children with nice relationships ($M = .37, SD = .69$). Because there was no influence of friend type, these data suggest that imaginary relationships are not unidirectional as was once thought (Svendsen,

1934; Nagera, 1969). Additionally the main effect of valence demonstrates that if a child has a negative relationship, regardless of whether it is real or imaginary, he or she will be more likely to say that their friend is in charge of the relationship.

“Can you make X be nice to you?”

Hierarchical logistic regression was used to identify the variables that best predicted whether children thought they could make their friend be nice, controlling for age in months on Step 1. The model identified by Akaike’s Information Criterion (AIC) as the best fit model for the data identified age in months ($\beta = -.031$, Wald (1) = 3.97, $p = .046$, $\text{Exp}(\beta) = .969$) and Friend Score (*range* = -6 to 6) ($\beta = -.367$, Wald (1) = 3.78, $p = .052$, $\text{Exp}(\beta) = .693$), as a significant predictors of making a friend be nice, $y^{\wedge}_{\text{predicted make a friend be nice status}} = 5.121 - .031 \cdot \beta_{\text{Age in Months}} - .367 \cdot \beta_{\text{Friend Score}}$. The overall model was significant, $\chi^2(2) = 19.11$, $p < .001$. Predicted values indicate that younger children with negative relationships (real or imaginary) were more likely to say that they could make their friend be nice. These data suggest that young children with negative relationships, real or imaginary, are more likely to report a manipulative relationship with their friend—that they can *make* their friend be nice to them. Older children and those with positive relationships do not report this as often, suggesting that they have better peer relationships, which is related to overall social competence.

Social Competence

A PCA was conducted to determine which social competence measures from the child measures and the parent and teacher questionnaires clustered together to form composite social competence measure(s). PCA revealed three distinct components. The first component (“Teacher Report”) consisted of seven social competence measures as reported by teachers: the Peer Acceptance subscale of the Pictorial Scales, the Prosocial with Peers subscale of the CBS, the

Received Prosocial Behavior subscale of the PPVM, and the Social Awareness, Social Cognition, Social Communication, and Social Motivation subscales of the SRS (Eigenvalue = 5.271, factor loadings ranged from .494 to .825). Twenty out of 21 of the correlations of items in this component were significant, with 19 out of 20 significant at the $p < .001$ level (See Table 2).

Table 2

Correlations for component one of the PCA: "Teacher Report."

Teacher Report Measure	2	3	4	5	6	7
1. Peer Acceptance Subscale (PS)	.338**	.637**	.197	.529**	.460**	.567**
2. Prosocial With Peers Subscale (CBS)		.597**	.519**	.460**	.568**	.389**
3. Received Prosocial Behavior Subscale (PPVM)			.397**	.613**	.671**	.607**
4. Social Awareness Subscale (SRS)				.495**	.606**	.252*
5. Social Cognition Subscale (SRS)					.846**	.673**
6. Social Communication Subscale (SRS)						.700**
7. Social Motivation Subscale (SRS)						

** . Correlation is significant at the 0.001 level (2-tailed).

* . Correlation is significant at the 0.02 level (2-tailed).

The second component ("Parent Report") consisted of six social competence measures as reported by parents: the Prosocial with Peers subscale of the CBS, the Received Prosocial Behavior subscale of the PPVM, and the Social Awareness, Social Cognition, Social Communication, and Social Motivation subscales of the SRS, (Eigenvalue = 2.895, factor loadings ranged from .347 to .663). All 15 correlations of the items in this component were significant, with 10 significant at the $p < .001$ level (See Table 3). The third component ("Child Report") consisted of two child measures, the Peer Acceptance and Maternal Acceptance subscales of the Pictorial Scales (Eigenvalue = 1.321, factor loadings .781 and .632,

respectively). These subscales were significantly correlated, $r = .293, p = .003$. Composite scores were calculated for these three components: “Teacher Report,” “Parent Report,” and “Child Report.”

Table 3

Correlations for component two of the PCA: “Parent Report.”

Parent Report Measure	2	3	4	5	6
1. Prosocial With Peers Subscale (CBS)	.332*	.376**	.412**	.483**	.321*
2. Received Prosocial Behavior Subscale (PPVM)		.362*	.462**	.582**	.354*
3. Social Awareness Subscale (SRS)			.575**	.654**	.283*
4. Social Cognition Subscale (SRS)				.747**	.593**
5. Social Communication Subscale (SRS)					.626**
6. Social Motivation Subscale (SRS)					

** . Correlation is significant at the 0.001 level (2-tailed).

* . Correlation is significant at the 0.02 level (2-tailed).

In order to get an overall social composite score (i.e., combination of parent, teacher, and child reports), the principal components analysis was re-run and restricted to identifying one component. This component (“Overall Social Competence”) consisted of all of the measures from both the previous “Teacher Report” and “Parent Report” components, except the following two parent questionnaires: Prosocial with Peers subscale of the CBS, and the Social Awareness subscale of the SRS (Eigenvalue = 5.271, factor loadings ranged from .486 to .825). A composite score was calculated for this “Overall Social Competence” component. Each of the four composite scores was used in regression analyses to see if social competence scores varied as a function of friend type and valence.

Controlling for age in months on Step 1, hierarchical linear regression did not reveal any significant predictors (apart from the covariate) of “Teacher Report” and “Parent Report,” despite significant models, $F(2, 86) = 7.74, p = .001$ and $F(2, 70) = 3.60, p = .032$, respectively. Additionally, it did not reveal a significant model for “Child Report,” $F(2, 100) = .53, p = .589$. However, the model identified by AIC as the best fit model for the data revealed that Friend Score (valence of friend relationship, -6 to +6, orthogonalized to age in months to remediate collinearity) marginally predicted “Social Competence Overall” scores, $F(2, 56) = 4.75, p = .012$, $\beta = .04, p = .094$, indicating that children who had nicer relationships had better social competence scores as reported by both parents and teachers, and vice versa.

Logistic regression was used to clarify the variables that predict relationship valence. The model identified by AIC as the best fit model for the data identified three variables that significantly predicted relationship valence: age in months ($\beta = -.071, \text{Wald}(1) = 8.90, p = .003, \text{Exp}(\beta) = .931$), the Child Behavior Scale’s Aggressiveness with Peers subscale (teacher) ($\beta = 4.675, \text{Wald}(1) = 6.59, p = .01, \text{Exp}(\beta) = 107.195$), and the Callous-Unemotional traits factor (teacher) ($\beta = 3.096, \text{Wald}(1) = 3.41, p = .065, \text{Exp}(\beta) = 22.101$), $y^{\wedge}_{\text{predicted valence}} = -1.501 - .071 \cdot \beta_{\text{Age in months}} + 4.675 \cdot \beta_{\text{Aggressiveness with Peers score}} + 3.096 \cdot \beta_{\text{CU score}}$. The overall model was significant, $\chi^2(3) = 31.17, p < .001$ (See Table 4). Predicted values indicated that younger children, whose teachers rated them as high on the CBS Aggressiveness with Peers subscale and high on callous-unemotional traits, were more likely to have a negative relationship.

Table 4

Logistic Regression Analysis of Child Reports of Friend Valence (N = 61).

Predictor	β	<i>SE</i> β	Wald's χ^2	<i>df</i>	<i>p</i>	Exp(β) (odds ratio)
Constant	-1.501	2.74	.30	1	.584	.223
Age (months)	-.071	.02	8.90	1	.003	.931
CBS Aggressiveness with Peers (teacher)	4.675	1.82	6.59	1	.010	107.19 5
CU (teacher)	3.096	1.68	3.41	1	.065	22.101

DISCUSSION

The purpose of the present study was to explore the relationship between young children's negative interactions with imaginary companions and socioemotional development. It was hypothesized that having an imaginary companion—regardless of whether the relationship is positive or negative—is beneficial to socioemotional development because it allows the child to role-play and practice taking different perspectives. Thus, having a negative relationship with an imaginary companion might serve as an emotional outlet and proxy for real friendship in terms of socioemotional development. Results confirmed that positive relationships with imaginary companions are related to better socioemotional development. However, negative relationships with imaginary companions were related to poorer social competence. In fact, socioemotional development did not vary across friend type (i.e., real, imaginary), but did vary across relationship valence (i.e., positive, negative). Children with negative relationships, regardless of whether they were real or imaginary, had lower overall social competence scores than children with nice relationships. Thus, these results support the conclusion that children with imaginary companions develop social competence much the same way that children with real relationships do. Although some cultures and religious groups discourage children from fostering relationships with imaginary companions, adults should be less concerned about the type of friend (real versus imaginary) and more concerned about the quality of the relationship, encouraging positive friend relationships to help children further develop social competence.

Thirty-four percent of the sample was classified as having an imaginary companion. This finding is corroborated by Taylor's (1999) conservative estimate that 28% of children report

having imaginary companions. The finding that more females had imaginary companions (25 females versus 11 males) is also consistent with past research on gender differences and imaginary companions (Taylor & Carlson, 1997). For example, Mauro (1991) found that 64% of children with imaginary companions were female. Twelve (out of 32) of the relationships with imaginary companions found could be considered negative. This is supported by findings that about one-third of relationships with imaginary companions can be considered negative (Taylor, 1999; Mauro, 1991). Children's descriptions of their imaginary companions varied widely from child to child (Table 1). Past research has shown, however, that these descriptions remain relatively stable over time (Taylor & Carlson, 1997; Taylor et al., 1993). Appendix E details parents' and teachers' corroboration of their children's imaginary companions.

Contrary to Svendsen's (1934) finding that imaginary companions assume a subordinate role to their creators, children in the present study reported that, when there is unequal control of a relationship, they relinquish control to the imaginary companion in the case of a negative relationship. If a child has a positive relationship, it is likely that the child sees no reason to be in charge of and manipulate the relationship—the relationship is positive and the child does not stand to lose anything by not being in charge. The opposite was true in the case of negative relationships. The child does not view the negative qualities of their real or imaginary relationships as being in their control to change or manipulate, but rather the child feels controlled and manipulated by their imaginary companion, just like they do by a negative relationship with a real friend. This is a counterintuitive finding, since the imaginary companion is a product of the child's imagination. One would assume that the creator would be able to control his/her own creation. However, in the case of a child imagining a negative relationship

with an imaginary companion, the child seems to role play this relationship as it would occur in real life—as a manipulating, negative experience.

This finding that relationship valence influences who is in control is also contrary to Nagera's (1969) argument that implies that imaginary relationships are unidirectional, driven only by the child. This implication is clear in his description of potential functions of imaginary companions (e.g., scapegoats, help reduce feelings of rejection and loneliness), referring to them as "superego auxiliaries." This emphasis on the imaginary companion as auxiliary was not supported by the present data. Furthermore, it is entirely possible that Nagera's list of particular functions of imaginary companions becomes invalid in the case of a negative imaginary relationship. Similar to Gleason's (1999) finding that the provisions of real and imaginary relationships are similar, the present data show that the nature of imaginary relationships is much like that of real relationships—they are multifaceted and bidirectional.

Relationship valence and age in months were found to be significant predictors of whether children thought they could make their friend be nice to them. This indicates that there is some sort of manipulation in younger, negative relationships, and more so than in positive relationships. Furthermore, this finding lends support to two important arguments: (1) emotional valence is what drives manipulation in friendships, and (2) imaginary companions function as proxies for real friends. Regardless of the type of friend, more manipulation was found in negative relationships than in positive relationships.

The present data also indicated that positive relationships were marginally related to better overall social competence scores, with negative relationships being related to worse overall social competence scores, even after controlling for age. This finding replicates and extends that of Crick et al. (1997), who found that relational aggression is significantly

associated with social-psychological maladjustment. It seems that emotional valence (which includes relational aggression at one end of its spectrum) is the important predictor of social competence and adjustment, and whether the relationship is real or imaginary does not matter. Although the direction of its influence is ambiguous, it is clear that role of emotional valence is quite broad—not only does it predict relational manipulation between children and their friends, but it is also highly related to overall social competence outcomes. It could be that children with poorer social competence are only capable of being in negative relationships. Alternatively, it could be that the negative relationships inhibit the development of social competence.

Furthermore, this finding also extends the argument that imaginary companions serve as proxies for real friends—social competence clearly does not vary across relationship type. Crick et al. (1997) argued that the assessment of relational aggression plays an important role in the early detection of child maladjustment—the present results corroborate this argument by demonstrating that aggressiveness with peers and callous-unemotional traits are predictors of poor social competence, and show that parents, teachers, and counselors should examine the *quality* of both real and imaginary relationships when identifying and treating children with poor social competence.

There is some evidence in atypical populations (e.g., middle school children at-risk for developing behavior problems) that having an imaginary companion in middle school can be harmful to present (i.e., lower social preference scores, more externalizing behaviors), but not future socioemotional development (Taylor et al., 2010). The present data indicate that in a typical preschool to young elementary school sample—an age range where the creation of an imaginary companion is most common (Taylor, 1999; Woolley & Tullos, 2008)—having an imaginary companion is not harmful to current socioemotional development. It is fairly clear that

real friends do not differ dramatically from imaginary ones. What is not known, however, is the directionality of this relationship. Is social competence helping children create better friendships, real or imaginary, or are friendships helping develop better social competence? It is likely bidirectional, which might have important implications for interventions for children at risk for developing poor social competence—especially for children who are aggressive with peers and those who exhibit callous-unemotional traits, as the present research indicated these traits are predictors of poor social competence. If it is found that having a relationship with an imaginary companion helps develop social competence over and above having only negative relationships with real friends or having no friends at all, this could be useful information for the treatment of rejected children. Encouraging them to create an imaginary companion might help improve their social competence to the point that they are able to develop positive real friendships.

The present research suggests that having an imaginary companion might be an excellent proxy for real friendship in terms of socioemotional development. Children's socioemotional experiences with imaginary companions are very similar to their experiences with real friends—there are ups and downs and differences of opinion just as there are in real relationships. It was also revealed that the important factor in children's friendships is its emotional valence. Parents and teachers should encourage the development of positive relationship (real or imaginary) strategies in their children and students.

REFERENCES

- Achenbach, T. M. (1991a). *Integrative guide to the 1991 CBCL/4–18, YSR, and TRF profiles*. Burlington, VT: Department of Psychology, University of Vermont.
- Achenbach, T. M. (1991b). *Manual for the Child Behavior Checklist/4–18 and 1991 profile*. Burlington, VT: Research Center for Children, Youth, and Families, University of Vermont.
- Alansky, J. A. (1987). The friend that only I can see: An exploratory study of the role of imaginary companions in preschoolers' lives. Unpublished master's thesis, University of Oregon.
- Barker, E. D., Boivin, M., Brendgen, M., Fontaine, N., Arseneault, L., Vitaro, F., Bissonnette, C., & Tremblay, R. E. (2008). Predictive validity and early predictors of peer-victimization trajectories in preschool. *Archives of General Psychiatry*, *65*, 1185-1192.
- Boerger, E. B., Tullos, A., & Woolley, J. D. (2009). Return of the Candy Witch: Individual differences in acceptance and stability of belief in a novel fantastical being. *British Journal of Developmental Psychology*, *27*, 953-970.
- Bouldin, P., Bravin, E. L., Pratt, C. (2002). An investigation of the verbal abilities of children with imaginary companions. *First Language*, *22*, 249-262.
- Carrow-Woolfolk, A. (1985). *The Test for the Auditory Comprehension of Language-Revised*. Chicago: Riverside.
- Constantino, J. N. (2002). *The Social Responsiveness Scale*. Los Angeles, CA: Western Psychological Services.
- Crick, N. R., Casas, J. F., & Ku, H. C. (1999). Relational and physical forms of peer victimization in preschool. *Developmental Psychology*, *35*, 376-385.
- Crick, N. R., Casas, J. F., & Mosher, M. (1997). Relational and overt aggression in preschool. *Developmental Psychology*, *33*, 579-588.
- Dionne, G., Tremblay, R., Boivin, M., Laplante, D., & Pérusse, D. (2003). Physical aggression and expressive vocabulary in 19-month-old twins. *Developmental Psychology*, *39*, 261-273.

- Dise-Lewis, J. E. (1988). The Life Events and Coping Inventory: An assessment of stress in children. *Psychosomatic Medicine*, *50*, 484 – 499.
- Dodge, K. A., Coie, J., & Lynam, D. (2006). Aggression and antisocial behavior in youth. In W. Damon and R. M. Lerner (Series Eds.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Vol. 3 Social, emotional, and personality development* (6th ed., pp. 719-788). Hoboken, NJ: Wiley.
- Dunn, L. M. & Dunn, D. M. (2007). *Peabody Picture Vocabulary Test- Fourth Edition*. Minneapolis, MN: NCS Pearson, Inc.
- Eisenberg, N., Fabes, R. A., & Spinrad, T. L. (2006). Prosocial development. In W. Damon & R. M. Lerner (Series Eds.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (6th ed., pp. 646-718). Hoboken, NJ: Wiley.
- Fabes, R. A., Eisenberg, N., Nyman, M., & Michaelieu, Q. (1991). Young children's appraisals of others' spontaneous emotional reactions. *Developmental Psychology*, *27*, 858-866.
- Frick, P.J., Christian, R.E., & Wootton, J.M. (1999). Age trends in the association between parenting practices and conduct problems. *Behavior Modification*, *23*, 106-128.
- Frick, P. J., & Hare, R. D. (2002). *The Psychopathy Screening Device*. Toronto: Multi-Health Systems.
- Furman W., & Buhrmester, D. (1985). Children's perceptions of the personal relationships in their social networks. *Developmental Psychology*, *21*, 925-931.
- Gilpin, A. T. (2010). Mechanisms for overcoming reality status biases. Under review.
- Gleason, T. (2002). Social provisions of real and imaginary relationships in early childhood. *Developmental Psychology*, *38*, 979-992.
- Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal of Child Psychology and Psychiatry*, *38*, 581-586.
- Gresham, F. M. & Elliott, S. N. (2008). *Social Skills Improvement System: Rating Scales*. Bloomington, MN: Pearson Assessments.
- Harter, S., & Chao, C. (1992). The role of competence in children's creation of imaginary friends. *Merrill-Palmer Quarterly*, *38*, 350-363.
- Harter, S. & Pike, R. (1984). The Pictorial Scale of Perceived Competence and Social Acceptance for children. *Child Development*, *55*, 1969-1982.

- Hawes, D. J., & Dadds, M. R. (2007). Stability and malleability of callous-unemotional traits during treatment for childhood conduct problems. *Journal of Clinical Child and Adolescent Psychology, 36*, 347-355.
- John, O. P., Donahue, E. M., & Kentle, R. L. (1991). *The Big Five Inventory: Versions 4a and 54*. Berkeley, CA: University of California, Berkeley, Institute of Personal and Social Research.
- King, Stephen. (1977). *The Shining*. New York: Signet.
- Kochanska, G., Coy, K. C., & Murray, K. T. (2001). The development of self-regulation in the first four years of life. *Child Development, 72*, 1091-1111.
- Kubrick, Stanley. (Producer & Director). (1980). *The Shining* [Film]. Los Angeles: Warner Bros.
- Ladd, G.W., & Profilet, S. M. (1996). The Child Behavior Scale: A teacher-report measure of young children's aggressive, withdrawn, and prosocial behaviors. *Developmental Psychology, 32*, 1008-1024.
- Lloyd, P., Camaioni, L., & Ercolani, P. (1995). Assessing referential communication skills in the primary school years: a comparative study. *British Journal of Developmental Psychology, 13*, 13-29.
- Loeber, R. (1990). Development and risk factors of juvenile antisocial behavior and delinquency. *Clinical Psychology Review, 10*, 1-41.
- Manosevitz, M., Prentice, N. M., & Wilson, F. (1973). Individual and family correlates of imaginary companions in preschool children. *Developmental Psychology, 8*(1), 72-79.
- Mauro, J. (1991). *The friend that only I can see: A longitudinal investigation of children's imaginary companions*. Unpublished doctoral dissertation, University of Oregon.
- Nagera, H. (1969). The imaginary companion: Its significance for ego development and conflict resolution. *The Psychoanalytic Study of the Child, 24*, 89-99.
- O'Brien, C. T., Barker, E. D., Gilpin, A. T., & Pierucci, J. M. (2012). The School Readiness Project: Examining the association between bullying and victimization and callous-unemotional traits in preschool.
- Parker, J. G., & Asher, S. R. (1987). Peer acceptance and later personal adjustment: Are low-accepted children "at risk"? *Psychological Bulletin, 102*, 357-389.
- Perner, J., Leekam, S. R., & Wimmer, H. (1987). Three-year-olds' difficulty with false belief: The case for a conceptual deficit. *British Journal of Developmental Psychology, 5*, 125-137.

- Roby, A. C., & Kidd, E. (2008). The referential communication skills of children with imaginary Companions. *Developmental Science, 11*, 531-540.
- Rubin, E. C., Cohen, R., Houston, D. A., & Cockrel, J. (1996). Children's self-discrepancies and peer relationships. *Social Cognition, 14*, 93-112.
- Sawa, T., Oae, H., Abiru, T., Ogawa, T., & Takahashi, T. (2004). Role of imaginary companion in promoting the psychotherapeutic process. *Psychiatry and Clinical Neurosciences, 54*, 145-151.
- Shapiro, H. L., Prince, J. B., Ireland, R., & Stein, M. T. A dominating imaginary friend, cruelty to animals, social withdrawal, and growth deficiency in a 7-year-old girl with parents with schizophrenia. *Journal of Developmental & Behavioral Pediatrics, 27*, 24-29.
- Shelton, K.K., Frick, P.J., & Wootton, J.M. (1996). Assessment of parenting practices in families of elementary school-age children. *Journal of Clinical Child Psychology, 25*, 317-329.
- Singer, J. L. (1961). Imagination and waiting ability in young children. *Journal of Personality, 29*, 396-413.
- Singer, D.G., & Singer, J.L. (1981). *Television, imagination, and aggression: A study of preschoolers*. Hillsdale, NJ: Erlbaum.
- Singer, D.G., & Singer, J.L. (1990). *The house of make-believe: Children's play and developing imagination*. Cambridge: Harvard University Press.
- Singer, J. L., & Singer, D. G. (1981). *Television, imagination, and aggression: A study of preschoolers*. Hillsdale, NJ: Erlbaum.
- Singer, J. L., & Streiner, B. F. (1966). Imaginative content in the dreams and fantasy play of blind and sighted children. *Perceptual and Motor Skills, 22*, 475-482.
- Svendsen, M. (1934). Children's imaginary companions. *Archives of Neurology & Psychiatry, 32*, 985-999.
- Taylor, M. (1999). *Imaginary companions and the children who create them*. New York, Oxford: Oxford University Press.
- Taylor, M., & Carlson, S.M. (1997). The relation between individual differences in fantasy and theory of mind. *Child Development, 68*, 436-455.
- Taylor, M., Carlson, S. M., Maring, B. L., Gerow, L., & Charley, C. M. (2004). Characteristics and correlates of fantasy in school-age children: Imaginary companions, impersonation, and social understanding. *Developmental Psychology, 40*, 1173-1187.

- Taylor, M., Cartwright, B.S., & Carlson, S.M. (1993). A developmental investigation of children's imaginary companions. *Developmental Psychology, 29*, 276-285.
- Taylor, M., Hulette, A. C., & Dishion, T. J. (2010). Longitudinal outcomes of young high-risk adolescents with imaginary companions. *Developmental Psychology, 46*, 1632-1636.
- Trionfi, G. & Reese, E. (2009). A good story: Children with imaginary companions create richer narratives. *Child Development, 80*, 1301-1313.
- Twain, M. (1922). *The Mysterious Stranger*. New York: Harper & Row.
- Twain, M. (1959). *The Autobiography of Mark Twain*. C. Neider (Ed.). New York: Harper & Row.
- Vitaro, F., Brendgen, M., & Barker, E. D. (2006). Subtypes of aggressive behaviors: A developmental perspective. *International Journal of Behavioral Development, 30*, 12-19.
- Watson, A. C., Nixon, C. L., & Capage, L. (1999). Social interaction skills and theory of mind in young children. *Developmental Psychology, 35*, 386-391.
- Weiss, R. (1974). The provisions of social relationships. In Z. Rubin (Ed.), *Doing unto others* (pp. 17-26). Englewood Cliffs, NJ: Prentice-Hall.
- Woolley, J. D., Boerger, E. A. & Markman, A. B. (2004). A visit from the Candy Witch: factors influencing young children's belief in a novel fantastical being. *Developmental Science 7:4*, 456-468.
- Woolley, J. D., & Tullos, A. (2008). Imagination and fantasy. In M. Haith, & J. Benson (Eds.), *Encyclopedia of Infant and Early Childhood Development* (pp. 117-127). Cambridge: Elsevier Press.

APPENDICES

A. FRIEND INTERVIEW SCRIPT.....	47
B. FRIEND INTERVIEW QUESTIONS BY SUBSCALE.....	51
C. PRESCHOOL PEER VICTIMIZATION MEASURE.....	52
D. DETAILED DESCRIPTIONS OF SEVERAL PARTICIPANTS' IMAGINARY COMPANIONS.....	53
E. PARENTS' AND TEACHERS' CORROBORATION OF PARTICIPANTS' IMAGINARY COMPANIONS.....	59

Appendix A

Friend Interview

If child has an imaginary companion:

“Now I’m going to ask you some questions about you and _____. Sometimes you might say ‘no’ and other times you might say ‘yes.’ Let’s practice saying “yes” and “no” by telling me about yourself.”

If child does not have an imaginary companion:

“[Child’s name], who is the kid you play the most with?” (*prompt with ‘at home,’ ‘school,’ if necessary*)

Name of Friend: _____

“Okay, well, now I’m going to ask you some questions about you and _____. Sometimes you might say ‘no’ and other times you might say ‘yes.’ Let’s practice saying “yes” and “no” by telling me about yourself.”

Warm-Up

Please circle the responses.

1. Are you ***(child’s age)*** years old? **Yes** **No**

“That’s right!/Actually, yes, you are _____ years old.”

2. Are you wearing a _____ ****** shirt? **Yes** **No**

“That’s right!/Actually, no, you are not wearing a _____ shirt.”

****Please choose a color different than the color shirt the child is wearing.**

3. Is your name ***(child’s name)***? **Yes** **No**

“That’s right!/Actually, yes, your name is _____.”

4. Is your hair green? **Yes** **No**

“That’s right!/Actually, no, your hair is not green.”

“See? Both “yes” and “no” are good answers. I’m going to ask you some more questions about you and _____. I just want to know what you think. Remember, both “yes” and “no” are good answers. Okay, let’s get started.”

Note: If child looks confused about any part of a question, rephrase as necessary until they seem to understand. Some potential re-phrasings have been provided in italics after the individual questions.

1. Tell me about what you do with _____.

2. Tell me what you talk about with _____.

3. Is _____ ever mean to you?	Yes	No
Are you ever mean to _____?	Yes	No

If yes to one or both, ask the following questions. If the child only answers yes to one, then ask the follow up questions in the pertinent direction. If child answers yes to both, ask both questions. Please circle the question(s) asked:

How is _____ mean to you? ***AND/OR*** How are you mean to _____? (***What do you do that is mean? What does _____ do that is mean?***)

Why is _____ mean to you? ***AND/OR*** Why are you mean to _____? (***What makes you be mean to _____? What makes _____ be mean to you?***)

When _____ is mean to you, how do you make up? **AND/OR** When you are mean to _____, how do you make up?

- | | | | |
|----|---|------------|-----------|
| a. | Do you ever not listen to each other? | Yes | No |
| b. | Do you forgive each other? | Yes | No |
| 4. | Can you make _____ be nice to you? | Yes | No |
| 5. | How mean is _____? Is _____ not mean, a little mean or a lot mean? | | |
| | Not A Little A Lot | | |
| 6. | How nice is _____? Is _____ not nice, a little nice or a lot nice? | | |
| | Not A Little A Lot | | |
| 7. | Who's in charge? Are you in charge of _____ or is _____ in charge of you? Or neither? | | |
| | Child in Charge Friend in Charge Neither | | |

Can you tell me more about that?

- | | | | |
|-----|--|------------|-----------|
| 8. | Do you and _____ ever hit, kick, or pinch each other? | Yes | No |
| 9. | Do you and _____ ever push or shove each other? | Yes | No |
| 10. | Do you and _____ ever call each other names? | Yes | No |
| 11. | Do you and _____ ever ignore each other when you are mad? | Yes | No |
| 12. | Do you and _____ ever tell each other's secrets to someone else? | Yes | No |

- | | | | |
|-----|--|------------|-----------|
| 13. | Do you and _____ ever tell each other that you aren't friends? | Yes | No |
| 14. | Do you and _____ help each other when one of you needs help? | Yes | No |
| 15. | Do you and _____ cheer each other up when one of you is sad? | Yes | No |
| 16. | Do you and _____ share toys with each other? | Yes | No |
| 17. | Do you and _____ keep the promises you make to each other? | Yes | No |
| 18. | Do you and _____ listen to what each other says? | Yes | No |
| 19. | Do you and _____ have a lot of fun together? | Yes | No |

Appendix B

Final 12 Friend Interview Questions by Subscale

Physical/Overt Victimization

1. Do you and _____ ever hit, kick, or pinch each other?
2. Do you and _____ ever push or shove each other?
3. Do you and _____ ever call each other names? (like “baby,” etc.)

Relational Victimization

4. Do you and _____ ever ignore each other when you are mad?
5. Do you and _____ ever tell each other’s secrets to someone else?
6. Do you and _____ ever tell each other that you aren’t friends?

Received Prosocial Behavior

7. Do you and _____ help each other when one of you needs help?
8. Do you and _____ cheer each other up when one of you is sad?
9. Do you and _____ share toys with each other?

Positive Reciprocated Friendship Behaviors

10. Do you and _____ keep the promises you make to each other?
11. Do you and _____ listen to what each other says?
12. Do you and _____ have a lot of fun together?

Appendix C

Preschool Peer Victimization Measure (PPVM) Questions by Subscale

Crick, N. R., Casas, J. F., & Ku, H. C. (1999). Relational and physical forms of peer victimization in preschool. *Developmental Psychology, 35*, 376-385.

Physical/Overt Victimization

1. This child gets hit, kicked, or pinched by peers.
2. This child gets pushed or shoved by peers.
3. This child is called mean names (e.g., “baby”).

Relational Victimization

1. This child gets ignored by playmates when they are mad at him/her.
2. This child gets left out of the group when someone is mad at them or wants to get back at them.
3. This child gets told “you aren’t my friend/buddy” if they do not comply with a playmate’s request.

Received Prosocial Behavior

1. This child gets invited to join a group of playmates when he/she is playing alone.
2. This child gets help from peers when he/she needs it.
3. This child gets cheered up by playmates when he/she is upset about something.

Appendix D

Participant	IC Name	Description of imaginary companion
Female 4 years, 2 months	Princess	<p>4 years old. Totally pretend. She has brown eyes, hair bows, and pink shirts. Child likes her brown eyes, that she dresses up, lets child wear her jewelry, and that she tells stories. Child can make Princess be nice to her. Princess is in charge of the relationship.</p> <p>Reported Meanness: Princess is “a lot” mean. They sometimes hit and push each other, call each other names, ignore each other when they are mad, and tell each other’s secrets to someone else.</p> <p>Friend Score: 1</p>
Male 4 years, 5 months	Tim	<p>1 year old. Totally pretend. He’s funny, he’s just Tim. He has head and eyes. Child likes that Tim makes him funny and that he has legs. Because he’s scared of the dark, Tim only comes out at night. Child can make Tim be nice to him. Tim is in charge of the relationship.</p> <p>Reported Meanness: They are both mean to each other. Tim is “a lot” mean. They sometimes hit and push each other, call each other names, ignore each other when they are mad, and tell each other’s secrets to someone else.</p> <p>Friend Score: 0</p>
Female 5 years, 0 months	Rose	<p>5 years old. Totally pretend. She has brown hair, peach skin, painted nails, and goes to the same school. She’s really nice, cheers child up, helps her do hard things like read, not lie, saying the right stuff, and not getting into trouble. Child doesn’t like that she hits and pushes her sometimes, plays with other friends, and plays with toys the child doesn’t want Rose to play with. Child can make Rose be nice. Neither is in charge of the relationship.</p> <p>Child has another friend named Rosetta, who is really nice. Rosetta glows in the dark so child won’t be afraid. She is a fairy like Tinker Bell.</p>

Participant	IC Name	Description of imaginary companion
		<p>Reported Meanness: Rose is mean to child. She is a “little” mean. They sometimes push and shove each other, ignore each other when they are mad, and tell each other’s secrets to someone else.</p> <p>Friend Score: 3</p>
Female 5 years, 1 month	Mr. Nobody	<p>5 years old. Totally pretend. He has pink eyes and blue skin. Child doesn’t like that he turns white sometimes. Child cannot make Mr. Nobody be nice to her. Child is in charge of relationship.</p> <p>Reported Meanness: Mr. Nobody is a “little” mean. They sometimes ignore each other when they are mad and tell each other’s secrets to someone else. They don’t always keep the promises they make to each other.</p> <p>Friend Score: 3</p>
Male 5 years, 5 months	Dogue	<p>Dogue is child’s “imagination dog.” 10 years old. Totally pretend. He’s white, with holey black eyes, and white teeth. He drives monster trucks and Ferraris. He’s too old to have a job and they have been friends forever. Child likes that Dogue is “super awesome” and doesn’t “forgive up anything.” Child likes to go on rides in the Ferrari with Dogue. Child cannot make Dogue be nice—Dogue “just decides to.” Dogue is not mean at all.</p> <p>Friend Score: 6</p>
Female 5 years, 8 months	Sunny	<p>5 years old. Totally pretend. Looks like child. They like to play patty cake together and the child does not like it when Sunny plays tag. She lives next door, but sleeps in child’s bed. Child can make Sunny be nice to her. Child is in charge of the relationship. Child also has 9 other ICs (including Sunny, 5 girls and 5 boys), but Sunny is her favorite.</p> <p>Reported Meanness: They are mean to each other. Sunny is a “little” mean. They sometimes hit and push each other, tell each other’s secrets to someone else, and tell each other that they aren’t friends.</p> <p>Friend Score: 2</p>

Participant	IC Name	Description of imaginary companion
Female 5 years, 8 months	Violet	<p>6 years old. Totally pretend. She has dark brown hair, a peach face, a pink shirt, brown shoes, and stripy mittens. Child likes that she is so beautiful, like her. Child doesn't like that she plays "bad" with her (pretend) brother. Violet lives in child's braid, along with her brother. Child can make Violet be nice to her. Child is in charge of the relationship.</p> <p>Teacher reported that Violet comes to school sometimes.</p> <p>Reported Meanness: They are mean to each other. Violet sometimes grabs child's neck and pulls her down. Child sometimes gives Violet a spanking. Violet is "a lot" mean. They sometimes hit and push each other, ignore each other when they are mad, and tell each other that they aren't friends. They do not always share toys.</p> <p>Friend Score: 1</p>
Female 6 years, 3 months	Fannah Banana	<p>5 years old. Totally pretend. She looks like a carrot and has a pretty voice. Child doesn't like that she traded places with a princess. She lives in a hotel and sleeps in a very big bed. Child can make Fannah Banana be nice to her. Child is in charge of the relationship.</p> <p>Reported Meanness: Fannah Banana is a "little" mean.</p> <p>Friend Score: 6</p>
Female 6 years, 4 months	Angelina	<p>6 years old, "pretend in [her] head." She has brown hair and looks like child, but wears different dresses. Child doesn't like when Angelina gets to put make-up on and she doesn't. Child can make Angelina be nice to her. Neither is in charge of the relationship ("My mommy and daddy are in charge").</p> <p>Reported Meanness: They are mean to each other. Angelina is a "little" mean. They sometimes tell each other's secrets to someone else.</p> <p>Friend Score: 5</p>

Participant	IC Name	Description of imaginary companion
Female 6 years, 5 months	Boma & Chi-Chi	<p>37 and 47. Totally pretend. They have black hair that can turn rainbow when they are mad. They have special powers, like Spirit Blast, where you have a big ball to throw at enemies. The three of them practice their moves together. Child likes that they are funny and that they have a lot of husbands. Child doesn't like when they scream at their husbands. They live up high on a hill and sleep in bed with their husbands. Their house is really big and they own their own land. Child can make Boma and Chi-Chi be nice to her. No one is in charge of the relationship.</p> <p>Reported Meanness: They are mean to each other. Boma and Chi-Chi are a "little" mean. They sometimes hit and push each other, call each other names, ignore each other when they are mad, and tell each other's secrets to someone else.</p> <p>Friend Score: 1</p>
Female 6 years, 6 months	Madison	<p>6 years old. Totally pretend. She has red hair, blue eyes, a purple skirt, and a pink shirt. Child also has 19 other pretend friends, including Katelyn (7 years old, totally pretend; has brown hair, green eyes, a blue shirt, and a plaid skirt; has a little horse, child doesn't like that she plays with stuffed animals the most), Lacy (Girl, 50 years old), Rayba, Abby (red hair, green eyes), Shara (1 year old, likes Partlan), Partlan (boy, 20 years old, likes 1 year olds, so likes Shara), Willy (19 years old, goes on dates with Abby), Kayley, Rayma, Courtlan (boy, 30, likes Lacey), Mayley, Kason, Ryley, Peyton, Rora. Courtlan likes to play a game where you have to go crazy. Child can make her friends be nice to her. No one is in charge of the relationship—"it would make them mad if I was in charge and vice versa."</p> <p>Friend Score: 6</p>
Male 6 years, 6 months	The Voice	<p>The Voice lives in child's big toe, where his school and teacher live. The teacher doesn't speak to the child, only the Voice. Frequently blames things on the Voice. Doesn't consider the Voice to be an imaginary <i>friend</i>.</p> <p>*Taken from parent report.</p>

Participant	IC Name	Description of imaginary companion
Female 6 years, 8 months	Leslie	<p>6 years old. Totally pretend. She's gray, has yellow hair, and wears pink shirts. Child likes that they play together at the park. Child doesn't like that Leslie hits her, so child will put her in the closet in her mother's bedroom. Child can make Leslie be nice to her. Child is in charge of the relationship—"If she punches somebody, I'll get her."</p> <p>Reported Meanness: Leslie is mean to child. Leslie is a "little" mean. They do not always share toys.</p> <p>Friend Score: 5</p>
Male 6 years, 9 months	Robbie	<p>6-year-old totally pretend brother. He has curly black hair. Child likes that he skateboards. He lives in New Orleans. Child can make Robbie be nice to him. Neither is in charge of the relationship.</p> <p>Reported Meanness: Robbie is mean to child. "He pushes me down the stairs and shoves me and tackles me, but I say it's OK." Robbie is a "little" mean. They sometimes push and shove each other, tell each other's secrets to someone else, they don't cheer each other up when one of them is sad, and they don't always listen to what the other says.</p> <p>Friend Score: 2</p>
Male 7 years, 3 months	Jack	<p>6 years old. Totally pretend. He can look like anything. When child is alone, Jack cheers him up. He sleeps on top of the stairs in his pretend house. Child can make Jack be nice to him. Neither is in charge of the relationship.</p> <p>Reported Meanness: They sometimes tell each other's secrets to someone else.</p> <p>Friend Score: 5</p>
Female 7 years, 8 months	Sunshine	<p>6 years old. Totally pretend. She has red hair, is very pretty, and always wears a polka-dot dress. Child cannot make Sunshine be nice to her. Neither is in charge of the relationship.</p> <p>Reported Meanness: They sometimes hit/kick/pinch each other.</p>

Participant	IC Name	Description of imaginary companion
		Friend Score: 5
Female 8 years, 8 months	Lexi	10 years old. Totally pretend. She has long curly hair and that child likes that they are a lot alike. Child doesn't like that she is pretend. Lexi lives in Oklahoma. Child can make Lexi be nice to her. Neither is in charge of the relationship—"this makes it fair."
		Friend Score: 6
Female 8 years, 10 months	Julie	9 years old. Totally pretend. She has blonde hair, blue eyes, and is tall. Child likes that she is nice, but doesn't like that she can be mean. Julie lives in "Cali." Child can make Julie be nice to her. Neither is in charge of the relationship.
		Reported Meanness: Julie is a "little" mean. They sometimes ignore each other when they are mad.
		Friend Score: 5
Male 8 years, 11 months	Josh	Former imaginary friend. 7 years old. Totally pretend. He had orange hair, a freckle beside his eye, a nose like the child's nose, and brown shoes. Child liked that he was a good friend, but didn't like that Josh ate fish. Child could not make Josh be nice to him. Child was in charge of the relationship—"I looked out for him."
		Friend Score: 6

Appendix E

Fourteen parents indicated that their child had an imaginary companion. Only four corroborated child reports of imaginary companions (including name and key details). Three parents indicated that their child had an imaginary companion, but the child indicated that they did not during the interview. Five parents detailed previous, but not current, imaginary companions. Two parents indicated that their child had an imaginary companion, but reported a different name and description than the one provided by their child. All of these parents indicated that their child's relationship with their imaginary friend was positive. Two other parents indicated that although they were not aware if their child had an imaginary companion, they felt it was entirely possible as their child frequently engaged in various kinds of pretend play. One parent wrote that she and her daughter referred to imaginary friends as "clear" friends because you cannot see them, indicating that they discussed the qualities and existence of imaginary companions together. Another parent wrote: "I think it is a healthy way for her to stay entertained when we are away. When I engage in play with her, we both love to pretend. It boosts our creativity." Only one teacher indicated that their student had an imaginary companion. The teacher correctly identified the companion and indicated that it came to school sometimes.