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# The Effects of Age, Gender, and Gender Role Ideology on Adolescents' Social Perspective-Taking Ability and Tendency

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The Effects of Age, Gender, and Gender Role Ideology on Adolescents' Social Perspective-  
Taking Ability and Tendency

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The Effects of Age, Gender, and Gender Role Ideology on Adolescents' Social  
Perspective-Taking Ability and Tendency

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### **Abstract**

The current research examined gender and age differences in adolescents' social perspective-taking (SPT), or the social-cognitive ability to infer another person's thoughts and feelings. This study aimed to demonstrate that SPT Ability and SPT Tendency are distinct constructs that should be considered separately. The influence of youths' gender role ideologies on SPT also was considered. In a sample of adolescents ranging from ages 12 to 17 ( $N=158$ ), participants reported their tendency to take the perspective of a specific same-age, same-gender friend, and also were assessed in their ability to use SPT in a hypothetical context. The results indicated that adolescents' SPT Ability was not related to their tendency to engage in SPT within their friendship. Girls scored higher than boys on both SPT Ability and SPT Tendency. Both girls and boys were found to increase their SPT Ability across adolescence. For boys only, SPT Tendency decreased marginally from early to middle adolescence, and then "recovered" in later adolescence. Gender role ideologies predicted this tendency in boys, such that those with more stereotypical beliefs about males and females engaged in less SPT with their friends, especially among younger boys. Unexpectedly, gender role ideology was also associated with SPT Ability in girls. This study demonstrates the necessity of distinguishing between SPT Ability and SPT Tendency among adolescents, and highlights the importance of assessing gender role attitudes, as they play an integral part in explaining SPT.

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### The Effects of Age, Gender, and Gender Role Ideology on Adolescents' Social Perspective-Taking Ability and Tendency

The importance of friendships and their developmental significance can hardly be overstated (Hartup, 1996), and this seems especially true in adolescence (Buhrmester & Furman, 1987; Bukowski, Newcomb, & Hartup, 1996). Friendships are a special type of relationship, distinct from broader peer group functioning (Bukowski, Newcomb, & Hartup, 1996), and a key factor in developing and maintaining friendships is the ability to take the perspective of others in social situations. This ability to understand the thoughts, emotions, desires, and intentions of other people is referred to as social perspective-taking (SPT; Selman, 1980; Smith & Rose, 2011).

The construct of SPT shares some similarities with other social-cognitive constructs such as theory of mind (Barresi & Moore, 1996), emotion understanding (Bosacki & Astington, 1999), and social intelligence (Meijs, Cillessen, Scholte, Segers, & Spijkerman, 2010). Specifically, SPT involves understanding other people's thoughts and feelings, including identifying what these thoughts and feelings might be, understanding that they are separate from one's own thoughts and feelings, and understanding the causes and potential behavioral outcomes of these thoughts and feelings. This is a distinct construct from physical perspective-taking studied by Piaget and others (Selman, 1971), which involves viewing an object from another point-of-view. It also differs from empathy in that it does not involve an emotional response or feelings of concern for another person (Devine & Hughes, 2012; Van der Graaff et al., 2014).

SPT is essential to understand because it has important implications for adaptive social functioning. For instance, Smith and Rose (2011) found that SPT was associated with high levels of positive friendship quality in adolescence. SPT also is related to higher social competence with peers in early adolescence (Bosacki & Astington, 1999), lower levels of self-reported

loneliness and peer rejection in older children and adolescents (Devine & Hughes, 2012), and better conflict and interpersonal negotiation strategies in middle-childhood and adolescence (Bengtsson & Arvidsson, 1977; Selman, Beardslee, Schultz, Krupa & Podorefsky, 1986). Compelling evidence for the importance of SPT also comes from a training program in SPT implemented among incarcerated adolescent girls (Chalmers & Townsend, 1990). Training in SPT skills led to significant improvements in interpersonal conflict resolution, higher empathy scores, and greater acceptance of differences among individuals, indicating that SPT has important implications for social relationships.

Though Selman (1980) described the development of SPT as extending into adolescence and adulthood, SPT has received little attention in the adolescent literature. Moreover, only a single study conducted by Smith and Rose (2011) has investigated SPT specifically in adolescents' friendships. In this study, the researchers point to an important distinction in an adolescent's ability to take the perspective of others (referred to here as SPT Ability), and their tendency to actually do so (referred to here as SPT Tendency) in their friendships. However, because the study only assessed SPT Tendency, the relationship between SPT Ability and SPT Tendency is unknown. Key findings from the study include a significant mean-level gender difference favoring girls in SPT Tendency and an unexpected decrease in boys' SPT Tendency across early to middle adolescence. The researchers suggest that the gender difference in SPT Tendency may be related to adolescents' ideas about gender roles; however, this proposal has yet to be tested. The current study aims to address these gaps by examining the association between SPT Ability and SPT Tendency in adolescent girls' and boys' friendships, testing whether the unexpected developmental pattern from the previous study is replicable, and examining relations of SPT Tendency with adolescents' gender role ideologies.

**Distinguishing Ability from Tendency**

The majority of past theoretical and empirical work has focused exclusively on the ability to take the perspective of others, or capacity for SPT. This ability is typically assessed by asking participants to answer questions about characters described in stories (Bosacki & Astington, 1999; White, Hill, Happé, & Frith, 2009), or that they see in videos (Devine & Hughes, 2012; Gehlbach, Brinkworth, & Wang, 2012), and then coding these responses for understanding of other's thoughts, beliefs, and emotions. Another common technique is to use the Interpersonal Negotiation Strategies interview, created by Schultz, Yeates, and Selman (1989), in which participants have to demonstrate skill in negotiating interpersonal relationships and recognizing and coordinating social perspectives (Bengtsson & Arvidsson, 1977; Burack et al., 2006). All of these techniques, however, rely on hypothetical situations to assign a rating, or assess the developmental stage of SPT to which a participant may be categorized (Selman, 1980), and do not assess SPT within actual social relationships of the participant.

The distinction made by Smith and Rose (2011) between ability (as assessed in the past research described above) and tendency is an important one because a person simply having the capacity to take another person's perspective does not necessarily mean that the person is inclined to actively try to take the perspective of others or actually tends to do so in real-life relationships. This distinction is similar to the one made by Cronbach (1970) between "maximum" vs. "typical" performance, which has been addressed in many studies concerning industrial organizational psychology. According to these studies, typical performance is what happens generally on a day-to-day basis, whereas maximum performance can be assessed following three specific guidelines: the participant must know that they are being evaluated, with explicit instructions to maximize effort, and must be brief enough that the participant can remain



focused and attentive throughout the entire measure (Sackett, Zedeck & Fogli, 1988). Maximum and typical job performance were not found to be highly correlated (Sackett et al., 1988), and in a study of team performance, cognitive ability was a stronger predictor of performance in laboratory settings than in real-life settings (Devine & Philips, 2001). It stands to reason, therefore, that a person's SPT ability assessed in a study may or may not be reflected in what the person typically does in social relationships. As such, it is important to consider the propensity or tendency to engage in SPT. However, all of the literature reviewed thus far examines ability rather than tendency with the exception of a few. Smith and Rose (2011) assessed SPT Tendency by using a self-report survey which asked participants to rate how well statements such as: "I sometimes try to understand [friend's name] better by imagining how things look from his/her perspective," applied to them in their relationship with a specific friend. Van der Graaff et al. (2014) also assessed SPT Tendency in a longitudinal study that began in early adolescence (around age 13) and extended across six time points (until the participants were approximately 18 years old). The perspective-taking questionnaire that they used was from Davis (1983), which is the same scale that Smith and Rose (2011) adapted to form their measure. In the case of the Van der Graaff et al. (2014) study, however, the participants were not asked about a specific friend, but about their disposition to the engage in SPT in general. A study conducted by Gehlbach and colleagues (2012) is the only study that seems to explicitly differentiate these constructs, as they used an SPT propensity scale and also assessed participant's actual performance on a SPT measure in which participants had to describe conversations that they heard. While they found a significant positive correlation between these two measures, the sample was comprised of 13 high school students and 18 adults who were chosen based on being

in a profession that required SPT in a variety of ways, and therefore it is important to test this relationship on a more representative sample in adolescence.

The current study aims to demonstrate that SPT Ability and SPT Tendency are distinct constructs that should be considered separately. However, following the literature reviewed which has found relatively small correlations between maximum and typical performance (Sackett et al., 1988) our first hypothesis is that while SPT Ability and SPT Tendency might be correlated, an adolescent's SPT Ability will not account for a significant amount of variance in his/her SPT Tendency.

### **Gender Differences in SPT**

There are consistent findings in the literature that girls have more advanced SPT Ability than boys from childhood through adulthood (Bosacki, 2007; Bosacki & Astington, 1999; Devine & Hughes, 2013; Franzoi et al., 1985; Selman et al., 1986), and also have a greater SPT Tendency (Smith & Rose, 2011; Van der Graaff, 2014). Though some researchers insist that girls and boys are more similar than they are different on most traits (Hyde, 2005), these clear gender differences, found across multiple samples of different ages and using various techniques, dispute this idea in the case of SPT. While there are large individual variations within gender, the fact remains that gender is one of the most salient categories in our lives, and understanding how these gender differences develop can greatly advance our understanding of aspects of social development such as SPT.

There are several gender development theories that can be applied to help explain the gender difference found in SPT. The first is evolutionary theory (Archer, 1996; Geary, 1999). According to this theory, genes of males and females have been selected for across evolution, and gender differences have been built in to our genetic code. The root of these gender

differences lies in sexual selection, in which males must compete for resources in order to find females with which to reproduce. According to this view, the fact that women are the natural caretakers would make it necessary for them to develop greater abilities to understand others, display empathy, and act in a relational manner, which would suggest both higher SPT Ability, as well as greater tendency to engage in SPT. Males, on the other hand, are evolutionarily predisposed to be aggressive and competitive in order to attract mates and be able to provide for offspring, and need to be less concerned with the thoughts and feelings of others.

However, there are limitations to this theory including that it is mostly descriptive (Bussey & Bandura, 1999), and there have been findings that gender differences are not the same across all cultures (Costa, Terracciano & McCrae, 2001; Fischer & Manstead, 2000), which provide counter evidence to the idea that the differences are innate. Gender differences in the developmental trajectories of brain development, specifically in areas related to social processes, however, might at least partially support the role of biology in gender differences in SPT Ability (Mills, Lalonde, Clasen, Giedd, & Blakemore, 2014).

Another approach to understanding gender differences is the socialization theory, which posits that gender differences in social behaviors have been socially constructed, and taught to people across development (Maccoby, 1998). An example relevant to SPT is a study conducted by Dunn, Bretherton and Munn (1987), which found that parents talk to their daughters about emotions much more than they talk to their sons about emotions in reference to both themselves and other people. While not all studies have found gender differences in how much parents talk about emotion states with their young children (Dunn, Brown and Beardsall, 1991; Peterson & Slaughter, 2003), many others did find gender differences in this type of talk, especially about the causes of emotions such as sadness and fear (Adams, Kuebli, Boyle, & Fivush, 1995; Fivush,

Brotman, Buckner, & Goodman, 2000). This behavior of talking to girls about emotions more than boys may teach young girls that they are supposed to be proficient in understanding emotions and use this skill often, while also implicitly teaching boys that they should not be as concerned with emotions as girls.

Related to this concept of socialization, the way that parents talk to their children might also influence gender differences in the mental state language that girls and boys themselves use. Mental state language includes references to cognitions, emotions, motivations, desires, and essentially anything that might be included as a mental process. Much research has highlighted the importance of mental state language in children's development of theory of mind (e.g., Gola, 2012; Howard, Mayeux, & Naigles, 2008; Hughes & Dunn, 1998; Peterson & Slaughter, 2003). It has also been found that girls referred to a greater diversity of feeling-state and emotion terms than boys did when conversing with friends (Hughes, Lecce, & Wilson, 2007). Although most of these studies have only been conducted with relatively young children, the findings suggest that mental state language may be an important aspect of SPT Ability, and one in which boys and girls differ. This is in line with Bosacki (2000) and Bosacki and Astington (1999), both of which used a SPT measure that involved, in part, assessing children's and adolescents' use of mental state language in describing story characters, and found that girls scored higher on this measure than did boys.

The social cognitive theory of gender development is another that can be applied to understanding gender differences in both SPT Ability and Tendency. This theory integrates portions of the other theories discussed. Essentially, the social cognitive theory of gender development integrates psychological components and sociostructural influences into a single theory of gender development, which interact to form gender conceptions and gender role

behaviors (Bussey & Bandura, 1999). A tenant of this theory, which encompasses gender development across the lifespan, is something called the triadic reciprocal causation model which explains that cognitive and affective factors, biological events, behavior patterns, and events that occur in the environment all act as bidirectional influences on gender development to varying degrees (Bussey & Bandura, 1999). One such sociostructural factor implicated in SPT gender differences might include the greater likelihood for boys to engage in activity-focused interactions involving large groups of friends, while girls tend to spend more time interacting in dyads (Rose & Rudolph, 2006), which has been suggested to be more conducive for practicing SPT (Devine & Hughes, 2012; Maccoby, 1998). Additionally, the sociocognitive model highlights three main ways that information about gender is presented: through modeling, enactive experiences, and direct tuition (Bussey & Bandura, 1999). What makes this theory unique from other socialization theories is the idea that the information attained from each of these modes needs to be cognitively processed by the individual, and even incorporates people's own ideas about appropriate behavior for each gender (direct tuition) as one of the main modes of gender role development (Bussey & Bandura, 1999). Studies by Bussey and Perry (1982) found additional evidence for modeling such that children who saw similar behavioral patterns in a high proportion of same-gender models were more likely to copy this behavior. Seeing a high proportion of females demonstrating that they are engaging in SPT, through things like talk about mental states and feelings, and paying close attention to the thoughts and feelings of others, may then be modeled to young girls. Taken together, the components of this theory provide a conceptual rationale for gender differences in SPT Ability and Tendency due to daily environmental experiences, both in societal and familial contexts, and the way that girls and boys come to cognitively understand and enact their roles in society.

In the current study, mean-level gender differences in both SPT Ability and SPT Tendency are examined. Based on the literature reviewed, which included rationale for gender differences in both SPT Ability and SPT Tendency, it is hypothesized that girls will score higher than boys on both SPT Ability and SPT Tendency measures.

### **Age Differences in SPT**

In his original theorizing about SPT, Selman (1980) suggested that this ability should increase throughout childhood and into adolescence. Van der Graaff et al. (2014) also discussed theoretical reasons to suggest that SPT Ability would increase across adolescence, as this coincides with the time that most people start to reach Piaget's formal operations stage of cognitive capacity, which affords growing awareness that emotions can be affected by events outside of the immediate setting. There is some empirical evidence to support this theory, such as a study conducted by Devine and Hughes (2012) in which theory-of-mind (similar to SPT Ability) increased significantly with age through late childhood, even after controlling for language ability and family socioeconomic status. Burack and colleagues (2006) also found evidence that both maltreated and nonmaltreated adolescents (mean age 15.6 years) demonstrated a greater ability in coordinating the perspectives of multiple people than elementary school-aged children (mean age 10.3 years).

While one would theorize that the same would be true of SPT Tendency, studies of SPT Tendency have revealed a different developmental pattern. In Smith and Rose's (2011) study among 6<sup>th</sup>, 7<sup>th</sup> and 8<sup>th</sup> grade students (ages 11 to 15), there were no significant grade differences in girls' SPT Tendency in their friendships. That is, girls' SPT remained stable across grades. However, a different pattern emerged for boys. The study found a significant grade effect for boys' SPT such that 8<sup>th</sup> grade boys actually reported less SPT than 6<sup>th</sup> grade boys. A similar

developmental pattern was found in a longitudinal study conducted by Van der Graaff and colleagues (2014), which used a similar self-reported measure of SPT Tendency. A sample of participants reported on their SPT Tendency each year from the age of about 13 to the age of 18. The results indicated that while girls consistently scored higher on SPT than boys, they demonstrated a significant positive linear change in SPT, but a small negative quadratic change, which suggested that SPT increased very slightly from about age 13 to 15 years and then leveled off. In boys, however, SPT was found to decrease from early to middle adolescence, and then started increasing slightly after the age of 15. The findings from both of these studies provide evidence for a surprising gender-specific developmental pattern, such that boys are not increasing in SPT as expected, but in fact they are actually decreasing from early to middle adolescence.

By distinguishing between the constructs of SPT Ability and SPT Tendency we might be able to understand the gender differences that were apparent in the developmental trajectories of SPT (Smith & Rose, 2011; Van der Graaff et al., 2014). It might be the case that as a social-cognitive ability, SPT does increase through adolescence for both boys and girls. However, in terms of the tendency to actually engage in SPT with their friends, boys might do this less often across the transition into adolescence, but then might recover this tendency toward later adolescence, as seen in Van der Graaff et al. (2014).

Therefore, an important aim of the current study is to understand how both SPT Ability and SPT Tendency in friendships differ as a function of age and gender, with the goal of replicating Smith and Rose's (2011) findings using a sample with a larger age range (ages 12 to 17) in order to gain a better understanding of the developmental trajectory of both SPT Ability and SPT Tendency across adolescence. We hypothesize that both girls and boys will increase

their SPT Ability across adolescence, as this is a social-cognitive skill. However, based on the previous findings, we hypothesize that the pattern will look different for SPT Tendency, in that girls will remain about the same or increase slightly across adolescence, but that boys' SPT Tendency in their friendships will actually be lower in middle adolescence than early adolescence, but might begin to increase again towards later adolescence.

### **Gender Role Ideologies**

As noted, Smith and Rose (2011) suggested that the gender difference in SPT Tendency may be related to adolescents' ideas about gender roles. Gender role ideologies are the attitudes that people hold concerning the appropriate roles and behaviors of both males and females across many contexts (McHugh & Frieze, 1997). People who hold stereotypical gender role ideologies endorse the idea that there are certain roles and behaviors that are inappropriate for either males or females to engage in according to societal stereotypes, whereas those who hold more egalitarian gender role ideologies believe that it is equally acceptable for either men or women to engage in these behaviors, or enact those roles in society. The current study provides the first test of this proposal by Smith and Rose (2011). First, whether boys endorse more stereotypical gender role ideologies compared to girls is considered. Then, associations of boys' and girls' gender role ideologies with SPT Tendency will be examined. For each of these aims, age-related change is also considered.

**Gender differences in gender role ideologies.** Not only are there different stereotypes surrounding appropriate behaviors and characteristics of girls and boys, there are also different values placed on each by society. Boys tend to endorse gender stereotypes more than girls do (Bussey & Bandura, 1999; McHugh & Frieze, 1997), and are more likely than girls to face some sort of social consequence if they deviate from gender norms (Martin, 1993). This is probably



due to the idea that typically male characteristics, such as assertiveness, tend to be regarded as being of higher status and more desirable than typically female roles (Berscheid, 1993).

The current study aims to explicitly measure the gender role ideologies that adolescents hold, and based on the studies reviewed above, we predict that boys will endorse more stereotypical beliefs than girls. It is also hypothesized that both girls and boys will increase in their stereotypical beliefs during the transition to adolescence, based on the gender role intensification hypothesis (Hill & Lynch, 1983), which suggests that gender becomes a much more salient aspect of the identities of both girls and boys across the transition to adolescence, and results in greater differences in their behaviors and beliefs.

**The relationship between gender role ideologies and SPT.** In line with the social cognitive theory of gender development, gender role ideologies may develop as people experience different events, cognitively process these experiences in different ways, and begin to develop different beliefs about the roles of males and females. In turn, the gender ideologies that people hold are likely to influence their behavior to be in line with their ideologies (Bem, 1975). As such, people who hold more stereotypical gender role ideologies are more likely to adhere to behaviors and adopt characteristics that are stereotypic for their gender (Bem, 1975). For example, empirical evidence suggests that girls in early adolescence tend to display more communal goals, or a desire to maintain social relationships and provide care for others, while boys endorse more agentic goals, or the desire to reach an objective and act in a way that is assertive and self-focused (Ojanen, Grönroos, & Salmivalli, 2005), which may be based on their stereotypical beliefs regarding this association (Eagly & Steffen, 1984). Stereotypical gender role ideologies in the United States also encourage females to engage in a lot of SPT and to be aware of others' emotions, while discouraging this in males (Bosacki & Astington, 1999; Jansz, 2000).

By measuring how much adolescents endorse gender stereotypes, we will be able to understand whether this influences some of the variation within each gender on a stereotypically feminine construct, SPT.

Given that SPT is considered stereotypically feminine, boys who hold more stereotypical gender role ideologies might engage in it less within their friendships compared to boys who hold less stereotypical gender role ideologies. Conversely, girls who hold highly stereotypical gender role ideologies would be expected to engage in SPT in their friendships more than girls with less stereotypical gender role ideologies.

The gender role ideologies held by adolescents might also add some insight into the different age trends found for boys and girls in SPT Tendency. According to the gender intensification hypothesis (Hill & Lynch, 1983), the transition into adolescence is a time in which gender role identities take on much greater significance in an adolescent's life and social interactions. If these ideologies are driving some of the differences in SPT Tendency, it would make sense that boys might decrease their SPT activity with their friends as they transition into adolescence. While other researchers have also proposed this idea (Bosacki, 2007; Van der Graaff et al., 2014), by explicitly measuring the gender role ideologies that are held by the participants in the current study, we will be able to determine if a relationship does exist between gender role ideologies and SPT Ability and Tendency within each gender across adolescence.

With this aim in mind, the current study will explore whether gender role ideologies predict SPT Tendency. We predict that females who hold more stereotypical beliefs about gender will have a greater tendency to engage SPT, as they would be expected to adhere more closely to stereotypically feminine behaviors. We also predict that males who endorse more stereotypical gender role ideologies will report lower levels of SPT Tendency with their friends, as this is not a

behavior that is encouraged in males. Conversely, we hypothesize that gender role ideologies will have little effect on SPT Ability for either girls or boys, since this is a social-cognitive ability that is not expected to be influenced by the attitudes adolescents hold about stereotypical gender roles.

### **Summary of the current study**

To summarize, the current study aims to test: 1) the association between SPT Ability and SPT Tendency in adolescence; 2) mean-level gender and age differences in SPT Ability, SPT Tendency, and gender role ideology, and 3) the relationship between the gender role ideologies that adolescents hold and their SPT Ability and SPT Tendency within their friendships.

## **Method**

### **Participants**

Participants were teens recruited from local schools via school announcements and through flyers posted in local businesses and online. The participants were recruited from a rural county in the northeast United States with a relatively high socioeconomic status; about 35.6% of people in the county over the age of 25 had a Bachelor's degree or higher, and the median reported income was \$80,333, with 6.7% of people living below the poverty level (2010, United States Census Bureau)

Teens between the ages of 12 and 18 who were interested in participating contacted the researchers and were verified to have a friend who was the same age (within one year) and gender as themselves, and also not related to them. A time was scheduled for the pair of friends to come in to the lab together, and for all participants under the age of 18 we obtained signed parental consent and participant assent. Friends who were 18 years-old were able to sign the consent form themselves as long as they presented us with valid identification; however, in the current study, we omitted the data from 18-year olds as there were only five.

The final sample consisted of 158 participants (in 79 dyads) with ages ranging from 12 to 17 years ( $M = 14.53$ ,  $SD = 1.62$ ). Ninety (57%) of the participants were female, 68 (43%) were male. Of the participants, 125 (79.1%) identified themselves as White, 14 (8.9%) as Hispanic, seven (4.4 %) as Black or African American, two (1.3%) as Asian, nine (5.7%) as multi-racial, and one (0.6%) did not provide a response.

### **Procedure**

After receiving consent from the parents and assent from the participants, the friends came in to our lab together. A packet of questionnaires was given to each friend, including the gender role ideology measure and SPT Tendency measure used in the current study. The participants were asked to fill out the questionnaires in separate rooms and not talk to each other about their responses. After completing various other tasks as part of a larger study, the participants were then asked to fill out the SPT Ability measure (Bosacki & Astington, 1999) on the computer, and upon completion were paid for their participation. The entire visit usually lasted between 2-2.5 hours.

### **Measures**

**Gender role ideology.** Beliefs about gender roles were measured with a questionnaire adapted from Emihovich and Gaier's (1983) measure. All participants responded to 56 items assessing the degree to which they held stereotypic beliefs about members of their own gender in general, specifically about themselves, and about members of the other gender. Different versions were provided for boys and girls, with parallel questions on each.

A potential problem with measuring gender role stereotypes is finding little variation in the measure, as young people have been consistently found to be egalitarian (McHugh & Frieze, 1997). To address this, participants were asked about not only what they think is acceptable for people in general, but also what they view as acceptable for themselves and if they could see

themselves acting in ways that are not consistent with stereotypes for their gender. For example, girls were asked to respond to all three of the following items: “I think there are some jobs that *other girls* shouldn’t do because they are girls” “I think there are some jobs that it wouldn’t be ok for *me* to do because I am a girl” “There are some jobs I would not do because I am a girl.” Additional items created for the current study focused only on stereotypes about emotional understanding and SPT, as those were the constructs of interest in this study. Examples of this sort of item from the boy version are: “I think it is important for *other boys* to try to understand what makes their friends upset” “I think it is important for *me* to try to understand what makes my friends upset” and “Trying to understand why a friend is upset is something I would do.”

Participants rated each item in terms of how much they agreed using a 5-point Likert scale ranging from “*Strongly Disagree*” (1) to “*Strongly Agree*” (5). After reverse coding many of the items, the scores were averaged across the measure, with high scores indicating more stereotypical ideologies, while lower scores reflected egalitarian beliefs about gender roles. The items formed a single reliable scale for both girls ( $\alpha = .91$ ) and boys ( $\alpha = .93$ ).

**Social perspective-taking Ability.** The participant’s ability to take the perspective of others was measured using an emotional understanding measure developed by Bosacki and Astington (1999). This measure, completed on the computer, presented the participants with two brief vignettes depicting ambiguous social situations, and explicit instructions were given by the researcher for the participants to take their time and try their very best following recommendations of measuring ability by Sackett and colleagues (1988). The first vignette was a story featuring three girls interacting on a playground, while the second story presented three boys in the context of choosing members for a sports team. The vignettes and items are presented in Appendix A. After reading each story, the participants were asked nine open-ended and yes/no

questions about the feelings and actions of the characters in order to assess how well they were able to demonstrate their abilities on four aspects of SPT: conceptual role-taking (the ability to assign mental states to other people and take into account multiple perspectives), empathetic sensitivity (the ability to understand emotions), person perception (the ability to describe a person in terms of personality and psychological traits), and presenting alternative explanations of the situation.

The responses to the open-ended items on this measure were coded on a scale from 0-3, with higher scores reflecting more complexity in the ability to think about other people's thoughts and feelings, while the yes/no questions were just used to check for comprehension (Bosacki, 1998; Bosacki & Astington, 1999). Higher scores were assigned to responses that included integrated descriptions of the mental states of the characters, such as the following example which was provided in response to a question asking why two girls moved off together in the direction of the swingset, where a new girl was playing by herself: "Because they thought that Margie was lonely being the new girl, and they wanted to make her feel better by asking her to play with them." An answer to the same question that would be given a score of 1 would have very little reference to the character's thoughts or feelings and simply include a behavioral or situational description, such as, "To go play on the swings." A score of zero would be given if the participant did not answer the question, or responded with "I don't know."

From information given in both Bosacki (2000) and Bosacki and Astington's (1999) papers, we created a coding manual to reference, which also included some additional codes that we created, as well as a global code about each story. After reviewing and discussing this coding manual extensively, the author of this paper and a research assistant coded ten questionnaires separately, and met weekly to discuss any questions or conflicting codes. After this training

period, the research assistant coded about 25 percent of the 168 questionnaires coded by the first author ( $N = 36$ , 22.8%) to check for reliability ( $ICC(2, 1) = .92$ ). Any codes that did not match were discussed and agreed upon for the final scores.

The reliability for these items assessing SPT Ability was acceptable (Cronbach's alpha = .73; girls = .66, boys = .75), and was consistent with the internal reliability scores from the original study in which this measure was developed (Cronbach's alphas ranged from .67 to .69 for the two stories, Bosacki, 2000). While the measure did have various subscales, as mentioned above, Bosacki and Astington (1999) found that all of these subscales were positively correlated with each other, and we believed that all of the questions were tapping a single factor of SPT Ability. A factor analysis indicated that although there were several eigenvalues above one, the most dramatic drop in eigenvalues occurred moving from a single factor to two factors (from 2.85 to 1.49 for girls, and from 3.55 to 1.62 for boys). Visual inspection of the scree plots also suggested a single factor solution. Given the one factor solution, the score used in the current study was the mean of all items (excluding the global score), which ranged from zero to three.

**Social perspective-taking Tendency in friendships.** SPT tendencies in youths' friendships were measured using Smith and Rose's 22-item Social Perspective-Taking questionnaire (Smith & Rose, 2011; adapted from Baron-Cohen & Wheelwright, 2004; and Davis, 1980). This questionnaire assessed the participant's tendency to take the perspective of the specific friend that they came in with, and also asked how well they think they are able to do this. Example items include "I try to see things from my friend's point of view" and "I am good at guessing my friend's thoughts and feelings."

Participants indicated how well each item described them using a 5-point Likert scale ranging from *does not describe me at all* (0) to *describes me very well* (4). Average scores were

calculated across items. These items formed a reliable single scale (Cronbach's  $\alpha = .89$ ), which was consistent with previous research that also used this scale with adolescents (Cronbach's  $\alpha = .88$ ; Smith & Rose, 2011). Factor analysis revealed the greatest drop in eigenvalues (from 7.26 to 2.295) after the first factor, indicating a one factor solution.

**Vocabulary.** Because the SPT Ability task required written explanations, a vocabulary measure was included and vocabulary was used as a control variable to ensure that differences in SPT Ability were not simply due to the participant's language skills (Bosacki, 2007; Bosacki & Astington, 1999). Vocabulary was measured using The Shipley-Hartford Institute of Living Scale, (Shipley, 1940). As part of their questionnaire packet, the participants were presented with a list of 40 words and were instructed to choose a synonym for each word from a choice of four other words listed. Scores represented the number of correct responses, ranging from zero to 40.

### **Plan for Data Analysis**

This research has three major aims: a) testing the association between SPT Ability and SPT Tendency, b) testing mean-level gender and age differences in gender role ideologies, SPT Ability, and SPT Tendency, and c) examining relations among these constructs. To address the first aim, a Pearson's correlation coefficient was computed. To address the second aim, we used analysis of variance (ANOVA). In ANOVAs testing mean-level age differences, we treated age as a categorical variable with three groups, specifically early, middle and late adolescents. Visual representation of the data (seen best in Figure 2 and Figure 6) indicated that the sample was composed of three distinct groups of adolescents: early adolescents (12 and 13 year olds), middle adolescents (14-16 year olds), and late adolescents (17 year olds), and these age groups are consistent with age groups used in other studies of adolescents (Clark-Lempers, Lempers, & Ho, 1991; Collins, 2003).



To address the third aim of examining relations among variables, linear regression analyses were conducted. A multilevel modeling approach was used rather than traditional regression analyses because this approach takes into account the nonindependence of scores due to similarity between the two friends in each dyad (Kenny, Kashy & Cook, 2006). Intraclass correlation coefficients (ICCs) computed to assess similarity between friends confirmed that the dyad members scored significantly similarly to each other for gender role ideologies ( $ICC = .256, p = .001$ ), SPT Ability ( $ICC = .355, p < .000$ ), and SPT Tendency ( $ICC = .339, p < .000$ ). The multilevel modeling approach was conducted using syntax for a mixed model regression in the SPSS data analysis package as outlined by Kenny, Kashy and Cook (2006), which nested the friends into dyads. In the regression models testing age differences in the relations among variables, age was used as a continuous variable in order to examine a potential linear relationship. Using age as a continuous variable in these dyadic analyses also allowed for retaining the entire sample, whereas treating age as a categorical variable would result in a smaller sample size because dyads containing members that do not fall into the same categorical age group (e.g., dyads comprised of one 13 year-old friend and one 14 year-old friend) would have to be eliminated from the analyses. All predictors were entered simultaneously into the regression equation because of the dyadic framework, and corrections were applied to  $p$  values following procedures outlined by Kenny and colleagues (2006).

## Results

Descriptive statistics were calculated for all relevant variables and are presented in Table 1. A Pearson's correlation indicated that SPT Ability and SPT Tendency were not significantly correlated with each other ( $r = .14, p = .086$ ), and this was true for both boys ( $r = .05, p = .685$ ) and girls ( $r = .01, p = .921$ ) separately. Due to the design of the study, the SPT Tendency

measure only assessed how often the participant took the perspective of a same-gender friend, and therefore we also examined whether SPT Tendency was related to the SPT Ability score of just the story featuring characters of the same gender as the participant. Again, the correlation was not significant for either girls ( $r = -.126$ ,  $p = .24$ ) or boys ( $r = .107$ ,  $p = .39$ ). This indicates that SPT Ability and SPT Tendency are distinct and not redundant constructs, and therefore all subsequent analyses were run separately for each construct.

### Mean-Level Age and Gender Differences

**Gender role ideologies.** Analyses from a one-way ANOVA revealed a significant difference between girls' gender role ideology and boys' [ $F(1, 151) = 27.530$ ,  $p < .001$ ,  $\eta_p^2 = .154$ ] such that boys' gender role ideologies were more stereotyped than girls' (all means and standard deviations can be found in Table 1, and this difference can be seen in Figure 1). When examining age differences among the three age groups, there were no age differences apparent among girls [ $F(2, 84) = 2.321$ ,  $p = .104$ ,  $\eta_p^2 = .052$ ]. For boys, however, the omnibus ANOVA approached significance [ $F(2, 63) = 2.407$ ,  $p = .098$ ,  $\eta_p^2 = .071$ ], and post hoc tests revealed that there was a slight difference between boys in early adolescence and those in middle adolescence ( $p = .092$ ), such that boys in middle adolescence were more stereotyped in their gender role ideologies than those in early adolescence. These results for boys, but not for girls, showing increasingly stereotypical gender role ideologies across the transition into adolescence are consistent with Hill and Lynch's (1983) gender intensification hypothesis. A visual depiction of these age trends can be seen in Figure 2.

**Social perspective-taking Ability.** A gender difference was also found in SPT Ability, with a one-way ANOVA indicating that girls scored higher on SPT Ability than boys across all ages [ $F(1, 155) = 18.289$ ,  $p < .001$ ,  $\eta_p^2 = .106$ ] (see Figure 3). There were also mean-level age

differences in SPT Ability. A significant omnibus ANOVA of the entire sample indicated that at least one age group was significantly different than the others [ $F(2, 154) = 8.274, p < .001, \eta_p^2 = .097$ ]. Tukey's post-hoc test revealed that although the two oldest groups (middle adolescents and older adolescents) were not significantly different from each other, young adolescents scored significantly lower on SPT Ability than did middle adolescents ( $p < .001$ ), or older adolescents ( $p = .018$ ). These results indicate that SPT Ability increases with age across the transition into adolescence.

Next, analyses were conducted within gender to test whether this age pattern holds for both boys and girls, as previous studies and theoretical rational suggest that boys and girls develop cognitive abilities according to different trajectories (Mills et al. 2014; Smith & Rose, 2011). Results indicated a significant omnibus ANOVA for girls [ $F(2, 86) = 3.782, p = .027, \eta_p^2 = .081$ ], but only a marginally significant difference between young adolescents and older adolescents ( $p = .055$ ) was found in the Tukey's post-hoc test, and there were no significant differences between the middle adolescents and either of the other age groups. For boys, however, the omnibus ANOVA was significant [ $F(2, 65) = 6.606, p = .002, \eta_p^2 = .169$ ], and post hoc tests revealed significant differences between young adolescent boys and middle ( $p = .006$ ) and later adolescents ( $p = .008$ ). Considering these results together with the significant test of mean-level gender differences suggests that girls' SPT Ability is already well-developed by early adolescence and continues to increase only marginally across adolescence. Boys, however, enter adolescence with comparatively lower SPT Ability but make significant gains in ability across adolescence (see Figure 4 for a visual representation of the mean scores).

**Social perspective-taking Tendency.** An aim of this study was to replicate the gender and age findings of Smith and Rose (2011). Consistent with this past study, a one-way ANOVA

revealed a significant gender difference in SPT Tendency between girls and boys [ $F(1, 156) = 19.573, p < .001, \eta_p^2 = .111$ ], such that girls scored significantly higher than boys across all ages (see Figure 5).

Also consistent with the previous study, the omnibus ANOVA did not indicate a significant overall age group difference in SPT Tendency [ $F(2, 155) = 1.955, p = .14, \eta_p^2 = .025$ ], whereas analyses conducted within gender did reveal important age differences, particularly for boys. Specifically, the one-way ANOVA for girls indicated that there were no significant differences between the age groups, [ $F(2, 87) = .476, p = .623, \eta_p^2 = .011$ ], such that girls in early adolescence have similar SPT Tendency scores as those in middle adolescence and those in late adolescence. A one-way ANOVA run for boys, however, indicated an omnibus  $F$  value that was approaching significance [ $F(2, 65) = 2.880, p = .063, \eta_p^2 = .081$ ]. The post-hoc Tukey's test revealed that there was a marginally significant difference in SPT Tendency between early adolescent boys and boys in middle adolescence ( $p = .053$ ) such that boys in early adolescence actually scored *higher* than boys in middle adolescence. While there were no other significant differences between the groups, examination of the means presented in Table 1 indicated that SPT Tendency in older adolescent boys was higher than that of middle adolescents, but lower than early adolescent boys (see Figure 6 for a visual depiction of the mean score at each age). These results are consistent with Smith and Rose's (2011) finding that boys', but not girls', SPT Tendency with friends decreases in middle adolescence. The larger age range of the current study suggests, however, that boys may begin to recover this tendency in later adolescence.

### **Analyses Testing Relations of SPT Ability and SPT Tendency with Gender Role Ideologies**

First, whether SPT Ability explained a significant amount of the variance in adolescents' SPT Tendency with their friend was examined. Consistent with the Pearson correlation presented

previously for the overall sample, a mixed regression in the dyadic framework indicated that SPT Ability did not explain a significant amount of variance in SPT Tendency for either girls ( $\beta = .057, p = .369, d = .175$ ) or boys ( $\beta = .061, p = .346, d = .216$ ). This result provides support for the distinction between the two constructs, and accordingly the following analyses were conducted separately for SPT Ability and SPT Tendency.

**Social perspective-taking Ability.** A mixed regression in the dyadic framework was conducted to examine the relations of age, gender role ideology, and the age X gender role ideology interaction with SPT Ability. Because the SPT Ability measure required written responses (unlike the SPT Tendency questionnaire), vocabulary score was included as a control variable to help ensure that any potential differences in SPT Ability were not due to the participants' language skills. Due to the dyadic framework, all of the predictor variables were entered simultaneously into the models.

Analyses were run separately for boys and girls, given that there were different versions of the gender role ideology measure for boys and girls and given the hypothesis that relations involving gender role ideologies would differ for boys compared to girls. For girls, regression analyses indicated that while controlling for vocabulary, gender role ideology ( $\beta = -2.04, p = .021, d = 0.44$ ), age ( $\beta = -.249, p = .040, d = 0.411$ ), and the age X gender role ideology interaction ( $\beta = .142, p = .020, d = 0.446$ ) all explained a significant amount of the variance in SPT Ability. Further examination of the interaction (presented in Figure 7) indicated that among older girls, those who held highly stereotypical gender role ideologies had higher SPT Ability than girls with less stereotypical gender role ideologies. In contrast, the exact opposite was true among younger girls. That is, younger girls who held highly stereotypical gender role ideologies

performed worse on their SPT Ability than those with low stereotypical gender role ideologies. These findings for girls were unexpected and warrant replication.

We also ran the same regression for boys, and found that, controlling for vocabulary, age significantly predicted SPT Ability ( $\beta = .269, p = .025, d = 0.509$ ), such that older boys demonstrated higher SPT Ability. The age X gender role ideology interaction ( $\beta = -.094, p = .057, d = 0.455$ ) was only marginally significant, but further examination of this interaction revealed a very interesting pattern that differed from the pattern observed among girls (presented in Figure 8). Younger boys who held higher stereotypical beliefs demonstrated slightly higher SPT Ability than younger boys with more egalitarian gender role ideologies. However, for older boys the trend was opposite, such that older boys with more egalitarian gender role ideologies demonstrated higher SPT Ability than those with more stereotypical beliefs.

**Social perspective-taking Tendency.** In order to examine whether gender role ideologies explained a significant proportion of the variance in SPT Tendency, and whether there were age differences in the association, we ran a mixed regression in the dyadic framework, with gender role ideology, age, and their interaction simultaneously predicting SPT Tendency. Once again, the dyadic regressions were run separately for girls and boys.

For girls, this regression indicated that there were no significant effects of gender role ideology ( $\beta = -1.937, p = .127, d = 0.327$ ), age ( $\beta = -.278, p = .127, d = 0.327$ ), or the age X gender role ideology interaction ( $\beta = .120, p = .153, d = 0.310$ ) on their tendency to engage in SPT with their friend. For boys, however, there were significant effects of both gender role ideology ( $\beta = -2.571, p = .040, d = 0.472$ ) and age ( $\beta = -.388, p = .044, d = 0.466$ ), as well as a marginally significant effect of the age X gender role ideology interaction ( $\beta = .157, p = .055, d = 0.450$ ) on SPT Tendency. Further examination of this interaction (presented in Figure 9)

indicates that for older boys, their SPT Tendency is about the same regardless of their gender role ideology. For younger boys, however, those who endorsed highly stereotypical gender role ideologies reported engaging in much less SPT with their friend than those who had less stereotypical gender role ideologies. Thus, support is found particularly among younger adolescent boys for our hypothesis that boys who hold more stereotypical beliefs about gender roles would show less SPT Tendency with their friend.

### **Discussion**

The current study extends past research on social perspective-taking in several important ways. First, although researchers have previously made a conceptual distinction between SPT Ability and SPT Tendency in friendships (Smith & Rose, 2011), the current research provides the first empirical test of the relation between these constructs. Results from this study indicate that, as predicted, the ability to engage in SPT and the tendency to do so are two distinct constructs in adolescence. Adolescents' propensity to take the perspective of others is not dependent on their ability to do so. While we predicted that SPT Ability and SPT Tendency would be distinct, the correlation was quite small ( $r = .14$ ). Like a previous study conducted by Ployhart, Lim and Chan (2001) that found maximum and typical performance to be distinct due to differing relationships with personality constructs, the current study also revealed different relationships of gender role ideology with SPT Ability and SPT Tendency. Further research will be necessary to replicate this result and to examine whether this distinction is specific to adolescence.

We also hypothesized and found that there were significant gender differences in both SPT Ability and SPT Tendency, such that girls scored higher than boys on each. This is consistent with other studies in which girls outperformed boys when measuring SPT Ability

(Bosacki, 2007; Bosacki & Astington, 1999; Devine & Hughes, 2013; Selman et al., 1986), and SPT Tendency (Smith & Rose, 2011; Van der Graaff et al., 2014). Boys and girls were also found to embrace significantly different gender role ideologies, such that boys tended to be more stereotypical in their beliefs than girls. This finding was also consistent with our hypothesis, as our current society places higher value on masculine stereotypes (Bussy & Bandura, 1999), and therefore it makes sense that adolescent boys would embrace them more than adolescent girls.

Gender differences were also apparent in the developmental trajectories shown by the participants in all of the constructs of interest. While the gender role ideologies of girls were about the same across the different age groups, it was found that boys in middle adolescence were marginally more stereotyped than those in early adolescence, which offered some limited support for the gender role intensification hypothesis (Hill & Lynch, 1983), as boys became more rigid in their beliefs about gender roles across the transition into adolescence. This was the exact opposite trend revealed in a study by Priess, Lindberg, and Hyde (2009), which aimed to demonstrate that gender intensification was not occurring, and actually found that girls had increasing gender identity across adolescence more so than boys.

The age trends that were observed in SPT Ability also differed for boys and girls. Although both boys and girls improved in ability with age, girls' ability was relatively stable compared with boys'. Growth in ability was only marginally significant for girls, who were already performing well even in early adolescence. In contrast, boys demonstrated much stronger gains in ability across adolescence. However, boys' ability level in early adolescence was lower than girls', and even with these strong gains in ability, boys still were not able to "catch up" to girls' ability even in late adolescence. This follows a pattern seen in neurologically based studies, which suggest that girls' development in the temporoparietal junction, part of the "social brain"



which is involved with an adolescent's ability to mentalize, reaches a peak in girls earlier than it does in boys (Mills et al., 2014). Due to the age range of the participants in the current study we might have missed the period of time in which girls were developing their SPT Ability skills more rapidly, but captured that development in boys.

The current study also provided an important replication of previous unexpected findings for different developmental trajectories of SPT Tendency for boys compared to girls (Smith & Rose, 2011; Van der Graff et al., 2014). Consistent with the past findings, results from the current study indicated that SPT Tendency of girls was about the same across adolescence, suggesting that girls reach a relatively high level of SPT Tendency early on, and therefore do not have much room for growth in this tendency. The surprising finding from Smith & Rose's (2011) study that boys actually decreased in SPT Tendency from early to middle adolescence also was evidenced in the current study, although the effect was marginal. The present research also extended this past study by examining a larger age range that stretched into late adolescence. As a result, evidence was also found for a "recovery" effect among boys in late adolescence that was missed in the past study, which only included early and middle adolescents. Following the dip in middle adolescence, boys' SPT Tendency began to increase slightly into later adolescence. This finding is in line with results from the previous study by Van der Graff et al. (2014), which indicated that boys' SPT Tendency decreased from early to middle adolescence but then increased in late adolescence. These results provide additional support for the gender role intensification hypothesis (Hill and Lynch, 1983), as the gender differences between girls and boys were increasing in magnitude across the transition into adolescence.

Finally, the current study provided the first test of the association between SPT Tendency and gender role ideologies. Contrary to expectation, gender role ideology did not

predict SPT Tendency in girls. It may be that a significant effect was not found due to the fact that most girls were already quite high in their self-reported SPT Tendency and there was less variance in SPT Tendency to explain. However, since the mean-level age trajectories of boys' gender role ideology, and boys' SPT Tendency were mirror images of each other, it was expected that gender role ideologies would explain some of the variance in SPT Tendency among boys. This hypothesis was confirmed. Boys who held highly stereotypical gender role ideologies were less likely to engage in social perspective-taking in their friendships. In addition, this effect was qualified by a marginally significant interaction with age, which indicates that gender role ideology is a stronger predictor of SPT Tendency among younger boys compared to older boys. Taken together, these results supported our hypotheses, and provide empirical evidence for what others have theorized (Bosacki, 2007; Van der Graaff et al., 2014), which is that the stereotypes that young boys hold, namely that boys should not be concerned with other people's thoughts or emotions (Jansz, 2000), do relate to their Tendency to engage in SPT with their friends.

Gender role ideologies were not hypothesized to predict STP Ability. However, a significant relationship did emerge for both girls and boys. Among girls, gender role ideology was a significant predictor of SPT Ability, such that those who endorsed highly stereotypical gender role ideologies demonstrated less SPT Ability. This effect was qualified by a significant interaction with age, which indicated that highly stereotypical gender role ideologies in older girls were associated with greater SPT Ability, whereas younger girls who were highly stereotypical in their beliefs about gender roles performed worse on the SPT Ability measure than those who held more egalitarian views. While this was an unexpected result, it may be that implications of the stereotypes for females, which emphasize understanding people's thoughts

and emotions more than boys do, mean that as girls get older, those who hold highly stereotypical beliefs may have been practicing engaging in more SPT and would therefore perform better on the SPT Ability measure. Younger girls, however, may believe that they should be better at SPT, but may not have had as much time to practice it. Alternatively, it has been suggested that egalitarian mindsets are beneficial in relationships (Bem, 1975; Bussey & Bandura, 1999), and this might be the factor at play in the higher SPT Abilities of younger girls with more egalitarian beliefs. It may be the case that those who have more egalitarian beliefs about the roles of girls and boys, might have a greater ability to take the perspective of people who wish to engage in nonstereotypical behaviors or roles. However, a different process may be occurring with older girls, given the gender role intensification hypothesis (Hill & Lynch, 1983), and the pull to adhere to stereotypical gender roles across the adolescent transition. Those who develop more stereotypical gender role ideologies may be influenced by these ideologies to engage in, and become better at SPT, as this coincides with the stereotype that girls have better SPT Ability than boys. Either way, this finding was surprising, and will need to be investigated more in the future.

The relationship between gender role ideology and SPT Ability in boys, while still surprising, seems slightly less puzzling. Gender role ideology was not a significant predictor of SPT Ability among boys. However, there was a marginally significant interaction between gender role ideology and age that revealed a different picture than that seen in girls. This interaction indicated that older boys with more egalitarian gender role ideologies demonstrated marginally higher SPT Ability than older boys with highly stereotypical beliefs, while this pattern was opposite for younger boys. This result may have occurred for a similar reason as with girls, but in the opposite direction. Because SPT is not a trait that would be considered

stereotypically male, older boys with more egalitarian beliefs would have more practice and therefore higher SPT Ability than more stereotyped older boys who had stopped practicing SPT for longer because they did not value it as a masculine quality. In younger boys, however, gender role ideology seemed to have less impact on their SPT Ability.

### **Limitations and Future Directions**

The current study has some limitations that point to directions for future study. Although the reliability coefficient for the SPT Ability measure in the current study (.66 for girls, .75 for boys) was similar to that found in the original study in which the measure was developed (.67 to .69; Bosacki & Astington, 1999), the internal reliability for the measure is lower than ideal. Development of a highly reliable SPT Ability scale for adolescents will be an important goal for future research. For example, future studies might adapt for use with adolescents the children's measure created by Devine and Hughes (2012) that uses silent films. Particular strengths of this measure are that it does not rely as heavily on verbal ability, and contextual information has to be inferred instead of explicitly given in a written vignette.

Also regarding this measure, Bosacki and Astington (1999) found that there were no effects of the order the stories were presented, but there was a significant difference between scores given to the story featuring girls versus the story that featured boys. They explained that this might be due to the ambiguous situation in the Nancy/Margie story being better at eliciting social understanding than that in the Kenny/Mark story, or that both boys and girls attribute more complex thoughts and emotions to girls than they do to boys. Either way, it will be important to test for measurement invariance between girls and boys in the future, as it is possible for group differences to arise for reasons separate from the ability being tested, but instead based on differing response styles (Byrne & Campbell, 1999; Devine & Hughes, 2012). The SPT Ability

measure was also given to the participants at the end of a study that lasted for about two hours, so any future research that uses this measure should be sure that it is not fatigue, or lower levels of concentration that contribute to the gender and age differences found in the current study.

Beyond potential issues with the use of the SPT Ability scale, this study did have some further limitations. Given that the study only used correlational data, no conclusions can be drawn about causality of gender role ideologies that adolescents hold. The study also implemented a cross-sectional design, which allowed us to gather data on participants across adolescence, but more longitudinal studies, like that conducted by Van der Graaff and colleagues (2014) will be necessary to examine the developmental trajectories of these constructs over time. Additionally, future research should attempt to target a more representative sample, as the method of recruiting participants from fliers and advertisements may have resulted in self-selection bias.

While there were some very interesting age trends apparent in the current sample, extending the age range to include much younger children in the study might prove to be informative. Although there has been much research investigating theory of mind, and emotion understanding in very young children (e.g., Gola, 2012; Howard et al., 2008; Hughes & Dunn, 1998; Peterson & Slaughter, 2003), and even some work that examines theory of mind throughout older childhood (Devine & Hughes, 2013), it is unknown whether or not theory of mind is related to either the ability or tendency to engage in SPT in adolescence. A longitudinal study would be incredibly useful in understanding the developmental trajectories of these early indicators of theory of mind to the SPT constructs explored in adolescence, and how these trajectories differ by gender.

Further research should also extend this work into adulthood in order to discover what happens to gender role ideologies, SPT Ability, and SPT Tendency after adolescence. The gender role intensification hypothesis (Hill & Lynch, 1983) suggests that gender roles would become more salient in adolescence, which is something that we found support for in the current sample only with boys. Other researchers have suggested that young people in college samples tend to be much more open-minded and egalitarian than older adults (McHugh & Frieze, 1997). It would be interesting to see, therefore, whether these gender role ideologies become less strict as adolescents enter college and young adulthood, but then become more strict again in later adulthood and whether this also affects their SPT Tendencies with friends.

The findings of the current study add to the existing literature which suggests that egalitarian mindsets are beneficial in terms of mental health attributes and personal relationships (Bem, 1975; Ickes & Barnes, 1978; cited in Bussey & Bandura, 1999), in that they are also related to higher levels of SPT Ability and Tendency in males. Given these findings, it seems promising that research has detected a shift over the period of 1998 to 2002 towards a greater rejection of traditional gender roles across many countries (Scott, 2006). However, as the trend in egalitarian societies, such as the United States, is for women to take on male roles, while men to continue to reject female roles (Costa et al., 2001; Fischer & Manstead, 2000; Fischer, Rodriguez Mosquera, van Vianen & Manstead, 2004), this shift may be only occurring in terms of more flexibility in female roles while male roles remain rigid. Moreover, it is unknown whether this shift will impact SPT. Research should continue to monitor this development, and expand studies to include other cultures, which may embrace different stereotypes than those seen in the United States.

Finally, although this study was important in that it revealed that SPT Ability and SPT Tendency are distinct and interesting constructs, further research will need to examine whether they are differentially related to friendship quality. Smith and Rose (2011) found that SPT Tendency was correlated with friendship quality, but whether SPT Ability is similarly related to friendship quality remains to be tested. Additionally, the past finding for SPT Tendency was based on the adolescents' ratings of their own propensity to take the perspective of their friend. It would be important to assess how well the adolescent's own rating of his/her SPT Tendency matches up with the friend's perception of how often the adolescent tries to take the friend's perspective, and whether one report is more important than the other in terms of the friendship. It would also be interesting to assess how *accurately* adolescents are able to guess their friend's thoughts and feelings, and how this is associated with SPT Tendency, SPT Ability, or friendship quality. It may be problematic for friendships if the adolescent attempts to take a friend's perspective but still is not able to accurately infer what the friend is thinking or feeling.

Despite these limitations, this study contributes information about gender differences in SPT and how stereotyped gender role ideologies may impact SPT in adolescence differently for girls and boys. While findings from neurological studies indicate that biology might play a role in girls' earlier gains in SPT Ability (Mills et al., 2014), a previous finding that pubertal status was not related to SPT Tendency across adolescence (Van der Graaff et al., 2014), suggests that it is not biology or an innate sex difference that is driving boys' tendency to engage in less SPT with their friends. This is not surprising given that SPT Ability and SPT Tendency are distinct constructs, and points to the need for research on other factors apart from biological sex differences that may influence SPT Tendency. Accordingly, the current study sought to provide evidence for the role of gender ideologies in influencing SPT Tendency. This study demonstrates

that stereotyped gender ideologies play a role in discouraging boys from the tendency to engage in SPT with their friends, despite their growing ability to do so across adolescence. As such, this study offers a potential starting point for intervention programs aimed at promoting SPT.



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## Tables and Figures

*Table 1*  
*Mean-Level Gender and Age Differences*

	<u>Gender Role Ideology</u>		<u>SPT Ability</u>		<u>SPT Tendency</u>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Whole Sample						
Early Adolescents ( <i>N</i> =50)	-	-	1.86	0.40	2.89	0.54
Middle Adolescents ( <i>N</i> =90)	-	-	2.09	0.31	2.73	0.49
Late Adolescents ( <i>N</i> =18)	-	-	2.12	0.32	2.68	0.48
Total ( <i>N</i> =158)	-	-	2.02	0.36	2.78	0.51
Girls						
Early Adolescents ( <i>N</i> =28)	2.13	0.31	2.02	0.30	3.00	0.52
Middle Adolescents ( <i>N</i> =58)	1.97	0.31	2.16	0.27	2.89	0.46
Late Adolescents ( <i>N</i> =4)	2.08	0.23	2.38	0.31	2.90	0.25
Total ( <i>N</i> =90)	2.02	0.31	2.13	0.29	2.93	0.47
Boys						
Early Adolescents ( <i>N</i> =22)	2.17	0.30	1.66	0.43	2.76	0.56
Middle Adolescents ( <i>N</i> =32)	2.38	0.36	1.98	0.35	2.45	0.39
Late Adolescents ( <i>N</i> =14)	2.35	0.37	2.05	0.30	2.62	0.51
Total ( <i>N</i> =68)	2.31	0.35	1.89	0.40	2.59	0.49

*Note.* The sample was composed of three age groups: Early Adolescents (12-13 year-olds), Middle Adolescents (14-16 year-olds), and Late Adolescents (17 year-olds). The Gender Role Ideology values for the entire sample were not reported as the questionnaires were different for girls and boys. The gender role ideology measure was on a scale from 1-4, the SPT Ability measure was on a scale from 0-3, and the SPT Tendency measure was on a scale of 0-4.



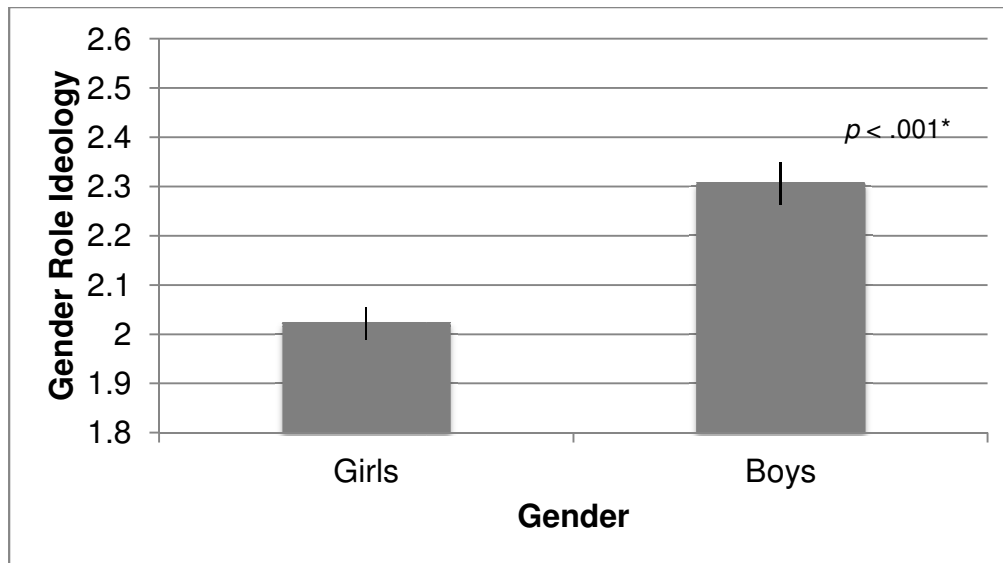


Figure 1. Gender differences in Gender Role Ideology scores.

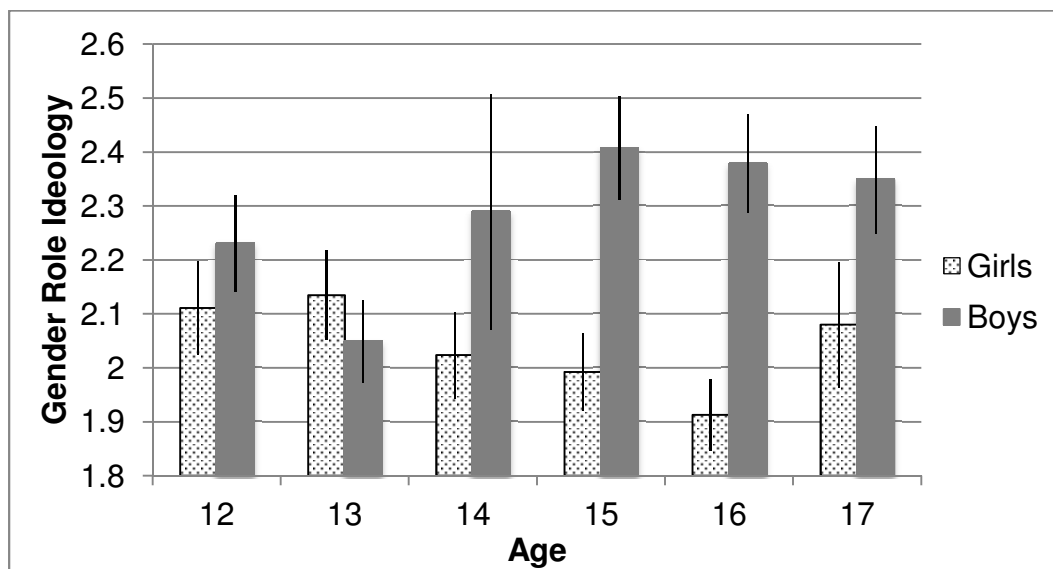


Figure 2. Mean Gender Role Ideology scores of boys and girls from ages 12 to 17.

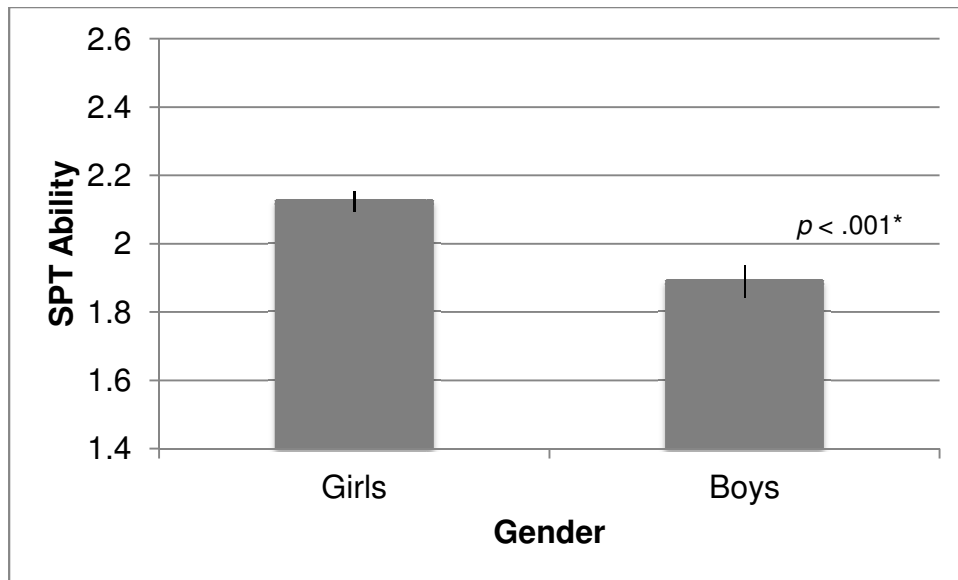


Figure 3. Gender differences in Social Perspective-Taking Ability.

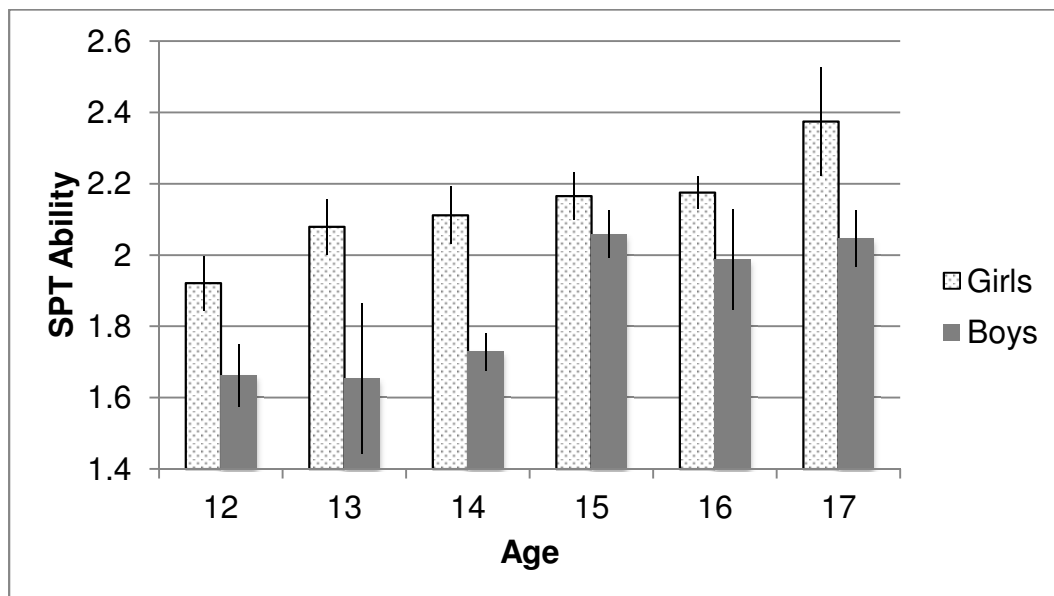


Figure 4. Mean Social Perspective-Taking Ability scores of boys and girls from ages 12 to 17.

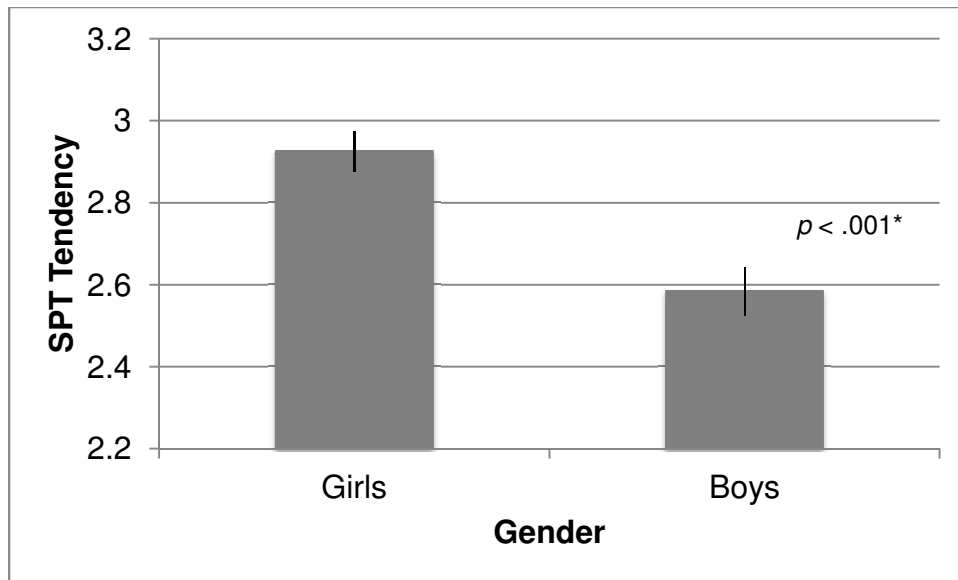


Figure 5. Gender differences in Social Perspective-Taking Tendency.

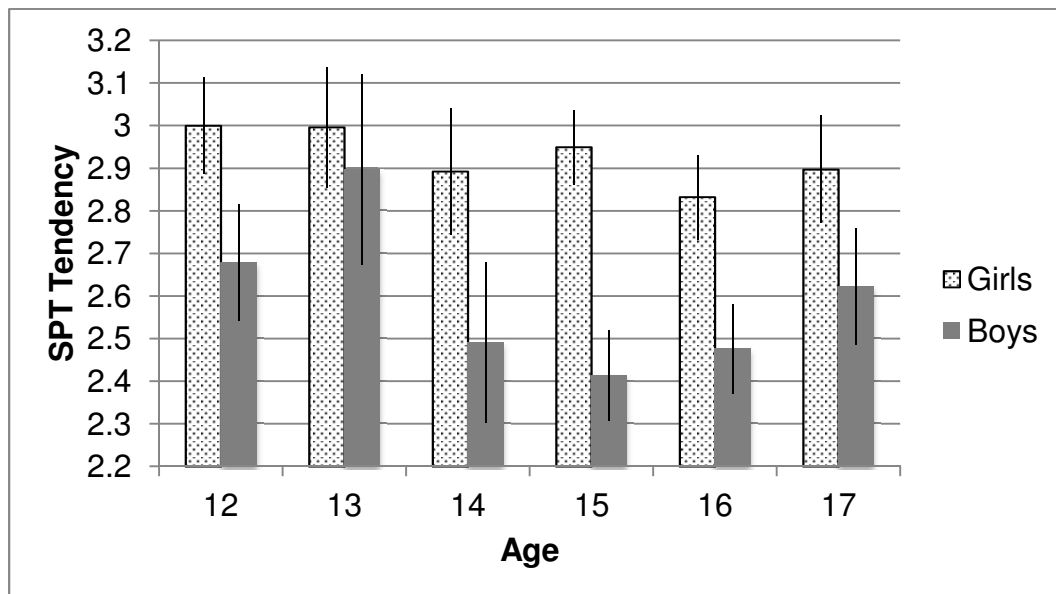


Figure 6. Mean Social Perspective-Taking Tendency scores of boys and girls from ages 12 to 17.

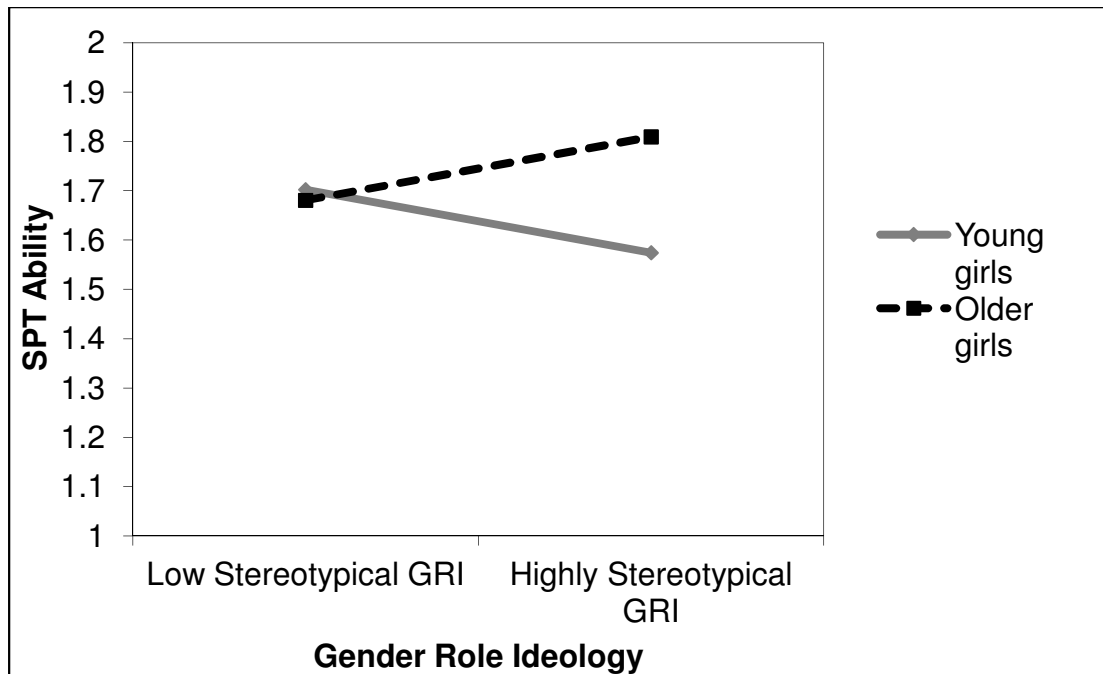


Figure 7. Age X Gender Role Ideology interaction in SPT **Ability** in girls.



Figure 8. Age X Gender Role Ideology interaction in SPT **Ability** in boys.



Figure 9. Age X Gender Role Ideology interaction in SPT **Tendency** in boys.

**Appendix A: Social Perspective Taking Vignettes and Items***Vignette #1*

Nancy and Margie are watching the children in the playground. Without saying a word, Nancy nudges Margie and looks across the playground at the new girl swinging on the swingset. Then Nancy looks back at Margie and smiles. Margie nods, and the two of them start off toward the girl at the swingset. The new girl sees the strange girls walk toward her. She's seen them nudging and smiling at each other. Although they are in her class, she has never spoken to them before. The new girl wonders what they could want.

*Items*

1. Does the new girl see Nancy and Margie nudging and smiling at each other? Yes/No
2. Has the new girl ever spoken to Nancy and Margie before? Yes/No
3. Why did Nancy smile at Margie?
4. Why did Margie nod?
5. a) Why did Nancy and Margie move off together in the direction of the new girl?  
b) Why do you think this/How do you know this?
6. a) Does the new girl have any idea of why Nancy and Margie are walking towards her?  
Yes/No  
b) How do you know that the new girl has (or doesn't have) any idea of why Nancy and Margie are walking towards her?
7. a) How do you think the new girl feels?  
b) Why? Does she feel anything else? Why?
8. Choose a character in the story and describe her.

What kind of things can you think of to describe her? What kind of person do you think she is?

9. Is there another way that you can think about this story? Yes/No

If so, how?

### *Vignette #2*

Kenny and Mark are co-captains of the soccer team. They have one person left to choose for the team. Without saying anything, Mark winks at Kenny and looks at Tom who is one of the remaining children left to be chosen for the team. Mark looks back at Kenny and smiles. Kenny nods and chooses Tom to be on their team. Tom sees Mark and Kenny winking and smiling at each other. Tom, who is usually one of the last to be picked for team sports, wonders why Kenny wants him to be on his team.

### *Items*

1. Does Tom see Mark and Kenny winking and smiling at each other? Yes/No
2. Does Tom usually get picked quickly to be on sports teams?
3. Why did Mark smile at Kenny?
4. Why did Kenny nod?
5. a) Why did Kenny choose Tom to be on the team?  
b) How do you know this?
6. a) Do you think that Tom has any idea of why Kenny chose him to be on the team?  
b) How do you know this?
7. a) How do you think Tom feels?  
b) Why?

8. Choose a character in the story and describe him.

What kinds of things can you think of to describe him? What kind of a person do you think he is?

9. Is there another way that you can think about this story?

If so, how?