

The Correlates and Consequences of Tomboyism:  
An Exploration of Gender-related Characteristics, Peer Interactions,  
and Psychosocial Adjustment  
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## ABSTRACT

The study of tomboys offers useful insights for the field of gender development. Tomboys have been the focus of several studies aimed at defining what a tomboy is (Bailey, Bechtold, & Berenbaum, 2002; Plumb & Cowan, 1984; Williams, Goodman, & Green, 1985) and what it means for children and adults who are tomboys (Morgan, 1998; Williams et al., 1985). These and further questions necessitate understanding the correlates and consequences for children exhibiting tomboy behaviors. This study aims to address these gaps in the literature as part of a longitudinal study assessing children's gendered attitudes, relationships, and beliefs. A group of 4th grade girls (N=98), were administered questionnaires asking them about their tomboy gender identity and related behaviors and beliefs. The first research question concerns how we identify tomboys through parent, teacher, and child self-report, and the application of groupings of tomboys as never, sometimes, and always tomboys. It was found that children who fall into different classifications of tomboyism differ on their similarity to own- and other-sex peers on a number of dimensions (e.g. similarity, peer preference, activity preference). Never tomboys had the most similarity and interest to own-sex peers, always tomboys, to other-sex peers, and sometimes tomboys exhibited the most flexibility with interest similar to both own- and other-sex peers. Peer-related adjustment consequences and experiences were considered for the different groups of tomboys, with always tomboys being the most efficacious with other-sex peers, never tomboys being the most efficacious

with own-sex peers, and sometimes tomboys showing both own- and other-sex peer interactions and the least exclusion of any group.

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## **Introduction**

The study of tomboys offers useful insights for the field of gender development. Tomboys have been the focus of several studies aimed at defining what a tomboy is (Bailey, Bechtold, & Berenbaum, 2002; Plumb & Cowan, 1984; Williams, Goodman, & Green, 1985) and what it means for children and adults who are tomboys (Morgan, 1998; Williams et al., 1985). Tomboyism and gender atypical behavior are integral to several significant theoretical debates regarding the multidimensionality of gender (Ruble, Martin & Berenbaum, 2006) and adjustment outcomes related to atypicality (Egan & Perry, 2001). While many girls and women report being “tomboys” (Morgan, 1998), important questions remain regarding tomboy gender development and identity formation (Bailey et al., 2002). Gender atypicality is frequently identified as promoting psychological maladjustment (Egan & Perry, 2001; Zucker & Bradley, 1995), while tomboyism is cited as being beneficial and protective (Bailey et al., 2002; Thorne, 1993).

These and further questions necessitate understanding the correlates and consequences for children exhibiting tomboy behaviors. This study aims to address these gaps in the literature as part of a longitudinal study assessing children’s gendered attitudes, relationships, and beliefs. A group of 4<sup>th</sup> grade girls (N=98), were administered questionnaires asking them about their tomboy gender identity and related behaviors and beliefs. Girls were grouped into tomboy classifications based on their responses to the question “Are you a tomboy?” with possible answer choices being “never”, “sometimes”, or “yes”. For each child interviewed, a parent and the child’s teacher were administered questionnaires

about the child participating in the study. In these questionnaires they were asked the question “Is this child a tomboy?” with response options paralleling the child’s choices: “never”, “sometimes” or “yes”.

The addition of an option to be a tomboy “sometimes” is important (Halim et al., 2011), as it allows us to assess three distinct groups of children: those who feel that they are never a tomboy, those who are always a tomboy, and those who are sometimes a tomboy, but don’t always identify as such. This is significant in that most studies on tomboys seem to portray tomboyism as a dichotomy, where a child is either a tomboy or they are not, at least in measurement (Bailey et al., 2002). This study takes a more nuanced approach, considering that children who are only sometimes tomboys may be a distinct group worth examining (Halim, et al., 2011).

The first research question concerns how we identify tomboys. Studies most frequently recruit or assess tomboy participants through the use of parental report (e.g., is your child a tomboy?) (Bailey et al., 2002). Another common method is self identification, where children are asked directly if they are a tomboy (Morgan, 1998). A less common practice is asking teachers for their assessment of tomboyism in each child (Hemmer & Kleiber, 1981). This study will address the congruencies between parent, teacher, and child self-report for each child. Do parents, teachers, and child self-report assessments agree in regard to whether or not the target child is a tomboy? In addition, we will examine whether parents or teachers are more accurate reporters of a child’s tomboyism, in that they are more congruent with the child’s report. Is one group likely to

identify a child as a tomboy only when they are more extreme in their tomboyism? I hypothesize that parents will be better reporters than teachers as they may have a broader exposure to their child's full range of behaviors and changes over time. I hypothesize that both parents and teachers will be more likely to identify a child as a tomboy if the child self-identifies as a tomboy most of the time rather than only sometimes because their gender atypical behaviors may be more apparent.

The second research question examines the multiple dimensions of tomboyism. Do children who fall into different classifications of tomboyism (i.e., "never" tomboys, "sometimes" tomboys, and "yes" tomboys) differ on a number of dimensions of gender including typicality, behaviors, and peer relationships? More specifically, are there differences between the classification groups in how they relate to same-sex and other-sex peers, for instance, in their felt similarity to each group and in their perceived closeness to own- and other-sex peers? Further, do different types of girls differ in more specific dimensions of gender such as activity preference, peer preference, and appearance to own- or other-sex peers? I hypothesize that there will be differences between the classification groups of tomboys on all dimensions of gender with regard to other-sex peers/behavior/identity, but not differences between the groups on dimensions of gender with regard to same-sex peers/behaviors/identity. For example, I expect girls who are almost always tomboys to feel more similar (i.e., gender identity) to other-sex peers, followed by girls who are sometimes tomboys, whereas girls who are not tomboys would feel the least similar to other-sex peers. Similarly, I

expect girls who are almost always tomboys to show activity interests that are more similar (i.e. gendered behavior) to other-sex peers, followed by girls who are sometimes tomboys, whereas girls who are not tomboys would show activity interests that were the least similar to other-sex peers. However, I expect there to be no significant differences between any of the groups on similarity to same-sex peers/behaviors/identity.

The third research question examines the consequences and experiences for children who self-identify as tomboys. Do children who fall into different tomboy classification groups differ in regards to their measured outcomes in this study? This study will assess four related groups of outcomes. The first includes beliefs about same- and other-sex peers. The second group of outcomes includes their expectancies for interactions with same- and other-sex peers. The third group of outcomes includes their experiences of friendships with same- and other-sex peers. The fourth and final group of outcomes examined is their social adjustment as measured through sociality and exclusion factors. I hypothesize that girls who are almost always tomboys will have the least favorable outcomes with regard to same-sex peer related interactions and social adjustment and that these will be significantly different than girls who are sometimes or never tomboys. I do not think that girls who are sometimes and never tomboys will significantly differ on peer related outcomes with same-sex peers. I hypothesize that girls who are almost always tomboys and girls who are sometimes tomboys will have the most favorable outcomes with regard to other-sex peers and that these will not significantly differ. However, girls who are never tomboys will have poor

outcomes with regard to other-sex peers and these will significantly differ from the other two groups of tomboys. In summary, I expect that sometimes tomboys will have favorable social adjustment outcomes with both same- and other-sex peers, that girls who are almost always tomboys will have favorable social adjustment outcomes with other-sex peers but not same-sex peers, and that girls who are never tomboys will have favorable outcomes with same-sex peers but not other-sex peers. I hypothesize that the flexibility in behaviors afforded to sometimes tomboys will be beneficial for social adjustment with other-sex and same-sex peers.

## **Literature Review**

Previous studies of tomboys and discussions on the gender development of tomboys offer useful insights. First, theoretical perspectives on gender development are considered to provide important foundations for research on tomboys. Next, specific challenges to measuring tomboyism are discussed. There are inconsistencies in the literature which reflect these challenges involved in the study of tomboys. The first group of challenges relates to the measurement of tomboys and includes societal definitions of tomboyism, research typologies of tomboys and gender typicality, identifying the most accurate reporters for tomboy behaviors, and measuring the behavioral correlates of tomboyism. Further challenges explore the inconsistencies in the literature with regard to a more global understanding of tomboyism including the complexity of androgyny and the effects of tomboyism on social adjustment outcomes.

## **Gender Development Theories**

Martin and Ruble (2010) proposed that there are key influences on gender development that fall into the categories of cognitive, social and biological influences, with theoretical support for each. Further discussion of each perspective is given below as well as speculation about how tomboys would be viewed within each theory.

Several important theories describe the cognitive influences on gender development. The first is Kohlberg's (1966) cognitive developmental theory in which he proposed that children play an active role in learning about gender. Specifically, he proposed three steps in developing gender concepts. These include gender identity or the identification of the child's gender, gender stability or the recognition that gender will not change, and gender consistency meaning that the child's gender is fixed, despite outer appearance changes or other superficial transformations. Once children reach gender consistency they understand that their gender is fixed and they consolidate their gender-related schemas and patterns of behavior within the framework of their gender. For tomboys, this means that they cognitively understand that they are girls and will stay that way no matter what the situation, regardless of their felt gender typicality. Tomboys, like most children, will take an active role in learning about gender and will have experienced these stages of development of their gender concepts.

Gender schema theory is similar to Kohlberg's ideas of children being active participants in gender development but considers that children need only a

basic understanding of gender (“I am a girl”, i.e., gender identity) to be motivated to act according to their gender (Martin & Halverson, 1981). For example, based on knowing their own sex and their motivation for acquiring a better understanding, children desire to be like others of their own sex and pay attention to what is appropriate for each sex. This information then allows children to determine if a toy or behavior is appropriate for their gender and to learn stereotypes about gender. The child will then attend to the item only if it is appropriate for his/her gender. This theory is useful for understanding gender typical behavior. For understanding gender atypical behavior, it is useful to examine the flexibility or rigidity with which children adhere to the pathways predicted by gender schema theory. Though young children follow the predicted patterns quite frequently, older children are expected to be more flexible (Martin & Ruble, 2010). It is this flexibility that would allow girls to identify as a tomboy and behave in gender atypical ways, even though they have the cognitive knowledge of being a girl and know the behaviors and beliefs that are expected of girls. Martin and Dinella (2011) found that tomboys showed less congruency between gender stereotypes and activity preferences than non-tomboys, suggesting that tomboy girls may have more flexibility in their activity preferences, and tomboys had trends towards more inclusive stereotypes. This is consistent with cognitive theories that suggest that there is congruence between gender stereotypes and gender behaviors for both tomboys and non-tomboys, but tomboys are more flexible.

There is a strong social influence on gender development, where children experience gender within their environment. Social learning theory (Bandura, 1977) suggests that children learn social behaviors and roles through modeling those around them. Gender can then be reinforced by the socializing agents in a child's world (Fagot, 1985) including parents, teachers, and peers. In the context of tomboy gender development, children's gender roles may be shaped through differential treatment and reinforcement from parents, teachers, and peers (Eagly, 1987; Eagly, Wood, & Diekman, 2000). For example, tomboys may be children whose parents, teachers, and peers reinforce gender atypical behavior. Further, social influence on gender development can promote maladjustment, such as if a tomboy has parents who instead reinforce gender typical behavior despite having a child who does not feel gender typical or does not want to behave in this way.

Lastly, there are biological influences on gender development. This link is revealed in the occurrence of sex-linked genetic disorders with subsequent repercussions for gender expression such as androgen-insensitivity syndrome, Turner syndrome, and Klinefelter syndrome (see Blakemore, Berenbaum & Liben, 2009 for review). In addition, biological factors such as hormones have been found to have influence across many domains including sex-typed toy play and activity preferences (Berenbaum & Hines, 1992). For example, Congenital Adrenal Hyperplasia (CAH), marked by prenatal exposure to androgens, has been linked to sex differences that are commonly associated with aspects of tomboyism (Bailey et al., 2002). This study does not address biological influences of

tomboyism but it is important to note that these have documented effects on some of the gender atypical behavior identified in tomboys.

### **Societal Definitions of Tomboys**

Many people are familiar with the term “tomboy”, but there is not a universal definition for “tomboy” in the gender literature (Bailey et al., 2002). Tomboys have been the focus of multiple gender studies and as such, the term has been used to represent a girl who engages in more masculine behavior than would otherwise be socially expected of her (e.g., Bailey et al., 2002; Plumb & Cowan, 1984; Williams et al., 1985). “Tomboy” is a term that is widely endorsed both in research and more broadly in society. For example, Morgan (1998) found that 67% of adult women, (N = 466) aged 17-94, stated that they were tomboys as children, with 32% claiming that they were tomboys most of the time. However, there remain significant gaps regarding the definition and classification of a tomboy.

One gap is understanding how tomboyism relates to gender identity and to gender atypicality more broadly. Unlike earlier definitions that focus on identity versus behavior (Bailey et al., 2002), more recent definitions of gender identity categorize and examine children’s behaviors as being either gender-typical or gender-atypical (Egan & Perry, 2001). Gender identity represents a child’s awareness of their gendered behaviors and actions and whether these are congruent with social expectations of gender appropriate behavior (Zucker & Bradley, 1995). Gender atypicality can range from a display of androgynous behavior, such as a girl who shows high levels of masculine and high feminine

behaviors (Plumb & Cowan, 1984) to girls with a cross-sex identity who display only masculine and very few feminine characteristics (Zucker & Bradley, 1995). As such, children can be classified as atypical even though they show a very wide spectrum of behaviors. However, research is consistent in showing that gender-atypical girls are at least slightly more masculine than typical girls (Bailey et al., 2002).

Different ethnic and cultural groups may label certain behaviors as gender normative or non-normative according to different social standards or norms (Thorne, 1993). Changes also occur over time (Bailey et al., 2002). Thorne (1993) noted that children's use of the term "tomboy" has varied and she suggested that this is due to shifting social norms: for instance, today it is more common and less deviant for girls to engage in masculine activities such as sports (Thorne, 1993). Martin (1990) echoed this relaxation of gender norms for girls in that tomboyism is more socially acceptable than other forms of gender variance, suggesting that there are gender differences in how atypicality is perceived and it is much less accepted for boys to engage in traditionally feminine behavior. There is additional support for the social construction of norms for tomboys (Martin & Ruble, 2010), including the notion that social attitudes and acceptance of tomboys seems to decrease as tomboys age (Martin, 1990). Social attitudes and acceptance of tomboys becomes less supportive with heightened levels of cross-sexed behavior, particularly when tomboyism includes rejection of feminine activities and characteristics along with the adoption of more masculine ones (Martin & Dinella, 2010; Thorne, 1993; Zucker & Bradley, 1995).

## **Reporters of tomboyism**

Another important discussion in the measurement of tomboys involves who identifies a girl as a tomboy. Studies often used parent or child report of tomboys, and subjects were commonly recruited for studies through targeted advertising asking for tomboy participants (Bailey et al., 2002). For studies involving children, parents identified if their child was a tomboy and subsequently enrolled tomboys in the study. It is important to consider the effects of parent nomination of tomboyism as compared to the individual child or the teacher. Some children may identify as tomboys but their parents may not agree, or the reverse. Further, teachers offer another unique perspective on the tomboy classification of the child. Whether parents or teachers are better reporters may vary with the child's age, and 4<sup>th</sup> grade is an interesting developmental time in which either may be more congruent with a child's report of their own tomboyism (Yee & Brown, 1994). Parents are usually stable in the life of a child and their exposure to their child's gendered beliefs and attitudes would likely remain relatively constant (Blakemore et al., 2009). In adolescence there is a shift in which peers begin to hold greater influence than parents in some areas of a child's life (Strough & Marie-Covatto, 2002), and as such, teachers may be more congruent with the target child in their report of tomboyism than parents, as they are exposed to the peer interactions occurring at school.

In contrast, teachers are a relatively unstable source for reporting characteristics of the child as they change frequently, though research shows that they do have an important impact on a child's gender development (Hilliard &

Liben, 2010). Teachers may have more exposure to a child's gendered interactions with peers (Thorne, 1993) at a time when peers are becoming increasingly more important (Strough & Marie Covatto, 2002). Reporters also have the ability to introduce their own bias when labeling a child as a tomboy. Reporters who hold more traditional gender views may find slight gender atypicality troublesome and be quick to label children as such whereas non-traditional reporters may not apply these labels at all. Furthermore, both parents and teachers have been shown to have a profound effect on the gendered environment to which a child is exposed (Bigler, 1995; Eccles, 2011; Hilliard & Liben, 2010).

As discussed previously, tomboy behaviors are suggested to be context dependent (Thorne, 1993), where a child may behave differently depending on the environment the child is in or the socializing agent to which a child is exposed (i.e., parents, peers, or teacher). For this reason, assessing multiple reporters allows for capturing the diverse effects on a child's gender expression due to environmental contexts of school and home (Bronfenbrenner & Morris, 1998). A child may display fewer or more tomboy behaviors in the classroom depending on whether he or she is with a teacher as the socializing agent, on the playground with peers as the socializing agent, or at home with parents as the socializing agent. In addition, these socializing agents may have differential influences on a child's cognition about gender. For example, if a parent reports that they have strong attitudes against tomboyism, it might influence whether or not the child displays gender atypical behavior or identifies with tomboyism. As such, it is

important that we allow for multiple reporters of a child's tomboyism as they might have differential influences on a child's gender-related cognitions and behaviors.

Self identification as a tomboy is also important. From this framework, children may be the best reporters of their own tomboyism, able to describe their full range of capabilities for gendered behavior. The self-reporting child is more likely to know her own capability to express masculine and feminine behaviors rather than just reporting based on her actual behavioral expressions, as a parent or teacher might.

It is not known exactly who self-identified tomboys are or what characterizes self-identified tomboys which might be different from other children. It is not known if self-identified tomboys exhibit different gendered behaviors from those children who are labeled a tomboy by others but do not identify as a tomboy themselves, and to our knowledge no study has examined this. However, there is literature suggesting the important implications that group membership has (Nesdale et al., 2007). For example, in the race literature we know that identifying with a race has profound psychological effects (Brunsma, 2005). There is also evidence that gender identity has important developmental implications (Martin & Ruble, 2010) and gender group membership influences interactions with peers (Martin & Fabes, 2001; Zosuls et al., 2011). Therefore, we can conclude that self-identification as a tomboy, as used in this study, may be particularly important for psychosocial adjustment outcomes and for influencing the perception of and experience with peer interactions.

## **Typologies of tomboys and gender typicality**

Presenting grouped categories of children (e.g., typical, atypical or tomboys) is likely more rigid than the true experience of the child (Ruble et al., 2006; Thorne, 1993). Typologies of gendered behavior are frequently used by both children and researchers (Egan & Perry, 2001; Morgan, 1998). Some girls refer to themselves as “tomboys” or “girly-girls” (Morgan, 1998; Thorne, 1993). Halim and colleagues (2011) added the distinction of measuring tomboy tendencies by allowing individuals to claim that they are sometimes tomboys, as well as using this method in asking other individuals to report on children. This technique had previously been used in adult studies (Morgan, 1998) but not in studies of children. There is further support for adopting this measurement approach in the literature as it has been suggested that atypical children are not always gender-atypical and gender-typical children do not behave in gender-typical ways all the time (Bailey et al., 2002).

The degree to which a girl shows gender typical behavior is often used to measure whether or not a child is a tomboy, but there is ongoing debate regarding the best way to measure gender typicality in children. Methods employed in classifying a child as gender-typical or –atypical are still in development (Ruble, Martin, & Berenbaum, 2006), but tomboyism has commonly been measured by examining gendered appearance, behavior, activity preferences, and peer preferences. Tomboys show more masculine characteristics as compared to non-tomboy girls (Blakemore et al., 2009). To determine an overall view of tomboys, these varieties of gendered behavior are typically categorized as representing

highly masculine, highly feminine, or androgynous (highly feminine and highly masculine) patterns. Most tomboys exhibit androgynous patterns (Hemmer & Kleiber, 1981; Plumb & Cowan, 1984) with some tomboys exhibiting more extreme cross-gender behavior with strong preferences for only masculine characteristics (Zucker & Bradley, 1995).

### **Behavioral Correlates of Tomboyism**

Previous studies have contributed significantly to our understanding of what classifies a child as a tomboy and the characteristics selected for measurement in this study were developed through a careful review of previous literature on tomboys as well as those identified as being important for promoting or inhibiting positive peer relationships and social adjustment. A common way to examine characteristics linked with tomboyism emerged with a study by Hyde and colleagues (1977), asking adult women what behaviors they engaged in as children that contributed to their self-identification as tomboys. The six behaviors that were reported most commonly included sports participation, rough and tumble play or outdoor play participation, masculine toy choices, role-playing as boys in pretend play, showing more masculine mannerisms, appearance, and behavior, and lastly, showing peer preference for male companions (Hyde, Rosenberg, & Behrman, 1977). These characteristics were validated and found to be linked with tomboyism in future studies (Williams, Green, & Goodman, 1979). Further, early studies found that girls who identified as tomboys generally reported more of these masculine characteristics than typical girls and also reported more interest in masculine activities, forming a basis for an

understanding of tomboy behavioral correlates as an increase in masculine behaviors (Plumb & Cowan, 1984).

Bailey and colleagues (2002) contributed an important study on tomboys that compared non-tomboy siblings to tomboy participants in order to account for possible parental, genetic, and environmental influences on the behavioral correlates of tomboyism. Tomboys were found to prefer masculine peers as playmates and to prefer more masculine activities than their non-tomboy sisters. In addition, tomboys reported less gender contentedness than their non-tomboy sisters as they were more likely to report wanting to be a boy or unhappiness with being a girl. This study found variability within the group classified as tomboys though there was a consistent pattern which suggests that tomboys tended to show heightened masculine interest across at least one of the gender-related categories measured (Bailey et al., 2002).

It is generally accepted that tomboyism is related to increased masculinity, but later studies served to further clarify the understanding of these patterns of behavior in tomboys. While there are girls who are gender non-normative in that they only exhibit traditionally male characteristics and activity choices and reject feminine behavior (Martin, 1995; Zucker & Bradely, 1995), many tomboys have been found to be more androgynous and enjoy both masculine and feminine behaviors (Hemmer & Kleiber, 1981; Plumb & Cown, 1984). Tomboys have shown interest in activities that are traditional for girls and in activities that are traditional for boys (Plumb & Cowan, 1984).

## **Behavioral Correlates Related to Peers**

Interactions with peers and the behavioral characteristics that influence peer dynamics are particularly important for tomboys. Peers play an integral role in gender development (Maccoby, 1990). Gender segregation among peers is a highly studied and nearly universal phenomenon (Geary & Bjorklund, 2000). As such, gender is made salient within peer groups, and engaging in socialization with same-sex peers has an influence on a child's gendered behavior (Martin & Fabes, 2001). Less is known about the effects of tomboyism on peer group interactions (Bailey, Bechtold & Berenbaum, 2002). In general, children became increasingly gender-typed following sustained interactions with same-sex peers, and it is assumed that consistent exposure to other-sex peers would reduce gender-typical behaviors or increase gender-atypical or androgynous behaviors (Fabes, Martin & Hanish, 2003; Martin & Fabes, 2001). Children have been found to interact differently and have different play styles depending on the sex of the peers, where play with girls incorporates support and encouragement (Zarbatany & Pepper, 1996) and play with boys incorporates assertiveness, dominance, rough play, and rule breaking (Blakemore et al., 2009; Fabes et al. 2003). Because tomboys interact with other-sex peers more than other girls, they have more chances of being socialized into boy-typical play and interaction styles (Bailey, Bechtold & Berenbaum, 2002).

## **Stability of Behavioral Correlates**

Relatively little is known regarding the stability of tomboy behavior over time. It is generally accepted that gender typing, gender identity, and gender

typed activity preferences and behavior are relatively stable over time (Golombok, et al., 2008; Powlishta, Serbin, & Moller, 1993). However, tomboyism specifically has shown a lack of stability in that tomboys seem to incorporate more feminine behaviors over time. In fact, Hemmer and Kleiber (1981) reported that tomboys chose to engage in more feminine behaviors to deal with gender norm pressures, though they also maintained their more masculine tomboy characteristics as well. Brown and Gilligan (1992) found that girls who were tomboys as children later tried to adopt more feminine behaviors and characteristics in adolescence, suggesting that gender norm pressures increased as children aged which led them to engage in fewer masculine tomboy behaviors. In this way, tomboy behavior is seen as atypical yet flexible enough over time so as to avoid rejection.

Despite these behavioral shifts, researchers have discussed the idea that affective feelings of gender identity and individual differences of gender typicality may be stable over time (Ashmore, Deaux, & McLaughlin-Volpe, 2004; Tobin et al., 2010). For example, one of the most commonly cited phenomena is the stability of sex segregation among peers, in which girls (and boys) tend to prefer same-sex peer playmates (Martin & Fabes, 2001). Though some tomboys have reported a preference for same-sex peer playmates (Hyde et al., 1977), it has been suggested that tomboys do not always follow this pattern and there are individual differences with regards to the propensity for same-sex peer interactions (Maccoby, 1998). Golombok et al. (2008), conducted a longitudinal study with 5,500 children ages 2.5 to 8 years old and determined that children

who were highly gender typical in preschool remained highly gender typical at age 8. However, tomboys were not examined as fully in this study with regard to the stability of their gender identity (Martin & Ruble, 2010), and for that group specifically, researchers have found less consistent results, as discussed previously (Brown & Gilligan, 1992; Hemmer & Kleiber, 1981).

In summary, though previous studies have contributed to our understanding of the behavioral correlates of tomboyism, more research is needed. In general, tomboyism is related to more masculine characteristics than feminine (Bailey et al., 2002), these patterns are not necessarily stable over time (Brown & Gilligan, 1992). In addition, it appears that generally accepted gender development phenomena such as sex-segregation (Martin & Fabes, 2001) may be less understood in tomboys, as well as the adjustment outcomes associated with these peer interactions (Ruble et al., 2004; Ruble et al., 2007).

### **Tomboyism and the Potential for Androgyny**

Androgyny and its definitions arose fairly simultaneously among several researchers, though all involve displaying both feminine and masculine qualities (Bem, 1974; Block, 1973; Rebecca, Hefner & Oleshansky, 1976; Spence, Helmreich & Stapp et al., 1975). Bem (1974) identified androgynous individuals as scoring similarly on measures of masculine and feminine traits, but later proposed that this procedure was based on the assumption that an androgynous person is one for whom masculine and feminine labels are relatively unimportant in behavioral decisions (Bem, 1981). Spence and colleagues (1975) argued that

androgyny should be defined by high scores on both masculine and feminine traits, while those with low scores are labeled as “undifferentiated”.

Though Bem (1981) suggested a trait-based androgyny, Martin (1990) suggested that we need to measure capabilities, rather than traits, when assessing androgyny. This allows for the expression of androgyny, and gendered behavior in general, to be more situational and less restrictive. It is an interesting theoretical distinction to consider whether a tomboy is a child who is merely capable of showing highly masculine behavior or, if to be a tomboy, they must consistently display highly masculine characteristics. Although this may be impossible to distinguish in our measurement of atypicality for this study, it is theoretically important to consider this distinction between the measurement of capabilities and traits for a more complete understanding of gender development and androgyny.

Further, it is important to consider whether androgynous girls are tomboys, and if all tomboys are androgynous (Hemmer & Kleiber, 1981). Androgyny, as commonly referenced (Bem, 1974; Ruble et al., 2006) suggests the capability to display socially and contextually appropriate masculine and feminine behaviors. Are androgynous girls and girls who display masculine behaviors both similarly considered tomboys, regardless of their differing abilities for displaying feminine behaviors? In addition, are there tomboys who are not androgynous but instead only display masculine behaviors? This study attempts to address these questions in a unique way by proposing that there may be differing categories of tomboyism. It may be that girls that never display feminine behaviors, only

masculine ones, are more likely to be identified as “yes (always) tomboys” whereas girls who are androgynous and display both masculine and feminine behaviors are more likely to be identified as “sometimes tomboys”.

### **Social Adjustment**

Experiences associated with gender typicality are known to have significant effects on children’s peer relationships (Brown & Bigler, 2004) and psychosocial adjustment (Signorella & Liben, 1985). Psychosocial adjustment factors, including exclusion, prosociality, and asociality, have been linked to negative peer interactions and these effects have been found to differ by gender (Crick & Grotpeter, 1995). Specifically, prosociality has been linked to positive peer group outcomes such as peer acceptance (Chung-Hall & Chen, 2010) and related outcomes (Caprara, Barbaranelli, Pastorelli, Bandura & Zimbardo, 2000). Additionally, exclusion has been found to be related to negative social adjustment and peer interactions (Wilczynska-Kwiatek, 2009). Feeling similar to same-sex peers predicts higher levels of self-worth, perceived social competence, and acceptance from peers but feeling similar to other-sex peers predicts lower levels of internalizing problems (Carver, Yunger, & Perry, 2003; Egan & Perry, 2001).

With regard to gender typicality and psychological adjustment, there seem to be two competing perspectives: one that suggests that atypicality and/or tomboyism yields negative outcomes, (Zucker & Bradley, 1995) and another that suggests that tomboyism is associated with androgyny and flexibility and thus is beneficial (Bem, 1974; Ruble et al., 2006). These competing perspectives suggest that there remain significant questions to fill regarding tomboys’ gender

development. Though gender non-normative development may be problematic for some children (Egan & Perry, 2001), tomboyism has been found to be linked with more positive outcomes and attributions for some girls (Morgan, 1998; Thorne, 1993). Thorne (1993) reported that many children self-label as tomboys and embrace this identity. In addition, other peers do not always reject these students and they receive less negativity for engaging in gender-crossing behaviors than boys do (Leaper, 1994). Carr (1998) suggested that tomboys are rewarded and accepted because they display socially powerful masculine traits. In contrast, some research suggested that tomboys are viewed as gender deviant and this label can be used negatively (Devor, 1989; Reckers, 1992).

Gender atypicality is frequently identified as promoting psychological maladjustment (Zucker & Bradley, 1995) whereas tomboyism is cited as being beneficial and protective. Similarly, Ruble and colleagues (2004) suggest that experiences related to the different dimensions of gender identity will result in different outcomes for children, where there are opportunities for both beneficial outcomes (e.g., empowerment, adaptability) as well as negative outcomes (e.g., psychological distress, rejection of personal self). It follows that tomboys, or girls who are not gender typical, might have more negative outcomes or difficulties related to their gender identities. It has been suggested that conflicting cognitive and affective notions of gender can lead to problematic adjustment for children (Ruble et al., 2007), and this risk has been shown to be heightened for tomboys or gender non-normative children. For example, gender contentedness was associated with positive adjustment for children from third through eighth grade

(Carver et al., 2003). Girls who perceived that they were atypical for the gender (e.g., tomboys) and also experienced felt pressure to conform to gender norms were more likely to report sexism and gendered discrimination (Leaper & Brown, 2008). Egan and Perry (2001) suggest that a combination of gender atypicality and the experience of felt pressure for conformity predict low self-esteem for these children. When gender identity is not in concert with felt pressures of gender norms, this has been linked to problematic adjustment in children (Ruble et al., 2007; Zucker & Bradley, 1995).

The framework of separate selves (Knox, 2006; Markus & Nurius, 1986) lends further insights in considering the possibility for adjustment problems for gender-atypical children who experience felt pressure. If a child has a personal self that is gender-atypical, but feels the need to conform to the gender norm pressures and behave in gender-typical ways as a manifestation of their social self, this incongruity may lead to psychological issues or it may be protective. However, devaluing the personal self would likely be highly problematic (Meyer, 2003). Negative adjustment outcomes may be a symptom of the psychological distress and inability to maintain consistency or cope with the social pressures for gender-atypical children (Zucker & Bradley, 1995). It follows that having multiple selves that a child can manipulate and adjust effectively according to context and environmental pressure may be a sign of a flexible, adaptive child (Egan & Perry, 2001). There may be times when behaving in gender-typical ways is necessary and appropriate and a recognition of the pressure in the environment, coupled with the ability to manage multiple identities or patterns of

gender typicality and atypicality with ease, may be protective and psychologically beneficial. There highlights the benefits of androgyny, typically defined as showing high levels of both masculine and feminine characteristics, on children's adjustment and social success (Bailey et al., 2002). This adaptive nature of androgyny may be related to the adaptive nature of regulating several different selves with respect to gender norms and behavior. Flexible gender attitudes have been shown to be positively associated with psychological adjustment (DiDonato & Berenbaum, 2011). Further, the ability to be flexible with gendered behaviors (i.e., expressing gendered characteristics and behaviors that vary from masculine to feminine according to changing contexts) has been shown to predict positive adjustment and peer-related outcomes including self-esteem, positive emotion, and a reduction in behavior problems (DiDonato et al., 2012).

In summary, it may be that girls who are almost always tomboys are cross-sex tomboys who are more likely to display masculine traits with much greater frequency than feminine traits, putting them at a distinct disadvantage with socially inappropriate displays of gender atypicality, at least at certain times and situations. This would be consistent with the literature that tomboyism and/or atypicality lead to negative psychosocial outcomes (Egan & Perry, 2001). It may be that the "never tomboys" are girly-girls who are more likely to display feminine traits with much greater frequency than masculine traits, putting them at a distinct advantage with socially appropriate displays of gender typicality but at a disadvantage in terms of showing flexible behavior such as being in situations where gender atypical behavior would be advantageous. This would be consistent

with the literature that gender typicality protects against many negative psychosocial outcomes (Egan & Perry, 2001). However, assessing the category of “sometimes tomboys” offers the potential for giving merit to the often culturally accepted notion that tomboyism is good, despite its relative lack of representation in the literature. It may be that the “sometimes tomboys” are girls who are androgynous in that they have the capabilities to display both masculine and feminine behaviors (Halim et al., 2011). When necessary, these girls can behave in gender typical ways, affording them the protections that promote psychosocial adjustment (Egan & Perry, 2001; Zucker & Bradley, 1995). Similarly, when beneficial, these girls can behave in masculine ways, but not necessarily engaging in socially inappropriate displays of gender atypicality.

### **Concluding comments**

The measurement and theoretical challenges discussed suggest several gaps in the literature. Though there is ongoing debate regarding the ideal way to measure gender typicality and atypicality in children, the best approaches seem to incorporate parent report, child report, and naturalistic observations (Bailey et al., 2002). Further, measurement of behaviors should allow for a multidimensional perspective that incorporates many different gendered behaviors (e.g., peer preference, activity preference, gendered appearance). In addition, the possibility for reporting both masculine and feminine capabilities for each behavioral trait should be considered through the perspective of gender androgyny. Lastly, social adjustment and related peer interactions are important outcomes to consider for tomboys.

## **The Present Study**

The present study has the potential to make significant contributions to the field of gender development because it addresses many of the challenges raised in the literature review. This study has two purposes: The first is to provide guidelines for how to best measure tomboys and the second, to better understand global issues associated with tomboyism. To achieve this, the study has three specific research questions. The first research question concerns how we identify tomboys, using the same mechanisms that many tomboy studies do when recruiting their sample. Parent report, teacher report and self-report are included in this study, and the congruence among these ratings is examined. It is hypothesized that parents will be better reporters than teachers in that they will be more congruent with a child's self-identification, and both reporters will be more accurate when the child identifies as a tomboy rather than only "sometimes" as a tomboy.

The second research question examines the multiple dimensions of tomboyism and the associated typologies. Multiple dimensions of gendered characteristics are explored, including gender typicality (e.g., felt similarity), behaviors (e.g., activity preferences) and peer relationships (e.g., peer preferences) and differences between children who are never tomboys, sometimes tomboys, or always tomboys are assessed. In addition, this study allows for the reporting of both masculine and feminine behaviors and capabilities simultaneously to capture potential androgyny within children (Blakemore et al., 2009; Hemmer & Kleiber, 1981).

The third research question examines the consequences and experiences for children who self-identify as tomboys, including their psychological and social adjustment outcomes. Gender atypicality is frequently identified as promoting psychological maladjustment (Zucker & Bradley, 1995) whereas tomboyism is cited as being beneficial and protective (Morgan, 1998). This study addresses this seeming incongruence by further examining adjustment factors and analyzing them through a more careful consideration of the various potential classifications of tomboys. This study will assess four related groups of outcomes with regard to own- and other-sex peers including beliefs about peers, expectancies for interactions with peers, experiences of friendship, and social adjustment as measured through sociality and exclusion factors.

This study also allows for a comprehensive exploration of tomboy characteristics, attitudes, and behavior and will address several important contributions in the literature. Most notably, the study allows for a discussion of androgyny, captured through the group identified as “sometimes tomboys”, as it relates to psychosocial adjustment and as it influences peer interactions (Bem & Lewis, 1975; Zucker & Bradley, 1995). A significant contribution of this study will be to offer a potential explanation for the debate regarding the negative consequences of atypicality and the positive benefits of androgyny (Egan & Perry, 2001; Martin & Ruble, 2010).

## **Methods**

### **Study Design**

This proposal uses data from a two-year longitudinal study designed to investigate children's gendered attitudes and beliefs. This study is part of the CARE project funded by Arizona State University and the School of Social and Family Dynamics as part of the Lives of Girls and Boys Enterprise. Children in Kindergarten, 2<sup>nd</sup>, and 4<sup>th</sup> grade participated in the fall of 2010. This study examines the 4<sup>th</sup> grade sample because a substantial portion of children (90%) at this age can properly identify what a tomboy is and this is important for the tomboy self-identification which all other questions in the study are based upon. This age is also an interesting time in gender development where we predict that gender identity, peer relationships, and psychosocial adjustment will intersect.

### **Participants**

Participants were 91 girls from six public schools, one charter school, and one private school in a large metropolitan area in the Southwestern United States. The charter and private school were included to increase the sample and the demographics were similar to the other schools. Data from both boys and girls were collected but only data from girls were appropriate to analyze for this investigation on tomboys. The average age of the girls was 9.05 years,  $SD = .502$  (range 7-10 years). Demographic information was reported by parents. The students were relatively ethnically diverse (51% White, 18% Latino, 1% Black/African American, 3% Native American, 9% Asian, and 15% other or

mixed race). On average, parents had at least some college education and had a household income in the range of \$50,000–75,000.

### **Procedure**

After district approval for the public schools, all school principals were contacted and, if they agreed to participate, teachers within the school were contacted. Children were recruited by providing information to the parents and allowing them to opt in by filling out a parent questionnaire. Children were then interviewed after the parent questionnaire and consent form were returned. The questionnaire took approximately one hour to complete and groups of 3-5 children were guided through the questions by a trained research assistant, graduate student, or principal investigator. Upon completion of the child interview, parents were mailed a \$20 check for the family's participation. Teachers were then given a questionnaire for each student participating in the study and were paid \$20 for each questionnaire they completed. Schools were offered \$100 for participating.

### **Measures**

**Tomboy identification.** The tomboy identification measure was developed by the CARE research team, with the inclusion of the option to identify as “sometimes” a tomboy, a contribution adapted from Halim and colleagues (2011). Girls were asked “Are you a tomboy” and they chose between response options of “no,” “sometimes,” or “yes”. Parents and teachers were given the same measure. Though only a single item, this format has been used to identify tomboys before (Bailey et al., 2002; Martin & Dinella, 2011). Further, most samples for tomboy

studies are gathered using self-selection into the study based on if the child is a tomboy (Bailey et al., 2002). Therefore, this question adequately captures the group that would self-select, as well as those who are sometimes tomboys and those who are never tomboys.

**Perceived similarity to gender groups.** The perceived similarity and closeness to gender groups measure was developed by the CARE research team, based on a response form adapted from Schubert and Otten (2002). To assess perceived similarity, children were asked questions about how similar they felt to girls and to boys and answered by selecting a picture with two circles that were spaced at varying increments of close together or further apart. The child was instructed that they were represented by the small green circle, boys were represented by the big blue circle (for the boy questions) and girls were represented by the big pink circle (for the girl questions). The circles scale was a 5-point scale where 0 represented two circles that were furthest apart and 4 represented two circles that were overlapping. Five items were administered, once asking about boys as the reference group and once asking about girls as the reference group. The items assessed global similarity (i.e., how similar you feel to other girls/boys) and felt similarity on four dimensions of typicality (i.e., how much you act like girls/boys, look like girls/boys, like to do the same activities as girls/boys, and how much you like to spend time with girls/boys). Verified with confirmatory factor analysis, there was only one factor found for the scale. Reliabilities were calculated for each scale using all the items that asked about boys for a boy target scale and all the items that asked about girls for a girl target scale. For similarity

to boys,  $\alpha = .90$  and for similarity to girls,  $\alpha = .81$ . The “Similarity to Own-Sex” score was created by taking the mean of the responses on all 5 items when asked using their own sex as the reference group and the “Similarity to Other-Sex” score was created by taking the mean of the responses on all 5 items when asked using the other-sex as the reference group. Possible scores ranged from 0 to 4. The scale score will be used, in keeping with previous applications of measurements of similarity (Egan & Perry, 2001). In addition, items will be considered individually in keeping with the multidimensional perspective of gender development (Martin & Ruble, 2010) where a child may not feel similar to other girls in activity choice but may feel similar in appearance.

**Perceived closeness to gender groups.** The perceived closeness to gender groups measure was developed by the CARE research team, based on a response form adapted from Schubert and Otten (2002). To assess perceived closeness, children were asked a global question about how close they felt to girls and then to boys and answered by selecting a picture with two circles that were spaced at varying increments of close together or further apart, in the exact format as the perceived similarity to gender groups discussed above. The circles scale was used, which involved a 5-point scale where 0 represented two circles that were furthest apart and 4 represented two circles that were overlapping. For example, for a girl participant, the boy target value was coded as “Close to Other-Sex” and the girl target value was coded as “Close to Own-Sex”. Though this only uses one item per gender group and is therefore limited in its applicability, it was included as a pilot item.

**Intergroup liking.** The intergroup liking measure was developed by the CARE research team (Zosuls et al., 2011), adapted from Yee and Brown (1994). This single item has been administered reliably in previous studies (Yee & Brown, 1994; Zosuls et al., 2011) and was not expanded on due to limitations in space for the complete administered questionnaire packet. Children were asked “How do you feel about girls/boys?” and they chose response options from a scale of a smiling or frowning yellow cartoon “smiley face” with matching descriptions ranging from 0 “don’t like at all” to 6 “like a lot”. Intergroup liking was coded as “Liking Own-Sex” and “Liking Other-Sex”.

**Gender-related relationship efficacy.** The gender-related relationship efficacy measures were developed by the CARE research team (Zosuls et al., in preparation). To assess relationship efficacy, children were asked twelve questions about how efficacious they feel in their interactions with girls and then with boys. Sample questions include “How much do you understand girls/boys?”, “How much do you know how to have fun with girls/boys?” and “How often do you feel nervous around girls/boys?”. Children answered on a scale from 0 “not at all” to 4 “a lot”. Verified with confirmatory factor analysis, there was only one factor found for the scale. Reliabilities were calculated for each scale using all the items that asked about boys for a boy target scale and all the items that asked about girls for a girl target scale. For relationship efficacy with boys,  $\alpha = .91$  and for relationship efficacy with girls,  $\alpha = .94$ . The “Relationship Efficacy for Own-Sex” score was created by taking the mean of the responses on all 12 items when asked using their own sex as the reference group

and the “Relationship Efficacy for Other-Sex” score was created by taking the mean of the responses on all 12 items when asked using the other-sex as the reference group.

**Outcome expectancies.** The outcome expectancies measure was developed by the CARE research team (Zosuls et al., 2011) to assess children’s expectations for interactions with peers in a hypothetical scenario, specifically their expectations regarding inclusion and enjoyment and their expectations regarding costs related to teasing and costs related to discomfort. These three subscales were comprised of 4 items each. The scenario presented to the children before responding stated, “Imagine that on the playground, a group of girls/boys is playing a really fun looking new game you have never played before”. For the inclusion subscale, children were asked questions such as “Do you think the girls/boys would let you join in?” and “Do you think you would have fun joining the girls/boys?” For the subscale assessing costs related to teasing, children were asked questions such as “Do you think other kids would tease you for joining the girls/boys?” and “Do you think other kids would be mean to you if they saw you joining the girls/boys?”. For the subscale assessing costs related to discomfort, children were asked questions such as “Do you think it would make you feel uncomfortable to join the girls/boys” and “Do you think you would worry about not fitting in with the girls/boys?” Response options ranged from 0 “no, not at all” to 4 “yes, definitely”. Reliabilities were calculated for each subscale using all the items that asked about boys for a boy target scale and all the items that asked about girls for a girl target scale. For inclusion and enjoyment with boys,  $\alpha = .87$  and for

inclusion and enjoyment with girls,  $\alpha = .74$ . For costs related to teasing while playing with boys,  $\alpha = .92$  and for costs related to teasing while playing with girls,  $\alpha = .84$ . For costs related to discomfort with boys,  $\alpha = .80$  and for costs related to discomfort with girls,  $\alpha = .72$ . Scores were created for each subscale by taking the mean of the responses on all the items in each subscale when asked using their own sex as the reference group and then similarly using the mean of the responses on all the items in each subscale when asked using the other-sex as the reference group. Six scale variable scores were named: “Inclusion Expectancies with Own-Sex”, “Inclusion Expectancies with Other-Sex”, “Teasing Expectancies with Own-Sex” and “Teasing Expectancies with Other-Sex”, “Discomfort Expectancies with Own-Sex” and “Discomfort Expectancies with Other-Sex”.

**Friendships with same- and other-sex peers.** This measure was developed by the CARE research team. Children were asked questions such as “How many of your friends at school are girls/boys?”, as well as at home and in extracurricular activities. Response options ranged on a scale from 0 “none/almost none” to 6 “almost all/all”. “Friendship with Own-Sex” score was created from the response when asked using their own sex as the reference group and a “Friendship with Other-Sex” score was created by taking the response when asked using the other-sex as the reference group.

**Seating distance.** This measure was developed by the CARE research team, based on a measure used by Powlishta and colleagues (1994). Children read the scenario “Imagine you go into a room and there are seven chairs in a row. There

is a girl named Jane [or a boy named John] who is sitting in a chair at the end of the row. Where do you want to sit? Fill in the circle that shows the chair you want to sit in.” Below the scenario was a pictorial representation of 7 chairs in a row with text indicating that Jane/John was sitting in the first chair. The child then bubbled in the circle underneath the chair that they would elect to sit in. The “Seating Distance for Own-Sex” score was coded using a child’s own sex as the reference group, “Seating Distance for Other-Sex” score was coded using the other sex as the reference group. The score ranged from 1 (sitting next to the child) to 6 (sitting furthest away from the child).

**Social adjustment.** Measures to assess adjustment outcomes were adapted from the Child Behavior Scale (Ladd & Profilet, 1996). Teachers were asked to report on the child’s behaviors, particularly as they relate to interactions with peers in school. Teachers reported on 7 items related to exclusion (e.g., “peers refuse to let this child play with them”, and this child “is ignored by peers”), 6 items related to asocial behaviors (e.g., “this child prefers to play alone”, and “this child keeps peers at a distance”), and 7 items related to prosociality (e.g., “this child helps other children”, and “this child is kind toward peers”). Reliabilities were calculated for each subscale (exclusion  $\alpha = .92$ , asociality  $\alpha = .86$ , prosociality  $\alpha = .89$ ) and a score was created for each subscale by taking the mean of the responses on all the items in each subscale.

### **Planned analyses**

The first research question examines congruencies between parent, teacher, and child self-report for each child. In addition, I will examine whether

parents or teachers are more accurate reporters of a child's tomboyism and how reporting of tomboyism varies according to the child's tomboy status, such as whether parents or teachers are more likely to report tomboyism when a child identifies as always being a tomboy. Analyses will include using cross tabs to calculate percent congruency matches of parent, teacher, and child reports of tomboyism for each category of tomboy as reported by the child.

The second research question examines whether children who fall into different classifications of tomboyism (i.e., "never" tomboys, "sometimes" tomboys, and "yes" tomboys) differ on the assessed dimensions of similarity to own- and other-sex peers as well as whether they differ on a scale score of similarity to own- and other-sex peers, taken by averaging all the items. These analyses will be conducted using repeated measures ANOVAs with one three-level between-subjects factor (i.e., never a tomboy, sometimes a tomboy, always a tomboy) and one two-level within-subjects factor which will be similarity to same-sex and other-sex peers for the variables of interest assessing dimensions of gender development. The variables of interest include felt similarity and closeness to same- and other-sex peers, how much a child acts like same- and other-sex peers, looks like same- and other-sex peers, likes to do the same activities as same- and other-sex peers, and likes to spend time with same- and other-sex peers as well as the scale score of similarity. We hypothesize an interaction between tomboy type and two-level factor of interest (e.g. similarity to own- and other-sex peers). Following significant simple effects, and if necessary,

pairwise comparisons will be examined to compare the mean differences between each group.

The third research question examines the consequences and experiences for children who self-identify as tomboys. ANOVA and MANOVA analyses will be conducted and univariates will be reported to examine the outcomes of interest. Pairwise comparisons will follow significant main effects to further probe mean differences. Repeated measures ANOVAs will be conducted when children are asked the same questions about boys and then girls. MANOVA will be conducted when measuring several related dependent variables at once in order to identify those that differ among groups. It offers some protection against the increased Type 1 error rate due to repeated ANOVA tests and takes into account some of the covariance between the multiple measures. The assumptions of ANOVA and MANOVA will be tested such as a normal distribution of the data, relatively equal sample sizes in each group, and homogeneity of variances and covariances across all cells in the design. In all of the tests, the Fisher LSD test was used, conducting the omnibus test first to reduce the likelihood that Type 1 error is present among the means. Analyses with Bonferonni and Sidak modifications were considered but did not substantially change the results. These were considered too conservative because only apriori hypotheses were tested and power to detect effects is limited because of the small sample size in each of the groups (e.g. 23 girls identified as never tomboys).

The first group of outcomes of interest for the third research question include assessing a child's beliefs about same- and other-sex peers using repeated

measures ANOVAs. This will include assessment of intergroup liking scale (i.e., “how much do you like boys/girls”) and relationship efficacy. The second group of outcomes includes their expectancies for interactions with same- and other-sex peers, analyzed with a MANOVA to account for the relatedness in the dependent variables. This includes their inclusion enjoyment expectancies and their perceived costs related to discomfort with the peer interaction. The third group of outcomes includes their experiences of friendships with same- and other-sex peers, analyzed using repeated measures ANOVAs. Specifically, this includes whether or not they have same or other-sex friends as well as the chair seating distance assessment to examine a child’s comfort with sitting near same- and other-sex peers. The fourth and final group of outcomes examined is their social adjustment as measured through sociality and exclusion factors. This includes a child’s experience of being excluded as rated by the teacher, as well as the teacher’s perception of a child’s prosociality and asociality as measured with CBS scales. These will be assessed with MANOVAs as these dependent variables are related.

## **Results**

Girls in the study were asked a tomboy identification question. Out of 90 girls, 31 girls (34.1%) identified as a tomboy (the “yes” or “always” tomboy group), 36 girls (39.6%) identified as sometimes a tomboy (the “sometimes” tomboy group), and 23 girls (25.3%) identified as never a tomboy (the “no” or “non-tomboy” group).

## Research Question 1

For research question 1, I conducted chi-square analyses and cross-tabulations to calculate the percent congruency matches of parent, teacher, and child reports of tomboyism for each category of tomboyism as reported by the child (see Table 2). Using parents as the reporters of tomboyism, there was a statistically significant difference between parents' and children's ratings,  $\chi^2(4)=19.09, p=.001$ , meaning the patterns in the cross-tab cells are not evenly distributed. For children who said they were not a tomboy, their parent agreed that they were not a tomboy and were congruent with the children 77.3% of the time. In addition, 22.7% of the time the parent said that they were sometimes a tomboy, and no parents said that the child was "yes" a tomboy. For children who identified as "sometimes" a tomboy, 47.2% of the parents agreed that they were sometimes a tomboy, 47.2% of the parents said their child was not a tomboy, and 5.6% of the parents said their child was "yes" a tomboy. For children who identified as "yes" a tomboy, 25.8% of the parents agreed that the child was "yes" a tomboy, 48.4% of the parents said that the child was sometimes a tomboy, and 25.8% of the parents identified their child as not a tomboy. Overall, parents were more congruent with their girls when the girls were not tomboys and least congruent when the girls were always tomboys. Parents of sometimes tomboys rarely identified their children as always tomboys and downplayed tomboyism by saying their child was not a tomboy equally as often as they were congruent with their daughters. Across all three groupings of tomboyism, parents reported the

same tomboy identification as their children 47.2% of the time, taken from the sum of the cells showing perfect agreement.

Using teachers as the reporters of tomboyism, there was a statistically significant difference between teachers' and children's ratings,  $\chi^2(4)=18.39$ ,  $p=.001$ . Across all three groupings of tomboyism, teachers reported the same tomboy identification as the child 35.9% of the time, taken from the sum of the cells showing perfect agreement. For children who said they were not a tomboy, their teacher agreed that they were not a tomboy 91.3% of the time, 8.7% of the time the teacher said that they were sometimes a tomboy, and no teacher said that the child was "yes" a tomboy. For children who identified as "sometimes" a tomboy, 27.8% of the teachers agreed that they were sometimes a tomboy, 66.7% of the teachers said the child was not a tomboy, and 5.6% of the teachers said the child was "yes" a tomboy. For children who identified as "yes" a tomboy, 3.3% of the teachers agreed that the child was "yes" a tomboy, 60% of the teachers said that the child was sometimes a tomboy, and 36.7% of the teachers identified the child as not a tomboy. Overall, teachers were highly likely to downplay tomboyism and were very congruent when the child was not a tomboy but almost never identified children as a tomboy.

## **Research Question 2**

The second research question examines whether children who fall into different classifications of tomboyism (i.e., non-tomboys, sometimes tomboys,

and always tomboys) differ on closeness to own- and other-gender peers, a scale score of similarity to own- and other-gender peers, and the individual assessed dimensions of similarity to own- and other-gender peers. To further examine the difference in each similarity or closeness to own- and other-gender peers for each dependent variable, a difference score was calculated and this was tested to see if it differed by tomboy group. In addition to global similarity to own- and other-sex peers, a comparison of individual items was included in order to see if tomboys groups differ based on particular aspects of gender identity. For example, it is possible that children who are sometimes tomboys may appear similarly to children who are always tomboys in peer preference or activity interest, but may be similar to girls who are not tomboys for indicators of appearance and look like girls. This is an important distinction because these differences may be linked to important adjustment outcomes. It may be that sometimes tomboys may benefit from friendships with same- and other-gender peers but do not suffer from the consequences of an atypical gendered appearance. For these reasons, it is useful to examine the dimensions of gender typicality on which the groups of girls differ. (See Table 2 for correlations Table 4 for descriptive statistics for the variables of interest). I hypothesized that girls in the tomboy groups will differ from each other on questions related to the other-gender (e.g., other-gender similarity) but not on questions related to their own gender (e.g., same-gender similarity). For other-gender questions, I expect always tomboys will have higher scores than non-tomboys and that always tomboys will have higher scores than sometimes tomboys.

**Closeness to own- and other-gender peers.** Using repeated measures ANOVA, there was a significant interaction between tomboy type and the two-level factor of interest for the scale score of closeness to own- and other-gender peers,  $F(2, 87)=14.715, p <.001$ . Simple effects tests showed that there was a significant main effect for how close a child feels to their own gender by tomboy ID,  $F(2, 87)=3.42, p =.04, \eta^2=.07$ . All means were in the expected direction with closeness to the own-gender decreasing with increasing level of tomboyism: for non-tomboys,  $M=3.22$ , for children who are sometimes tomboys,  $M=2.81$ , and for children who are always tomboys,  $M=2.39$ . Pairwise comparisons were conducted to examine the mean differences between groups. There was a significant difference in how close a child felt to their own gender between the never and always tomboy groups,  $p =.01$ , but not the sometimes and always tomboy groups,  $p =.14$ , nor the never and sometimes tomboy groups,  $p =.19$ .

There was a significant main effect for how close a child feels to the other gender by tomboy ID,  $F(2, 87)=9.60, p <.001, \eta^2=.18$ . All means were in the expected direction with closeness to the other-gender increasing with level of tomboyism: for non-tomboys,  $M=1.30$ , for children who are sometimes tomboys,  $M=1.31$ , and for children who are always tomboys,  $M=2.39$ . Pairwise comparisons were conducted to examine the mean differences between groups. There was a significant difference in how close a child felt to the other gender between the never and always tomboy groups,  $p =.001$ , and the sometimes and

always tomboy groups,  $p < .001$  but no significant difference between the never and sometimes tomboy group,  $p = .99$ .

For the difference score for closeness to own–other sex, there was a significant main effect by tomboy ID,  $F(2, 87) = 14.72$ ,  $p < .001$ ,  $\eta^2 = .25$ . Girls who were never and sometimes tomboys feel closer to their own-sex and are not significantly different, but always tomboys report that they feel equally close to their own-sex and the other-sex and this is significantly different than the sometimes tomboys and never tomboys. This is in the expected direction where as tomboyism increases, closeness to the other-sex increases and the difference between closeness to own- and closeness to other-sex decreases.

**Similarity to own- and other-gender peers.** Using repeated measures ANOVA, there was a significant interaction between tomboy type and the two-level factor of interest for the scale score of similarity to own- and other-gender peers,  $F(2, 87) = 28.682$ ,  $p < .001$ . Simple effects analyses showed that there was a significant main effect for how similar a child feels to their own gender by tomboy ID,  $F(2, 87) = 13.18$ ,  $p < .001$ ,  $\eta^2 = .233$ . All means were in the expected direction with similarity to the own-gender decreasing with increasing level of tomboyism: for non-tomboys,  $M = 2.8$ , for children who are sometimes tomboys,  $M = 2.49$ , and for children who are always tomboys,  $M = 1.67$ . Pairwise comparisons were conducted to examine the mean differences between groups. There was a significant difference in how similar a child felt to their own gender between the never and always tomboy groups,  $p < .001$ , and the sometimes and always tomboy groups,  $p$

<.001 but no significant difference between the never and sometimes tomboy group,  $p = .18$ .

There was a significant main effect for how similar a child feels to the other gender by tomboy ID,  $F(2, 87)=13.36, p <.001, \eta^2=.28$ . All means were in the expected direction with similarity to the other-gender increasing with increasing level of tomboyism: for non-tomboys,  $M=0.83$ , for children who are sometimes tomboys,  $M=1.19$ , and for children who are always tomboys,  $M=2.16$ . Pairwise comparisons were conducted to examine the mean differences between groups. There was a significant difference in how similar a child felt to the other gender between the never and always tomboy groups,  $p <.001$ , and the sometimes and always tomboy groups,  $p <.001$  but no significant difference between the never and sometimes tomboy group,  $p = .13$ .

For the difference score for the single item similarity (“how similar are you to boys/girls”), there was a significant main effect by tomboy ID,  $F(2, 87)=28.68, p <.001, \eta^2=.40$ . All groups of tomboys differ and in the expected direction. Never tomboys are much more similar to their own sex, followed by sometimes tomboys. Always tomboys feel more similar to the other-sex than their own sex.

**Similarity on multiple dimensions.** The first dimension measured as part of a scale score for similarity to peers asked the global question “how similar do you feel to other girls/boys?” Using repeated measures ANOVA, there was a

significant interaction between tomboy type and the two-level factor of interest for the item asking about similarity to own- and other-gender separately,  $F(2, 87)=26.07, p <.001$ . Simple effects analyses showed that there was a significant main effect for how similar a child feels to girls by tomboy ID,  $F(2, 87)=14.81, p <.001, \eta^2=.25$ . All means were in the expected direction with similarity to girls decreasing with increasing level of tomboyism: for non-tomboys,  $M=3.26$ , for children who are sometimes tomboys,  $M=2.44$ , and for children who are always tomboys,  $M=1.58$ . Pairwise comparisons were conducted to examine the mean differences between groups. There was a significant difference in how similar a child felt to girls between all the groups, the never and always tomboy groups,  $p <.001$ , the never and sometimes tomboy groups,  $p =.008$ , and the sometimes and always tomboy groups,  $p =.002$ .

There was a significant main effect for how similar a child feels to boys by tomboy ID,  $F(2, 87)=6.93, p =.002, \eta^2=.14$ . All means were in the expected direction with similarity to boys increasing with increasing level of tomboyism: for non-tomboys,  $M=1.26$ , for children who are sometimes tomboys,  $M=1.42$ , and for children who are always tomboys,  $M=2.30$ . Pairwise comparisons were conducted to examine the mean differences between groups. There was a significant difference in how similar a child felt to boys between never and always tomboy groups,  $p =.002$ , and sometimes and always tomboy groups,  $p =.002$ . There was not a significant difference between never and sometimes tomboy groups,  $p =.61$ .

For the difference score for similarity item regarding similarity to the own- or other-sex, there was a significant main effect by tomboy ID,  $F(2, 87)=29.97, p <.001, \eta^2=.41$ . All groups of tomboys differ and in the expected direction. Never tomboys act much more similarly to their own sex, followed by sometimes tomboys. Always tomboys act more similarly to the other-sex than their own sex.

The second dimension measured as part of a scale score for similarity to peers asked the question “how much do you act like other girls/boys?” Using repeated measures ANOVA, there was a significant interaction between tomboy type and the two-level factor of interest for the item asking about acting like girls and boys separately,  $F(2, 84)=27.50, p <.001$ . Simple effect analyses showed that there was a significant main effect for how much a child acts like other girls by tomboy ID,  $F(2, 84)=13.48, p <.001, \eta^2=.24$ . All means were in the expected direction with acting like other girls decreasing with increasing level of tomboyism: for non-tomboys,  $M=2.65$ , for children who are sometimes tomboys,  $M=2.12$ , and for children who are always tomboys,  $M=1.03$ . Pairwise comparisons were conducted to examine the mean differences between groups. There was a significant difference on how much a child acts like girls between the never and always tomboy groups,  $p <.001$ , the sometimes and always tomboy groups,  $p <.001$ , but not between the never and sometimes tomboy groups,  $p =.095$ .

There was a significant main effect for how much a child acts like other boys by tomboy ID,  $F(2, 84)=16.66, p <.001, \eta^2=.28$ . All means were in the expected direction with acting like other boys increasing with increasing level of tomboyism: for non-tomboys,  $M=0.57$ , for children who are sometimes tomboys,  $M=1.32$ , and for children who are always tomboys,  $M=2.30$ . Pairwise comparisons were conducted to examine the mean differences between groups. There was a significant difference on how much a child acts like boys between all the tomboy groups, the never and always tomboy groups,  $p <.001$ , the sometimes and always tomboy groups,  $p =.001$ , and between the never and sometimes tomboy groups,  $p =.012$ .

For the difference score for acting similarly to own–other sex, there was a significant main effect by tomboy ID,  $F(2, 84)=27.50, p <.001, \eta^2=.40$ . All groups of tomboys differ and in the expected direction. Never tomboys act much more similarly to their own sex, followed by sometimes tomboys. Always tomboys act more similarly to the other-sex than their own sex.

The third dimension measured as part of a scale score for similarity to peers asked the question “how much do you look like other girls/boys?” Using repeated measures ANOVA, there was a significant interaction between tomboy type and the two-level factor of interest for the item asking about looking like girls and boys separately,  $F(2, 87)=10.44, p <.001$ . Simple effects analyses showed that there was a significant main effect for how much a child looks like other girls by tomboy ID,  $F(2, 87)=3.30, p =.042, \eta^2=.07$ . Means were not in the

expected direction. Patterns showed that looking like other girls was highest for children who are sometimes tomboys,  $M=2.53$ , followed by non-tomboys,  $M=2.30$ , and then children who are always tomboys,  $M=1.65$ . Pairwise comparisons were conducted to examine the mean differences between groups. However, there was only a significant difference between the sometimes and always tomboy groups,  $p = .014$ , but not the never and sometimes tomboy groups,  $p = .561$ , and a trend level difference between the never and always tomboy groups,  $p = .098$ .

There was a significant main effect for how much a child looks like other boys by tomboy ID,  $F(2, 87)=9.11$ ,  $p < .001$ ,  $\eta^2=.173$ . Means were in the expected direction in which looking like other boys increased with increasing levels of tomboyism: for non-tomboys,  $M=0.13$ , for children who are sometimes tomboys,  $M=0.44$ , and for children who are always tomboys,  $M=1.19$ . Pairwise comparisons were conducted to examine the mean differences between groups. There was a significant difference between the sometimes and always tomboy groups,  $p = .002$ , the never and always tomboy groups,  $p < .001$ , but not the never and sometimes tomboy groups,  $p = .224$ .

For the difference score for physical appearance similarity to own–other sex, there was a significant main effect by tomboy ID,  $F(2, 87)=10.44$ ,  $p < .001$ ,  $\eta^2=.19$ . Never and sometimes tomboys feel very similar to their own-sex and are not significantly different, but always tomboys report that they feel more similar to their own-sex than other-sex in appearance, though significantly less so than

the sometimes tomboys and never tomboys. This is in the expected direction where as tomboyism increases, similarity in appearance to the other-sex increases.

The fourth dimension measured as part of a scale score for similarity to peers asked the question “how much do you like to do the same things as other girls/boys?” Using repeated measures ANOVA, there was a significant interaction between tomboy type and the two-level factor of interest for the item asking about similar activity interests as girls and boys separately,  $F(2, 84)=18.34, p <.001$ . Simple effects analyses showed that there was a significant main effect for how similar a child’s activity interests are to other girls by tomboy ID,  $F(2, 84)=8.43, p <.001, \eta^2=.17$ . All means were in the expected direction with activity interests like other girls decreasing with increasing level of tomboyism: for non-tomboys,  $M=2.70$ , for children who are sometimes tomboys,  $M=2.38$ , and for children who are always tomboys,  $M=1.50$ . Pairwise comparisons were conducted to examine the mean differences between groups. There was a significant difference on how much a child shares activity interests as girls between the never and always tomboy groups,  $p <.001$ , the sometimes and always tomboy groups,  $p =.002$ , but not between the never and sometimes tomboy groups,  $p =.305$ .

There was a significant main effect for how similar a child’s activity interests are to other boys by tomboy ID,  $F(2, 84)=13.91, p <.001, \eta^2=.249$ . All means were in the expected direction with activity interests like other boys increasing with increasing level of tomboyism: for non-tomboys,  $M=1.00$ , for

children who are sometimes tomboys,  $M=1.50$ , and for children who are always tomboys,  $M=2.57$ . Pairwise comparisons were conducted to examine the mean differences between groups. There was a significant difference on how much a child shares activity interests as boys between the never and always tomboy groups,  $p < .001$ , the sometimes and always tomboy groups,  $p < .001$ , but not between the never and sometimes tomboy groups,  $p = .103$ .

For the difference score for activity preference similarity to own–other sex, there was a significant main effect by tomboy ID,  $F(2, 84)=18.34$ ,  $p < .001$ ,  $\eta^2=.30$ . Never and sometimes tomboys feel similar in activity preference to their own-sex and are not significantly different, but always tomboys report that they feel more similar the other-sex in activity preference. This is in the expected direction where as tomboyism increases, similarity in activity preference to the other-sex increases.

The fifth dimension measured as part of a scale score for similarity to peers asked the question “how much do you like to spend time with other girls/boys?” Using repeated measures ANOVA, there was a significant interaction between tomboy type and the two-level factor of interest for the item asking about preference for spending time with girls and boys separately,  $F(2, 86)=9.86$ ,  $p < .001$ . Simple effects analyses showed that there was a marginal main effect for preference for spending time with girls by tomboy ID,  $F(2, 86)=0.65$ ,  $p < .061$ ,  $\eta^2=.061$ . Means were not in the expected direction in which preference for spending time with girls was the same for the never tomboy group and the

sometimes tomboy group, and decreased for the always tomboy group: for non-tomboys,  $M=3.09$ , for children who are sometimes tomboys,  $M=3.09$ , and for children who are always tomboys,  $M=2.52$ . Pairwise comparisons were conducted to examine the mean differences between groups. There was a significant difference on preference for spending time with girls between the sometimes and always tomboy groups,  $p = .035$ , a marginally significant difference between the never and always tomboy groups,  $p = .058$ , but not a difference between the never and sometimes tomboy groups,  $p = .997$ .

There was a significant main effect for preference for spending time with boys by tomboy ID,  $F(2, 86)=9.79$ ,  $p < .001$ ,  $\eta^2=.185$ . Means were in the expected direction in which preference for spending time with boys increased with increasing levels of tomboyism: for non-tomboys,  $M=1.17$ , for children who are sometimes tomboys,  $M=1.31$ , and for children who are always tomboys,  $M=2.39$ . Pairwise comparisons were conducted to examine the mean differences between groups. There was a significant difference on preference for spending time with boys between the sometimes and always tomboy groups,  $p < .001$ , and between the never and always tomboys groups,  $p < .001$ , but not between the never and sometimes tomboy groups,  $p = .651$ .

For the difference score for peer preference similarity to own–other sex, there was a significant main effect by tomboy ID,  $F(2, 86)=9.86$ ,  $p < .001$ ,  $\eta^2=.19$ . Never and sometimes tomboys report a peer preference for their own-sex and are not significantly different, but always tomboys report that they only slightly prefer

own sex-peers. This is in the expected direction where as tomboyism increases, peer preference in the other-sex increases.

In summary, there were significant interactions between tomboy type and the dependent variable of interest for all of the analyses in research question 2. Generally, support was found for the hypotheses. As expected, pairwise comparisons often revealed non-significant difference between the never and sometimes tomboy groups for both own-gender and other-gender targeted questions, and there were often significant differences between the always and sometimes tomboys and between the always and never tomboys for both own-gender and other-gender targeted questions.

### **Research Question 3**

The third research question focused on the consequences and experiences for children who self-identify as tomboys. (See Table 3 for correlations and Table 5 for descriptive statistics among the variables of interest). For same-gender peer interactions and related social adjustment, it was expected that girls who are almost always tomboys will have the least favorable outcomes and that these will be significantly different than girls who are sometimes or never tomboys, but girls who are sometimes and never tomboys will not significantly differ.

For other-gender peer interactions and related social adjustment, I hypothesized that girls who are almost always tomboys and girls who are sometimes tomboys will have the most favorable outcomes and that these will not

significantly differ. However, girls who are never tomboys will have poor outcomes with regard to other-sex peers and these will significantly differ from the other two groups of tomboys. To further examine the difference in outcomes with regard to own- and other-gender peers, a difference score was calculated for each dependent variable and this was tested to see if it differed by tomboy group.

**Intergroup liking and relationship efficacy.** The first group of outcomes of interest for the third research question includes assessing a child's beliefs about same- and other-gender peers using the intergroup liking scale (i.e., "how much do you like boys/girls") and relationship efficacy.

**Intergroup liking.** Using repeated measures ANOVA, there was a significant interaction between tomboy type and the two-level factor of intergroup liking (of own- and other-gender),  $F(2, 87)=3.36, p=.039$ . Simple effects analyses showed that there was a significant main effect for intergroup liking of own gender by tomboy ID,  $F(2, 87)=3.11, p=.05, \eta^2=.067$ . Means were in the expected direction in which intergroup liking for the own gender decreased as levels of tomboyism increased: for non-tomboys,  $M=5.48$ , for children who are sometimes tomboys,  $M=4.78$ , and for children who are always tomboys,  $M=4.65$ . Pairwise comparisons were conducted to examine the mean differences between groups. There was a significant difference for intergroup liking with the own-gender between the sometimes and never tomboy groups,  $p=.044$ , and the never and always tomboys groups,  $p=.02$ , but not between the sometimes and always tomboy groups,  $p=.674$ .

There was not a significant main effect for intergroup liking of the other gender by tomboy ID,  $F(2, 87)=1.78, p =.174$ . Means were in the expected direction in which intergroup liking for the other gender was the highest for always tomboys,  $M=3.90$ , but was higher for non- tomboys,  $M=3.35$ , than the sometimes tomboys,  $M=3.28$ .

For the difference score for intergroup liking own-other, there was a significant main effect by tomboy ID,  $F(2, 87)=3.36, p =.039, \eta^2=.07$ . All means were in the expected direction and always tomboys and never tomboys differed significantly but sometimes tomboys did not differ significantly from either group.

***Relationship efficacy.*** Using repeated measures ANOVA, there was a significant interaction between tomboy type and the two-level factor of interest assessing relationship efficacy towards own- and other-gender separately,  $F(2, 87)=20.06, p<.001$ . Simple effects analyses showed that there was a significant main effect for relationship efficacy for own gender peers by tomboy ID,  $F(2, 87)=4.18, p =.02, \eta^2=.088$ . Means were in the expected direction in which relationship efficacy for own-gender peers decreased as levels of tomboyism increased: for non-tomboys,  $M=3.80$ , for children who are sometimes tomboys,  $M=3.45$ , and for children who are always tomboys,  $M=3.11$ . Pairwise comparisons were conducted to examine the mean differences between groups. There was a significant difference for relationship efficacy for own-gender peers between the

always and never tomboy groups,  $p = .005$ , but not the never and sometimes tomboys groups,  $p = .11$ , or the sometimes and always tomboy groups,  $p = .12$ .

There was a significant main effect for relationship efficacy for other gender peers by tomboy ID,  $F(2, 87) = 13.05$ ,  $p < .001$ ,  $\eta^2 = .231$ . Means were in the expected direction in which relationship efficacy for other gender peers increased as levels of tomboyism increased: for non-tomboys,  $M = 2.05$ , for children who are sometimes tomboys,  $M = 2.13$ , and for children who are always tomboys,  $M = 3.27$ . Pairwise comparisons were conducted to examine the mean differences between groups. There was a significant difference for relationship efficacy for the other-gender between the always and never tomboy groups,  $p < .001$ , and between the always and sometimes tomboy groups,  $p < .001$ , but not the never and sometimes tomboys groups,  $p = .80$ .

For the difference score for relationship efficacy own–other sex, there was a significant main effect by tomboy ID,  $F(2, 87) = 20.06$ ,  $p < .001$ ,  $\eta^2 = .32$ . All means are in the expected direction: as tomboyism increases, relationship efficacy with the other-sex increases but never and sometimes tomboys are not significantly different. Always tomboys report more other-sex efficacy than own-sex and are significantly different from sometimes and never tomboys.

**Expectancies for interactions.** The second group of outcomes for Research Question 3 includes the expectancies for interactions with same- and other-gender peers. This includes their inclusion enjoyment expectancies and their perceived

costs related to discomfort with the peer interaction. Analyzed with a MANOVA, there was a significant effect of tomboy ID on the composite of the dependent variables,  $F(12, 86)=3.02, p <.001$ . The dependent variables that were significant with tomboy ID included inclusion enjoyment with own-,  $F(2, 86)=6.29, p =.003$ , and other-gender peers,  $F(2, 86)=5.19, p =.007$ , and costs related to discomfort with other-gender peers,  $F(2, 86)=4.50, p =.014$ . The dependent variables that were marginally significant with tomboy ID included costs related to teasing for own gender,  $F(2, 86)=2.76, p =.069$ , and costs related to discomfort for own gender,  $F(2, 86)=2.89, p =.061$ . There was not a significant effect for costs related to teasing for the other gender with tomboy ID,  $F(2, 86)=.182, p =.834$ .

Further univariate ANOVAs were conducted to probe significant main effects. There was a significant main effect for inclusion enjoyment with own gender peers by tomboy ID,  $F(2, 87)=5.24, p =.007, \eta^2=.108$ . Means were in the expected direction in which inclusion enjoyment for the own gender decreased as levels of tomboyism increased. Pairwise comparisons were conducted to examine the mean differences between groups. For non-tomboys,  $M=3.37$ , for children who are sometimes tomboys,  $M=2.90$ , and for children who are always tomboys,  $M=2.68$ . There was a significant difference for inclusion enjoyment for the own-gender between the always and never tomboy groups,  $p =.002$ , and the never and sometimes tomboys groups,  $p =.028$ , but not the sometimes and always tomboy groups,  $p =.24$ .

There was a significant main effect for inclusion enjoyment with other gender peers by tomboy ID,  $F(2, 87)=6.33, p =.003, \eta^2=.127$ . Means were in the expected direction in which inclusion enjoyment for the other gender increased as levels of tomboyism increased: for non-tomboys,  $M=2.15$ , for children who are sometimes tomboys,  $M=2.025$ , and for children who are always tomboys,  $M=2.78$ . Pairwise comparisons were conducted to examine the mean differences between groups. There was a significant difference for inclusion enjoyment with other-gender peers between the always and never tomboy groups,  $p =.01$ , and the always and sometimes tomboys groups,  $p =.001$ , but not the sometimes and never tomboy groups,  $p =.61$ .

For the difference score for inclusion enjoyment own–other sex, there was a significant main effect by tomboy ID,  $F(2, 87)=10.00, p <.001, \eta^2=.19$ . All means are in the expected direction: as tomboyism increases, expectations for inclusion and enjoyment with the other-sex increases but never and sometimes tomboys are not significantly different. Always tomboys report more expectancies for inclusion and enjoyment with other-sex than own-sex and are significantly different from sometimes and never tomboys.

There was a marginally significant main effect for costs related to discomfort with own gender peers,  $F(2, 87)=2.87, p =.062, \eta^2=.062$ . Means were in the expected direction. Costs related to discomfort for the own- gender was lowest for sometimes tomboys,  $M=0.72$ , and increased for never tomboys,  $M=0.91$ , and increased further for always tomboys,  $M=1.20$ . Pairwise

comparisons were conducted to examine the mean differences between groups. There was a significant difference for costs related to discomfort for with own-gender peers between the always and sometimes tomboy groups,  $p = .019$ , but not the always and never tomboys groups,  $p = .20$ , nor the sometimes and never tomboy groups,  $p = .39$ .

Simple effect analyses showed that there was a significant main effect for costs related to discomfort with other gender peers by tomboy ID,  $F(2, 87) = 4.52$ ,  $p = .014$ ,  $\eta^2 = .094$ . Means were in the expected direction in which costs related to discomfort with other gender peers decreased as levels of tomboyism increased: for non-tomboys,  $M = 1.75$ , for children who are sometimes tomboys,  $M = 1.29$ , and for children who are always tomboys,  $M = 0.93$ . Pairwise comparisons were conducted to examine the mean differences between groups. There was a significant difference for costs related to discomfort for the other-gender between the always and never tomboy groups,  $p = .003$ , but not the always and sometimes tomboys groups,  $p = .14$ , nor the sometimes and never tomboy groups,  $p = .09$ .

For the difference score for perceived costs related to discomfort, there was a significant main effect by tomboy ID,  $F(2, 87) = 9.33$ ,  $p < .001$ ,  $\eta^2 = .18$ . All means were in the expected direction: as tomboyism increases, expectancies for the difference in discomfort from joining the own-sex versus the other-sex increased where always tomboys expected more discomfort from joining own-sex groups where never tomboys expected more discomfort from joining other-sex

groups. Never and sometimes tomboys are not significantly different but always tomboys are significantly different from sometimes and never tomboys.

**Experiences with friendships.** The third group of outcomes includes their experiences of friendships with same- and other-gender peers, analyzed using repeated measures ANOVAs. Specifically, this includes whether or not they have same or other-gender friends as well as the chair seating distance assessment to examine a child's comfort with sitting near same- and other-gender peers. (See Correlation Table 5).

***Friendships with own- and other-gender peers.*** Using repeated measures ANOVA, there was a significant interaction between tomboy type and the two-level factor of friendships (with own- and other-gender peers),  $F(2, 87)=15.38, p < .001$ . Simple effect analyses showed that there was a marginally significant main effect for friendships with own gender peers by tomboy ID,  $F(2, 87)=2.80, p = .07, \eta^2 = .060$ . All means were in the expected direction in which friendships with own gender decreased as levels of tomboyism increased: for non-tomboys,  $M=2.45$ , for children who are sometimes tomboys,  $M=2.17$ , and for children who are always tomboys,  $M=1.89$ . Pairwise comparisons were conducted to examine the mean differences between groups. There was a significant difference for friendships with own-gender peers between the always and never tomboy groups,  $p = .02$ , but not the never and sometimes tomboys groups,  $p = .22$ , nor the sometimes and always tomboy groups,  $p = .20$ .

There was a significant main effect for friendships with other gender peers by tomboy ID,  $F(2, 87)=14.72, p =.07, \eta^2=.253$ . All means were in the expected direction in which friendships with other gender peers increased as levels of tomboyism increased: for non-tomboys,  $M=0.97$ , for children who are sometimes tomboys,  $M=0.98$ , and for children who are always tomboys,  $M=1.83$ . Pairwise comparisons were conducted to examine the mean differences between groups. There was a significant difference for friendships with other-gender peers between the always and never tomboy groups,  $p <.001$ , but not the never and sometimes tomboys groups,  $p =.98$ , nor the sometimes and always tomboy groups,  $p =.98$ .

For the difference score for friendships with own- and other-sex, there was a significant main effect by tomboy ID,  $F(2, 87)=15.38, p <.001, \eta^2=.26$ . All means are in the expected direction: as tomboyism increases, the difference between the number of own- and other-sex friends decreases but never and sometimes tomboys are not significantly different. Always tomboys report nearly equal numbers of own- and other-sex friends and are significantly different from sometimes and never tomboys.

***Chair seating distance with own- and other-gender peers.*** Using repeated measures ANOVA, there was a significant interaction between tomboy type and the two-level factor of interest assessing seating distance from own- and other-gender figures separately,  $F(2, 85)=6.94, p =.002$ . Simple effects analyses showed that there was a significant main effect for seating distance from the own gender

figure by tomboy ID,  $F(2, 85)=4.49$ ,  $p = .01$ ,  $\eta^2=.093$ . The means were not in the expected direction. Instead, the patterns showed that seating distance from own gender was furthest for children who were always tomboys,  $M=2.94$ , followed by non-tomboys,  $M=1.90$ , and then children who are sometimes tomboys,  $M=1.83$ . Pairwise comparisons were conducted to examine the mean differences between groups. There was a significant difference for seating distance from the own-gender figure between the always and never tomboy groups,  $p = .02$ , and between the sometimes and always tomboy groups,  $p = .007$ , but not the never and sometimes tomboys groups,  $p = .934$ . There was not a significant main effect for seating distance from the other gender figure by tomboy ID,  $F(2, 85)=1.50$ ,  $p=.228$ ,  $\eta^2=.034$ , for non-tomboys,  $M=3.27$ , for children who are sometimes tomboys,  $M=3.11$ , and for children who are always tomboys,  $M=2.57$ .

For the difference score for seating distance from and own- versus other-sex peers, there was a significant main effect by tomboy ID,  $F(2, 61)=36.41$ ,  $p = .002$ ,  $\eta^2=.18$ . The means are not in the expected direction: as tomboyism increases, the difference between the number of chairs chosen between the child and an own- versus other-sex peer decreases but never and sometimes tomboys are not significantly different. Always tomboys report nearly equal comfort in sitting by own- and other-sex peers.

**Social adjustment outcomes.** The fourth group of outcomes examined was children's social adjustment as measured through teacher-rated sociality, social anxiety, and exclusion.

The exclusion variable was found to be skewed with a skewness value of 2.33(.254) and significant K-S and S-W tests of normality,  $p < .001$ . Upon further examination, 73% of teachers reported an exclusion value of 0 for their students. Thus, the variable was transformed using non-linear log transformation in SPSS to reduce skew. Analyses were then conducted using the transformed variable. Analyzed with a MANOVA, there was not a significant effect of tomboy ID,  $F(6, 86) = 1.39, p = .22$ . Within the MANOVA, exclusion was marginally significant,  $F(2, 86) = 2.90, p = .06$ . There was not a significant effect for asociality with tomboy ID,  $F(2, 86) = 0.14, p = .87$ , nor for social anxiety with tomboy ID,  $F(2, 86) = 0.20, p = .81$ .

A univariate ANOVA was conducted to further probe the significant main effect for exclusion. There was a significant main effect for exclusion by tomboy ID,  $F(2, 86) = 2.90, p = .06, \eta^2 = .063$ . Means were in the expected direction in which sometimes tomboys were excluded the least,  $M = 0.056$ , followed by never tomboys,  $M = 0.208$ , and always tomboys,  $M = 0.238$ . Pairwise comparisons were conducted to examine the mean differences between groups. There was a significant difference for exclusion between the always and sometimes tomboy groups,  $p = .03$ , but not between the sometimes and never tomboy groups,  $p = .09$ , nor between the never and always tomboy groups,  $p = .74$ .

## **Discussion**

The results of the present study on tomboys offers some useful insights for better understanding gender atypicality and peer-related adjustment outcomes. Important efforts have been devoted to defining what tomboyism is (Bailey, Bechtold, & Berenbaum, 2002; Plumb & Cowan, 1984; Williams, Goodman, & Green, 1985) and identifying the associated outcomes for children and adults who are tomboys (Morgan, 1998; Williams et al., 1985). Gender atypicality is frequently identified as promoting psychological maladjustment (Egan & Perry, 2001; Zucker & Bradley, 1995), while tomboyism is cited by some as being beneficial and protective (Bailey et al., 2002; Thorne, 1993). Several significant theoretical debates relate to this quandary regarding tomboyism including the multidimensionality of gender (Ruble, Martin & Berenbaum, 2006), adjustment outcomes related to atypicality (Egan & Perry, 2001), and the benefits and consequences associated with gender flexibility (DiDonato et. al., 2012) and androgyny (Bem & Lewis, 1975).

### **Measurement of Tomboyism**

Specifically, this study makes a contribution to the measurement of tomboys. The first research question examined how tomboys are identified by comparing the congruencies between parent, teacher, and child self-report of tomboyism. Overall, parents were more congruent with their daughters when the girls were not tomboys and least congruent when the girls were always tomboys. Parents of sometimes tomboys rarely identified their children as always tomboys

and downplayed tomboyism by saying their child was not a tomboy equally as often as they were congruent with their daughters. However, when parents were allowed to answer that their daughters were sometimes tomboys, nearly 90% of the self-identified tomboys were included even though half of those children identified as always tomboys. It is important to note that when parents were asked to identify non-tomboys, over half of the sample recruited in this manner included girls who identified as sometimes or always tomboys.

Overall, teachers were highly likely to downplay tomboyism and were very congruent when the child was not a tomboy but almost never identified children as a tomboy. Therefore, based on these results, it appears that for recruiting tomboys in 4<sup>th</sup> grade, it is useful to use child report, though parent report can be reliably used if parents are given the option to nominate their child as sometimes a tomboy in addition to the option to apply the label of always a tomboy.

Using parent report is a common way to recruit children to participate in studies on tomboys, often by petitioning parents to enroll their child in a study if their child is a tomboy, thus using parental perception of tomboyism to identify and label children (e.g., Bailey et al., 2002). This method may be useful, too, when researchers are interested in studying very young tomboys who may not be able to report their own tomboyism. However, the usefulness of parent reports must be carefully considered. By asking parents to identify whether or not their daughter is a tomboy, this method essentially relies on the dichotomous view of

tomboyism (Bailey et al., 2002). It is possible that this technique will yield more extreme or cross-sex tomboys. Support for this idea was found in that when parents volunteer that their child is “yes, always a tomboy”, 80% of the children recruited self-identify as always a tomboy while only 20% self-identify as sometimes a tomboy. If a researcher is interested in recruiting sample of tomboys who are younger than 4<sup>th</sup> grade, it might not be possible to rely on self-report. In order to recruit a more diverse sample of young tomboys, it may be important to allow parents to report that their child is sometimes a tomboy. This will capture a wider range of tomboyism which is useful for examining the full range of associated gendered characteristics and outcomes. Specifically, this is an effective way to recruit both sometimes and always tomboys. In this study, when parents nominated their child as sometimes a tomboy, this recruited children who identify as both sometimes (40%) and always tomboys (46%) and allowed for recruiting four times as many children (37 more children) than the 8 recruited when parents identified only the always tomboys.

An additional measurement component to the study was to determine if there was a difference between the three types of tomboy groups on the feminine and masculine characteristics. I examined the multiple dimensions of gendered characteristics (e.g., appearance, activity preference, peer preference, etc.), for both masculine and feminine typologies and determined whether children who fall into different classifications of tomboyism (i.e., “never” tomboys, “sometimes” tomboys, and “yes” tomboys) differ on these gendered dimensions

with regard to their similarity to own- and other-sex peers. There were significant interactions between tomboy type and the dependent variable of interest for all of the analyses in research question 2, suggesting that accounting for the three classifications of tomboyism reveals distinct groups with differential levels on the characteristics assessed. Thus, in the measurement of tomboys and their related behavioral characteristics, this study highlights the importance of considering the level of tomboyism, meaning whether children are more other-sex oriented in behavior and interest (i.e., more masculine, extreme or cross-sex tomboyism), or more own-sex oriented in behavior and interest (i.e., more feminine, girls who are never or rarely tomboys), or both own-sex and other-sex oriented in behavior and interest (i.e., girls who are sometimes tomboys). To further distinguish levels of tomboyism, sometimes tomboys and always tomboys differed on almost every measure. Sometimes tomboys were also different from non-tomboys on several measures. In addition and not surprisingly, there were almost always significant differences between the always tomboys and the girls who were never tomboys.

### **Capturing Flexibility and Androgyny through Behavioral Characteristics**

There has been significant debate about how tomboys and non-tomboys differ with regard to behavioral characteristics (Martin & Ruble, 2010). As previously discussed, the three groups of tomboyism differ in masculine and feminine characteristics. Next, it is important to explore the contributions this study provides to the discussion of androgyny and flexibility in describing the differences between girls who are never, sometimes, and always tomboys.

Sometimes and always tomboys might be more flexible in different ways and at times appear to portray androgyny, demonstrating the ability to behave in both masculine and feminine ways. Androgyny suggests the capability to display socially and contextually appropriate masculine and feminine behaviors (Bem, 1974; Ruble et al., 2006). Both always tomboys and sometimes tomboys might be girls who show evidence of varying levels of either androgyny or flexibility in that they have the ability to display both masculine and feminine behaviors and interests.

Girls who are sometimes tomboys were found to be the most flexible in that they have some domains of difference that are similar to girls and some that are similar to boys. In contrast, girls who are never tomboys were generally found to be more own-sex focused and girls who are always tomboys were generally found to be more other-sex focused. Sometimes tomboys are both own- and other-sex focused, depending on the dimension of gendered behavior being measured. They exhibit flexibility across dimensions of gender typing and can behave in more masculine ways (e.g., cross-sexed appearance, activity preferences, peer preferences) but often behave in more feminine ways. It was hypothesized that the ability to display feminine behaviors and characteristics might protect sometimes tomboys from engaging in socially-inappropriate displays of gender atypicality. The idea is that, when necessary, these girls can behave in gender typical ways in interactions with peers, affording them the protections that promote psychosocial adjustment (Egan & Perry, 2001; Zucker &

Bradley, 1995). Similarly, when beneficial, these girls can behave in more masculine ways. This flexibility is considered important in gender development (Bem, 1974; Martin & Ruble, 2011) and evidence has been found to support the idea of flexibility in tomboys (Martin & Dinella, 2011), and in children of both sexes (DiDonato et. al., 2012). The flexibility of maintaining the ability to be gender typical when socially functional might be protective for sometimes tomboys, shielding them from the negative outcomes of atypicality. Social attitudes and acceptance of tomboys becomes less supportive with heightened levels of cross-sexed behavior, particularly when tomboyism includes rejection of feminine activities and characteristics along with the adoption of more masculine ones (Martin & Dinella, 2010; Thorne, 1993; Zucker & Bradley, 1995). By not rejecting feminine behaviors, such as the ability to look like same-sex peers, while at the same time maintaining interests in certain masculine behaviors (e.g. feeling more similar to other-sex peers than never tomboys), sometimes tomboys may be protected from negative sanctions, and it may allow for increased flexibility in behavior.

Difference scores highlighted the difference in response to each construct based on if it was measuring own- versus other-sex target peers, and compared these by tomboy group. The present findings revealed that never tomboys were generally more gender-typed in their patterns (i.e., more interest in own-sex than other-sex peers) than other groups of tomboys. This was reflected in that never tomboys consistently showed higher difference scores, followed by difference

scores for sometimes tomboys, which reflected more similar values for own- and other-sex, although still showing more preference for own-sex behaviors and outcomes, followed by difference scores for always tomboys. In some instances (e.g., similarity, acting like boys/girls, activity preference, relationship efficacy, expectancies for inclusion enjoyment) girls who were always tomboys had difference scores of zero or negative values, illustrating similar levels of interest in own and other sex peers (i.e., difference score of zero) or greater interest in other-sex peers and peer interactions (i.e., negative difference scores). One interpretation of androgyny, as described by Bem (1974) could be reflected in a difference score of zero, or equal interest in own- and other-sex characteristics. From this perspective, always tomboys may approach the greatest approximation to true androgyny, with equal interest in own- and other-sex characteristics, followed by sometimes tomboys, who show more flexibility in interest in own- and other-sex characteristics, but not an equal balance. Sometimes tomboys significantly differ from always tomboys on the difference scores, where extreme tomboys might be expected to have more cross-sex behaviors and interests (i.e., negative difference scores), and sometimes tomboys show slightly more interest in own-sex behaviors. This illustrates the possibility of dimension-specific flexibility for sometimes tomboys as opposed to Bem's notion of androgyny which would posit an equal balance of masculine and feminine characteristics. It may be that the always tomboys label captured a mix of both androgynous tomboys and more cross-sex oriented ones in that on two measures reflecting global gender identity (similarity and closeness), always tomboys had larger

variability in their answers than the other two groups. Further research is needed to distinguish the more cross-sex oriented tomboys from the more androgynous ones.

Using difference scores, sometimes tomboys were not found to differ from never tomboys in their difference scores on physical appearance, closeness, activity preference, and peer preference, illustrating what may be a level of femininity for their characteristics and interests. However, the difference scores for sometimes tomboys did reflect more interest in the other-sex than for girls who are never tomboys. Thus, sometimes tomboys may show a masculine-moderated femininity where they engage in more atypical behaviors and reap the benefits from a diverse gendered expression but perhaps are able to be protected from appearing too extreme in their atypicality, as evidenced by the fact that they did not always differ significantly from girls who were never tomboys on some gendered characteristics. Sometimes tomboys may still be able to relate to their own-gender peers, allowing them protection from appearing too atypical. It is important to note that while there were many instances where sometimes tomboys did not significantly differ from never tomboys, all means were in the expected direction for the difference scores where sometimes tomboys still appear more similar on each measured characteristic to other-gender peers than never tomboys, allowing them to potentially benefit from this flexibility in their gender-related behavioral characteristics, which may enhance their ability to relate to other-sex peers and while maintaining their ability to relate to own-sex peers.

## **Adjustment Outcomes Associated with Tomboyism**

The third research question examined the peer-related consequences and experiences for children who self-identify as tomboys. With regard to gender typicality and psychological adjustment, there are two competing perspectives: one that suggests that atypicality and/or tomboyism yields negative outcomes, (Zucker & Bradley, 1995) and another that suggests that tomboyism might be associated with flexibility and androgyny and thus is beneficial for peer interactions (Bem, 1974; Ruble et al., 2006). Though gender non-normative development may be problematic for some children (Egan & Perry, 2001), tomboyism has been found to be linked with more positive outcomes and attributions for some girls (Morgan, 1998; Thorne, 1993).

Four related groups of outcomes were explored to capture consequences of tomboyism: beliefs about same- and other-sex peers through intergroup liking and relationship efficacy, expectancies for interactions with same- and other-sex peers, experiences of friendships with same- and other-sex peers and social adjustment as measured through sociality and exclusion factors. There was some evidence to support the hypothesis that, for same-gender peer interactions and related social adjustment, girls who are always tomboys will have the least favorable outcomes and that these will be significantly different than girls who are sometimes or never tomboys, but girls who are sometimes and never tomboys will not significantly differ in their own-gender peer interactions and social adjustments.

As hypothesized, always tomboys were strikingly different from never tomboys on own-sex outcomes, in every case showing lower scores related to the own-sex group for positive adjustment (e.g., intergroup liking, relationship efficacy, expectancies for inclusion enjoyment, friendships). It is known that identifying with the own-group can be protective and beneficial (Ruble et. al., 2004). This suggests that always tomboys may be lacking some relationships and interactions with the own-sex that are known to promote positive adjustment, thereby supporting the notion that atypicality may lead to problematic social adjustment outcomes for some children (Zucker & Bradley, 1995). However, to promote positive adjustment, it may be that increasing skills and abilities to interact with the own-sex would be beneficial without necessitating a reduction in other-sex relationships and interactions. Further support for this perspective is given in the examination of sometimes tomboys.

For own-sex outcomes, sometimes tomboys had results that were more often aligned with never tomboys. The results showed few differences between the never and sometimes tomboy groups on own-sex outcomes (e.g., relationship efficacy with own-sex, expectancies for discomfort with own-sex, friendships with own-sex, seating distance from own-sex). These findings suggest that sometimes tomboys might maintain the ability to relate to own-sex peers and thus expect positive peer interactions with girls, maintain high relationship efficacy and report having friendships with girls. Thus, sometimes tomboys have many similar adjustment outcomes as girls who are never tomboys, suggesting that

some level of gender atypicality is not necessarily linked to negative adjustment outcomes.

However, for some own-sex measures, there was not a difference found between the sometimes and always tomboy groups (e.g., intergroup liking with own-sex, relationship efficacy with own-sex, inclusion enjoyment with own-sex, expectancies for inclusion enjoyment with own-sex, expectancies for discomfort with own-sex, friendships with own-sex). These findings suggest that the group of sometimes tomboys may be diverse enough that on some measured outcomes, they may appear similar to always tomboys. This is encouraging in that we would hope that sometimes tomboys share similarities with always tomboys as they are often analyzed as a unified group of girls who experience some gender atypicality and the associated outcomes from this atypicality. Further, there are some outcomes where sometimes tomboys do not differ from always tomboys or never tomboys (i.e., relationship efficacy with own-sex, friendships with own-sex) which may imply that these outcomes do not vary significantly based on level of tomboyism, although always and never tomboys do differ. And since identifying with the own-group has been framed as protective (Ruble et. al., 2004) then both sometimes tomboys and perhaps even some always tomboys may enjoy some level of protection. This would help to explain some of the mixed findings in the literature that show that tomboyism is linked with both beneficial and negative outcomes for own-sex peer interactions.

For other-gender peer interactions, I hypothesized that girls who are almost always tomboys and girls who are sometimes tomboys would have the most favorable outcomes and that these will not significantly differ. As expected, these results held for some of the outcomes related to other gender peers (i.e., intergroup liking for other-sex, expectancies for discomfort with other-sex, friendships with other-sex, and seating distance from other-sex peers). These findings suggest that sometimes tomboys report expectancies and interactions with the other-sex that are similar to those held by always tomboys and thus may illustrate a higher level of peer interaction and competency with the other-sex. This is particularly important given that sometimes tomboys also demonstrate relatively high levels of peer interaction and competency with own-sex peers as discussed above, similar to girls who are never tomboys. Given that interactions with both own- and other-sex peers are important for development and that gender-related flexibility may be particularly beneficial, it is encouraging that sometimes tomboys are demonstrating capability for relationships with both own- and other-sex peers.

I also hypothesized that girls who are never tomboys would have poor outcomes with regard to other-sex peers and these will significantly differ from the other two groups of tomboys. These findings were mixed. For all of these outcomes there were differences between the always tomboys and the girls who were never tomboys, with means in the expected direction. In some instances, there was not a difference between the never and sometimes tomboy groups (e.g.,

relationship efficacy with other-sex, inclusion enjoyment with other-sex, expectancies for discomfort with other-sex, friendships with other-sex). These findings suggest that the sometimes tomboys may be a diverse enough group that for some other-sex interactions they appear similar to girls who are never tomboys. Thus, girls who are always tomboys are significantly more experienced than never tomboys at interacting with other-sex peers and this was substantiated by the findings that they have more relationship efficacy with the other sex and higher expectancies for enjoyment when engaging in interactions with other-sex peers. Other research has supported the finding that tomboys relate more to other-sex peers than non-tomboys (Bailey, et al., 2002; Martin & Dinella, 2011) and in this way, tomboyism and the androgyny it affords may be beneficial for certain other-sex peer interactions, even at the level expressed by girls who are always tomboys (Martin & Ruble, 2010).

Difference scores highlighted the difference in response to each construct based on if it was measuring own- versus other-sex target peers, and compared these by tomboy group. For peer-related adjustment outcomes, always tomboys had difference scores that were significantly different from both never and sometimes tomboys (e.g., relationship efficacy, expectancies for inclusion enjoyment, expectancies for discomfort, friendships, seating distance). This suggests that always tomboys do have experiences that are separate from both sometimes tomboys and girls who are never tomboys, thus lending further credence to the necessity of measuring the three groups of tomboys distinctly.

Girls who were sometimes tomboys often did not significantly differ from girls who were never tomboys in their difference scores (e.g., intergroup liking, relationship efficacy, inclusion enjoyment, expectancies for discomfort, friendships, seating distance), meaning the difference in sometimes tomboys' interactions with own- and other-sex peers for each outcome was similar to the difference in always tomboys' interactions with own- and other-sex peers. Though they did not significantly differ, means were often in the expected direction where never tomboys consistently showed higher difference scores, followed by difference scores for sometimes tomboys and then always tomboys. Girls who were always tomboys had difference scores close to zero (e.g., expectancies for discomfort, friendships) or negative (e.g., relationship efficacy, expectancies for inclusion enjoyment), suggesting equal or greater interest in other-sex peers and peer interactions. The negative scores suggests that this group may have contained some extreme tomboys, or cross-sex tomboys (Bailey et. al., 2002), and it is these extreme tomboys that might account for some of the negative adjustment outcomes associated with gender atypicality that are often attributed to tomboyism (Zucker & Bradley, 1995).

Perhaps more telling is that for all measured behavioral characteristics and peer-related outcomes in the study, means were almost always in the expected direction in that an increase in tomboyism was associated with a decrease in own-sex similarity and peer interaction and an increase in other-sex similarity and peer interaction, although the effect was often less pronounced for sometimes tomboys

than always tomboys. In addition, sometimes tomboys were excluded the least by peers, followed by never tomboys, with girls who were always tomboys experiencing the most exclusion. These results suggest that sometimes tomboys fall within a range of similarity to both own- and other-sex peers that affords them the opportunity to interact with both own- and other-sex peers in a manner not experienced for girls who are never tomboys or always tomboys. Thus, increased experience with the same- and other-sex and increased interest in the same- and other-sex, balanced by an ability to relate to own-sex peers and act gender typically when socially appropriate, may allow sometimes tomboys to be the most efficacious with all peers and thus experience the least exclusion.

**Limitations and future directions.** Whereas this study embraced a detailed analysis of the characteristics and consequences associated with tomboyism, there were limitations to the study design. The sample included only fourth graders and tomboyism may be very different in younger and older populations. This perspective on gender atypicality is limited in that it only examines tomboys and thus does not examine gender atypicality in boys. Care must be taken in generalizing the findings to diverse ethnic and cultural groups or to low or high socio-economic status groups. Although this study provided more extensive information about tomboys than many other studies, the data collected was questionnaire data at one time point and did not incorporate observational data about gender typicality or some of the behavioral correlates we examined.

Future research should address these limitations. It would also be valuable to explore these research questions longitudinally. While this study has shown that it is important to measure girls who are never, sometimes, and always tomboys, it would be beneficial to know if the significance of this grouping occurs at all ages of childhood. For example, as children age, there may be a shift from two groups (i.e., never tomboys and always tomboys) to three groups (i.e., the incorporation of sometimes tomboys). Another possibility is that all three groups of tomboys exist throughout development, but the proportion of girls who fit each group changes. For example, there may be many more girly-girls than tomboys at young ages, but as development continues, the groups may become more balanced in numbers. It would also be beneficial to investigate how best to identify and recruit these groups of tomboys at different ages. The utility of parent report, teacher report, and child self-identification may differ for younger or older ages than middle childhood as tested in the present study. With regard to research question two which examined the correlates of tomboyism such as interest in and similarity to own- and other-sex peers, it would be useful to note the stability of these characteristics as well as in the tomboy categorizations over time. Do children maintain membership in one group stably, or is there variation and overlap between membership in the group of always tomboys, sometimes tomboys, and never tomboys over time? At each age, is always tomboyism linked with more masculine behaviors and interests and fewer feminine behaviors? Is there a developmental point where children become flexible enough to allow for the sometimes group of tomboys to appear? It may be that sometimes tomboys

are not as prevalent in early ages and the appearance of more flexible gender identities is congruent with cognitive changes in gender development over time (Martin & Ruble, 2010). In addition, it would be useful to examine research question 3 for different ages of children, considering that developmental consequences of tomboyism may differ over time. Thus, significant contribution to the gender development literature would be made through a more developmental approach of tomboyism and associated behaviors.

**Conclusion.** This study addressed several important questions presented in the literature, including how to identify and measure tomboyism, as well as contributing some understanding about the correlates and consequences of tomboy behaviors on psychosocial adjustment and peer interactions. Based on the results, we suggest that the use of both child and parent report in recruiting tomboyism is justified, with particular support given to encouraging future researchers to use the classification groups of never, sometimes, or always tomboys. The benefits of flexibility in gender expression are represented most frequently in the sometimes tomboy group through the heightened expression of both feminine and masculine activity interests and expressed similarity to both own- and other-sex peers and the increased interaction with own- and other-sex peers as well as the decreased negative adjustment outcomes such as exclusion. These findings help to explain the competing perspectives in the literature which posit that for extreme tomboyism, negative outcomes may be experienced (Egan & Perry, 2005, Zucker & Bradley, 1995), versus the view that tomboyism and

some level of gender atypicality is protective, beneficial, and promotes positive peer interactions with both own- and other-sex children. Our findings are consistent with both perspectives in that always tomboys experience exclusion but sometimes tomboys show high levels of peer interactions with both own- and other-sex peers and show positive peer-related adjustment outcomes.

Table 1.

*Cross Tabulation Results: Research Question 1*

Child Self Identification	Parent Identification of Child		
	Never Tomboy	Sometimes Tomboy	Always Tomboy
Never Tomboy			
Count	17	5	0
% Within (Parent/Teacher)	40.5%	13.5%	0.0%
% Within (Child)	77.3%	22.7%	0.0%
% of Total	19.1%	5.6%	0.0%
Sometimes Tomboy			
Count	17	17	2
% Within (Parent/Teacher)	40.5%	45.9%	20.0%
% Within (Child)	47.2%	47.2%	5.6%
% of Total	19.1%	19.1%	2.2%
Always Tomboy			
Count	8	15	8
% Within (Parent/Teacher)	19.0%	40.5%	80.0%
% Within (Child)	25.8%	48.4%	25.8%
% of Total	9.0%	16.9%	9.0%

Child Self Identification	Teacher Identification of Child		
	Never Tomboy	Sometimes Tomboy	Always Tomboy
Never Tomboy			
Count	21	2	0
% Within (Parent/Teacher)	37.5%	6.7%	0.0%
% Within (Child)	91.3%	8.7%	0.0%
% of Total	23.6%	2.2%	0.0%
Sometimes Tomboy			
Count	24	10	2
% Within (Parent/Teacher)	42.9%	33.3%	66.7%
% Within (Child)	66.7%	27.8%	5.6%
% of Total	27.0%	11.2%	2.2%
Always Tomboy			
Count	11	18	1
% Within (Parent/Teacher)	19.6%	60.0%	33.3%
% Within (Child)	36.7%	60.0%	3.3%
% of Total	12.4%	20.2%	1.1%

*Note:* Parent-Child Cross Tabs were significantly different:  $\chi^2(4)=19.09, p=.001$   
Teacher-Child Cross Tabs were significantly different:  $\chi^2(4)=18.39, p=.001$

Table 2.

*Correlations: Research Question 2*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Closeness Own-Sex	-													
2. Closeness Other-Sex	.07	-												
3. Scale Similarity Own-Sex	.59 <sup>a</sup>	-.12	-											
4. Scale Similarity Other-Sex	-.07	-.11	-.29 <sup>a</sup>	-										
5. Single Item Similarity Own-Sex	.60 <sup>a</sup>	.01	.69 <sup>a</sup>	-.11	-									
6. Single Item similarity Other-Sex	.12	.62 <sup>a</sup>	-.18	.84 <sup>a</sup>	.09	-								
7. Acts Like Own-Sex	.38 <sup>a</sup>	-.1	.85 <sup>a</sup>	-.30 <sup>a</sup>	.49 <sup>a</sup>	-.21 <sup>b</sup>	-							
8. Acts Like Other-Sex	-.14	.52 <sup>a</sup>	-.34 <sup>a</sup>	.85 <sup>a</sup>	-.28 <sup>a</sup>	.62 <sup>a</sup>	-.33 <sup>a</sup>	-						
9. Looks Like Own-Sex	.33 <sup>a</sup>	-.03	.74 <sup>a</sup>	-.09	.29 <sup>a</sup>	-.09	.56 <sup>a</sup>	-.07	-					
10. Looks Like Other-Sex	-.23 <sup>b</sup>	.46 <sup>a</sup>	-.17	.75 <sup>a</sup>	-.10	.52 <sup>a</sup>	-.14	.61 <sup>a</sup>	-.01	-				
11. Activity Preference Like Own-Sex	.41 <sup>a</sup>	-.12	.79 <sup>a</sup>	-.36 <sup>a</sup>	.44 <sup>a</sup>	-.27 <sup>b</sup>	.71 <sup>a</sup>	-.34 <sup>a</sup>	.44 <sup>a</sup>	-.2	-			

12. Activity Preference Like Other-Sex	-.03	.60 <sup>a</sup>	-.31 <sup>a</sup>	.90 <sup>a</sup>	-.19	.72 <sup>a</sup>	-.30 <sup>a</sup>	.74 <sup>a</sup>	-.07	.53 <sup>a</sup>	-.38 <sup>a</sup>	-		
13. Peer Preference Own- Sex	.57 <sup>a</sup>	-.24 <sup>b</sup>	.68 <sup>a</sup>	-.31 <sup>a</sup>	.44 <sup>a</sup>	-.23 <sup>b</sup>	.39 <sup>a</sup>	-.30 <sup>a</sup>	.39 <sup>a</sup>	-.28 <sup>a</sup>	.41 <sup>a</sup>	-.27 <sup>b</sup>	-	
14. Peer Preference Other- Sex	-.05	.66 <sup>a</sup>	-.25 <sup>b</sup>	.87 <sup>a</sup>	-.03	.68 <sup>a</sup>	-.25 <sup>b</sup>	.62 <sup>a</sup>	-.12	.59 <sup>a</sup>	-.33 <sup>a</sup>	.77 <sup>a</sup>	-.28 <sup>a</sup>	-

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*Note:* An a superscript notes significance at  $p < .01$ . A b superscript notes significance at  $p < .05$ .

Table 3.

*Correlations: Research Question 3*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Intergroup Liking Own-Sex	-													
2. Intergroup Liking Other-Sex	-.07	-												
3. Relationship Efficacy Own-Sex	.56 <sup>a</sup>	.09	-											
4. Relationship Efficacy Other-Sex	-.07	.32 <sup>a</sup>	.06	-										
5. Inclusion Enjoyment Own-Sex	.35 <sup>a</sup>	0	.48 <sup>a</sup>	-.03	-									
6. Inclusion Enjoyment Other-Sex	-.10	.51 <sup>a</sup>	-.06	.66 <sup>a</sup>	-.03	-								
7. Perceived Costs Teasing Own-Sex	.44 <sup>a</sup>	-.06	.50 <sup>a</sup>	-.03	.56 <sup>a</sup>	-.04	-							
8. Perceived Costs Teasing Other-Sex	-.02	.11	.11	.38 <sup>a</sup>	.01	.46	.19	-						
9. Perceived Costs Discomfort Own-Sex	-.32	.15	-.31 <sup>a</sup>	.02	-.49 <sup>a</sup>	.04	-.63 <sup>a</sup>	-.22 <sup>b</sup>	-					
10. Perceived Costs Discomfort Other-Sex	.05	-.22 <sup>*</sup>	.06	-.55 <sup>a</sup>	.09	-.55 <sup>a</sup>	-.15	-.58 <sup>a</sup>	.30 <sup>a</sup>	-				

11. Friendships Own-Sex	.20	.01	.40 <sup>a</sup>	-.07	.30 <sup>a</sup>	-.11	.25 <sup>b</sup>	.14	-.14	.06	-			
12. Friendships Other-Sex	-.21 <sup>b</sup>	.43 <sup>a</sup>	-.21 <sup>b</sup>	.55 <sup>a</sup>	-.19	.49 <sup>a</sup>	-.23 <sup>b</sup>	.20	.24 <sup>b</sup>	-.38 <sup>a</sup>	0.02	-		
13. Seating Distance Own-Sex	-.19	.21 <sup>b</sup>	-.30 <sup>a</sup>	.19	-.35 <sup>a</sup>	.17	-.38 <sup>a</sup>	.08	.40 <sup>a</sup>	.00	-0.24 <sup>b</sup>	.35 <sup>a</sup>	-	
14. Seating Distance Other- Sex	.18	-.17	.15	-.25 <sup>b</sup>	-.04	-.19	.03	-.06	.11	.19	.06	-.30 <sup>a</sup>	.16	-
1. Asociality	-													
2. Social Anxiety	.62 <sup>a</sup>	-												
3. Exclusion	.42 <sup>a</sup>	.33 <sup>a</sup>	-											

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*Note:* An a superscript notes significance at  $p < .01$ . A b superscript notes significance at  $p < .05$ .

Table 4.

*Descriptive Statistics: Research Question 2*

Dependent Variable	Child Rated Tomboy Classification					
	Always Tomboy		Sometimes Tomboy		Never Tomboy	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Closeness Own-Sex	2.39	1.41	2.81	0.95	3.22	1.09
Closeness Other-Sex	2.39	1.09	1.31	1.04	1.30	1.26
Difference Closeness Own-Other	0.00	1.67	1.50	1.14	1.91	1.41
Scale Similarity Own-Sex	1.67	0.81	2.49	0.14	2.80	0.18
Scale Similarity Other-Sex	2.15	1.08	1.19	0.80	0.83	0.72
Difference Scale Similarity Own-Other	-0.48	1.51	1.30	1.08	1.97	1.15
Single Item Similarity Own-Sex	1.58	1.18	2.44	1.13	3.26	1.05
Single Item similarity Other-Sex	2.29	1.24	1.42	1.08	1.26	1.10
Difference Similarity Own-Other	-0.71	1.44	1.03	1.28	2.00	1.21
Acts Like Own-Sex	1.03	1.10	2.12	1.15	2.65	1.30
Acts Like Other-Sex	2.30	1.32	1.32	1.01	0.57	0.90
Difference Acts Like Own-Other	-1.27	1.98	0.79	1.51	2.09	1.44
Looks Like Own-Sex	1.65	1.33	2.53	1.44	2.30	1.55

Looks Like Other-Sex	1.19	1.28	0.44	0.91	0.13	0.34
Difference Looks Like Own-Other	0.45	1.89	2.08	1.46	2.17	1.56
Activity Preference Like Own-Sex	1.50	1.23	2.38	1.02	2.70	1.15
Activity Preference Like Other-Sex	2.57	1.31	1.50	0.99	1.00	1.04
Difference Activity Own-Other	-1.07	2.07	0.88	1.49	1.69	1.61
Peer Preference Own-Sex	2.52	1.03	3.09	1.07	3.09	1.16
Peer Preference Other-Sex	2.39	1.28	1.31	0.99	1.17	1.19
Difference Peer Preference Own-Other	0.13	1.89	1.77	1.50	1.91	1.81

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*Note:* All scales, except difference scores, have a range of 0-4 (0=not at all similar, 4=overlapping circles).

Table 5.

*Descriptive Statistics: Research Question 3*

Dependent Variable	Child Rated Tomboy Classification					
	Always Tomboy		Sometimes Tomboy		Never Tomboy	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Intergroup Liking Own-Sex	4.65	1.40	4.78	1.35	5.48	0.95
Intergroup Liking Other-Sex	3.90	1.51	3.28	1.21	3.35	1.64
Difference Intergroup Liking Own-Other	0.74	0.35	1.50	0.33	2.13	0.41
Relationship Efficacy Own-Sex	3.43	0.90	3.45	0.66	3.80	0.43
Relationship Efficacy Other-Sex	3.27	0.85	2.13	1.06	2.05	1.20
Difference Efficacy Own-Other	-0.15	1.40	1.33	1.06	1.75	1.10
Inclusion Enjoyment Own-Sex	2.68	0.88	2.89	0.70	3.34	0.60
Inclusion Enjoyment Other-Sex	2.78	0.86	2.02	0.84	2.15	1.05
Difference Inclusion Own-Other	-0.09	1.30	0.87	1.04	1.19	1.00
Perceived Costs Teasing Own-Sex	3.14	0.98	3.54	0.63	3.52	0.58
Perceived Costs Teasing Other-Sex	2.69	1.12	2.58	1.09	2.52	1.16

Difference Teasing Own-Other	0.45	1.51	0.96	1.05	1.01	0.97
Perceived Costs Discomfort Own-Sex	1.20	0.94	0.71	0.67	0.91	0.86
Perceived Costs Discomfort Other-Sex	0.93	1.03	1.27	0.76	1.75	1.24
Difference Discomfort Own-Other	0.27	1.14	-0.57	0.86	-0.84	1.05
Friendships Own-Sex	1.89	0.91	2.17	0.81	2.45	0.86
Friendships Other-Sex	1.83	0.92	0.98	0.57	0.97	0.56
Difference Friendships Own-Other	0.06	1.03	1.19	0.96	1.48	1.10
Seating Distance Own-Sex	2.93	2.05	1.83	1.32	1.86	1.55
Seating Distance Other-Sex	2.56	1.70	3.11	1.28	3.23	1.66
Difference Seating Own-Other	0.78	2.75	-1.40	1.71	-1.50	2.39
Asociality	0.20	0.29	0.17	0.32	0.16	0.33
Social Anxiety	0.27	0.37	0.33	0.52	0.29	0.35
Exclusion	0.24	0.39	0.06	0.17	0.21	0.43

*Note:* An a subscript notes a range of 0-6 (0=don't like at all or none, 6=like a lot or almost all/all).

A b subscript notes a range of 0-4 (0=not at all, 4= a lot).

A c subscript notes a range of 1-6 (1=sitting next to child, 6=sitting furthest away from child).

A d subscript notes a range of 0-2 (0=doesn't apply, 2=certainly applies).

\* Means reported are untransformed means.

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APPENDIX A  
IRB APPROVAL



Office of Research Integrity and Assurance

**To:** Kristina Zosuls

**From:** for Mark Roosa, Chair  
Soc Beh IRB 

**Date:** 06/09/2011

**Committee Action:** Renewal

**Renewal Date:** 06/09/2011

**Review Type:** Expedited F7

**IRB Protocol #:** 1006005213

**Study Title:** Children's Attitudes, Relationships, and Education

**Expiration Date:** 06/08/2012

The above-referenced protocol was given renewed approval following Expedited Review by the Institutional Review Board.

It is the Principal Investigator's responsibility to obtain review and continued approval of ongoing research before the expiration noted above. Please allow sufficient time for reapproval. Research activity of any sort may not continue beyond the expiration date without committee approval. Failure to receive approval for continuation before the expiration date will result in the automatic suspension of the approval of this protocol on the expiration date. Information collected following suspension is unapproved research and cannot be reported or published as research data. If you do not wish continued approval, please notify the Committee of the study termination.

This approval by the Soc Beh IRB does not replace or supersede any departmental or oversight committee review that may be required by institutional policy.

**Adverse Reactions:** If any untoward incidents or severe reactions should develop as a result of this study, you are required to notify the Soc Beh IRB immediately. If necessary a member of the IRB will be assigned to look into the matter. If the problem is serious, approval may be withdrawn pending IRB review.

**Amendments:** If you wish to change any aspect of this study, such as the procedures, the consent forms, or the investigators, please communicate your requested changes to the Soc Beh IRB. The new procedure is not to be initiated until the IRB approval has been given.

### CONTINUING REVIEW FORM- IRB

- In accordance with Federal Regulations 45CFR46, the IRB must review nonexempt protocols at least annually, or more frequently if warranted.
- Please type your responses in the boxes provided. Use as much space as necessary (the boxes will expand). Please answer each question – if a question is not applicable, please put N/A in the box.
- Studies that are in the data analysis phase are considered open, researchers must complete this form.

1. Principal Investigator	
Principal Investigator: <a href="#">Kristina M. Zosuls, Ph.D.</a>	
ASU department address: <a href="#">School of Social and Family Dynamics, P.O. Box 873701</a>	
E-mail address: <a href="mailto:kristina.zosuls@asu.edu">kristina.zosuls@asu.edu</a>	
Phone number: <a href="#">480-965-3649</a>	Fax Number: <a href="#">480-965-6779</a>
Co-Investigator(s) Name(s) and Contact Information: <a href="#">Carol L. Martin, Ph.D. (cmartin@asu.edu)</a> , <a href="#">Dawn England (dawn.england@asu.edu)</a> , <a href="#">Naomi Andrews (ncandrew@asu.edu)</a>	

2. Protocol Information
2a) Title of protocol: <a href="#">Children's Attitudes, Relationships, and Education (CARE)</a>
2b) HS #: <a href="#">1006005213</a>
2c) If project is funded or funding is being sought, provide list of all sponsors and grant numbers: <a href="#">N/A</a>
Please indicate the grant status for each source of funding: <input type="checkbox"/> Active <input type="checkbox"/> Pending
2d) ASU account number/project number: <a href="#">RW51018</a>
2e) Location(s) of research activity: <a href="#">Tempe Elementary School District (Ward, Bustoz, Rover, Fuller, Laird, Curry)</a> , <a href="#">Archway Academy (Chandler)</a> , <a href="#">Pardes Jewish Day School (Phoenix)</a> .
2f) IRB approval dates from additional institutions: <a href="#">N/A</a>
<i>*Please note that copies of current IRB approvals from additional institutions are required.</i>

3. Protocol Status
3a) Active: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If no, submit a close out report: <a href="http://researchintegrity.asu.edu/humans/forms">http://researchintegrity.asu.edu/humans/forms</a> )
3b) Please indicate remaining duration of the study: <a href="#">1 year (minimal data</a>

collection through August, 2012, and data management and analysis until June 2013)

#### 4. Participant Information

4a) Is this study closed to enrollment of new subjects: ☒ Yes ☐ No

4b) Total number of participants approved for the study (to be enrolled):  
623

4c) Number of participants enrolled (e.g. signed a consent form) during the **past approval period**: 0

4d) Total number of participants enrolled **since study began**: 623

4e) Total number of individuals screened (e.g. individuals that responded to study advertisements or other recruitment practices and were questioned by investigators) in the past approval period (if applicable): 0 (recruitment for the study was completed in the first study period that ended in June 2011 and no new participants have been recruited since) (this includes the number that was later enrolled)

4f) Of the total number of individuals screened in the past approval period, what percentage has been ineligible to participate in the study (if applicable)? 0

4g) Number of enrolled participants who withdrew from the study: 0

Please state the reason(s) the participant(s) withdrew.

4h) Number of participants still to be enrolled: 0

(If this brings the sample to greater than what is listed in 4b, submit a request for modification see 7d).

4i) Participant enrollment breakdown by gender, age and ethnicity: (This information is required for all studies that are NIH-sponsored. It is recommended, but not required, that other researchers provide this information).

## 5. Data Sources

Check all categories that apply to your protocol:

<input type="checkbox"/>	Human subjects intervention with use of informed consent form
<input type="checkbox"/>	Discarded, identified pathological materials, no intervention
<input type="checkbox"/>	Genetic analysis
<input type="checkbox"/>	Interviews or questionnaires
<input type="checkbox"/>	Medical records or other records from human subjects
<input type="checkbox"/>	Other please specify:

## 6. Adverse Events or Unexpected Problems

6a) Have there been any complaints from subjects in the past approval period?

☐ Yes *If yes, describe* ☒ No

6b) Have there been any **adverse events** or unexpected problems in the past approval period?

☐ Yes ☒ No

*If yes, please explain in detail and indicate when the IRB was notified of the event or problem. If the IRB was not notified, please explain why this was not done.*

6c) Does the study have a Data Safety Monitoring Board (DSMB)? ☐  
Yes ☒ No

*If yes, please indicate the date of the last DSMB review:*

*Please note that investigators are required to submit DSMB reports to the ASU IRB at the time they are made available to the investigator.*

## 7. Protocol Modifications or Revisions

7a) Have there been any modifications or revisions to the protocol in the past approval period?

☒ Yes ☐ No

*If yes, please indicate the date of the approval from the Committee for*

the modification or revision and provide a brief description. Questionnaires for children in 3 age groups (1<sup>st</sup>, 3<sup>rd</sup>, 5<sup>th</sup> Grade), parents, and teachers were updated from the previous year's materials and approved on 9/9/2011 (5<sup>th</sup> grade), 9/16/2011 (3<sup>rd</sup> grade), 10/28/2011 (parent, teacher), 1/13/2012 (1<sup>st</sup> grade), and 2/2/2012 (questions added to 3<sup>rd</sup> & 5<sup>th</sup> grade). One school also requested that we re-send consent forms to participating families for the 2<sup>nd</sup> year of participation and those materials were approved 11/30/2011.

7b) Have there been any deviations from the approved protocol? ☒ X  
Yes No

If yes, please describe to self-report the protocol violation. A graduate student, Ryand Field, and a research staff person, Adrienne Borders, have been working in collaboration with the PI's on data analyses and presentations/papers for publication without being listed on our IRB forms. Both people have completed their CITI training. This was a mistake due to the PI's not being clear that it was not enough for them to be working under our supervision, but that they also had to be named on the IRB forms. Furthermore, we have not included our undergraduate and other volunteer staff personnel who have worked on the project over the past two years (mostly for course credit). Although we have always required and ensured that they completed their CITI training, we did not inform the IRB of these personnel because we did not think this was required due to their lower-level roles on the project. Because this is a long list of personnel (over 20 people) we are submitting a separate list of their names and copies of their certificates.

7c) Do you want to add any new co-investigators to the study?  
☒ X Yes No

If yes, submit their names and copies of the human subjects training required by the IRB: <http://researchintegrity.asu.edu/training/humans> Ryan Field, Adrienne Borders

7d) Do you wish to submit a modification at this time? ☐ Yes ☒ X  
No

If yes, please describe the modification request and rationale for the changes:

#### 8. Current Consent Form

8a) Please attach a copy of your current consent form for renewal if you are enrolling new subjects. N/A

8b) Is this the original consent form or a revised form? ☐  
Original ☐ Revised (If revised, please provide date of ASU IRB approval for the revision. Attach a copy of the stamped form and unstamped form)

### 9. Protocol Progress Report

9) Please submit a **detailed** progress report. The progress report must be substantive and complete, and include the goal(s) of the study, findings to-date, how data is being stored, and plans for the next year/review period. If this project is funded, please send a copy of the most recent progress report that was sent to the funding agency: The present study has three primary aims: (1) the first aim is to describe age and gender-related differences in children's gender attitudes using measures that gauge both affective and cognitive aspects of such attitudes; (2) the second aim is to better understand children's beliefs (e.g., self-perceptions of efficacy, norm perceptions) and expectancies related to interacting with the other gender; and (3) the third aim of this study is to investigate whether and how children's gender-related attitudes, beliefs, and expectancies are related to children's peer-related preferences and behaviors, and their academic outcomes (i.e., school liking, academic motivation and performance). We have just collected the 2<sup>nd</sup> year/wave of questionnaire/interview data from children, their parents, and teachers, and are currently in the process of data entry. Over the next few weeks, we will continue to collect some more data from teachers and parents who have not yet turned in their questionnaires. Data are being stored in locked filing cabinets in our laboratory. The rest of the next review period will be spent working with the data (i.e., data management and data analysis). We are currently in the early stages of preparing several papers to be submitted for review/publication in psychology/education journals.

### 10. Publications, Presentations and Recent Findings

10a) Have there been any presentations or publications resulting from this study during the past approval period? ☒ Yes ☐ No If yes, please submit a copy of the abstract, or the publication, with this application.

10b) Have there been any recent findings either from this study, or a related study (through a literature review for example), that would have an effect on this study's risk/benefit analysis? ☐ Yes ☒ No

If yes, please describe and cite references:

### 11. Conflicts of Interest and Commercialization

11a) Does any member of the research team have a potential conflict of interest with this study that could affect study participants and/or study outcome? For more information about examples of conflicts of interests, please visit the ASU objectivity website: <http://researchintegrity.asu.edu/coi>

No ☐ Yes (If yes, please describe and disclose in the consent form) ☒ X

11b) Does the PI or Co-I have a current conflict disclosure form on file at the ASU Office of Research Integrity and Assurance?

☒ X Yes ☐ No

11c) If there are conflicts of interests, please describe the ways in which you have and will minimize harm to research subjects and/or the objectivity of research.

### 12. Training

12. The research team must verify completion of human subjects training within the last 3 years. (<http://researchintegrity.asu.edu/training/humans>)

**CITI training** – Provide the date that the PI and Co-I's completed the training: Kristina Zosuls- 5/3/2012, Carol Martin – 6/8/2011, Dawn England – 5/4/2012, Naomi Andrews – 4/24/2012, Ryan Field – 9/9/2010, Adrienne Borders – 8/4/2010.

If you completed **NIH** training prior to 9/15/10 this will be accepted. Provide a copy of the certificate.

### 13. Required Signatures

Principal Investigator:

Date: 6/8/2012

FOR IRB USE

Chair or Committee member name:

Signature:

Date: