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**Children's Perceptions of Discrimination:  
Antecedents and Consequences**

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**Children's Perceptions of Discrimination:  
Antecedents and Consequences**

**by**

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**Children's Perceptions of Discrimination:  
Antecedents and Consequences**

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Little research has examined how and when children perceive themselves to be the targets of discrimination, and what effect the perception of discrimination has on children's development. Therefore, the primary purpose of this dissertation was to examine children's perceptions of gender discrimination, with a particular focus on (a) the situational, developmental, and individual factors that predict perceptions of discrimination, and (b) the effects of such perceptions on self-esteem, motivation, identity, and perceived control. The secondary purpose of this dissertation was to examine how different debriefing protocols following deception affect children's attitudes toward participation in research studies.

First, the theory of mind abilities and gender attitudes of children ages 5 to 11 were assessed. Next, to assess at what age and under what conditions children perceive discrimination, children were given mild negative feedback in a situational context suggesting that discrimination was either likely or unlikely. Children were then asked to make attributions for negative feedback. In addition, children's social and performance state self-esteem was assessed, as well as their social and performance perceived control, their motivation to continue with the task, their identification with the domain, and their perceived valuation of the domain.

After completion of the measures, the participants were debriefed using one of two possible procedures. In the first procedure, the true nature of the study was explained and discussed. In the second procedure, the negative feedback was simply replaced with positive feedback. Children's attitudes about participation and their own abilities were then assessed.

Results concerning how child characteristics (i.e., age, gender), developmental factors (i.e., theory of mind), and individual factors (i.e., gender attitudes) predict discrimination attributions are discussed. In addition, the effects of discrimination attributions on self-esteem, perceived control, and motivation are discussed, as well as implications for public policy and future research.

Finally, the effects of debriefing methodologies on children's attitudes and implication for future research involving deception are discussed.

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## **CHAPTER ONE:**

### **INTRODUCTION AND LITERATURE REVIEW**

Many adults have questioned at one time or another whether they were the targets of discrimination. For example, an African American man might wonder if his membership application was denied because of race; a woman might question whether she was passed over for a promotion because of gender; a deaf college student might suspect that he did not make the basketball team because of his disability. All of these targets of possible discrimination must decide if their group membership was the cause of their differential treatment. Further, upon making an attribution to discrimination, these individuals are likely to experience important consequences in domains such as self-esteem, perceived control, and motivation.

Discrimination represents a significant social problem in the United States and throughout the world. Thousands of individuals seeking redress to perceived gender and racial discrimination file lawsuits with the Equal Employment Opportunity Commission each year. Discrimination affects not only adults, but children as well. Court cases filed on behalf of children seeking protection under Title IX, the Civil Rights Act of 1964, and the Americans with Disabilities Act of

1990 (Office of Civil Rights, US Department of Education, 2000) number in the thousands each year. Although existing research has addressed how adults perceive discrimination, little research has examined how and when children perceive themselves to be the targets of discrimination, and what effect the perception of discrimination has on children's development.

Children's perceptions of discrimination, and the effects of that perception on cognition, affect, and behavior, are likely to be qualitatively different than that of adults. Children's developing cognitive abilities are likely to affect when and how they perceive discrimination. For example, limits in children's ability to take the perspective of others may hinder their ability to understand the motives that drive discrimination. In addition, perceiving discrimination may affect children in ways that are particularly detrimental to development. For example, understanding that one is the target of discrimination may affect academic motivation and performance, self-esteem, and occupational aspirations. Therefore, the purpose of this dissertation is to examine (a) at what age children begin to perceive discrimination, (b) which cognitive abilities are necessary for that perception, (c) which situational and individual factors affect children's perceptions of discrimination, and (d) how self-esteem, motivation, and perceived control are affected by perceptions of discrimination.

## **WHAT IS DISCRIMINATION?**

A simple definition states that discrimination “involves harmful actions towards others because of their ... membership in a particular group” (Fishbein, 1996, pg. 7). Acts of discrimination can range from mild (e.g., ignoring) to severe (e.g., inflicting physical harm). Gaertner and Dovidio (1986) point out that there are differences between prejudice and discrimination. As they state, “Whereas prejudice is an attitude, discrimination is a selectively unjustified negative behavior toward members of the target group... It is important to note that prejudice does not always lead to discrimination and that discrimination may have causes other than prejudice” (p. 3).

Despite the simplicity of the definition, discrimination is a complex phenomenon. Discrimination is typically subtle and ambiguous. In the case of racism, most research has shown that the overt forms of racial bias that characterized much of U.S. history are not as prevalent today (Gaertner & Dovidio, 1986). Instead, overt racism has been replaced with what is referred to as “aversive racism,” in which people endorse an egalitarian value system, yet maintain negative racial attitudes (e.g., “If Blacks worked harder, they would have more money.”). The same can be said for sexism. For example, new conceptions of sexism (e.g., “neosexism,” Tougas, Brown, Beaton, & Joly, 1995, and “ambivalent sexism,” Fiske & Glick, 1995) reflect the more paternalistic,

conservative nature of modern sexism (e. g, “Women should be taken care of by men.”).

Because most people consider outright discrimination unacceptable, contemporary discrimination is more covert, and hence, difficult for victims to perceive. Indeed, the majority of discriminatory actions reported by African Americans and women are quite subtle (e.g., being stared at or watched; Swim, Cohen, Hyers, Fitzgerald, & Bylsma, 1997, as cited in Swim, Cohen, & Hyers, 1998). As Gordon Allport stated, “[discrimination is] practiced chiefly in covert and indirect ways” (1954, p. 57).

### **CHILDREN’S PERCEPTIONS OF DISCRIMINATION**

There has been little systematic examination of perceptions of discrimination in the developmental literature. There are, however, several existing studies that bear on the topic. For example, research conducted in response to the racial desegregation of schools in the 1970s examined adolescents’ perceptions of racial discrimination. In a study of Euro-Americans’ attitudes towards minorities, Radke and Sutherland (1972) asked Euro-American children, “What are Negroes like?” They found that 12% of 11- to 12-year-olds, 49% of 13- to 14-year-olds, and 59% of 17- to 18-year-olds mentioned discrimination. All respondents described discrimination as negative.

Researchers have also interviewed targets of discrimination about their experiences. Rosenberg (1979), for example, found that a higher percentage of African American children who attended desegregated junior high schools (51%) than segregated schools (34%) reported that they had experienced teasing or exclusion based on their race. Patchen (1982) found that many African Americans in newly desegregated high schools complained about the discriminatory actions of Euro-American teachers.

Correlation research suggests that perceptions of discrimination may affect adolescents' academic performance, group attitudes, and social behavior. For example, African American students who perceived discrimination had slightly lower grades and had more negative attitudes toward Euro-Americans than other African American students (Patchen, 1982). In addition, African American students were more likely than Euro-American students to avoid extracurricular events because of racial composition (i.e., they were less likely to join if the event was attended primarily by Euro-Americans).

More recently, researchers have investigated children's broad conceptualizations of discrimination. Researchers in the Netherlands, for example, reported that most children (92%) were knowledgeable about the definition of discrimination by the age of 10 (Verkuyten, Kinket, & van der Weilen, 1997). Name-calling was the most frequently cited example of

discrimination (cited by 67% of the children), followed by an unequal sharing of goods (10% of children), and social exclusion (8% of children). Verkuyten and colleagues (1997) also found that children did not judge actions to be discriminatory if they considered the target to be responsible for the negative behavior, or the perpetrator to have acted unintentionally.

Other researchers have examined children's understanding of the factors that produce discrimination and prejudice. Quintana and Vera (1999), for example, examined 7- and 12-year-old Mexican American and African American children's explanations for ethnic prejudice. They found that children's understanding of prejudice becomes more complex with age. Seven-year-old children stated that prejudice occurs because of either (a) an individual's perceptual preferences (e.g., "They don't like their color"), or (b) an individual's disliking of a literal, non-social aspect of a person's ethnicity (e.g., "They may not like Mexico"). By 12 years of age, children state that prejudice occurs because of either (a) an isolated, idiosyncratic social action related to non-perceptual characteristics of ethnicity (e.g., "Their mom might tell them not to play with African Americans"), or (b) the pervasive experiential influences of our society (e.g., "If one [Mexican] did something, it's like all the Mexicans in the world did everything bad").

Research by Brown and Bigler (2003) has expanded our understanding of how children perceive discrimination. In this study, children were read stories in which a child had received negative feedback compared to an out-group member (e. g., a girl received a poorer grade on an essay than a boy). Brown and Bigler (2003) found that children as young as 5 years old made attributions to discrimination. However, older children (ages 9 to 10) were more likely than younger children to rely on situational information suggesting that discrimination may have occurred (e.g., being told that the teacher treats boys better than girls) when making judgments about whether to discrimination has occurred. Thus, although young children are aware of discrimination as a social possibility, they are not as attuned to situational cues as older children.

Brown and Bigler (2003) also found that girls (but not boys) made more attributions to discrimination when the target of the discrimination was female than when the target was male. This finding is consistent with research examining children's judgements about peer exclusion (Theimer, Killen, & Stangor, 2001). Specifically, elementary school-age girls rate peer exclusion of girls to be more negative than peer exclusion of boys. Several researchers have hypothesized that increased experiences with peer exclusion make girls more sensitive than boys to such exclusion (Killen & Stangor, 2001; Theimer, et al., 2001). It seems possible, however, that girls' experiences lead them to develop a

broad awareness of the lower social status of females relative to males. Girls' awareness of the lower status of the female role may, in turn, lead them to develop a higher sensitivity for, and expectation of, discriminatory treatment of females than of males.

### **Conclusion**

In summary, most research suggests that many children, by 5 to 6 years of age, are aware that discrimination exists as a social phenomenon. By 9 years of age, children are able to make attributions to discrimination (that is targeted to someone else) that parallel those made by adults. However, it is still unclear when and how children *personally* experience and understand discrimination in actual social situations. Do children's perceptions of discrimination differ when they are the targets of the discrimination? In addition, at what age do children make attributions to discrimination, and what cognitive abilities are required?

### **COGNITIVE PREREQUISITES TO PERCEIVING DISCRIMINATION**

Children's developing cognitive abilities limit their understanding of many social phenomena. Children's understanding of the world and how others think about the world become more complex and complete with cognitive maturity. It is, therefore, likely that children's understanding of discrimination follows a similar developmental trend. An interesting anecdote reported in the literature

(Schofield, 1989) points to the somewhat perilous nature of children's attributions to discrimination. Schofield tells a story in which a dark-skinned African American teacher punishes a young African American girl for breaking a rule. The girl accuses the teacher of being prejudiced. The teacher then holds her arm next to the girl's to show that they were both African American, but the girl says, "That don't matter. You're White!" (1989, p. 221). It is likely that certain cognitive conceptions will be necessary before children are capable of making attributions to discrimination. To understand that discrimination can occur, children must be able to understand that other individuals have unique cognitions and intentions, and they must be able to take others' perspectives. For example, a child must be able to understand that another person may hold stereotypical attitudes that differ from her own, and may act on those attitudes in a discriminatory manner. The development of children's understanding of others' cognitions is described in the following section.

### **Children's Understanding of Others' Cognitions**

Children's ability to understand that individuals have unique perspectives and cognitions is broadly referred to in the developmental literature as children's developing "theories of mind" (e.g., Chandler & Carpendale, 1998; Flavell, 1992). Although researchers in the area have slightly different approaches to their research questions, most evidence suggests that children gradually acquire the

ability to infer the perspective of others (Adalbjarnardottir & Selman, 1989; Flavell, 1992; Selman, 1976, 1980; Selman, Beardslee, Schultz, Krupa, & Podorefsky, 1986). Indeed, research has shown that social role-taking ability is correlated positively with age,  $r = .80$  (Selman & Byrne, 1974).

Young children (prior to age 4) are able to understand that another individual may hold a different perspective than themselves, but they cannot yet understand what that perspective may be (e.g., Flavell, 1992; Selman 1976). In contrast, 5-year-old children begin to recognize that each person has a unique psychological perspective, and are beginning to understand exactly what that perspective is (e.g., Flavell, 1992; Selman, 1976). Children at this age understand that individuals who have access to different information may hold different beliefs from one another (see Wellman, Cross, & Watson, 2001). For example, a 5-year old child, despite his or her own knowledge, can understand that if Child A last left her toy in a blue box, and Child B secretly moves the toy to a yellow box, Child A will still look for her toy in the blue box (referred to as a “false belief”; Wimmer & Perner, 1983).

By age 5, children can also recognize that people have personal reasons that direct their choices and actions, and can distinguish between intentional and unintentional acts. In addition, children at this age can take their knowledge about others’ intentions into account when they judge others’ social actions. For

example, by 5 to 7 years old, children realize that people's preexisting biases can affect how they interpret others' behaviors (Pillow, 1991; Pillow & Weed, 1995). In addition, children at this age judge an act to be fair if the actor is misinformed and did not intend to be unfair (Wainryb & Ford, 1998). In contrast, children judge the *same act* to be unfair if the actor intended to be unfair.

There are some limitations, however, to children's understanding of others' cognitions at this age. Specifically, children cannot yet distinguish mixed (i.e., ambivalent) thoughts, opinions, and feelings within the individual (see Harris, 1989). As it relates to discrimination, children at this age are not yet able to understand that others can feel positively about an individual person, yet negatively about the group to which that person belongs. In addition, children younger than 6 cannot yet understand that people may have thoughts and feelings that are incongruous with their behavior (Gross & Harris, 1988; Harris, Donnelley, Guz, & Pitt-Watson, 1986).

Older children (beginning around age 7) are able to understand that people can have multiple, mixed thoughts and feelings (see Harris, 1989), and that those thoughts may not match their behaviors (Gross & Harris, 1988; Harris et al., 1986). Children at age 7 can now recognize that others think and feel differently based on their own value systems, and begin to understand the interpretative nature of cognitions (Carpendale & Chandler, 1996). In other words, children at

this age understand that others can interpret the same event in multiple and differing ways. Also, children at this age can understand that the different interpretations can be equally legitimate, because events are often ambiguous. As it relates to understanding discrimination, a child at this age can understand that two individuals can interpret an ambiguous piece of information, such as girls' poorer performance on math tasks, in multiple ways. Although one person may interpret girls' poor performance as being due to test bias, another person may interpret it as being due to the lower ability of girls. The latter (but not the former) might discriminate against girls when picking students for the math team. Once children have acquired the ability to understand that others' (and their own) thoughts are constructive in nature, they are said to have an "interpretative theory of mind" (Carpendale & Chandler, 1996).

Some research suggests that children's understanding of others' cognitions may predict their understanding of discrimination. For example, most children are able to understand that others may hold false beliefs by 4 to 5 years of age (Wellman, et al., 2001). However, children who develop early competencies in understanding others' false beliefs are later more sensitive to what others think about them, and are more likely to report difficulties with teachers and peers, than those children without early competencies at such skills (Dunn, 1995). Thus, children's early social understanding appears to predict their sensitivity to how

others view them, and therefore may also predict children's sensitivity and attributions to self-directed discrimination. Research has also shown that social perspective-taking is positively correlated with children's explanations of ethnic prejudice, in that children who better understand others' perspectives give slightly more advanced explanations of prejudice (Ybarra, 2000).

Unfortunately, no existing research has directly examined how children's developing theory of mind is related to their understanding of discrimination. Therefore, the present study will assess whether children's interpretive theory of mind development predicts children's attributions to discrimination.

## **FACTORS AFFECTING PERCEPTIONS OF DISCRIMINATION**

Research has examined the conditions under which individuals perceive themselves to be the targets of discrimination. The variables associated with perceptions of discrimination can be classified into two categories: situational factors, or conditions that change across time, and individual factors, which are stable across time and environments.

### **Situational Factors Affecting Perceptions of Discrimination**

Two situational variables may affect children's attributions to discrimination (see Table 1). The first situational factor that may affect children's attributions to discrimination is the *target of the bias* (i.e., whether the self or

another individual is the victim of discriminatory actions). A robust finding within the adult social psychological literature is that stigmatized group members are more likely to state that their group has been the target of discrimination than that they themselves have been the target (e.g., Crosby, 1984; Moghaddam, Stolkin, & Hutcheson, 1997). This discrepancy is referred to as the personal/group discrimination discrepancy (PGDD), and involves people denying personal discrimination (as opposed to exaggerating group discrimination; Major, Quinton, McCoy, & Schmader, 2000). Crosby first used this term when she discovered that women recognized that other working women were discriminated against in the workplace, yet stated that they themselves were not (Crosby, 1984).

It has been hypothesized that the personal/group discrimination discrepancy is due to either (a) the greater complexity of knowledge about the self versus others (e.g., when thinking about personal discrimination, individuals have a wealth of complex information and it, therefore, is easy to find alternative reasons for negative outcomes) or (b) the heavy psychological costs associated with being the personal target of discrimination (Quinn, Roese, Pennington, & Olson, 1999). It is predicted that children, like adults, will be less likely to make an attribution to discrimination if the discrimination is self-directed than if it is directed at others. Therefore, because previous research examined children's perceptions of other-directed discrimination (Brown & Bigler, 2003), the present

study will examine children’s attributions to discrimination that is directed at the self.

Table 1. Situational Factors That Increase Perceptions of Discrimination

<b>Situational Factors</b>	<b>Hypothesis</b>
Target of bias	Individuals are more likely to perceive discrimination when it is directed toward other individuals (or their group) than toward themselves.
Situational ambiguity  <ul style="list-style-type: none"> <li>• Known characteristics of evaluator</li> <li>• Availability of a comparison group</li> </ul>	<ul style="list-style-type: none"> <li>• Individuals who know their evaluator is (a) aware of their group membership and (b) biased against their group are more likely to perceive discrimination.</li> <li>• Individuals who are told that another in-group member also received negative feedback are more likely to perceive discrimination.</li> </ul>

A second factor that may affect children’s attributions to discrimination is *situational ambiguity*. Social psychological research with adults has found that individuals are more likely to make an attribution to discrimination when discriminatory situations are unambiguous than when situations are high in ambiguity (e.g., Dion, 1975; Feldman Barrett & Swim, 1998). This conclusion stems from research in which situational ambiguity is experimentally manipulated. One manipulation used in the adult literature involves giving

participants knowledge of certain evaluator characteristics, such as their potential to be biased.

In one of the first studies of perceived discrimination, Dion and Earn (1975) examined how knowledge of certain evaluator characteristics affected adults' attributions to discrimination. Specifically, they provided Jewish men with negative feedback from people that the participants were told were (a) Christians who were aware that the participant was Jewish, or (b) Christians who were unaware of the participants' religious affiliation (Dion & Earn, 1975; for a similar study with women, see Dion, 1975). When asked why they had received negative feedback, 71% of those who had been told they were interacting with Christians who knew they were Jewish mentioned their group membership as the reason. When no religious information was given (and thus, situational ambiguity was higher), no one made an attribution to discrimination based on religious group membership.

More recent research indicates that perceiving a possible discriminator as prejudiced increases the likelihood of making a discrimination attribution (Feldman Barrett & Swim, 1998). For example, men are more likely to be considered prejudiced, and thus are more likely to be labeled as discriminators, than are women (Baron, Burgess, & Kao, 1991).

New findings suggest that children also use information about the evaluator's past biases when making attributions to discrimination. Brown and Bigler (2003) found that 7- to 10-year old children are more likely to make an attribution to discrimination when they are told that the evaluator (e.g., teacher) has a history of showing bias toward one gender group than when they are given no information about the evaluator's biases (or when they are told that the evaluator has a history of fairness). In contrast, 5- to 6-year old children do not use situational information when making attributions to discrimination, perhaps because their limited cognitive abilities reduce their ability to attend to complex social cues. Therefore, it is predicted that children (with the requisite cognitive development) will make more attributions to discrimination when they have knowledge of certain evaluator characteristics, such as the evaluator's gender and potential bias, than when they have no such knowledge.

A second manner in which situational ambiguity has been manipulated within the adult social psychological literature involves making a comparison group member available to the participant. The availability of a comparison group member appears to reduce situational ambiguity, and subsequently increase individuals' attributions to discrimination. Research has found that participants who make either (a) an in-group lateral comparison, in which one compares oneself to another person in a stigmatized group who received a similar outcome,

and/or (b) an out-group upward comparison, in which one compares oneself to a person in a higher status group with a more positive outcome, are more likely to make an attribution to discrimination than participants with no such comparison opportunity (Swim, et al., 1998).

Children's attributions to discrimination may be affected by the availability of a relevant comparison group as well. For children in a school setting, these comparisons are readily available and children may be especially likely to compare their outcome to that of others.<sup>1</sup> Therefore, the present study, as a means of affecting situational ambiguity, will include an out-group comparison peer with whom the child can compare him or herself.

### **Individual Factors Affecting Perceptions of Discrimination**

In addition to situational variables, there are several individual variables that have been shown to affect individuals' perceptions of discrimination (see Table 2). One variable that has been shown, in the adult social psychological literature, to affect perceptions of discrimination is individuals' *knowledge about prejudice*, such as their belief about how often they or their group have been discriminated against in the past (Feldman Barrett & Swim, 1998; Swim, et al. 1998). Swim et al. (1998) found, for example, that women who were knowledgeable about past gender discrimination cases were more likely to attribute negative feedback to discrimination than women who were not

knowledgeable about such cases. These beliefs about discrimination can come from one's own and others' experiences.

Table 2. Individual Factors That Increase Perceptions of Discrimination

<b>Individual Factors</b>	<b>Hypothesis</b>
Knowledge about prejudice	Individuals who know about past prejudice are more likely to perceive discrimination.
Group identity	Individuals who are strongly identified with their group are more likely to perceive discrimination.
Stigma consciousness	Individuals who are highly aware of the stigma associated with their group are more likely to perceive discrimination.
Group attitudes	Individuals who hold egalitarian attitudes are more likely to perceive discrimination.

A second factor that affects adults' perceptions of discrimination is *group identity*. Research has shown that the strength of an individual's group identity predicts the likelihood of him or her making an attribution to discrimination. Specifically, a stigmatized group member with a strong group identity is more likely to attribute an ambiguous situation to discrimination than a stigmatized group member with a weak group identity (Shelton & Sellers, 2000). In fact, the more highly identified a person is with his or her group, the more discrimination attributions he or she makes (Major, et al., 1996).

A third factor that has been found to affect adults' perceptions of discrimination is *stigma consciousness*, or the awareness of being in a stigmatized

group which encounters discrimination (Pinel, 1999). Pinel (1999) found that women low in stigma consciousness (e.g., answered no to “Most men have a problem viewing women as equals”) are more likely to say that sexism is no longer a problem than women high in stigma consciousness. In contrast, women who are high in stigma consciousness perceive more gender discrimination directed toward women as a group (e.g., “Women as a group are often discriminated against”), toward the average woman (e.g., “The average woman is often discriminated against”), and toward themselves (e.g., “As a woman, I am often discriminated against”) than women who are low in stigma consciousness.

A fourth factor that has been found to affect perceptions of discrimination concerns individuals’ *group attitudes*. More specifically, research has revealed that group attitudes predict the likelihood that stigmatized group members will label an event discriminatory (e.g., Mazur & Percival, 1989; Swim & Cohen, 1996). For example, several studies have found that women who hold traditional attitudes about gender roles are less likely to label an event as sexist than women who hold egalitarian attitudes (Jensen & Gutek, 1982; Swim & Cohen, 1996). In addition, Chaterjee and McCarrey (1989) compared the extent to which women in traditional and nontraditional training programs believe that women in predominately male jobs experience discrimination. They found that, across both training groups, women with egalitarian attitudes perceived more discrimination

than women with traditional attitudes. Because children have well-established attitudes about their groups (but have not yet developed a mature group identity or stigma consciousness), it is this last factor, individuals' group attitudes, that will be examined in the present study.

### *Children's group attitudes*

It is predicted that children's attitudes about gender will moderate the age and frequency with which children make attributions to discrimination.

Specifically, it is predicted that children who endorse egalitarian attitudes about gender will make attributions to discrimination at an earlier age, and with greater frequency, than children who endorse more stereotypical attitudes about gender. For example, if a girl notices that her teacher gives girls poorer grades than boys on math assignments *and* she endorses the view that boys and girls show equivalent mathematical abilities, she is more likely to make an attribution to discrimination than ability. In contrast, if a girl endorses the view that boys are better than girls at math, she is likely to make an attribution to lack of math ability, rather than discrimination.

Children's attitudes about their social groups have been shown to affect numerous cognitive processes. For example, children's level of stereotyping affects their information-processing, including their memory for stereotype - consistent versus stereotype-inconsistent information. Children with more

egalitarian attitudes have better memory for stereotype-inconsistent information than children with less egalitarian attitudes (Bigler & Liben, 1992, 1993; Carter & Levy, 1988; Martin & Halverson, 1983; Signorella, 1987).

Children's attitudes about their group also affect their attention to cues related to their group membership. For example, children with highly biased racial attitudes judged racial cues as more salient than other children. Research found that highly-prejudiced children attend more to the race of individuals in pictures than other distinguishing features (such as eyeglasses and smile), especially if the child is Euro-American and the picture is that of an African American child (Katz, Sohn, & Zalk, 1975).

Recently, research has shown that children's gender attitudes do, indeed, affect their attributions to discrimination. Brown and Bigler (2003) found that children with more egalitarian gender attitudes (i.e., endorse more activities as being appropriate for both girls *and* boys) make more attributions to discrimination than children with less egalitarian attitudes – at least when the discrimination is directed toward others. This finding parallels the adult literature (Swim & Cohen, 1996). Research has not examined, however, whether children with more egalitarian attitudes make more attributions to self-directed discrimination than children with less egalitarian attitudes. Therefore, the present

study will examine whether children's group attitudes are related to their attributions to self-directed discrimination.

### **CONSEQUENCES OF DISCRIMINATION**

As Gordon Allport eloquently stated almost 50 years ago, "One's reputation, whether false or true, cannot be hammered, hammered, hammered, into one's head without doing something to one's character" (Allport, 1954, p. 142). In other words, repeated experiences of being negatively judged because of one's group membership will undoubtedly have effects on the targets of that discrimination. Thus, in addition to understanding the conditions under which adults and children perceive discrimination, it is important to understand the consequences of this perception on its targets. Unfortunately, there is little direct evidence concerning the effects of perceiving discrimination. Most of the research has examined how adults' self-esteem is affected by attributing negative feedback to discrimination (e.g., Crocker, Voelkl, Testa, & Major, 1991). In this section, the research on adults' self-esteem will be described, followed by the existing adult research on how discrimination affects motivation, identification, and perceived control. To date, no known research has directly studied how these domains are affected by children's perceptions of discrimination.

## **Self-esteem**

Historically, most researchers assumed that having the knowledge that others may treat you poorly because of your race or gender leads to reduced self-esteem. Crocker and Major (1989) outline three distinct theoretical perspectives that predict stigmatized group members *should* have lower self-esteem than non-stigmatized group members. First, the importance of reflective appraisals for self-concept (Cooley, 1956) suggests that an awareness of others' stereotypes, prejudice, and discrimination should lead to lower self-esteem. Second, the existence of self-fulfilling prophecy effects (see Darley & Fazio, 1980) predicts that stigmatized individuals should come to see themselves – and behave – in a consistent manner with negative stereotypes and treatment. Third, efficacy-based perspectives on self-esteem (e.g., Gecas & Schwable, 1983) predict that stigmatized group members' low perceived control over the environment should lead to low self-esteem.

It appears, however, that perceiving discrimination neither enhances nor diminishes trait self-esteem. In other words, when stigmatized group members make an attribution to discrimination, their global sense of self-worth is not affected (Dion, 1975; Crocker, et al., 1991). Indeed, research has consistently shown that stigmatized group members do not have lower global self-esteem than others. Specifically, African Americans do not have lower global self-esteem

than Euro-Americans (e.g., Taylor & Walsh, 1979) and women and girls do not have lower global self-esteem than men and boys (e.g., Maccoby & Jacklin, 1974).

Several strategies have been suggested to explain how adult members of stigmatized groups maintain their global self-esteem, including individuals (a) comparing themselves to other in-group members, instead of non-stigmatized out-group members, (b) relatively devaluing the criteria that their group is discriminated on (or overvaluing attributes their group excels at), and/or (c) discounting negative feedback as discrimination (Crocker & Major, 1989). These strategies are difficult, however, for targets of discrimination to use. For example, individuals who have no in-group members present (i.e., have solo status) are not able to make in-group comparisons. Also, the inability to completely devalue a criterion (e.g., academic performance) makes this strategy especially difficult for students (Crocker & Major, 1989). In addition, most research (as described earlier) reveals that adults rarely discount feedback as discrimination (i.e., they do so only when discrimination is overt and unambiguous; Feldman Barrett & Swim, 1998).

Instead, research suggests that adults are more likely to maintain their global self-esteem by disengaging their self-esteem from the outcome of a particularly threatening situation (e.g., Crocker, Major, & Steele, 1998).

Disengagement is defined as a “defensive detachment of self-esteem from outcomes in a particular domain, such that feelings of self-worth are not dependent on successes or failures in that domain” (Major, Spencer, Schmader, Wolfe, & Crocker, 1998, p. 35). This often means that targets of discrimination will disengage their self-esteem from their performance in academic domains (i.e. their self-esteem will not be negatively affected by poor feedback about their performance in a particular domain). For example, African American students’ self-esteem was higher after failure on an intelligence test than Euro-American students if the test was described as racially unfair. In other words, African Americans had more disengagement of self-esteem after feedback than did Euro-Americans (Major et al., 1998). Thus, although discrimination does not lower global self-esteem, it does lead the target of discrimination to limit the domains that are tied to self-esteem.

### ***Trait versus state self-esteem***

Most of the research examining the self-esteem of stigmatized group members has measured participants’ *trait* self-esteem (i.e., a global, stable sense of self-worth). This research has largely ignored the complexities of self-esteem. Specifically, it has ignored that, in addition to global, stable self-esteem, there is a short-term, domain-specific self-esteem that is more responsive to negative feedback – namely, *state* self-esteem. Research has shown that, although trait

self-esteem is unaffected by attributions to discrimination, state self-esteem is affected (Crocker, Cornwell, & Major, 1993). In other words, when individuals attribute negative feedback to discrimination in the laboratory, their global, trait self-esteem is unchanged, but their state self-esteem decreases (Crocker et al., 1993). It appears that one instance of discrimination in the laboratory is powerful enough to reduce state self-esteem. Perhaps, over time, with repeated attributions to discrimination and thus, repeated blows to state self-esteem, stigmatized individuals begin to disengage their trait self-esteem from the domain so that their global sense of self-worth is protected.

### ***Multiple domains of self-esteem***

An additional complexity of self-esteem that is rarely examined involves the multiple domains of individuals' self-esteem. Although the list may not be exhaustive, Heatherton and Polivy (1991) identify three domains of state self-esteem that seem to be particularly important to people: performance, social acceptance, and appearance. Attributions to discrimination may differentially affect the different domains of state self-esteem, depending on the domain targeted by the negative feedback. For example, Crocker et al. (1993) found that obese women who attributed negative feedback (i.e., not being asked on a date) to the legitimate concerns about their weight, instead of the stereotypical attitudes of their evaluators, suffered decreases in their appearance state self-esteem, but not

their social and performance self-esteem. When the women made attributions to discrimination, however, their appearance state self-esteem was maintained.

It is predicted, therefore, that individuals who attribute negative feedback about their work to poor performance, instead of discrimination, may suffer decreases in the performance state self-esteem. In contrast, those individuals who attribute negative feedback to discrimination, instead of poor performance, may protect (or boost) their performance state self-esteem. Although attributions to discrimination may preserve performance and appearance state self-esteem, social self-esteem may suffer when an individual states that he or she is being treated poorly because of his or her gender. The present study, therefore, will examine how performance and social state self-esteem are affected by attributions to discrimination.

### **Motivation and Identification**

Research has shown that perceptions of discrimination can also affect targets' motivation as it relates to academic performance. When Cohen, Steele, and Ross (1999) gave college students negative feedback about their writing, African American participants perceived the feedback to be more biased than Euro-American participants. The African American participants also had a decrease in motivation to rewrite the paper. However, when the feedback was accompanied by assurances that the student was being held to a high standard and

was capable of meeting those high standards, the African American participants did not perceive bias. In fact, they had higher motivation and were more identified with writing than the Euro-American participants (Cohen, et al., 1999). Thus, it appears that making an attribution to discrimination reduces an individual's motivation to achieve, as well as his or her identification with a particular domain.

In addition to personal motivation and identification, perceptions of discrimination may also affect how important the individual considers the domain to be in general. Although not studying discrimination per se, Major and colleagues (Major, Sciacchitano, & Crocker, 1993) found that, when individuals compared unfavorably (based on an experimental manipulation) to out-group members on a verbal-spatial task (as they would if they experienced discrimination), those individuals rated verbal-spatial ability as less important than those individuals who compared unfavorably to in-group members. Thus, perceiving discrimination in a particular domain may lead an individual to devalue (to a degree) that domain. Therefore, the present study will examine how motivation, identification with a domain, and importance of that domain is affected by attributions to discrimination.

## **Perceived Control**

In addition to self-esteem, perceived control, or the belief that one can control the personal outcomes in one's life, is an important aspect of psychological functioning (e.g., Larson, 1989; Thompson & Spacapan, 1991). In fact, perceiving control over one's life is associated with better emotional health (Larson, 1989), better coping (Taylor, Lichtman, & Wood, 1984), and better performance on complex tasks (Glass & Singer, 1972). Although perceived control is important to healthy psychological functioning, attributions to discrimination may adversely affect this feeling of control.

Glass and Singer (1972) were among the first to suggest that individuals may perceive a lack of control as a result of discrimination. Later, Crocker and Major (1993) theorized that, although attributions to discrimination may allow an individual to maintain his or her self-esteem, those attributions may lead that individual to feel less control over his or her life, particularly in the performance and social domains. In other words, if individuals think that their negative feedback is due to something out of their control (i.e., due to the stereotypical attitudes and actions of another person), then they may feel that they do not control the outcomes in their life. Thus, they may show a reduction in social perceived control (i.e., feel that they cannot control how people interact with them) and performance perceived control (i.e., feel that they cannot control how

well their performance is evaluated). Unfortunately, the research on this issue is unclear. Therefore, the present study will examine how perceived control over the performance and social domains is affected by attributions to discrimination.

### **Conclusion**

Research with adults suggests that making an attribution to discrimination may lead to high performance state self-esteem, but low social state self-esteem, motivation and identification, and perceived control. However, these constructs have not yet been examined in children. The present study will examine, therefore, how these domains are affected when children make attributions to discrimination.

### **DEBRIEFING METHODOLOGIES**

In addition to assessing children's understanding of discrimination, the present study has a second purpose. Specifically, this study will assess the effects of research involving deception, and the subsequent debriefing methodologies, on children's attitudes about research and themselves.

Developmental researchers are cautioned about the use of deception in research involving children (e.g., Cooke, 1982). Many argue that research that involves deception, especially research with children, may have potentially negative consequences. Specifically, children may believe and internalize the

false feedback reported to them as part of the research, even if they understand deception and are told the feedback is false. In addition, children may mistrust subsequent researchers and be wary about further scientific participation.

Indeed, many developmental researchers abide by the caution to avoid deception. This is illustrated by a review of the past two years of studies published in *Child Development* showing that only 7% of developmental research involves deception or false feedback. In contrast, 58% of adult psychological research involves deception (Adair, Dushenko, & Lindsay, 1985).

As many social psychologists have discovered, however, the study of many social psychological phenomena often requires the use of mild deception to elicit natural reactions from participants. Thus, those developmental researchers who are interested in social psychological constructs often face a paradox – deception may be necessary to understand children’s natural responses to certain situations, but researchers are urged to avoid deception in research involving children. The only way this ethical dilemma may be resolved is by the development of an effective and developmentally appropriate debriefing about deception, such that the concerns of many developmentalists are addressed. Unfortunately, little research has assessed which types of debriefing are effective for children at different developmental periods.

The Society for Research in Child Development (SRCD) offers little guidance for the appropriate protocol for debriefing children after deception. SRCD guidelines state, “If withholding information or deception is practiced, and there is reason to believe that the research participants will be negatively affected by it, adequate measures should be taken after the study to ensure the participant's understanding of the reasons for the deception” (SRCD, 1991). What these adequate measures may be, however, is not mentioned.

Some research with adults has addressed how different debriefing protocols may affect participants' self-perceptions following negative feedback. Ross, Lepper, and Hubbard (1975) found that participants showed a “perseverance phenomenon,” in that their self-perceptions continued to be adversely affected by negative feedback, even after hearing a standard debriefing in which they were told the feedback was false. They found, however, that when participants were told of this phenomenon and explicitly told about participants' tendencies to be biased by the feedback (despite its inaccuracy), their self-perceptions were not adversely affected. Marketing researchers (Toy, Olsen, & Wright, 1989) also found that participants who heard a comparable, thorough debriefing were more likely to feel that the deception was justified than participants who heard a minimal debriefing.

Although an explicit debriefing seems to negate any adverse effects of deception with adults (Ross, et al., 1975; Toy, et al., 1989), this style of debriefing may be too complex for children. For example, studies suggest that children younger than 10 may not understand the purpose of the research they participated in, even after an explicit debriefing (Hurley & Underwood, 2002; Nannis, 1991). Likewise, young children may not understand the rationale for the deception. Being told about deception may make children mistrustful of researchers and science. In addition, children may not understand that the negative feedback was false, even when told so, and may actually believe it to be true.

A cognitively simpler method of ensuring that children are not adversely affected by negative feedback would be to simply state that the feedback itself was an error and to replace the negative feedback with positive feedback. Thus, children would not be aware of the deception, yet would leave the research experience feeling positively (although the positive feeling would be unfounded). In fact, half of the studies involving deception with children used this method of debriefing. Only one-third of the studies gave children an explicit debriefing as to the true nature of the study.

The lack of consensus on how to best debrief children after studies involving deception highlights the scarcity of empirical research on this ethical-methodological issue. Thus, although SRCD states that, “[the] deception methods

[should] have no known negative effects on the child or the child's family” (SRCD, 1991), developmentalists are unclear as to how to ensure this is the case. Therefore, the present study will assess how these two styles of debriefing (explicit/ educational disclosure versus positive feedback, but no disclosure) affect children’s attitudes not only about themselves and their own abilities, but also about science and research in general. □

### **SUMMARY AND HYPOTHESES**

In summary, most research suggests that many children, by 5 to 6 years of age, are aware that discrimination may exist as a social phenomenon. By 9 years of age, children are able to attend to situational cues when making attributions to discrimination (that is targeted to someone else), and thus their attributions to discrimination parallel those made by adults. However, it is still unclear when and how children *personally* experience and understand discrimination. Therefore, the present study will examine at what age children perceive discrimination when they are the targets of the bias, as well as whether children at different ages respond differentially to situational information about the likelihood of discrimination.

Based on previous research with children and adults, it is predicted that children as young as 5 years old may make some attributions to discrimination. It is predicted, however, that older children will be more likely than younger

children to attend to situational information about the likelihood of discrimination when making attributions to discrimination. Specifically, it is predicted that older children will only make attributions to discrimination when the information suggests that it is a viable option, whereas younger children will not show differential attributions based on situational information.

Children's experiences in social groups may also affect their attributions to discrimination. Research suggests that girls, perhaps because of their experience in stigmatized groups, have a broader awareness of the lower social status of females relative to males (Brown & Bigler, 2003; Killen & Stangor, 2001; Theimer, et al., 2001). Therefore, it is predicted that girls will make more attributions to discrimination than boys.

It is likely that children's understanding of others' cognitions will affect their perceptions of discrimination. For example, a child must understand that others' cognitions are interpretive in nature before he or she can understand why some people may discriminate and others do not. Children develop this ability around age 7 (Carpendale & Chandler, 1996). Therefore, the present study will examine whether children's interpretive theory of mind abilities predict children's attributions to discrimination. It is predicted that children with a more advanced theory of mind will be more likely to make an attribution to discrimination than children with a less advanced theory of mind.

In addition to developmental and situational variables, it is predicted that children's own gender attitudes will affect at what age and under which circumstances children will make attributions to discrimination. Children who endorse the belief that gender is a reasonable criterion for differential treatment may be unlikely to label differential treatment as discrimination. Specifically, based on Brown and Bigler (2003), it is predicted that children who hold non-biased, egalitarian attitudes toward gender groups will make more attributions to discrimination, and make them at a younger age, than children with more biased attitudes. Therefore, it is predicted that gender attitudes will predict attributions to discriminations and moderate the relationship between children's cognitive development and their attributions to discrimination.

The study will assess whether state self-esteem, perceived control, motivation, identification with the domain, and perceived importance of the domain are affected by perceptions of discrimination. It is predicted that perceptions of discrimination will have both positive and negative effects on children. Specifically, based on research with adults (e.g., Cohen, et al., 1999; Crocker, et al. 1993), it is predicted that children who make attributions to discrimination will show lower social state self-esteem, higher performance state self-esteem, and lower perceived control (on both performance and social domains) than children who do not make attributions to discrimination. It is also

predicted that children who make attributions to discrimination will be less motivated to continue working on the task, will be less identified with the domain, and will consider the domain less important than children who do not make attributions to discrimination.

Finally, the present study will analyze how different debriefing protocols affect children's attitudes about themselves and research. It is predicted that older children will respond more positively than younger children to the explicit debriefing about the true purpose of the research. In contrast, it is predicted that both groups will respond positively to having their negative feedback replaced with positive feedback. It is predicted, however, that children in the explicit debriefing condition will report having learned more, as a result of their participation, than children in the positive feedback condition.

## **CHAPTER TWO:**

### **METHOD**

#### **PARTICIPANTS**

Participants consisted of 55 children (29 girls, 26 boys), ranging in age from 5 years, 3 months to 11 years, 3 months. The mean age was 8 years, 3 months ( $SD = 1$  year, 7 months). The participants were from the after-school programs of three elementary schools, and were from a range of socioeconomic classes and ethnic backgrounds (21 were Euro-American, 19 were Hispanic, and 15 were African-American). Only those children with parental consent, and who themselves gave assent, participated in the study (see Appendix A for parental consent letter).

#### **OVERVIEW OF PROCEDURE**

All measures were given to the children individually by a same-gender experimenter. First, children's theory of mind reasoning and gender attitudes were assessed. One week later, a different experimenter gave children mild negative feedback and then administered measures designed to assess children's attributions to discrimination, self-esteem, motivation, and perceived control. All

children were then debriefed following one of two debriefing protocols. One week later, children were asked follow-up questions about the study and the debriefing process.

## **PRE-TESTING MEASURES: INDIVIDUAL AND DEVELOPMENTAL DIFFERENCES**

### **Theory of mind**

To determine whether children's theory of mind development is a significant predictor of their perceptions of discrimination, children were administered an interpretive theory of mind task developed by Carpendale and Chandler (1996). The task is designed to assess whether children understand that ambiguous situations can be reasonably interpreted in different ways by different people, and that it is difficult (if not impossible) to predict how individuals might interpret such a situation.

Specifically, children were presented with three situations in which two puppets were asked to interpret an ambiguous word, referent, or figure (see Appendix C). For example, children were told that two puppets (Bob and Wendy) were playing a game in which they had to "wait for a ring." Children were then asked if it was reasonable that Bob thinks he is waiting for the phone to ring, while Wendy thinks she is waiting for a diamond ring. Children were given one point if they judged both interpretations legitimate because of the ambiguous

nature of the stimuli. Children were also asked whether they could predict what a third puppet would think. Children were given an additional point if they declined to make a prediction and correctly explained why it would be difficult to know. Thus, the total score could range from 0 to 6 (i.e., two points for each situation), with higher score indicating better understanding.

### **Gender attitudes**

To determine whether children's attitudes about gender moderate their perceptions of discrimination, children's gender attitudes were assessed using the activity subscale of a sex-typing measure (Children's Occupation, Activity, and Trait – Attitude Measure [COAT-AM]), developed by Liben and Bigler (2002). Specifically, children were asked “who should” perform each of 25 activities (10 stereotypically female, 10 stereotypically male, and 5 neutral). Children responded using the options “only boys,” “only girls,” or “both boys and girls.” The number of times children gave egalitarian responses (i.e., “both boys and girls”) to stereotypical activities was computed. Thus, scores ranged from 0 to 20 with higher scores indicating more egalitarian beliefs.

### **PROCEDURE**

One week after the pretest measures were given, a different same-gender experimenter returned to the school. Prior to the experimental procedure, all

children were randomly assigned to one of two conditions of varying situational information. Children were presented with situational information that suggested that discrimination was either likely or unlikely.

Specifically, children were taken individually to a testing room by the experimenter. Child were told that they would be drawing a self-portrait to be entered into a state-wide drawing contest. This task was chosen because it makes the child's gender apparent to others. Children were told that many other children would be drawing self-portraits for the contest and a judge (or judges) would decide which ones are good enough to win. The judge was described as a teacher from another school district. To reinforce to the children that the judge would be aware of their gender, all children were told that a picture would be taken of them (ostensibly so that the judge could determine the quality of the drawings). The experimenter then took a Polaroid photograph of the child. All of the children were given their photograph, a large piece of drawing paper, and crayons, and told that they had five minutes to complete their drawing. Once the children's drawings were completed, children were allowed to return to their normal activities while the judge ostensibly evaluated their drawings.

After several minutes, the experimenter met with the child again, returning with the child's drawing and his or her Polaroid photograph. Before the experimenter gave the child feedback on his or her drawing, children were shown

a scrapbook of the “judges” and “past winners.” Children in the likely discrimination condition were shown a Polaroid photograph of an adult judge of the other gender (e.g., girls were shown a photograph of a male judge), whereas children in the unlikely discrimination condition were shown photographs of adult judges of both genders. Children were then shown Polaroid photographs of two “past winners.” Children in the likely discrimination condition were shown photographs of two children of the other gender, whereas children in the unlikely discrimination condition were shown photographs of both a boy and a girl.

Children were then told that the judge had compared their drawing to the drawing of another child (or children). Specifically, children in the likely discrimination condition were shown a photograph of a same-race, other-gender child, whereas children in the unlikely discrimination condition were shown photographs of both a boy and a girl (at least one of the photographs was of a same-race child).<sup>2</sup> Children were told that both their picture and the picture of the other child (or children) were judged to be of the same good quality, but because of a limit to the number of children allowed to go to the statewide contest, the child’s picture was not selected as the winner. The children did not see the other child’s drawing.

## **POST-TESTING MEASURES**

### **Attributions to discrimination**

Following the feedback, children were asked a series of questions. First, in an open-ended format, children were asked why they were not selected as the winner. Their answers were recorded and their attributions were coded.

Children were then read a list of five possible experimenter-provided reasons for why they were not selected. The possible reasons were: (a) her (his) drawing wasn't as good, (b) the assignment wasn't fair, (c) she (he) didn't try as hard, (d) she (he) wasn't as good a drawer, (e) the judge(s) likes to pick boys (girls).

Children rated how true each reason was on a scale of 0 (not at all true) to 4 (very true). The scale was accompanied by a graphic representation of responses (i.e., cups with increasing levels of liquid). Children's mean ratings of the veracity of each attribution type were computed.

### **Self-esteem**

To determine whether self-esteem is affected by either experiencing possible discrimination and/or making an attribution to discrimination, children's social and performance state self-esteem were assessed using a modified version of the State Self-esteem Scale (Heatherton & Polivy, 1991). The scale has been shown to have sound psychometric qualities (coefficient  $\alpha = .92$ ). Although the

scale has been shown to be appropriate with children as young as age 11 (Linton & Marriott, 1996), the wording was altered slightly to make it more appropriate for younger children. Children were read 14 statements about how they may feel *right now* regarding their social and performance self-esteem (see Appendix D). Children rated each statement on a 5-point scale, ranging from 0 (not at all true) to 4 (very true). Social and performance self-esteem each could range from 0 to 28, with higher scores indicating higher self-esteem.

### **Motivation, importance, identification**

To determine whether motivation toward, identification with, and importance of a domain are affected by either experiencing possible discrimination and/or making an attribution to discrimination, children were asked three questions (see Appendix E). First, to assess motivation, children were asked, “If you had the chance, how much would you want to draw your picture over again for another chance in the contest?” Children rated how their motivation on a scale ranging from 0 (not at all) to 4 (very much). Second, to assess identification with the domain, children were asked, “How much is being a good drawer an important part of who you are?” They responded on a scale ranging from 0 (not at all important) to 4 (very important). Finally, to assess the importance of the domain to the child, children were asked, “How important is it

to be a good drawer?" They responded on a scale ranging from 0 (not at all important) to 4 (very important).

### **Perceived control**

To determine whether domain-specific perceived control is affected by either experiencing possible discrimination and/or making an attribution to discrimination attributions to discrimination, children were asked a series of questions about their social and performance perceived control (see Appendix E). Children rated each possibility on a scale ranging from 0 (not at all true) to 4 (very true). Children's mean social and performance perceived control were computed.

## **DEBRIEFING**

### **Debriefing protocols**

After completion of the measures, all the participants were debriefed. A complete debriefing protocol is presented in Appendix F. First, children were probed for suspicion about the manipulation. Then, children heard either one of two possible debriefing procedures, in which either (a) the negative feedback was replaced with positive feedback, or (b) the true nature of the study was explicitly explained. In the positive feedback condition, children were told that there was

an error in the judging. They were told that there had been a mistake and that they actually *were* chosen for the contest. The experimenter apologized for the error and complemented the child on his or her drawing. Children were then given a blue ribbon for their drawing. Children were not informed of the true nature of the experiment.

In the explicit debriefing condition, children were told that the contest and judging were false. The actual purpose of the study was explained. The experimenter and the child then discussed the topic of discrimination. The children were asked how they felt about the negative feedback, and told about how most other children felt. They were also told that some people still feel they are not good at drawing, even after being told that that the judging was fictitious (i.e., “perseverance phenomenon”). Children were reminded that the judging was made up, and reassured that the study had nothing to do with their actual drawing ability. The purpose of this debriefing was not only to help the child feel better about the situation, but to better understand discrimination in general. Children were given a small gift as a token of appreciation. Finally, all children (regardless of condition) were asked to not mention the study to anyone else.

### **Debriefing follow-up measure**

To assess the effects of each debriefing style, an experimenter returned to the school one week later to ask each child a series of questions (see Appendix F).

Questions pertained to children's attitudes and feelings about their participation in the study, about positive and negative aspects of research in general, about their ability to draw, and about their gender group membership. Children responded on a 5-point scale, ranging from 0 (not at all) to 4 (very much).

## **CHAPTER THREE:**

### **RESULTS**

#### **OVERVIEW OF STATISTICAL ANALYSES**

One primary purpose of this dissertation was to examine children's perceptions of discrimination that was directed at themselves. This question was addressed by analyzing children's attributions to why they were not picked. Specifically, children's open-ended attributions to why they were not picked were analyzed with log-linear models. Children's ratings of the veracity of the experimenter-provided attribution types (i.e., discrimination, ability, quality, effort, unfairness) were then analyzed with repeated measures analyses of variance. Analyses assessed whether child characteristics (i.e., age and gender) predicted attributions, as well as whether child characteristics interacted with situational information in predicting attributions (e.g., do children at different ages respond differentially to situational information about the likelihood of discrimination?).

The effects of individual and developmental differences on attributions to discrimination were also assessed. Specifically, regression analyses were conducted to examine whether children's theory of mind development predicted

their attributions separately from age. Logistic regressions were used for the open-ended attributions and hierarchical multiple regression analyses were used for the ratings of the veracity of the attributions. To examine whether children's gender attitudes either predicted or moderated their attributions to discrimination, hierarchical regression analyses were conducted. Again, logistic regressions were used for the open-ended attributions and hierarchical multiple regression analyses were used for the ratings of the veracity of the attributions.

A second primary purpose of this dissertation was to examine the consequences of experiencing and perceiving discrimination. The effects of experiencing discrimination on self-esteem, perceived control, motivation, identification, and importance were analyzed via multivariate analyses of variance. In addition, the correlations between ratings of the veracity of discrimination and the outcome variables were analyzed. Analyses were also conducted to examine whether children's gender attitudes moderated the effects of perceiving discrimination.

A third purpose of this dissertation was to examine the effects of the debriefing protocols. Specifically, multivariate analyses of variance were conducted to examine how children's attitudes were affected by the different debriefing methodologies.

## ATTRIBUTIONS TO DISCRIMINATION

### Open-ended attributions

Open-ended attributions were coded as being related to either (a) discrimination (e.g., “Sometimes boys like to pick boys.”), (b) ability (e.g., “He must be really good at drawing.”), (c) quality (e.g., “I didn’t draw a background in my picture.”), (d) effort (e.g., “I didn’t try very hard.”), (e) idiosyncratic reasons (e.g., “Maybe they forgot to give my drawing to him.”, “They never heard of Anthony.”), or (f) “I don’t know”. The percentage of children who gave each type of attribution is presented in Table 3. All responses were coded by the first author and a proportion of the responses (40%) were then independently coded by a research assistant. Rate of agreement for the classification was 98%.

Table 3. Percentage of Open-ended Attributions by Situational Information

Condition	(n)	Attribution					
		Discrimination	Ability	Quality	Effort	Don't know	Idiosyncratic
<b>Likely</b>	(30)	13%	7%	33%	3%	33%	11%
<b>Unlikely</b>	(25)	0%	28%	32%	8%	20%	12%
<b>Overall total</b>	(55)	7%	16%	32%	5%	27%	12%

To assess how age, gender, and situational information affected children's open-ended attributions, log-linear models were analyzed. Log-linear models allow for the examination of categorical data by analyzing expected cell frequencies in a contingency table (Knoke & Burke, 1980). As is most common, expected cell frequencies were obtained by using the Newton-Raphson algorithm. Following Stevens (1996) and Knoke and Burke (1980), each hierarchical model was tested using backward elimination, by first examining the most complex model (involving a three-way interaction), followed by the next most parsimonious model (involving three two-way interactions), until the most parsimonious model that adequately fits the data is selected. If deleting an effect (e.g., the three-way interaction between situational information, gender, and attribution type) does not cause a significant difference in the likelihood ratio chi-square ( $L^2$ ), then the effect can be safely deleted from the model. The final model is considered to fit the data well if there is a small  $L^2$  relative to the df (i.e., the observed cell frequencies do not differ much from the expected cell frequencies), and thus we can accept the hypothesized model. Probability levels *greater* than .1 are considered to represent adequately fitted models.

Two separate models were analyzed to examine the effects of age, gender, and situational information on open-ended attributions. Because of the resulting small cell sizes due to the five different types of attributions examined, it was not

possible to use one large model to examine the three variables simultaneously. Therefore, one model included situational information (likely or unlikely), gender (boy or girl), and type of attribution (discrimination, ability, quality, effort, or don't know). A second model included situational information (likely or unlikely), age group (younger or older, based on a median split), and type of attribution (discrimination, ability, quality, effort, or don't know).

For the model including situational information, gender, and type of attribution, analyses indicated that the most parsimonious model that fit the data involved the two-way interaction between situational information and attribution type ( $L^2 = 13.85$ ,  $df = 10$ ,  $p = .18$ ). Deleting this effect would have led to change in  $L^2$  of 10.24 ( $p = .04$ ). For the model including situational information, age group, and type of attribution, analyses indicated that the most parsimonious model that fit the data again involved the two-way interaction between situational information and attribution type ( $L^2 = 10.31$ ,  $df = 10$ ,  $p = .41$ ). As before, deleting this effect would have led to change in  $L^2$  of 10.24 ( $p = .04$ ). Thus, for both models, only situational information (i.e., whether discrimination was likely or unlikely) significantly affected the type of attribution children gave in response to why they were not picked as the winner.

Analysis of simple effects revealed that situational information was specifically related to attributions of both discrimination and ability. Of those

children who made an attribution to discrimination, 100% heard situational information suggesting that discrimination was likely ( $L^2 = 5.11, df = 1, p < .05$ ). Of those children who made an attribution to differences in ability, 22% heard situational information suggesting that discrimination was likely and 77% heard situational information suggesting that discrimination was unlikely ( $L^2 = 4.68, df = 1, p < .05$ ).

### **Experimenter-provided attributions**

Next, to analyze children's mean ratings of the veracity of the experimenter-provided attribution types, a 2 (situational information: likely or unlikely) X 2 (gender of participant: boy or girl) X 2 (age group: younger or older) X 5 (attribution type: discrimination, ability, quality, effort, unfairness) repeated measures analysis of variance was conducted, in which the last variable was treated as a within-subject variable. Means are presented in Table 4. The main effect for attribution type was significant,  $F(4, 184) = 4.58, p < .05$ . Post hoc analyses (Tukey HSD tests used here and throughout paper for theoretically-appropriate comparisons) indicated that, overall, children rated differences in ability and quality as more accurate explanations for their feedback than discrimination. Children's ratings of the other attribution types did not significantly differ from one another.

Table 4. Mean Ratings of the Veracity of Each Experimenter-Provided Attribution by Situational Information Condition, Gender, and Age Group

Condition	Age group (n)	Attribution				
		Discrimination	Ability	Quality	Effort	Unfairness
<b>Likely</b>						
Girls						
	5-8 (8)	1.50 (1.7)	2.13 (1.9)	.50 (.54)	1.63 (1.8)	1.38 (1.7)
	9-11 (8)	1.13 (.99)	1.13 (.64)	1.62 (1.1)	.75 (.89)	.25 (.71)
Boys						
	5-8 (8)	2.13 (1.7)	2.13 (1.8)	2.00 (1.8)	2.63 (1.5)	2.50 (1.9)
	9-11 (6)	.33 (.52)	1.83 (.75)	2.00 (.89)	1.17 (1.6)	.00 (.00)
Total		1.33 (1.45)	1.80 (1.4)	1.50 (1.3)	1.57 (1.6)	1.10 (1.6)
<b>Unlikely</b>						
Girls						
	5-8 (5)	1.00 (1.7)	1.60 (2.2)	.80 (1.1)	1.80 (1.8)	1.20 (1.6)
	9-11 (7)	.57 (1.5)	.57 (.79)	1.86 (1.3)	1.14 (1.7)	.71 (.95)
Boys						
	5-8 (5)	.40 (.55)	3.20 (.84)	3.40 (.89)	1.40 (1.9)	1.40 (1.9)
	9-11 (7)	.43 (.79)	1.57 (1.7)	2.00 (1.7)	1.43 (1.5)	1.57 (1.9)
Total		.58 (1.2)	1.63 (1.7)	2.00 (1.5)	1.42 (1.6)	1.21 (1.6)
<b>Overall Mean</b>		1.00 (1.4)	1.72 (1.5)	1.72 (1.4)	1.50 (1.6)	1.15 (1.6)

Note: Numbers represent Means (Standard Deviations), and range from 0 to 4, with higher numbers indicating greater accuracy of attributions.

The interaction between attribution type and gender was marginally significant,  $F(4, 184) = 2.19, p = .07$ . Post hoc analyses indicated that boys rated differences in quality as a more accurate explanation for their feedback ( $M = 2.27; SD = 1.5$ ) than did girls ( $M = 1.21; SD = 1.1$ ). Boys also rated differences in ability as a more accurate explanation for their feedback ( $M = 2.12; SD = 1.5$ ) than did girls ( $M = 1.36; SD = 1.5$ ).

The three-way interaction between attribution type, situational information, and age was also marginally significant,  $F(4, 184) = 2.23, p = .06$ . Post hoc analyses indicated that younger children rated discrimination as a more accurate explanation for their feedback when they were told that discrimination was likely ( $M = 1.81; SD = 1.7$ ) than when they were told that discrimination was unlikely ( $M = .70; SD = 1.3$ ). Contrary to expectations, older children's ratings of discrimination did not differ based on situational information (overall  $M = .64; SD = 1.0$ ).

Post hoc analyses also indicated that, when children were told that discrimination was unlikely, both younger and older children rated differences in quality as a more accurate explanation for their feedback ( $M_s [SDs] = 2.10 [1.4], 1.93 [1.5]$ , respectively) than discrimination ( $M_s [SDs] = .70 [1.3], .50 [1.2]$ , respectively).

Significant effects that did not involve attribution type (i.e., collapsed across reasons) were uninformative, and thus, are not described.

## **INDIVIDUAL AND DEVELOPMENTAL DIFFERENCES**

### **Theory of mind**

The mean interpretive theory of mind score was 2.93 ( $SD = 1.99$ ). Theory of mind was positively correlated with age,  $r = .71$  ( $p < .001$ ).

To assess whether children's theory of mind development predicted whether children made an open-ended attribution to discrimination, independent of age, interpretive theory of mind scores were entered into a logistic regression model (following age in months). The dependent variable was whether or not children made an open-ended attribution to discrimination. Results indicated that, when entered after age, theory of mind development did not predict children's attributions to discrimination. However, when entered separately, theory of mind development did predict children's attributions to discrimination ( $e^b = .46$ ; Wald = 3.56,  $p < .05$ ), whereas age did not significantly predict such attributions. Contrary to the hypothesis, children with more advanced understanding of theory of mind were less likely to make an open-ended attribution to discrimination than children with less advanced understanding of theory of mind. Analyses of

whether children's age and theory of mind development predicted children's other types of open-ended attributions are presented in Appendix G.

To assess whether children's theory of mind development predicted children's ratings of the veracity of discrimination when provided by the experimenter, independent of age, interpretive theory of mind scores were entered into a hierarchical multiple regression model (following age in months). Children's mean response to the veracity of discrimination was the dependent variable. To control the variability of ratings associated with different situational information, the situational information condition (dummy coded as either likely or unlikely) was entered into the regression model in the first step. Once the variance associated with situational information was accounted for ( $\Delta R^2 = .27$ ;  $t = 2.05$ ,  $p < .05$ ), children's theory of mind development, but not age, accounted for a significant amount of variance ( $\Delta R^2 = .49$ ;  $t = -2.78$ ,  $p < .05$ ). As with children's open-ended attributions, children with more advanced understanding of theory of mind rated discrimination as a less accurate explanation than did children with less advanced understanding of theory of mind. Analyses of whether children's age and theory of mind development predicted children's ratings of the veracity of the other experimenter-provided attributions are presented in Appendix G.

## **Gender attitudes**

The mean egalitarian gender attitude score was 10.31 ( $SD = 5.1$ ). As in other research (Signorella, Bigler, & Liben, 1993), egalitarian gender attitudes were moderately positively correlated with age,  $r = .25$  ( $p = .06$ ). Gender attitudes were not correlated with theory of mind scores.

It was hypothesized that children who hold non-biased, egalitarian attitudes toward gender groups would make more attributions to discrimination, and make them at a younger age, than children with more biased attitudes. To test these hypotheses, analyses were conducted to first examine whether children's gender attitudes *predicted* children's open-ended attributions to discrimination and their ratings of the veracity of discrimination. Specifically, a logistic regression model was analyzed with children's gender attitude score as the predictor and whether or not children made an open-ended attribution to discrimination as the dependent variable. A similar hierarchical multiple regression model was also analyzed with children's mean rating of the veracity of discrimination as the dependent variable (to control the variability of ratings associated with different situational information, the situational information condition was again entered into the regression model in the first step). Analyses indicated that gender attitudes did not significantly predict children's open-ended attributions to discrimination or their ratings of the veracity of discrimination.

Next, analyses were conducted to examine whether children's gender attitudes *moderated* the relationship between children's theory of mind development and their attributions to and ratings of discrimination. To test for moderation, a hierarchical logistic regression model was first analyzed, using whether or not children made an open-ended attribution to discrimination as the dependent variable. In the first step, theory of mind was entered into the model. In the second step, children's mean egalitarian gender attitude score was entered into the model. In the third step, the interaction of theory of mind and gender attitudes was entered into the model. A statistically significant increase in  $R^2$  at the third step would indicate the presence of a moderator. Separate analyses were conducted for children who were given situational information suggesting that discrimination was likely and children given situational information suggesting that discrimination was unlikely (because entering this variable as a predictor would have substantially reduced power). Similar analyses were conducted, using hierarchical multiple regressions, to analyze children's mean rating of the veracity of discrimination. Analyses indicated that gender attitudes did not significantly moderate the relationship between children's theory of mind development and their open-ended attributions to discrimination or their ratings of the veracity of discrimination.

## **CONSEQUENCES OF DISCRIMINATION**

### **Effects of experiencing discrimination**

Analyses were conducted to examine the effects of negative feedback that appeared to be discrimination (regardless of whether it was labeled as such) on children's social and performance state self-esteem, social and performance perceived control, motivation, identification with domain, and perceived importance of the domain. Because there were several significant intercorrelations among social and performance self-esteem, motivation, and social and performance perceived control, they were analyzed in one multivariate analysis of variance. Intercorrelations are presented in Table 5. Because identification with domain and perceived importance of domain were correlated with one another, they were analyzed in a separate multivariate analysis of variance. To assess the effects of negative feedback, a 2 (situational information: likely or unlikely) X 2 (gender of participant: boy or girl) X 2 (age group: younger or older) MANOVA was conducted for the two sets of outcome variables. Means are presented in Table 6. The results are organized and presented by outcome variable.

### *Social self-esteem*

Results of the 2 (situational information: likely or unlikely) X 2 (gender of participant: boy or girl) X 2 (age group: younger or older) MANOVA indicated that only the main effect of age was significant for social self-esteem,  $F(1, 46) = 7.34, p < .05$ . Younger children exhibited lower social self-esteem ( $M = 17.96; SD = 5.4$ ) than older children ( $M = 22.00; SD = 5.4$ ).

Table 5. Outcome Variable Correlations

Outcome variable	Correlations						
	1	2	3	4	5	6	7
1. Performance self-esteem	1						
2. Social self-esteem	.42**	1					
3. Performance perceived control	-.02	-.31*	1				
4. Social perceived control	.24	-.12	.41*	1			
5. Motivation	.33*	.08	.20	.17	1		
6. Identification	-.06	-.03	.16	-.13	-.13	1	
7. Importance	-.22	-.15	.19	-.24	-.24	.52**	1

\*\*  $p < .005$ , \*  $p < .05$

Table 6. Outcome Variable Means by Situational Information Condition, Gender, and Age Group

Condition	Age group	Attribution				
		Social self-esteem	Performance self-esteem	Social perceived control	Performance perceived control	Motivation
<b>Likely</b>						
Girls						
	5-8	18.63 (6.2)	19.13 (6.1)	2.81 (1.3)	3.08 (1.0)	2.00 (1.9)
	9-11	23.25 (5.8)	21.50 (3.7)	2.19 (.53)	3.04 (.62)	3.63 (.52)
Boys						
	5-8	18.13 (5.9)	19.63 (7.5)	3.00 (.89)	3.04 (.72)	3.75 (.46)
	9-11	22.83 (2.5)	21.83 (3.2)	2.25 (.52)	2.61 (.83)	2.83 (1.2)
	Total	23.07 (4.5)	20.43 (5.4)	2.58 (.95)	2.97 (.78)	3.07 (1.3)
<b>Unlikely</b>						
Girls						
	5-8	16.00 (5.8)	18.80 (7.2)	3.10 (1.0)	3.27 (.76)	4.00 (.00)
	9-11	23.00 (6.7)	22.14 (4.2)	2.29 (.99)	2.00 (.84)	3.43 (1.1)
Boys						
	5-8	18.60 (3.7)	22.80 (4.8)	2.80 (1.5)	2.53 (1.1)	3.20 (1.1)
	9-11	18.86 (5.3)	19.00 (4.2)	2.36 (1.1)	2.76 (.71)	2.86 (.90)
	Total	20.93 (6.2)	20.67 (5.0)	2.58 (1.1)	2.59 (.91)	3.33 (.96)
<b>Overall Mean</b>		22.00 (5.4)	20.54 (5.2)	2.58 (1.0)	2.80 (.85)	3.19 (1.2)

Note: Numbers represent Means (Standard Deviations). Self-esteem scores have a possible range from 0 to 28, whereas perceived control and motivation have a possible range of 0 to 4. Higher numbers indicate a greater degree of the construct.

### ***Performance self-esteem***

Results of the 2 (situational information: likely or unlikely) X 2 (gender of participant: boy or girl) X 2 (age group: younger or older) MANOVA indicated performance self-esteem was not affected by situational information, gender, or age.

### ***Motivation***

Results of the 2 (situational information: likely or unlikely) X 2 (gender of participant: boy or girl) X 2 (age group: younger or older) MANOVA indicated that the interaction between gender and age was significant for motivation,  $F(1, 46) = 3.74, p < .05$ . Post hoc analyses indicated that younger boys ( $M = 3.54; SD = .78$ ), and older girls ( $M = 3.53; SD = .83$ ), exhibited more motivation to try again than their age or gender counterparts ( $M$ s [ $SD$ s]: older boys, 2.85 [.99]; younger girls, 2.77 [1.8]). In other words, motivation to try again decreased for boys as they got older, but increased for girls as they got older.

The interaction between situational information and gender was also significant for motivation,  $F(1, 46) = 3.74, p < .05$ . However, this interaction was subsumed by a significant three-way interaction between situational information, gender, and age,  $F(1, 46) = 5.37, p < .05$ . Post hoc analyses indicated that younger girls, but not younger boys, exhibited less motivation to try again if they experienced negative feedback that was likely discrimination than if

they experienced negative feedback that was unlikely discrimination. Older children's motivation was not affected by situational information.

### ***Social perceived control***

Results of the 2 (situational information: likely or unlikely) X 2 (gender of participant: boy or girl) X 2 (age group: younger or older) MANOVA indicated that only the main effect of age was significant for social perceived control,  $F(1, 46) = 5.34, p < .05$ . Younger children exhibited greater social perceived control ( $M = 2.92; SD = 1.1$ ) than older children ( $M = 2.27; SD = .77$ ).

### ***Performance perceived control***

Results of the 2 (situational information: likely or unlikely) X 2 (gender of participant: boy or girl) X 2 (age group: younger or older) MANOVA indicated that the three-way interaction between situational information, gender, and age was significant for performance perceived control,  $F(1, 46) = 4.28, p < .05$ . Contrary to expectations, post hoc analyses indicated that older girls, but not younger girls, exhibited more performance perceived control if they experienced negative feedback that was likely to be discrimination than if they experienced negative feedback that was unlikely to be discrimination. Boys' performance perceived control was not affected by situational information.

### ***Identification and importance***

Results of the 2 (situational information: likely or unlikely) X 2 (gender of participant: boy or girl) X 2 (age group: younger or older) MANOVA indicated that identification with domain and perceived importance of the domain were not affected by situational information, gender, or age.

### **Effects of perceiving discrimination**

The results of the above analyses suggest that experiencing discrimination can affect children's motivation and perceived control. It is possible, however, that there are also effects associated with actually perceiving negative feedback as discrimination. Unfortunately, too few children made an open-ended attribution to discrimination to compare outcome scores across groups (those who perceived discrimination vs. those who did not). To address this question, therefore, correlations between the ratings of the veracity of the discrimination and the outcome variables were examined for children who heard situational suggesting the discrimination was likely. Analyses of the correlations between children's ratings of the veracity of the other experimenter-provided attributions and the outcome variables are presented in Appendix G.

Of the children who experienced negative feedback that was likely discrimination, those children who rated discrimination as a more accurate

explanation for their feedback showed increased ratings of the importance of drawing,  $r = .39$ .

### **Gender attitudes as moderator of consequences**

Analyses were also conducted to examine whether children's gender attitudes moderated the effects of perceiving discrimination. That is, although children with egalitarian gender attitudes did not *perceive* discrimination more often than children with stereotypical attitudes, it is likely that children with egalitarian gender attitudes are more *affected* by their perceptions of discrimination than children with stereotypical attitudes. To test this question, a series of hierarchical multiple regression models were analyzed, using children's outcome variable means as the dependent variables. In the first step, situational information condition and ratings of the veracity of discrimination were entered into the model. In the second step, children's mean egalitarian gender attitude score was entered into the model. In the third step, the interaction of ratings of discrimination and gender attitudes was entered into the model. Analyses indicated that gender attitudes moderated the effects of perceiving discrimination for several outcome variables.

### ***Social self-esteem***

First, gender attitudes moderated the relationship between perceiving discrimination and social self-esteem (change in  $F(1, 49) = 5.44, p < .05$ ; interaction term:  $\beta = -.65; t = -2.33, p < .05$ ). Examination of the slopes for the discrimination rating and social self-esteem relation at low ( $r = -.01, ns$ ) and high ( $r = -.56, p < .05$ ) levels of egalitarian gender attitudes suggested that, for children with high egalitarian gender attitudes (based on a median split), rating discrimination as a more accurate explanation for their feedback was associated with lower social self-esteem.

### ***Social perceived control***

Gender attitudes marginally moderated the relationship between perceiving discrimination and social perceived control (change in  $F(1, 49) = 3.41, p = .07$ ; interaction term:  $\beta = .52; t = 1.85, p = .07$ ). Examination of the slopes for the discrimination rating and social perceived control relation at low ( $r = .07, ns$ ) and high ( $r = .48, p < .05$ ) levels of egalitarian gender attitudes suggested that, for children with high egalitarian gender attitudes, rating discrimination as a more accurate explanation for their feedback was associated with higher social perceived control.

### ***Performance perceived control***

Gender attitudes also moderated the relationship between perceiving discrimination and performance perceived control (change in  $F(1, 49) = 5.28, p < .05$ ; interaction term:  $\beta = .65; t = 2.29, p < .05$ ). Examination of the slopes for the discrimination rating and performance perceived control relation at low ( $r = -.06, ns$ ) and high ( $r = .64, p < .005$ ) levels of egalitarian gender attitudes suggested that, for children with high egalitarian gender attitudes, rating discrimination as a more accurate explanation for their feedback was associated with higher performance perceived control.

### **DEBRIEFING METHODOLOGIES**

Analyses were conducted that examined the effects of the two debriefing protocols on children's attitudes about research and themselves. Because there was a unique hypothesis for each item on the debriefing measure, a series of univariate ANOVAs were conducted on children's ratings of (a) how much they enjoyed the study, (b) their desire to participate in future studies, (c) how unfair the study was, (d) how fun the study was, (e) how much they learned from the study, (f) how much the study was helpful to others, (g) how confident they are in their own drawing ability, and (h) how happy they are with their gender group membership. Because conducting several univariate tests increases the risk of

Type I error, only those one-tailed tests that are significant at the .05 level are discussed. Intercorrelations and means for each question are presented in Table 7.

Table 7. Debriefing Follow-up Correlations and Means by Debriefing Condition

Debriefing question	Correlations								Means (SD)	
	1	2	3	4	5	6	7	8	Positive	Explicit
1. Enjoyed participation	1								3.88 (.33)	3.76 (.56)
2. Future participation	.42**	1							3.00 (1.3)	3.47 (.87)
3. Study was unfair	-.07	-.23	1						.82 (1.47)	1.00 (1.6)
4. Study was fun	.48**	.48**	-.31*	1					3.65 (.86)	3.59 (.79)
5. Study was learning experience	.21	.17	-.09	.43*	1				3.06 (1.1)	3.35 (.93)
6. Study was helpful	.05	.09	-.43	-.19	.14	1			2.71 (1.3)	3.62 (.72)
7. Confident in abilities	.46**	.21	.38	.22	.51**	.18	1		3.19 (.98)	2.82 (1.3)
8. Happy with gender	.42**	.19	-.04	.31*	-.25	-.14	.11	1	3.90 (.30)	3.41(1.3)

\*\* p < .005, \* p < .05

Results from the ANOVAs indicated that the interaction between debriefing condition and age was significant for how much children wanted to

participate in another study in the future,  $F(1, 29) = 4.51, p < .05$ . Post hoc analyses indicated, among younger children, those who heard the explicit debriefing were more likely to want to participate in another study in the future ( $M = 3.60; SD = .97$ ) than those who heard the positive debriefing ( $M = 2.44; SD = 1.6$ ). In contrast, among older children, those who heard the positive debriefing were more likely to want to participate in another study in the future ( $M = 3.63; SD = .52$ ) than those who heard the explicit debriefing ( $M = 3.29; SD = .76$ ).

Results also indicated that the interaction between debriefing condition and age was significant for how much fun they considered the study to be,  $F(1, 29) = 8.38, p < .05$ . Post hoc analyses indicated, among younger children, those who heard the explicit debriefing were more likely to consider the study fun ( $M = 3.90; SD = .32$ ) than those who heard the positive debriefing ( $M = 3.33; SD = 1.1$ ). In contrast, among older children, those who heard the positive debriefing were more likely to consider the study fun ( $M = 4.00; SD = .00$ ) than those who heard the explicit debriefing ( $M = 3.00; SD = 1.1$ ).

Results also indicated that there was significant main effect of debriefing condition for how much children considered the study to be helpful to others,  $F(1, 29) = 5.40, p < .05$ . Specifically, children who heard the explicit debriefing were more likely to think that their study was helpful to others than children who heard the positive debriefing.

Analyses examining the joint effects of different debriefing protocols and different situational information on children's attitudes about research and themselves are presented in Appendix G.

## **CHAPTER FOUR:**

### **DISCUSSION**

The primary purpose of this dissertation was to examine children's perceptions of gender discrimination, with a particular focus on (a) the situational, developmental, and individual factors that predict perceptions of discrimination, and (b) the effects of such perceptions on state self-esteem, perceived control, motivation, identification with the domain, and perceived importance of the domain.

#### **CHILDREN'S PERCEPTIONS OF DISCRIMINATION**

This study suggests that, in general, children may rarely make attributions to gender discrimination. Although all children received negative feedback about their performance in an art contest, only 7% of the participants ( $n = 4$ ) spontaneously reported that discrimination was the reason for their negative feedback. As predicted, all of the children who made an attribution to discrimination heard situational information suggesting that discrimination was likely to have occurred. That is, only girls who saw a male judge who had chosen boys in the past, and who chose a boy this time, made an attribution to discrimination. No children who heard situational information suggesting that

discrimination was unlikely to have occurred made an attribution to discrimination. Overall, based on both open-ended attributions and ratings of experimenter-provided attributions, children were more likely to attribute their negative feedback to the poor quality of their artwork or their poor ability as an artist than attribute the negative feedback to discrimination.

It was hypothesized that older children would attend more to situational information than younger children when making attributions to discrimination. Thus, older children (but not younger children) were expected to make a greater number of attributions to discrimination when the situational information suggested that discrimination was likely than when it was unlikely. Results did not support this hypothesis. Based on both open-ended attributions and ratings of experimenter-provided attributions, it was younger children (rather than older children) in this condition who were more likely to perceive discrimination. Specifically, of those children who spontaneously reported that discrimination was the reason for their feedback, 75% were in the younger age group.

Not only were older children reluctant to make attributions to discrimination (even when it was likely to have occurred), many older children had difficulty articulating a reason for the negative feedback. When asked why they received negative feedback, 57% of the older children in the likely condition (compared to 20% in the unlikely condition) replied, "I don't know."

Older children's low rates of making an attribution to discrimination (and their high rates of stating no attribution at all) are probably not due to a cognitive limitation. Because younger children are able to perceive discrimination, it is unlikely that older children would have lost this ability. A second, more likely explanation involves a motivational reason. Older children may have been cognitively able to perceive discrimination, but may have been less willing to verbally state that discrimination was the reason for their negative feedback. This unwillingness could be driven by two different, but not mutually exclusive, motives. First, there may be heavy *psychological* costs (such as a perceived lack of control over outcomes and a diminished belief in a fair and just world) associated with making an attribution to discrimination that may have prevented older children from making such attributions. Older children may be more aware than younger children that perceiving discrimination is uncomfortable, and thus should be minimized as much as possible. Research with adults suggests that this is why adults are more likely to perceive discrimination that is directed to their group than discrimination directed to themselves (e.g., Crosby, 1984, Major & Crocker, 1994; Major, et al., 2000).

The second motivational reason that may drive older children's reluctance to state attributions to discrimination is their greater awareness of the *social* costs associated with making an attribution to discrimination. For example, older

children may have understood that the experimenter either worked with or knew the discriminatory judge (based on information given in the cover story), and thus may have been reluctant to tell the experimenter that their colleague was acting unfairly. Older children may have been more aware than younger children of the social norms that typically discourage individuals from making public accusations of discrimination.

A final reason older children may have made fewer attributions to discrimination and said “I don’t know” more than younger children may be because of older children’s general tendency to inhibit responses or withhold judgments when there is insufficient evidence to warrant an accurate response (Gnepp & Klayman, 1992). Older children may have simply considered the discriminatory situation to be too ambiguous to confidently make an attribution at all, whereas younger children did not feel so constrained.

Future research should experimentally address these possibilities. For example, to assess whether children can detect discrimination, even if they are not able to articulate it, children could be asked to select a photograph of a child that they think might be chosen for the contest. If a girl selects a boy as a probable winner, it could be inferred that she understands the manifestations of discrimination, even if she is not articulating it. To examine whether children are simply reluctant to tell an adult that another adult is acting unfairly, children could

be given the opportunity to confer with a confederate child about why they were not chosen for the contest.

In addition to situational factors, individual and developmental factors affected which children made attributions to discrimination. As hypothesized, girls made more attributions to discrimination than did boys. Although there was insufficient power to produce a statistically significant effect, all the children who gave a spontaneous attribution to discrimination were girls ( $n = 4$ ). It seems possible that girls' experiences lead them to develop a greater awareness of the lower social status of females relative to males. Girls' awareness of the lower status of the female role may, in turn, lead them to develop a higher sensitivity for, and expectation of, discriminatory treatment than boys.

In terms of developmental factors, it was predicted that children's interpretive theory of mind development would be a cognitive prerequisite to perceiving discrimination. Contrary to expectations, children with less advanced understanding of theory of mind were more likely to make an attribution to discrimination than children with more advanced understanding of theory of mind. Theory of mind was actually a better predictor of attributions to discrimination than age. This finding supports the previous supposition that older children may have perceived their feedback to be discrimination, but because of their greater awareness of the costs associated with discrimination (due to their more advanced

cognitive abilities), are reluctant to make an attribution to discrimination. This hypothesis is further supported by the finding that children with more advanced understanding of theory of mind were more likely to say, “ I don’t know” than children with less advanced understanding of theory of mind.

### **CONSEQUENCES OF DISCRIMINATION**

This dissertation also examined the effects of discrimination on state self-esteem, perceived control, motivation, identification with the domain, and perceived importance of the domain. To answer this research question, two types of effects were examined: (a) the effects of receiving negative feedback that appears to be discrimination (regardless of one’s perceptions), and (b) the effects of attributing negative feedback to discrimination.

The results indicate that there are, indeed, effects of simply experiencing likely discrimination. The effects, however, depend on the gender and age of the child. For example, when children received negative feedback that was likely to be discrimination, younger girls were most likely to show decreased motivation to try again, compared to older girls and both younger and older boys. If this decrease in motivation also occurs in academic settings (e.g., math class), this finding suggests that young girls may show early signs of disengaging from certain academic domains. Older girls, however, were more likely than the other children to show increased performance perceived control. In other words, older

girls (after receiving negative feedback that was likely to be discrimination) were optimistic that, if they drew their picture again, they would be chosen the next time.

There are additional effects for children who perceived their negative feedback to be discrimination. Specifically, children who perceived discrimination to have occurred were more likely to say that drawing is an important skill than children who did not perceive discrimination. This finding was contrary to predictions. It seems possible, however, that children who perceived discrimination were able to maintain that drawing is important because their negative feedback was not due to their own inabilities as an artist, regardless of that particular contest's outcome. It also seems possible that this effect would change with repeated exposures to discrimination. Future research should examine whether children who repeatedly perceive discrimination in a particular domain begin to decrease the value placed on that domain.

Interestingly, children who perceived just a general unfairness of the contest were more likely to show decreased social self-esteem (as was predicted for children who perceived discrimination) than children who did not perceive the contest to be unfair. In other words, children who perceived the contest to be unfair were more concerned about what others thought of them than children who did not perceive the contest to be unfair. Children who perceived general

unfairness also showed increased performance perceived control and were more likely to say that drawing is an important skill (as with children who perceived discrimination) than children who did not perceive unfairness.

Taken together, these findings suggest that some children may have detected the unfairness of the contest, but did not attribute that unfairness to be based on their gender. These findings also suggest that perceiving unfairness (whether it is generalized or discrimination based on gender) may lead children to have lower motivation, lower social self-esteem, higher social and performance perceived control, and higher ratings of the importance of the domain.

Future research should clarify the direction of the causal chain implied here. For example, it is possible that children with lower social self-esteem are simply more likely to consider any type of negative feedback unfair. Therefore, future studies employing pretest and posttest measures of the outcome variables assessed here should be conducted to determine whether perceptions of discrimination affect an individual's motivation, self-esteem, perceived control, and perceived importance of domain.

Although gender attitudes did not predict attributions to discrimination, or moderate the relationship between cognitive development and attributions, gender attitudes did moderate the *effects* of perceiving discrimination. For children with strong egalitarian gender attitudes (i.e., children who think both boys and girls

should do most activities), perceiving discrimination was related to decreased social self-esteem and increased perceived control. Children with more stereotypical attitudes appear to be largely unaffected by perceptions of discrimination. Thus, children who endorse the belief that gender is not an appropriate basis for differential treatment appear to be more affected by gender discrimination than do their peers who agree with the use of gender as a means of determining outcomes.

Upon examination of the results, an interesting pattern appears among children. Many children seem to have an inflated sense of optimism. Many of them noted that if they drew their picture again, or met with the judge, they would have improved results. This is particularly true for children who think the reason for their negative feedback is discrimination or general unfairness of the contest. It appears, therefore, that children do not think of these types of injustices as systemic or widespread; they are only the result of a particular judge at a particular time. It is unclear, based on the current study, whether children thought that acting discriminatory was a stable character trait of their particular judge (and thus, he or she would be discriminatory every time he or she judged), or if they thought that the act of discrimination was unique to this contest. Future research should examine whether children consider being discriminatory to be a stable, or situational, behavior.

In summary, this study suggests that children are able to perceive discrimination as young as 5 years old. In addition, children do attend to situational information about the likelihood of discrimination. However, as children become older, they appear to be less willing to make attributions to discrimination (regardless of the situational information) – perhaps because of the psychological or social costs associated with making attributions to discrimination. Especially for children with strong egalitarian gender attitudes, perceptions of discrimination, or at least unfairness, appear to lead to lower motivation to try again, lower social self-esteem (i.e., more concern with others' opinions of you), greater performance perceived control (i.e., more confident that you can improve on your performance), and greater value placed on the domain.

## **DEBRIEFING METHODOLOGIES**

The secondary purpose of this dissertation was to examine how different debriefing protocols following deception affected children's attitudes about research and themselves. Results indicated that there are uniquely beneficial aspects to both types of debriefing. For example, as predicted, children who heard the positive debriefing considered themselves to be better at drawing than children who heard the explicit debriefing. This is not surprising given that children who heard the positive debriefing were told that they had just won an art contest. In contrast, and as predicted, children who heard the explicit debriefing

thought that the study was more helpful to others than children who heard the positive debriefing. This indicates that children did attend to the information conveyed in the explicit debriefing protocol and, at a minimum, remembered the goal of the study was to help others.

It was predicted that older children, because of their more advanced cognitive development, would respond more positively to the explicit debriefing regarding the true nature of the research than younger children. This finding was not supported, however. In fact, older children exhibited more negative reactions to the explicit debriefing than younger children. For example, older children were less likely to want to participate in another study and considered this study to be less fun if they heard the explicit debriefing than if they heard the positive debriefing. This may be partially explained by the finding that, albeit not statistically significant, older children were more likely to say that the study was unfair if they heard the explicit debriefing than if they heard the positive debriefing. It is possible, therefore, that older children who heard the explicit debriefing considered the study to be more unfair, which led them to find the study less fun, and they were subsequently less likely to want to participate again.

Younger children, in contrast, were more likely to want to participate in another study and considered this study to be more fun if they heard the explicit debriefing than if they heard the positive debriefing. This effect, however, is

perhaps not a consequent of the debriefing protocol per se. Children who heard the explicit debriefing received a toy at the end of their participation, whereas children who heard the positive debriefing received a blue ribbon. For younger children, the appeal of the toy may have overridden any other aspect of the debriefing session, including the actual conversation. Support for this conclusion come from children's open-ended responses to a question about what they learned from the study. Instead of stating something related to the content of the debriefing, most children who heard the explicit debriefing simply replied that they learned that it is okay to lose.

This research has implications for how developmentalists plan research with children. Specifically, this study suggests that deception is not necessarily negative for children. Future research should examine, however, whether deception without *any* debriefing does have negative consequences. Based on this study, results suggest that the type of debriefing protocol researchers do intend to use should perhaps be determined by the age of the child. Older children exhibited more negative reactions to the explicit debriefing than predicted. At 9 to 10 years of age, they appeared to be old enough to understand the basic content of the debriefing, but may not have been old enough to fully recognize the necessity of the deception. Future research should examine whether children in early adolescence (12 –15 years of age) react more positively to the explicit

debriefing. Younger children, however, may have been more affected by the toy given at the end of their participation than the actual protocol. Future research should attempt to disentangle this confound to assess whether children at 5 to 7 years of age remember the content of the explicit debriefing.

## **CONCLUSION**

Although the past century of developmental psychology has increased our understanding of children's development, the unique experiences of children in stigmatized groups has been largely ignored (although they account for more than half of all children). This study was designed to address this gap in the research.

As with all research, there are limitations to the present study. For example, because of ethical concerns, this study examined children's perceptions of discrimination in a domain that is relatively unimportant to children. Future research should examine the effects of discrimination in more important domains, such as academics or peer relationships. In addition, this study only examined gender discrimination. It will be important for future research to examine perceptions of discrimination among children of racial and ethnic minority groups. Research has shown that children's understanding of gender and race as categories follow similar developmental trends. Children's knowledge of the status of racial groups precedes, however, that of gender groups (see Bigler,

Liben, & Krogh, 2002; Bigler, Averhart, & Liben, 2003), and thus, it is predicted that children will perceive racial discrimination earlier than gender discrimination.

In addition, it is likely that several cognitive abilities affect how children perceive discrimination and should be addressed. For example, children's views about fairness and equity, and their moral reasoning, may be important to examine. Future research should also examine the effects of long-term exposure to discrimination and the effects of such exposure on identity development, peer relationships, academic performance, and mental health (e.g., anxiety and depression).

Finally, caution should be taken in interpreting the findings in this dissertation. Because of the relatively small number of participants (and even smaller number of participants who made an attribution to discrimination), and because of the necessarily large number of statistical analyses, it is possible that some of the findings are due to the particular children sampled. Future research should examine whether the generalizations made here are robust across other samples of children.

Nonetheless, this study represents an important first step in understanding the processes involved in children's perceptions of discrimination. Continued research is likely to be useful for creating social and educational policies, and for

designing intervention strategies to prevent and remedy perceptions of discrimination among children.

## FOOTNOTES

<sup>1</sup> Research has found that children readily make social comparisons. For example, when given the option, 5-year-old children will compare their own work with that of a competing peer (Ruble, Feldman, & Boggiano, 1976). By 7 years old, children use social comparisons more frequently and use that social comparison information to alter their own behavior (e. g., to work more quickly). Research has also shown that, by 7 years old, children use social comparison information to assess their own ability and make inferences about task difficulty (Ruble, Boggiano, Feldman, & Loebel, 1980).

<sup>2</sup> There were six photographs available: a Euro-American boy and girl, a Hispanic boy and girl, and an African American boy and girl. Each photograph was rated as average in attractiveness.

## **APPENDIX A: PARENTAL CONSENT FORM**

Title: Children's Reactions to Drawing Ability Comparisons Across Peers  
Investigator: Rebecca S. Bigler, Ph.D.

You and your child are invited to participate in a study about how children react to comparisons with their peers and how childrearing factors influence children's understanding of social groups. My name is Rebecca Bigler and I am a professor of child psychology at the University of Texas at Austin. I have been studying children's attitudes towards their peers and social relations for the last fifteen years. I am asking for your permission to include your child in a project aimed at understanding children's reactions to situations in which their drawing abilities are compared across peers. I am inviting all of the children enrolled in the Boys' and Girls' Club to participate and I expect to have approximately 125 participants in the study.

If you agree to have your child participate, and if your child agrees as well, your son or daughter will spend about fifteen minutes with me, or a graduate student named Christia Spears Brown, on three occasions during the next three weeks. At the first meeting, children will be given a measure of their social attitudes and a task that assesses a cognitive skill that develops during elementary school called perspective taking. Children generally find both of these tasks fun and interesting. At the second meeting, a Polaroid photograph will be taken of each child and he or she will be asked to draw a picture of themselves, based on the photo, for possible inclusion in a drawing exhibition. Afterwards, children will be told that their drawing was very good, but that they were not selected for inclusion in the exhibition. Children will then complete measures of their evaluation of their drawing skill and other traits, motivation and valuing drawing, and perceived control over their environment. These meetings will be scheduled by the Boys' and Girls' Club staff so that they do not interrupt children's normal activities.

After participation in the project, all children will be told that their drawing was not actually judged for inclusion in a drawing exhibition. Unfortunately, researchers know little about how researchers' explanations affect children's feeling about their experience. In order to address this question, we also plan to vary which aspect of our explanation is stressed. For half of the participants, we will stress that their drawing was excellent and that no children were selected for the exhibition. They will receive a blue ribbon for their participation. For the other half of the participants, we will stress that the drawing

exhibition was not real and that their experience in the study might help them to empathize with their peers in similar situations. One week later, we will meet with your child one final, brief time to ask about their understanding, valuing, and enjoyment of the experience of participating in this project.

In addition to your child's participation, we are also asking your permission to send home a brief questionnaire for you to complete about some topics you may discuss with your children. We simply ask that, once completed, you return it in the enclosed stamped envelope.

I hope you agree to have you and your child participate. In the past, I have found that children enjoy participating in activities of this kind. I should note that any information that is obtained in connection with this project and that can be identified with your child is completely confidential. We never disclose the results of interviews or testing with individual children. In the unlikely event that we would ever want to do so, we certainly would do so only with your permission and the permission of your child. Upon completion of the study, your child's photo and picture will be returned to your child to take home. Your decision whether or not to participate will not affect your future relations with The University of Texas or Boys' and Girls' Club. If you agree to have your child participate, you are free to discontinue his/her participation at any time. In addition, your child is free to terminate his/her participation at any time. If you have any questions, please feel free to contact me at (512) 471-9917. If you have any additional questions later, I will be happy to answer them.

You are making a decision about allowing you and your child to participate in this study. Your signature below indicates that you have read the information provided above and have decided to allow him or her to participate in the study. If you later decide that you wish to withdraw your permission for yourself or your child to participate in the study, simply tell me. You may discontinue participation at any time. You may keep the copy of this form.

\_\_\_\_\_  
Signature of Parent(s) or Legal Guardian

\_\_\_\_\_  
Date

## APPENDIX B: THEORY OF MIND

**I.** *Show the two puppets. Say "This is Bob and this is Wendy. They are playing a game. To play, they are told that they have to **wait for a ring**. What do you think they are waiting for?" Pause. "Well, Bob thinks he is waiting for this." Show picture of phone. Make sure child understand it. "But Wendy thinks she is waiting for this." Show picture of ring. Make sure child understand it.*

a. Why does Bob say it's one thing and at the same time Wendy say it's another?

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b. Does it make sense for Wendy to say one thing and Bob to say something else?

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---

c. Why does it [doesn't it] make sense?

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---

d. Wendy says it's a diamond ring and Bob says it's a ringing phone. Now we will ask Spud what he thinks it is (*Pull out third puppet*). Do you think Spud will think it is a diamond ring or a ringing phone, or would you not know what he would say?

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e. *If make a choice, ask* How can you tell what he will think?

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*If doesn't make a choice, ask* Why is it hard to tell what he will think?

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**II.** *Lay out three cards with blocks on them, block side up. Say, "In this game, Bob and Wendy have to pick the card that is hiding the penny. All they know is that the penny is under the card with the **big block**." Pause. "Well, Bob picked the big red block. But, Wendy picks the big blue block."*

a. Why does Bob say it's one thing and at the same time Wendy say it's another?

---

---

b. Does it make sense for Wendy to say one thing and Bob to say something else?

---

c. Why does it [doesn't it] make sense?

---

d. Wendy says it's under the blue block and Bob says it's under the red block. Now we will ask Spud what he thinks it is (*Pull out third puppet*). Do you think Spud will think it is under the blue block or under the red block, or would you not know what he would say?

---

e. *If make a choice, ask* How can you tell what he will think?

---

*If doesn't make a choice, ask* Why is it hard to tell what he will think?

---

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**III.** "OK. Last one." *Show picture of duck/rabbit.* "When Wendy looks at this picture, she sees a duck." *Point out the duck.* "But when Bob looks at the picture, he sees a rabbit." *Point out the rabbit.*

a. Why does Bob say it's one thing and at the same time Wendy say it's another?

---

b. Does it make sense for Wendy to say one thing and Bob to say something else?

---

c. Why does it [doesn't it] make sense?

---

d. Wendy says it's a duck and Bob says it's a rabbit. Now we will ask Spud what he thinks it is (*Pull out third puppet*). Do you think Spud will think it is a duck or a rabbit, or would you not know what he would say?

---

e. *If make a choice, ask* How can you tell what he will think?

---

---

*If doesn't make a choice, ask Why is it hard to tell what he will think?*

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## APPENDIX C: GENDER ATTITUDE SCALE (C-OAT)

Here is a list of activities that people can do. We want you to tell us if you think each activity should be done by boys, by girls, or by both boys and girls. There are no right or wrong answers. We just want to know who you think should do these activities.

Who Should...

1. fly a plane	<b>only boys</b>	<b>only girls</b>	<b>both boys and girls</b>
2. iron clothes	<b>only boys</b>	<b>only girls</b>	<b>both boys and girls</b>
3. sew from a pattern	<b>only boys</b>	<b>only girls</b>	<b>both boys and girls</b>
4. vacuum a house	<b>only boys</b>	<b>only girls</b>	<b>both boys and girls</b>
5. go to the beach	<b>only boys</b>	<b>only girls</b>	<b>both boys and girls</b>
6. go horseback riding	<b>only boys</b>	<b>only girls</b>	<b>both boys and girls</b>
7. wash clothes	<b>only boys</b>	<b>only girls</b>	<b>both boys and girls</b>
9. play cards	<b>only boys</b>	<b>only girls</b>	<b>both boys and girls</b>
10. play pool	<b>only boys</b>	<b>only girls</b>	<b>both boys and girls</b>
11. set the table for dinner	<b>only boys</b>	<b>only girls</b>	<b>both boys and girls</b>
12. fix bicycles	<b>only boys</b>	<b>only girls</b>	<b>both boys and girls</b>
13. play darts	<b>only boys</b>	<b>only girls</b>	<b>both boys and girls</b>
14. do gymnastics	<b>only boys</b>	<b>only girls</b>	<b>both boys and girls</b>
15. play hide and seek	<b>only boys</b>	<b>only girls</b>	<b>both boys and girls</b>
16. babysit	<b>only boys</b>	<b>only girls</b>	<b>both boys and girls</b>
17. play video games	<b>only boys</b>	<b>only girls</b>	<b>both boys and girls</b>
18. draw buildings	<b>only boys</b>	<b>only girls</b>	<b>both boys and girls</b>
19. bake cookies	<b>only boys</b>	<b>only girls</b>	<b>both boys and girls</b>
20. sketch (or design) clothes	<b>only boys</b>	<b>only girls</b>	<b>both boys and girls</b>
21. grocery shop	<b>only boys</b>	<b>only girls</b>	<b>both boys and girls</b>
22. draw (or design) cars/rockets	<b>only boys</b>	<b>only girls</b>	<b>both boys and girls</b>
23. play basketball	<b>only boys</b>	<b>only girls</b>	<b>both boys and girls</b>
24. build model airplanes	<b>only boys</b>	<b>only girls</b>	<b>both boys and girls</b>
25. do crossword puzzles	<b>only boys</b>	<b>only girls</b>	<b>both boys and girls</b>

## APPENDIX D: SOCIAL AND PERFORMANCE

### STATE SELF-ESTEEM SCALE

This is a questionnaire designed to measure what you are thinking at this moment. There is no right answer for any statement. The best answer is what you feel is true of yourself right now. Please answer all of the items.

In the space next to each item, please write the number from the scale below which best reflects your feelings:

1	2	3	4	5
not at all	a little bit	somewhat	very much	extremely

- \_\_\_ I feel sure of my abilities. (P)
- \_\_\_ I am worried about whether I am thought of as a good or bad. (S)
- \_\_\_ I feel frustrated about my performance. (P)
- \_\_\_ I feel I have trouble understanding things that I read. (P)
- \_\_\_ I feel embarrassed. (S)
- \_\_\_ I feel as smart as others. (P)
- \_\_\_ I feel unhappy with myself. (S)
- \_\_\_ I am worried about what other people think of me. (S)
- \_\_\_ I feel sure that I understand things. (P)
- \_\_\_ I feel not as good as others at this moment. (S)
- \_\_\_ I feel concerned about what others think of me. (S)
- \_\_\_ I feel that I am not as good at school right now than others. (P)
- \_\_\_ I feel like I'm not doing well. (P)
- \_\_\_ I am worried about looking foolish. (S)

## APPENDIX E: MIIPC

### **Motivation, Identify, Importance, and Social and Performance Perceived Control**

1. If you had the chance, how much would you want to draw your picture over again for another chance in the contest? \_\_\_\_\_ (M)
2. How much is being a good drawer an important part of who you are? \_\_\_\_\_ (ID)
3. How important is it to be a good drawer? \_\_\_\_\_ (IM)
4. How much do think you could improve on your drawing if you practiced a lot? \_\_\_\_\_ (PPC)
5. If you met with the judge[s], how much do you think you would like each other? \_\_\_\_\_ (SPC)

For the last three questions, just tell me how you agree with each sentence.

6. If you drew your picture again and had the same judge[s], you would probably be picked for the contest. \_\_\_\_\_ (PPC)
7. If you drew your picture again and had a different judge[s], you would probably be picked for the contest. \_\_\_\_\_ (PPC)
8. If you met with your judge[s], you would probably get picked for the contest. \_\_\_\_\_ (SPC)

## APPENDIX F: DEBRIEFING

### Debriefing Protocol

*If the children is in the positive debriefing condition:*

Tell the child, as you are looking at your papers, "Oh wait a minute. This isn't right. I think we made a mistake. I need to go double-check something. I'll be right back." Leave the room for one minute. While gone, pick up a blue ribbon. Keep hidden in folder until right time.

Upon returning, tell the child, "You know what? I made a big mistake. I must have picked up the wrong picture by accident. Your drawing was actually picked as one of the best ones. I am so sorry. In fact, your drawing is so good, we are going to display it next year at the University of Texas in a special display."

Say while pulling out the blue ribbon from the folder, "In fact, we actually have a blue ribbon to give to you to show you how much we liked your drawing. You actually won our 'Blue Ribbon Artist Award.' I am so sorry about the mix-up."

Make sure the children feel positively about their drawings. Finally, say to the children "Because other kids haven't had their turn to draw yet, and because they may not win a ribbon, it is **very important** that you don't talk about the study with anyone. Can you promise not to mention it to the other kids? It is very important." Make sure children agree not to mention it to anyone.

[Purpose: Help child feel good about drawing]

*If the children is in the explicit debriefing condition:*

First, ask children, "What did you think about our contest? Did you think anything was funny about it?" [Purpose: To see if the child was suspicious about the manipulation.]

If child says "Yes," follow-up and ask "What did you think wasn't quite right?" If child guesses true nature of study, ask when they began to think that. Also, use your own judgment to decide whether (a) they really guessed at the beginning of the study, and thus all of their data may be suspect **or** (b) they only guessed at the end when you asked them about it, and thus, when answering their questions, they really did believe the cover story. Mark all of this on their folders.

If child guessed true nature of study, say "You are very smart. We tried to make our contest as believable as possible."

If the child says "No," say "That is good. We worked really hard to make sure nothing seemed funny about our contest." "But really, something was funny about our contest. In fact, there really isn't an art contest."

Regardless of what child says, tell all children, "Let me tell you what our contest was really about. First of all, there really wasn't a drawing contest after all. We actually made that up. There really wasn't a judge, either. I just said your picture wasn't picked by the judge, but that wasn't true. In fact, this picture here of the judge (show picture) is really a picture of a friend of mine. He [she] is not really a judge. Also, these picture of other kids (show pictures) are not really past winners; they are just pictures of regular kids. There wasn't a contest at all. I'm sure if there was a contest, your picture would have been picked."

"Well, does it seem like it wasn't very nice of us to make up this contest? Let me tell you why we did it. It is for a very important reason. All of this is actually for a research study we are doing. Have you ever been in a research study before? Well, for this study, we are wanting to know how kids understand discrimination."

"Do you know what discrimination is? Discrimination is when people get treated unfairly or don't get picked for something just because they are a boy or a girl or have different color skin or are handicapped. There are a lot of people in the world who face discrimination. Like, sometimes girls don't get to play on sports teams just because they are girls. Or daddies don't get to stay home and take care of their new babies like the mommies do just because they are boys. Or African-Americans don't get a job they want because they are not white. Can you think of an example of someone who got treated unfairly because of what they look like?" (Let them think of an example). "Do you think that someone who is in a wheelchair might be discriminated against? How?" (Let think of an example.)

"Well, because we think discrimination is so bad, we want to stop it. That is a pretty important thing, don't you think? Well, before we can do that, we have to understand what people know about discrimination. And since I want to know what stuff kids think about, I wanted to find out what kids thought about discrimination."

"That is why we had the fake contest. We wanted to put kids in a situation in which they didn't get picked for something. Did you think that you didn't get picked because you were a girl [boy]? Well, had you really been in a contest, and really not been picked **just because** you were a girl [boy], then that would be discrimination. Because it is unfair not to get picked just because you are a girl

[boy]. Don't you agree? That is why I asked you so many questions after the fake contest. I wanted to see what you thought about not getting picked."

"So you see, you helped us better understand what kids think about discrimination. Your helping us will help us stop this happening in real life. Can you see how important your help is? So do you understand why we made up the contest? "

"Well, how did it **feel** when you weren't selected? Did it feel bad? (Here is where you need to use your best judgement. If kid really felt bad, spend a lot of time on this. If the kid didn't care, you can go faster.) Most kids say that they felt kind of bad after we told them they didn't get picked. They felt like they weren't good drawers."

"In fact, even after we explained that we made up the contest and the judging, some kids say that they still feel bad about their drawing. So we want you to remember that the judging was made up, and remember that the study had nothing to do with your actual drawing ability. In fact, you are a very good drawer." **Make sure kid feels okay about drawing.**

"One last thing. This is super important. Because other kids haven't had their turn in the study yet, and because if someone knew what the study was about it would ruin it, it is **very important** that you don't talk about the study with any of the other kids. Can you promise not to mention it to the other kids? It is very important." Make sure children agree not to mention it to anyone.

"To thank you for being such an important helper in our study, we want you to pick out something from the yellow box."

[Purpose: Help the child understand the study, and better understand discrimination in general].

## Debriefing Questions

Please answer the questions as best as you can. There are NO right or wrong answers. They are just your opinions.

(*SHOW CUPS*). Let's use the cup scale. (*IF needed, review the scale.*)

- \_\_\_\_\_ 1. How much did you like being in our study [contest]?
- \_\_\_\_\_ 2. How much would you want to be in another study [contest] like ours?
- \_\_\_\_\_ 3. How much did you think our study [contest] was unfair or not nice?
- \_\_\_\_\_ 4. How much did you think our study [contest] was fun?
- \_\_\_\_\_ 5. How much did you learn from our study [contest]?
- \_\_\_\_\_ 6. How much do you think our study [contest] will help other kids?
- \_\_\_\_\_ 7. How good do you think you are at drawing?
- \_\_\_\_\_ 8. How much do you like being a girl [boy]?

## **APPENDIX G: SUPPLEMENTAL ANALYSES**

### **THEORY OF MIND AS PREDICTOR OF OTHER ATTRIBUTIONS**

To assess whether children's theory of mind development predicted children's open-ended attributions to the other possible attributions, independent of age, interpretive theory of mind scores were entered into a logistic regression model (following age in months). Separate logistic regression models were analyzed, using whether or not children made an attribution to ability, effort, quality, and "don't know" as the dependent variables. Separate analyses were conducted for children who were given situational information suggesting that discrimination was likely and children given situational information suggesting that discrimination was unlikely. Entering this variable as a predictor in the model would have substantially reduced power. Results indicated that, for children who heard situational information suggesting likely discrimination, theory of mind development did predict, independent of age, whether or not children made an attribution to differences in quality as the reason why they were not picked ( $e^b = .48$ ; Wald = 3.92,  $p < .05$ ). In other words, children with more advanced understanding of theory of mind were less likely to make an open-ended attribution to quality when they heard likely discrimination than children with less advanced understanding of theory of mind.

Interestingly, results also indicated that, for children who heard situational information suggesting likely discrimination, theory of mind development moderately predicted, independent of age, whether or not children said “don’t know” when asked why they were not picked ( $e^b = 1.95$ ; Wald = 3.53,  $p = .06$ ). That is, children with more advanced understanding of theory of mind were *more* likely to say “I don’t know” when asked to make an attribution after hearing likely discrimination than children with less advanced understanding of theory of mind. Neither interpretive theory of mind development nor age significantly predicted children’s attributions whether they heard situational information suggesting that discrimination was unlikely.

To assess whether age and theory of mind development predicted children’s ratings of the other possible experimenter-provided attributions, separate hierarchical multiple regression models using children’s mean responses to the veracity of ability, effort, quality, and unfairness as the dependent variables were analyzed. Results indicated that, because of the high correlation between theory of mind and age, neither theory of mind nor age accounted for a significant amount of *unique* variance in children’s ratings of the veracity of effort and unfairness. However, when entered separately, age and theory of mind predicted children’s ratings of effort (age:  $\beta = -.35$ ;  $t = -2.69$ ,  $p < .05$  and theory of mind:  $\beta = -.39$ ;  $t = -2.96$ ,  $p < .005$ ) and unfairness (age:  $\beta = -.42$ ;  $t = -3.31$ ,  $p < .005$  and

theory of mind:  $\beta = -.40$ ;  $t = -3.09$ ,  $p < .005$ ). In a similar manner to children's ratings of discrimination, children with more advanced understanding of theory of mind (and older children) rated both unfairness and differences in effort as less accurate explanations than children with less advanced understanding of theory of mind (and younger children).

### CONSEQUENCES OF OTHER ATTRIBUTIONS

Correlations between children's ratings of the veracity of the experimenter-provided attributions and the outcome variables were examined for children who heard situational information suggesting that discrimination was likely.

Of the children who experienced negative feedback that was likely discrimination, children who rated differences in *effort* as a more accurate explanation for their feedback showed decreased performance self-esteem,  $r = -.49$  (e.g., they were more likely to say that they were concerned with how well they were doing); increased performance and social perceived control,  $r = .47$  and  $.37$ , respectively (e.g., they were more likely to say that, if they were either able to draw their picture again or meet with the judges, they would be chosen for the contest); increased ratings of the importance of drawing as a skill,  $r = .38$ ; and increased ratings of the importance of drawing to who they are,  $r = .39$ . Those children who rated differences in *ability* as a more accurate explanation for their

feedback showed increased social perceived control,  $r = .40$  (e.g., they were more likely to say that, if they were able to meet with the judge, they would be chosen for the contest). Finally, of the children who experienced negative feedback that was likely discrimination, those children who rated general *unfairness* of the contest as a more accurate explanation for their feedback showed decreased social self-esteem,  $r = -.38$  (e.g., they were more likely to say that they were concerned about what others thought of them); increased performance perceived control,  $r = .55$  (e.g., they were more likely to say that, if they were able to draw their picture again, they would be chosen for the contest); and increased ratings of the importance of drawing as a skill,  $r = .60$ .

#### **DEBRIEFING METHODOLOGIES**

Analyses were also conducted to examine whether the effects of debriefing protocols differed based on whether children experienced negative feedback that was either likely or unlikely discrimination. Specifically, a 2 (debriefing: explicit debriefing or positive feedback) X 2 (situational information: likely or unlikely) MANOVA was conducted, with children's responses to the follow-up questions as the dependent variables.

Results indicated that the main effect for debriefing condition was significant for how much children considered the study to be helpful to others,  $F$

(1, 29) = 5.40,  $p < .05$ . Children who heard the explicit debriefing considered the study more helpful to others than children who heard the positive debriefing.

The interaction between debriefing condition and situational information was significant for how much children enjoyed the study,  $F(1, 29) = 5.15$ ,  $p < .05$ . Post hoc analyses indicated that, among children who experienced negative feedback that was unlikely discrimination, they considered their participation more enjoyable if they heard the positive debriefing ( $M = 4.00$ ;  $SD = .00$ ) than if they heard the explicit debriefing ( $M = 3.50$ ;  $SD = .76$ ). Children who experienced negative feedback that was likely discrimination did not differ in their responses based on the debriefing protocol they heard.

The interaction between debriefing condition and situational information was marginally significant for how unfair children considered the study to be,  $F(1, 29) = 3.15$ ,  $p = .08$ . Post hoc analyses indicated that, among children who experienced negative feedback that was *unlikely* discrimination, they considered the study more unfair if they heard the positive debriefing ( $M = 1.57$ ;  $SD = 1.9$ ) than if they heard the explicit debriefing ( $M = .75$ ;  $SD = 1.4$ ). In contrast, among children who experienced negative feedback that was *likely* discrimination, they considered the study more unfair if they heard the explicit debriefing ( $M = 1.37$ ;  $SD = 1.9$ ) than if they heard the positive debriefing ( $M = .30$ ;  $SD = .68$ ).

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