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Negotiating (Non) Normality:

Effects of Consistency between Views of One's Self and One's Social Group

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Negotiating (Non) Normality:

Effects of Consistency between Views of One's Self and One's Social Group

by

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Negotiating (Non) Normality:

Effects of Consistency between Views of One's Self and One's Social Group

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The purpose of the study was to examine the influence of feedback regarding personal and group performance on children's views of (a) themselves (e.g., state self-esteem), (b) their ingroup and outgroup (e.g., trait stereotyping), and (c) novel tasks (e.g., task liking). In addition, moderating effects of age and individual difference variables (self-esteem, conformity orientation, and entity/incremental theory of personality) on the relation between self and group views were examined.

Theorists have offered differing accounts of the causal mechanisms that underlie relations between views of the self and social groups. Self-verification theorists have argued that perceptions of the self drive individuals' views of, and attitudes toward, their groups. In contrast, self-categorization theorists argue that membership in groups causes individuals to perceive themselves in ways that are consistent with perceptions or stereotypes of the group. However, membership in many social groups (e.g., gender, racial, ethnic groups) is not freely chosen. What happens when individuals' views of themselves differ from their perceptions of their ingroups or the prevailing stereotypes about their ingroups?

To address this question, children ($N = 120$, ages 7-12) attending a summer school program were randomly assigned a novel social group membership. As in other research (e.g., Bigler, Jones, & Lobliner, 1997), teachers used the groups to label children and

organize the classroom. Over the course of several weeks, children completed three novel tasks and received feedback indicating that their performance was either excellent or mediocre and their ingroup's performance was either excellent or mediocre. Thus, there were four conditions: personal performance excellent, group performance excellent (*positive verifying*); personal performance excellent, group performance mediocre (*overachieving*); personal performance mediocre, group performance excellent (*underachieving*); and personal performance mediocre, group performance mediocre (*negative verifying*). Effects of condition on self-perceptions, views of the tasks, and intergroup attitudes were then assessed.

Results indicated effects of personal and group feedback on children's task evaluations, ingroup identification, and intergroup attitudes. There was stronger evidence for main effects of feedback type than for interaction effects of feedback consistency versus inconsistency. Results are discussed in light of self-categorization, self-verification, and optimal distinctiveness theories.

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Introduction and Literature Review

Introduction

There is widespread agreement that social group memberships have profound influences on individuals' personal identities, attitudes, and behaviors (Phinney, Cantu, & Kurtz, 1997; Steele, 1997). At the same time, there is strong consensus that individuals' personal qualities and behaviors have an influence on their own – and others' – views of the groups to which they belong. Little work, however, has attempted to examine the interface of these two processes. The purpose of the current study was to examine the effects of children's self views on their views of social groups, and the reciprocal effects of views concerning social groups on children's views of the self. Of particular interest are the outcomes for individuals when their views of themselves conflict with their own and others' views of the groups to which they belong.

Self-Socialization Views

Researchers have long hypothesized that children's perceptions of the characteristics (e.g., traits, activities, roles) associated with their social groups can affect their views of themselves. Social stereotypes are generally well known by members of a society, even those individuals who do not personally endorse such stereotypes (Devine, 1989). Importantly, children are knowledgeable about culturally shared views of many social groups (e.g., race, gender) by the time they begin elementary school (e.g., Aboud, 1988; Ruble & Martin, 1998). So, for example, the vast majority of girls acquire the knowledge that girls are viewed as less talented at math than boys. Many theorists have argued that such knowledge will affect girls' views of themselves.

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A variety of specific mechanisms by which social identities influence behavior have been proposed. Some researchers (e.g., Eccles, Wigfield, Harold, & Blumenfeld, 1993; Jacobs, 1991) have emphasized environmental influences, such stereotyping by parents and teachers, on children's outcomes. Other researchers (e.g., Bussey & Bandura, 1992; Crocker & Major, 1989; Fredricks & Eccles, 2002; Martin & Halverson, 1991) have emphasized the role of internal influences, such as the internalization of stereotypes and group values. Bussey and Bandura's (1999) model posits that children learn to engage in "appropriate" behavior for their group via direct teaching, reinforcement, and imitation of models in the environment. These authors argue that children create a set of personal behavior standards based on the ingroup models they have observed and that, over time, children increasingly use these standards to regulate their own behavior (Bussey & Bandura, 1992). For example, Bandura (1990) argued that ingroup models "…inspire others by strengthening beliefs in their capabilities to succeed, lead them to try things they would otherwise shun, and bolster their staying power in the face of obstacles (p. 352)."

Self-categorization theory, like its predecessor, social identity theory (Tajfel, Billig, Bundy, & Flament, 1971; Tajfel & Turner, 1986), posits that social group membership forms an important basis of identity and source of self-esteem (Hogg, 1996). According to SCT, the desire to identify with a valuable group and achieve positive self views leads individuals to adopt the ingroup's values, perceive other ingroup members to be similar to themselves, and show ingroup biases in attitudes and behavior (Turner, Hogg, Oaks, Reicher, & Wetherell, 1987). In addition, self-categorization theorists (e.g.,

Hogg, 1996) argue that individuals "self-stereotype" or see themselves in ways that are consistent with their views of the groups to which they belong.

Consistent with these views, researchers have shown that individuals' views of themselves and their competencies are linked to social group membership. Eccles and colleagues, for example, have shown that children's and adults' beliefs about their competence in, and valuing of, domains such as sports, mathematics, and reading are linked to gender (Eccles et al., 1993; Fredricks & Eccles, 2002). Ethnic background has also been linked to children's valuing of academic and non-academic domains (e.g., Major, Spencer, Schmader, Wolfe, & Crocker, 1998; Crocker & Major, 1989). Mahalingam and Ruble (2005), for example, reported that Asian American children who endorse positive academic stereotypes about their ethnic groups are more likely than children who do not endorse these stereotypes to express anxiety about their own academic performance. In addition, Wood et al. (1997) found that individuals had more positive affect and felt themselves to be closer to their ideal selves when they behaved in a way that was consistent with sex-typed social norms.

Self-Verification Views

In contrast to self-socialization views, self-verification theorists (Swann & Read, 1981; Swann, Polzer, Seyle, & Ko, 2004) have argued that perceptions of the self drive individuals' views of, and attitudes toward, their groups. Having one's self-views confirmed is thought to give one a sense of security and a feeling that one is able to predict the behaviors of others (Swann, Stein-Seroussi, & Geisler, 1992). Conversely, having one's self views disconfirmed (i.e., having others view one differently than one views oneself) may lead to feelings of uneasiness. So, for example, individuals who view

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themselves positively will seek out groups that view them positively or provide positive feedback, whereas individuals who view themselves negatively will prefer groups that view them negatively or provide negative feedback. Once individuals belong to groups, those whose groups confirm their self views should feel more connected to their group than those whose groups do not confirm their self views (Swann, Milton, & Polzer, 2000).

Other theorists have also argued that individuals form expectations for their ingroups based on their knowledge of themselves and evaluate ingroups based on similarity to the self (i.e., they use the self as an informational base; Gramzow, Gaertner, & Sedikides, 2001). Gramzow et al. (2001) also argued that individuals engage in information-processing strategies that preserve these expectations. Consistent with these predictions, Gramzow et al. (2001) found that individuals showed greater memory for negative feedback about the ingroup when the feedback was self-consistent than when it was self-inconsistent. More recently, Gramzow and Gaertner (2005) conducted a series of studies examining the role of general self-esteem on the evaluation of ingroups (i.e., the self as an evaluative base). Gramzow and Gaertner found links between positive personal self-esteem and favorable ingroup evaluations, even when information provided indicated that the ingroup was objectively worse than the outgroup.

Relatively little research has been conducted on self-verification processes with children. Several studies (Bandura, 1990; Cassidy, Aikins, & Chernoff, 2003; Cassidy, Ziv, Mehta, & Feeney, 2003) indicate, however, that self-verification processes operate in childhood. Bandura's (1990) study found that children ignored feedback that could improve their performance on a task when they believed themselves to have low ability in

that domain. Cassidy et al. (2003) reported that third-grade children preferred to interact with a self-verifying partner when asked about specific domains (e.g., if they viewed themselves as unskilled at sports, they preferred to interact with a partner who also viewed them as unskilled at sports). However, in the area of global self-views, children preferred a self-enhancing partner (i.e., children preferred a partner who viewed them positively overall), regardless of whether they viewed themselves positively or negatively overall.

Integrating Self and Group Views

Some children may independently acquire self and group views that are entirely consistent (e.g., a boy who believes himself and other males to be good at math). Other children, however, may develop preferences (e.g., activity interests) or skills (e.g., academic talents) that conflict with their own or others' views of their group. So, for example, a girl may think of herself as highly skilled at math prior to learning the cultural stereotype that females are less skilled at math than males. What will this new knowledge mean for her self and group views?

Swann and colleagues (e.g., Swann, 1987; Swann, et al., 2000) argue that individuals engage in a process of identity negotiation in which they attempt to reconcile their views of themselves with others' views of them. Identity negotiation can result in either self-verification effects (in which the group's views change in accord with the individual's self views) or appraisal effects (in which the individual's views become more similar to group members' perceptions). In research with small groups, Swann and colleagues (2000) found evidence for both self-verification and appraisal processes. Resolving identity negotiation issues in favor of self-verification was related to greater

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feelings of connection to the group. Conversely, resolving identity negotiation issues in favor of appraisal was related to better group performance on tasks that required group members to agree on a single solution.

Importantly, identity negotiation processes related to social group membership will likely differ from those involved with interpersonal relationships or small group membership, in part because individuals are far less able to change social group-based expectations (e.g., stereotypes) for the self. Evidence for one way in which group members might deal with verifying versus non-verifying social group memberships comes from a study by Pittinsky, Shih, and Ambady (1999). These researchers argued that individuals will orient themselves toward the group memberships which are most adaptive in a given context. In their study, Pittinsky et al. (1999) found that individuals showed more positive affect toward an identity that was adaptive (e.g., an Asian identity when taking a mathematics test) than toward an identity that was non-adaptive (e.g., an Asian identity when taking a test of verbal ability).

An additional theory relevant to issues of integrating self and group views is Brewer's (1991) optimal distinctiveness theory, which posits that individuals desire to feel both similar to others and unique and distinct from others. Brewer argues that one way in which individuals maintain feelings of optimal distinctiveness is through membership in and identification with social groups. Brewer predicts that group members who feel overly distinctive (atypical) will increase their ingroup identification in an attempt to feel more similar to ingroup members and maintain an optimal level of distinctiveness.

Support for Brewer's model comes from studies that manipulate adults' sense of typicality. Pickett, Bonner, and Coleman (2002), for example, found that participants who were told they were different from ingroup members (a threat to ingroup assimilation) stated that they personally possessed typical ingroup characteristics more often than participants who were told that they were similar to ingroup members. The authors interpreted the findings as indicating that atypicality produces increased ingroup identification. Pickett and Brewer (2001) have also found support for the assertion that assimilation needs increase the need for intergroup contrast and lead to increased perception of differences between ingroup and outgroup.

Another recent study (Oyserman, Brickman, Bybee, & Celious, 2006) provided additional support for optimal distinctiveness theory. This study indicates that being atypical of the social group in one respect may lead individuals to strive to be typical of their ingroups in other respects, even when this means confirming negative stereotypes. Oyserman et al. (2006) evaluated the academic performance of African American and Latino teenagers and found that boys who were physically atypical of their ingroup (i.e., light-skinned African Americans and Latinos who perceived themselves as looking less Latino) were less academically successful than their more typical-looking peers. Oyserman et al. concluded that boys who looked atypical of their group may have striven to conform to negative academic stereotypes of their group as a way of feeling similar to or included with the group, whereas boys who looked more typical felt sufficiently similar to the ingroup based on physical appearance and thus felt freer to be atypical in the realm of academic achievement.

A growing body of research suggests the existence of negative consequences resulting from being an "atypical" group member (e.g., Crick, 1997; Egan & Perry, 2001; Olweus, 1992; Smith & Leaper, 2006). One consequence concerns peer acceptance versus rejection. Research indicates that children show a preference for ingroup members who conform to group norms over ingroup members who violate group norms (by, for example, associating with outgroup members). Studies have found that, with age, children increasingly consider individuating factors such as loyalty or conformity to group norms in addition to group membership when making evaluations of ingroup and outgroup members (e.g., Abrams, Rutland, & Cameron, 2003). Specifically, Abrams et al. found that, when asked about ingroup and outgroup members who displayed deviant behavior (in this case, equal preference for the English and German soccer teams, relative to the normative behavior of favoring one's own country's team), children preferred normative ingroup members to deviant ingroup members, but deviant outgroup members to normative outgroup members. Children also showed a preference for deviant outgroup members over deviant ingroup members. In addition, older children were more likely than younger children to predict that deviant group members would be rejected by their peers.

Although research with children and adults indicates that atypical group members are less well liked than typical group members, little research has examined the effects of atypicality of the self on individuals' intergroup attitudes. There are theoretical grounds to support two conflicting outcomes. The first possible outcome is that children who are atypical might value their group membership more strongly than typical group members and, as a consequence, seek to strengthen their psychological sense of belongingness,

similarity, and ingroup bias. This view is consistent with self-categorization theory (Turner et al., 1987) and optimal distinctiveness theory (Brewer, 1991). Because atypical children may have a less secure sense of attachment to the group (and consequently a threatened sense of pride and self-esteem) they may have to work especially hard to maintain their connection to the group. Indeed, threat has been found to increase ingroup bias (Cameron, Duck, Terry, & Lalonde, 2005). Thus, atypical children would be expected to show stronger ingroup identities and higher levels of ingroup bias than typical children.

The second possible outcome is that children who are atypical of their group might value their group membership *less* strongly than children who are typical of their group and, as a consequence, show a weakened psychological sense of belongingness, lower perceptions of similarity to the group, and reduced ingroup bias. Because atypical children are likely to view themselves as differing from their ingroup to a greater degree than typical children, they may be less likely to extend their self views to other ingroup members. Support for this notion comes from work with biracial children indicating that perceived physiognomy influences their ethnic identity. Specifically, Brunsma and Rockquemore (2001) found that biracial children tended to identify more strongly with the racial group that they believed themselves to resemble most closely. Evidence for reduced ingroup bias among atypical children also comes from work on gender. Dinella and Martin (2003) found that girls who identified themselves as tomboys endorsed fewer gender stereotypes than other girls. These findings indicate a possible reduction in group identification and bias among atypical children consistent with self-verification theory.

Limitations of Extant Work

Researchers have posited two clear pathways through which self and group views might be integrated, one in which the self dominates and one in which the group dominates. There is empirical support for the operation of both pathways for many specific identities (e.g., race, gender). The complexity of naturally occurring social group memberships, however, leads to difficulty in isolating specific causal influences. That is, it is often impossible to determine which of the numerous factors associated with any particular group membership are responsible for producing group differences in outcomes. Individuals' gender, race, and ethnicity covary with an enormous number of variables, including socioeconomic status, education levels, residential neighborhood characteristics, and reinforcement histories. For these reasons, experimental studies that involve the creation and manipulation of novel social identities may be useful for understanding the mechanisms that link gender, race, and ethnicity to children's behavior.

Perspectives from Intergroup Research

Intergroup research paradigms involve the assignment of participants to novel social groups in order to examine the effects of group membership and environmental factors on a given outcome (e.g., Sherif, Harvey, White, Hood, & Sherif, 1961). In addition to documenting a host of information processing and evaluative biases (for reviews, see Brewer & Brown, 1998; Messick & Mackie, 1989), intergroup paradigms have been used to test theoretically derived hypotheses concerning the mechanisms underlying the formation of stereotypes and prejudice. Such paradigms have advantages over correlational approaches in that they allow for a test of the causal role of various factors in the development of social identities and attitudes. So, for example,

environmental messages about groups can be tightly controlled (e.g., presented to some individuals and not others), and the consequent effects on individuals' social identities and attitudes observed.

Developmental psychologists have applied such paradigms to the study of children's social identities and attitudes (e.g., Bigler, Jones, & Lobliner, 1997; Nesdale & Flesser, 2001; Yee & Brown, 1992). A recent paper by Bigler and Liben (2006) presented a number of studies of the development of ingroup bias in children and integrated these studies into a broad developmental intergroup theory. In developmental research using intergroup paradigms, researchers have typically given children messages (explicit or implicit) about their group's performance on a specific task or measure of ability, and then asked children to evaluate their ingroup, outgroups, or themselves (Bigler, Brown, & Markell, 2001; Yee & Brown, 1992). For example, Nesdale and Flesser (2001) randomly placed children into high or low status groups ostensibly based on drawing ability. That is, they explicitly told children that, based on their drawing ability, they were being placed within a group of "excellent drawers" or "good drawers." Such studies have not, however, examined the effects of the match between children's own traits (e.g., drawing ability) and those of their ingroup.

A recent study by Bigler, Patterson, and Swann (2004) that manipulated both self and group view revealed complex relations among messages about group views, typicality, and intergroup attitudes. The authors used a novel group paradigm in which children wore colored t-shirts to indicate their group membership and teachers labeled and used the color groups in the classroom. Before being assigned to novel groups, however, children reported their perceived self-competence in academic and athletic

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domains. Immediately after being assigned to groups, children reported on the perceived

competencies of their ingroups and outgroups, allowing for a test of whether children

projected their self-conceptions onto their ingroup. Posters were then hung in the

classrooms that depicted one color group as the winners of all the school's academic

contests and the other color group as the winners of all the school's athletic contests.

After six weeks, children were again asked to report their academic and athletic self-

competence, as well as the academic and athletic competence and general traits of the

color groups.

Overall, children showed a tendency to project their self views onto their ingroup

(but not outgroup). Furthermore, children whose self views were confirmed by the

posters (e.g., children who perceived themselves to be highly competent in the academic

domain and saw that their ingroup won all of the academic contests) were significantly

more content with their group membership than children whose self views were not

confirmed. Children's levels of intergroup bias did not, however, vary as a function of

self-confirmation; all children showed evidence of ingroup bias. This study provides a

promising method for examining the effects of self and group views on children's

attitudes and behavior. The interpretation of the study's findings is limited, however, by

the fact that children's self views were already well-established at the start of the

experiment and thus fairly resistant to experimental manipulation.

The present study attempted to extend and expand upon previous research by

manipulating information that children receive about personal and group abilities in an

unfamiliar domain. The purpose of the study was twofold. The first goal was to examine

the effects of feedback about personal and group performance on children's judgments of

specific tasks. The second goal was to examine the consequences of repeated exposure to information about one's own performance and the performance of one's group that is consistent or inconsistent. That is, children learned either that they were typical group members (i.e., they performed in a manner (either well or poorly) that was consistent with their group) or atypical group members (i.e., they performed in a manner that was inconsistent with their group).

The study employed a novel group paradigm. Children were assigned to novel social groups ("red" and "blue" groups marked by colored t-shirts). Following their assignment to groups, children were given information about their own abilities and those of the novel social groups (i.e., competence on a novel task). Specifically, I examined the influence of information regarding personal and group performance on children's views of (a) themselves, (b) their ingroup and outgroup, and (c) a relevant domain (i.e., an unfamiliar cognitive task). In addition, the study examined the role of several individual and developmental differences as potential moderators of the relations between self and group views.

Individual Differences

The first individual difference variable of interest is whether an individual endorses an entity or incremental theory of personality (Dweck & Leggett, 1988; Erdley & Dweck, 1993). Individuals who endorse an entity theory of personality believe that behavior is primarily caused by an individual's fixed traits and abilities. In contrast, individuals who endorse an incremental theory of personality believe that behavior is context-dependent and that people can change if they wish. Incremental theorists are more likely to persist in a challenging task, and have higher academic achievement, than

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entity theorists (Dweck & Leggett, 1988; Henderson & Dweck, 1990). Furthermore, teaching incremental theories of intelligence can improve adolescents' classroom motivation and academic performance (Blackwell, Trzesniewski, & Dweck, 2007).

As a consequence of their views, entity theorists are more likely than incremental theorists to believe that they can draw conclusions about individuals – and groups – from a small sample of behavior (Levy & Dweck, 1999). So, for example, after observing a few members of a given group engaging in aggressive behavior, entity theorists are likely to conclude that (a) other group members are also prone to aggressive behavior and (b) the group members' aggressive behavior will generalize across contexts (Levy & Dweck, 1999). Thus, I predicted that entity theorists would be more strongly affected by information about personal and group performance than incremental theorists.

The second individual difference variable of interest is self-esteem. Based on previous research, I expected children with low self-esteem to be more willing to accept negative feedback than positive feedback and children with high self-esteem to be more willing to accept positive feedback than negative feedback (Bandura, 1990; Cassidy et al., 2003; Swann, Griffin, Predmore, & Gaines, 1987). Furthermore, recent research suggests that one's preference for self-verifying feedback extends to the collective group level (Chen, Chen, & Shaw, 2004).

The third individual difference of interest was conformity. Previous research indicates that children differ in the degree to which it is important to them to be similar to other group members (Berndt, 1979) and that inclination to conform changes with age (Berndt, 1979; Walker & Andrade, 1996). That is, when presented with a conflict between personal characteristics or preferences and those of their ingroup members,

children may differ in the extent to which they conform to group norms. Based on previous studies of conformity to group norms, I expected children high in conformity to be more affected by group feedback than children low in conformity (Abrams, 1985).

Developmental Differences

It is possible that age-related changes in children's cognitive skills may mediate or moderate the relations between self and group views and thus, that young children's thinking about social groups differs in several ways from that of older children. I identified two cognitive factors that may affect children's integration of information about self and groups: centration and hierarchical classification. Centration, or young children's tendency to focus on perceptually salient features in categorizing others, and their lack of cognitive flexibility may lead them to view group membership in an "all-or-none" fashion. So, for example, preschool children may categorize others by gender, but not consider any particular girl to a better or worse exemplar than any other girl. Martin (1989) reported that preschool-age children tend to expect other children to behave in a gender-typical manner, even if they have not done so in the past. Older children, who have acquired more sophisticated logical skills, overcome these constraints (see Ruble & Martin, 2004), and thus I expected that children low in centration would be more affected by group feedback than children high in centration, who would be more likely to focus only on perceptually observable indicators of group membership.

The second skill of interest was hierarchical classification (Parker & Day, 1971; Piaget, 1965). Young children often have difficulty understanding that something can belong to two categories at one time, or that one category may be subsumed by another. The ability to simultaneously classify stimuli along multiple dimensions is thought to be

important for counterstereotypic thinking (Bigler & Liben, 1992; Trautner, Sahm, & Stevermann, 1983). Children who lack simple classification ability may struggle to comprehend that an individual is simultaneously an individual and a member of a group, and thus can belong to two (or more) categories at the same time. If children begin with stereotyped assumptions about categories, the correct processing of counterstereotypic stimuli will require simultaneous processing into two categories. In the realm of gender roles, this is evidenced by young children's tendency to assume that all group members will conform to gender stereotypes, even if they have shown countersterotypic preferences in the past (Martin, 1989; Taylor, 1996). Children with more advanced classification skills have been found to be less rigid in their stereotypic beliefs than children with less advanced classification skills (Leahy & Shirk, 1984; Trautner et al., 1983), and thus may be more affected by group feedback than children.

Method

Participants

Participants were 120 elementary-school-age children (69 boys, 51 girls) recruited from a summer school program in the Midwest. Children ranged in age from 7 years, 1 month, to 12 years, 1 month ($M = 113$ months, $SD = 15.9$ months). The majority of children ($n = 104$) were European American; 3 were African American, 6 were Asian American, 1 was Latino, and 6 were multiracial.

Overview of Procedure

At the beginning of the summer school session, children completed pretest measures of individual and developmental difference variables. The individual difference measures included assessments of entity/incremental theory of personality, trait self-esteem, and conformity. The cognitive developmental measures included assessments of centration and hierarchical classification. See Figure 2 for overview of method.

Next, children were randomly assigned a blue or red t-shirt to wear daily. That is, one half of the children in each classroom were assigned red shirts and one half were assigned blue shirts. Children wore the shirts for the duration of the summer school program. During this five-week period, teachers made frequent use of the color groups to label children (e.g., "Good morning, Blues and Reds"), and to organize the classrooms (as in Bigler, 1995; Bigler et al., 1997). These conditions have been found to increase attention to, and perceived importance of, social groups (Bem, 1981; Bigler, 1995). Teachers were instructed to treat groups equally and prohibit competition between groups.

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Approximately one week after the assignment of group membership, children participated in a series of three episodes in which information about the performance of self and color groups was manipulated. Task manipulation trials were separated in time by several days. In each situation, children completed a novel task and received feedback indicating that their personal performance was either excellent or mediocre and their ingroup's performance was either excellent or mediocre. Thus, there were four conditions: personal performance excellent, group performance excellent (*positive verifying*); personal performance excellent, group performance mediocre (*overachieving*); personal performance mediocre, group performance excellent (*underachieving*); and personal performance mediocre, group performance mediocre (*negative verifying*).

In each manipulation episode, children first received information about either their own or their group's performance on the task. The order of presentation (self versus group first) was counterbalanced. In the self first presentation, children first completed a cognitive task and received feedback about their personal performance. Children then completed a measure of their attitudes toward the task, including task performance evaluations, liking, performance malleability, and partner choice. Children were then given feedback about their *group's* performance. Immediately after the presentation of this feedback, children completed the attitudes toward task and state self-esteem scales.

In the group first presentation, children were first given feedback about their *group's* performance. Children then completed the attitudes toward task scale. Children next completed the task and received feedback about their personal performance. Immediately after the presentation of this feedback, children completed the attitudes toward task and state self-esteem scales.

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After spending several weeks in the classroom situation and completing all three task manipulation trials, children's perceptions of the color groups were assessed. Children completed measures of (a) group satisfaction, (b) perceived similarity to group members, (c) group evaluations, and (d) peer preferences. Once testing was complete, the experimenters and classroom teachers conducted a debriefing session in which the experimental manipulation (i.e., false feedback about self and groups) and the purpose of the study were explained.

Pretest Measures

Theory of personality. Children's belief in incremental versus entity theories of personality was assessed with a series of questions concerning individuals' ability to change, based on recommendations by Erdley and Dweck (1993). Questions addressed children's perceptions of ability to change both one's personality (e.g., "A person's personality is something they can't change very much") and one's intelligence (e.g., "A person's level of smartness is something they can't change very much."). Response options ranged from "really true" (4) to "really not true" (1). Children's responses to the items were averaged; possible scores ranged from 1 to 4. All pretest measures appear in Appendix A.

Self-esteem. Self-esteem was measured with academic and global subscales of the Perceived Competence Scale for Children (Harter, 1982). The scale includes a series of statements such as "Some kids are good at school." Children were asked to state if the characteristic is true of them. Response options ranged from "really true for me" (4) to "really not true for me" (1). Children's responses to the items were averaged; possible scores for each subscale ranged from 1 to 4. After completing each question, children

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were also asked to report how confident they were in their response. Response options were "really sure" (2), "a little sure" (1), and "not so sure" (0).

Conformity. Children's tendency to conform to the peer group was assessed with a self-attention scale (Abrams, 1985). This scale is designed to measure the extent to which children look to peers to provide behavioral standards. The scale includes a series of statements such as "I like to be the same as my friends." Children were asked to state if the characteristic was true of them. Response options ranged from "really true for me" (4) to "really not true for me" (1). Children's responses to the items were averaged; possible scores ranged from 1 to 4.

Centration. Children completed a measure of whether they are bound by perceptually salient characteristics in making decisions about people (Lobliner & Bigler, 1993). Children were read brief stories containing three characters. Two of the characters shared a perceptually salient characteristic (e.g., age); one of those characters shared a non-perceptually-salient characteristic (e.g., liking the same activity) with another character. Children were asked to report which two characters were most similar to each other. The number of correct answers was summed; possible scores ranged from 0 to 6.

Hierarchical classification. Children completed tasks of simple and multiple class inclusion (Trautner et al., 1983). The simple classification task assessed children's understanding of items' membership in a larger category (e.g., bears and elephants as types of animals). The multiple classification task assessed children's understanding of items' membership in a two subcategories as well as larger category (e.g., bears and elephants of different colors as members of color categories and as types of animals). The

number of correct answers was summed; possible scores on each task ranged from 0 to 2.

A full version of the classification measure appears in Appendix A.

Experimental Conditions

Positive Verifying

Children in this condition ($n = 30$) received feedback indicating that their performance on the experimental tasks was "excellent" and that their ingroup performed "much better" than the outgroup on the task.

Overachieving for Group

Children in this condition ($n = 32$) received feedback indicating that their performance on the experimental tasks was "excellent" and that their outgroup performed "much better" than the ingroup on the task.

Underachieving for Group

Children in this condition ($n = 29$) received feedback indicating that their performance on the experimental tasks was "okay" and that their ingroup performed "much better" than the outgroup on the task.

Negative Verifying

Children in this condition ($n = 24$) received feedback indicating that their performance on the experimental tasks was "okay" and that the outgroup performed "much better" than their ingroup on the task.

Task Manipulations

Overview

Children completed three cognitive tasks in their classrooms: a spatial rotation task, a pattern copying task, and a memory task (see Appendix B for example items). For

each task, children received feedback about the performance of the self and the group. Task type and presentation order were counterbalanced.

In each manipulation trial, children completed a cognitive task and received feedback about personal and group performance on the task. Children participated in one of two order presentations, depending on whether they first received information about the self or about the group. Feedback was presented in a variety of ways. Personal feedback was presented in the form of either a written comment on children's answer sheets (trials 1 and 2) or a verbal statement of the names of children with "excellent" scores on the task and the presentation to each child of a small certificate (trial 3). Group feedback was presented in the form of either a written (trial 1) or a verbal statement that one group performed better on the task (trials 2 and 3). In addition to these statements, children were presented with a (fictitious) bar graph indicating the superior performance of one group relative to the other group.

Self first. In the self first presentation, children first completed a cognitive task. The experimenter then collected the children's response sheets. Within five minutes, the experimenter returned children's response sheets to them with a score reported on the sheet, (either 90 or 70) as well as a written comment that the score was "excellent" or "ok." Children then completed the attitudes toward task scale.

Children were then given feedback about their group's performance in the form of a written or verbal statement. For example, children received a sheet of "Fun Facts about this Puzzle" that included the statement "The red [blue] group did better at this puzzle than the blue [red] group" as well as a bar graph of scores of the red and blue groups. Children then completed the attitudes toward task and state self-esteem scales.

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Group first. In the group first presentation, children were first given feedback about their group's performance in the form of a written or verbal statement. For example, children received a sheet of "Fun Facts about this Puzzle" that included the statement "The red [blue] group did better at this puzzle than the blue [red] group." Children then completed the attitudes toward task scale.

Children then completed a cognitive task. The experimenter collected the children's response sheets. Within five minutes, the experimenter returned children's response sheets to them with their own score reported on the sheet, as well as a written comment that the score was "excellent" or "ok." Children then completed the attitudes toward task and state self-esteem scales.

Task Evaluation Measures

Task performance evaluations (Q1-Q3, see Appendix C). Children rated their personal and ingroup's task performance. Evaluations of *personal* performance were assessed with the question "How good do you think you are [will be] at the puzzle?" Evaluations of *group* performance were assessed with the questions (a) "How good do you think blue kids are [will be] at the puzzle?" and (b) "How good do you think red kids are [will be] at the puzzle?" Response options for all items ranged from "really good" (4) to "not good" (1).

Task liking (Q4-Q5). Children rated their liking of the task (e.g., "How much did [will] you like the puzzle?", "[After you have done it once,] How much [do you think you] would you like to do the puzzle again?"). Response options ranged from "a lot" (4) to "not at all" (1).

Task importance (Q6). Children were asked "How important is it to you to be good at this type of puzzle?" Response options range from "really important" (4) to "not important" (1).

Task performance malleability (Q7). Children were asked "Do you think you could get better at the puzzle if you practiced?" Response options were "yes, a lot better" (3), "yes, a little bit better" (2), and "no" (1).

Task partner choice (Q8). Children were asked "If you were going to do the puzzle with a partner, who would you want to work with?" with response options of "a blue group member," "a red group member," or "either."

State self-esteem

State self-esteem. Children completed a measure of state self-esteem based on Heatherton & Polivy's (1991) State Self-Esteem Scale. This scale assesses how children feel about themselves at the current moment (e.g., "I feel sure that I understand things."). Response options are "not at all" (1), "a little bit" (2), and "pretty much" (3). Children's responses to the items were averaged; possible scores ranged from 1 to 3.

Intergroup Attitudes Outcome Measures

After the completion of the three task manipulation trials, children completed a posttest session including several measures of ingroup identification and intergroup attitudes. All intergroup outcome measures are included in Appendix D.

Group importance. Participants were asked, "How important is being a blue/red group member to you?" with response options ranging from "not important" (0) to "very important" (3).

Group happiness. Participants were asked, "How happy are you to be in the blue [red] group?" with response options ranging from "not happy" (0) to "very happy" (3).

Group preference. Participants were asked, "If you could choose the color of your shirt, would you choose a blue shirt or a red shirt?" and "If a new student came to your class, would that student choose a blue shirt or a red shirt?"

Self-Group similarity. Participants were also asked to rate how similar they believed themselves to be to each of the color groups on a scale from "not at all" (1) to "a lot" (4).

Peer preferences. Participants rated how much they liked to play with each other child in their class, using the response options "a lot" (3), "a little" (2), or "not too much" (1). Scores were averaged to obtain composite ratings for ingroup peers and outgroup peers.

Trait ratings. Children completed two measures of the characteristics of the red and blue groups. In the first, participants rated how many members of each color group possess seven positive traits (friendly, helpful, nice, pretty/handsome, smart, good, hard working), as in previous research by Bigler and colleagues (Bigler, 1995; Bigler et al., 1997; Bigler et al., 2001; Brown & Bigler, 2002). Response options were "all of the red [blue] group" (3), "most of the red [blue] group" (2), "some of the red [blue] group" (1), or "none of the red [blue] group" (0). Scores were averaged and thus total possible scores ranged from 0 to 3.

The second measure of ingroup and outgroup characteristics asked children to complete a list of statements regarding members of the color groups (e.g., "Some kids do well in school. Is that true for _____ kids?"). Response options were "only red kids,"

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"mostly red kids, some blue kids," "both red and blue kids," "mostly blue kids, some red kids," and "only blue kids." This scale is adapted from the Perceived Competence Scale for Children (Harter, 1982) and has been used in several previous intergroup studies (Brown & Bigler, 2002; Bigler et al., 2004).

A secondary purpose in administering the Harter-based intergroup measure was to examine the extent to which children projected their self-views onto their ingroups. Because the questions on this intergroup bias measure were based on the self-esteem measure which children completed at pretest, analyses could be conducted to examine whether children projected their self-views on particular items onto their groups (e.g., whether a child who described herself as good at reading would also believe her ingroup to be good at reading). Previous research (Bigler et al., 2004) using this paradigm has indicated that children will project their views of themselves onto novel ingroups.

Competency ratings. Participants were asked to predict the performance of the two color groups on a series of tasks. Items included the three cognitive tasks performed in the manipulations (e.g., a rotation puzzle) as well as six generalization items (e.g., a spelling bee). Children could choose the ingroup, the outgroup, or a tie. The number of times the ingroup was rated as more competent than the outgroup were summed; total possible scores ranged from 0 to 3 for manipulation items and 0 to 6 for generalization items.

Results

Overview

   Data analysis was a five-step process. In the first step, I examined children's

scores on the individual and developmental difference measures and assessed whether

these scores varied across condition. In the second step, I examined whether (a)

children's evaluations of the experimental tasks varied based on the feedback they

received about their personal performance and (b) developmental and individual

differences affected the relation between personal feedback and task evaluations. In the

third step, I examined whether (a) children's evaluations of the experimental tasks varied

based on the feedback they received about their group's performance and (b)

developmental and individual differences affected the relation between group feedback

and task evaluations. In the fourth step, I examined whether (a) children's evaluations of

the experimental tasks varied based on the consistency or inconsistency of the feedback

they received about their personal and group performance and (b) developmental and

individual differences affected the relation between feedback consistency and task

evaluations. In the fifth step, I examined whether (a) children's ratings of ingroup

identification and bias varied across conditions and (b) developmental and individual

differences affected children's ratings of ingroup identification and bias.

Individual and Developmental Difference Measures

   Theory of personality. Children completed a series of questions asking whether

they thought people's personalities or levels of intelligence could change. Cronbach's

alphas for the personality and intelligence subscales were .68 and .71, respectively. The

personality and intelligence subscales were significantly correlated with each other ($r =$

.61, $p < .01$). Children demonstrated a high level of endorsement of the statements ($M = 3.12$, $SD = 0.65$), indicating that they believed people's personalities and levels of intelligence are stable (i.e., they endorsed an entity theory of personality/intelligence). Theory of personality/intelligence was not significantly correlated with age. A one-way ANOVA by condition indicated no significant effects of condition on theory of personality/intelligence, indicating that children did not differ prior to their assignment into the conditions.

Self-esteem. Children completed the academic and global subscales of the Harter Perceived Competence Scale for children (Harter, 1982). Children endorsed relatively high levels of academic ($M = 3.13$, $SD = 0.57$) and global ($M = 3.39$, $SD = 0.52$) self-esteem. Cronbach's alphas for the academic and global subscales were .77 and .73, respectively. Academic and global self-esteem were significantly correlated ($r = .61$, $p < .01$). Neither domain of self-esteem was significantly correlated with age. See Table 1 for correlations between pretest measures and Table 2 for pretest measure means and standard deviations.

After completing each item of the Harter scale, children were also asked to report how confident they were in their response. Children were relatively certain of their self-views (academic: $M = 1.57$, $SD = 0.42$; global; $M = 1.64$, $SD = 0.34$). Certainty was positively correlated with self-esteem in both the academic ($r = .26$, $p < .01$) and global ($r = .33$, $p < .01$) domains, indicating that children with higher self-esteem were more certain of their views of themselves than children with lower self-esteem. One-way ANOVAs by condition indicated no significant effects of condition on children's academic or global

self-esteem or self-view certainty, indicating that children in the four conditions did not differ prior to their assignment into the conditions.

Conformity. Abrams (1985) separated his measure into two subscales, self-awareness and behavioral conformity. In this sample, Cronbach's alphas for the self-awareness and behavioral conformity subscales were alpha = .67 & .56, respectively. Only the behavioral conformity subscores were used in subsequent analyses. Conformity was not significantly correlated with age. A one-way ANOVA by condition indicated no significant effects of condition on conformity, indicating that children did not differ prior to their assignment into the conditions.

Centration. Children completed measures of centration based on age, gender, and shirt color. Children overall performed well on the tasks ($M = 5.39$, $SD = 1.10$), showing little evidence of perceptual centration. Performance on the centration measure was significantly correlated with age ($r = .26$, $p < .05$), with older children showing less centration than younger children. A one-way ANOVA by condition indicated no significant effects of condition on centration, indicating that children did not differ prior to their assignment into the conditions.

Classification skill. Children completed measures of their simple and multiple classification ability. Their numbers of correct responses to each type of question were summed. Children overall performed better on the simple ($M = 1.65$, $SD = 0.60$) than the multiple ($M = 1.18$, $SD = 0.78$) classification tasks. Performance on simple and multiple classification tasks were significantly correlated ($r = .46$, $p < .01$) and performance on both tasks was significantly correlated with age (simple: $r = .26$, $p < .05$; multiple: $r = .37$, $p < .01$), with older children showing more advanced classification skill than younger

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children. A one-way ANOVA by condition indicated no significant effects of condition on classification skill, indicating that children did not differ prior to their assignment into the conditions.

Task Evaluations: Effects of Personal Feedback

One purpose of the study was to examine whether information about their personal performance would influence children's (a) predictions for group performance (i.e., whether they would project from the self onto the group) and (b) perceptions of the performance domain (e.g., whether performing well on a task would lead children to like the task more). To test these questions, I asked the subset of children who received personal feedback before group feedback to complete a task evaluation measure after the personal feedback presentation. Responses were analyzed with a one-way ANOVA by feedback type (positive vs. negative). Means and standard deviations for task evaluation measures appear in Table 4.

Task performance evaluation: self rating. Children were first asked to report on their own performance on the cognitive tasks. When presented with information about their personal performance, results indicated a significant effect of feedback type, F (1, 171) = 5.86, p < .05. Children who received positive feedback about their performance rated themselves as better at the task than children who received negative feedback about their performance (see Table 4 for means).

Task performance evaluations: group ratings. To compute a single index of ingroup bias, children's ratings of outgroup ability were subtracted from their ratings of ingroup ability. Thus, more positive scores indicate greater ingroup bias. (Separate analyses for ingroup and outgroup ratings are presented in Appendix E.) Children's

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scores were significantly different from chance (0), indicating that children predicted the

ingroup would do better on the task than the outgroup, $M = 0.75$, $t = 8.34$, $p < .001$. A

one-way ANOVA by feedback type (positive vs. negative) indicated that children did not

differ in their level of ingroup bias based on whether they received positive or negative

feedback regarding their own performance.

Task engagement. A task engagement composite score was created by averaging

children's scores on task liking, desire to perform the task again, and task importance.

(Separate analyses for individual items are presented in Appendix E.) Effects of

feedback on task engagement were examined with a one-way ANOVA by feedback type.

Results indicated a marginally significant effect of personal feedback type on task

engagement, with children who received positive personal feedback rating themselves as

more engaged with the task, $F(1,171) = 3.19$, $p = .076$.

Task performance malleability. Effects of condition on perceptions of potential to

improve on the tasks with practice were examined with a one-way ANOVA by feedback

type. Results indicated a marginally significant effect of personal feedback type, $F(1,$

$171) = 3.12$, $p = .079$. Children who received positive feedback were more likely to say

they could improve their performance with practice than children who received negative

feedback about their performance.

Task partner choice. Effects of feedback type on partner preferences were

examined with chi-square analyses. Specifically, I examined whether the percentage of

children who chose an ingroup member as a partner varied across conditions. Results

indicated no significant effects of personal feedback type on partner choice. Children

who received positive personal feedback chose an ingroup partner 36% of the time,

whereas children who received negative personal feedback chose an ingroup partner 28% of the time.

Effects of Developmental and Individual Difference Variables

For each of the major dependent variables in the study (including task-specific as well as intergroup attitudes), a regression model was run including age, cognitive complexity (person perception, simple classification, and multiple classification), self-esteem, theory of personality, and conformity. Separate regression models were run for children who received positive and negative feedback. Theoretically-relevant findings are described below. A complete presentation of developmental and individual difference analyses appears in Appendix F.

Task performance evaluations: self. Children with higher self-esteem evaluated their performance more positively than children with lower self-esteem, regardless of whether they received positive or negative feedback, βs = .42 & .39, *t*s = 3.06 & 2.06, *p*s < .05.

Task performance evaluations: group. Results indicated no significant effects of developmental or individual differences.

Task engagement. Younger children reported greater engagement with the task than older children when they received positive personal feedback, β = -.45, *t* = -3.69, *p* = .001, but not when they received negative personal feedback.

Task performance malleability. Children with higher self-esteem rated themselves as more able to improve with practice than children with lower self-esteem when they received negative personal feedback, β = .39, *t* = 2.65, *p* < .05, but not when they received positive personal feedback.

Task Evaluations: Effects of Group Feedback

A second purpose of the study was to examine whether information about their group's performance would influence children's (a) predictions for their own performance (i.e., whether they would project from the group onto the self) and (b) perceptions of the performance domain (e.g., whether belonging to a group that performed well on a task would lead children to like the task more). To test these questions, I asked the subset of children who received group feedback before personal feedback to complete a task evaluation measure after the group feedback presentation. Responses were analyzed with a one-way ANOVA by feedback type (positive vs. negative). Means and standard deviations for task evaluation measures appear in Table 4.

Task performance evaluation: self rating. Children were first asked to report on their own performance on the cognitive tasks. A one-way ANOVA by feedback type (positive vs. negative) indicated no significant effect of group feedback type on children's predictions of their own abilities (see Table 4 for means).

Task performance evaluation: group ratings. To compute a single index of ingroup bias, children's ratings of outgroup ability were subtracted from their ratings of ingroup ability. Thus, more positive scores indicate greater ingroup bias. (Separate analyses for ingroup and outgroup ratings are presented in Appendix E.) Children's scores were significantly different from chance (0), indicating that children predicted the ingroup would do better on the task than the outgroup, $M = 0.71$, $t(111) = 5.62$, $p < .001$. A one-way ANOVA by feedback type (positive vs. negative) indicated a marginally significant effect by feedback type, with children who received positive group feedback

showing more ingroup bias than children who received negative group feedback,

$F(1,109) = 2.96$, $p = .088$.

Task engagement. A task engagement composite score was created by averaging

children's scores on task liking, desire to perform the task again, and task importance.

(Separate analyses for individual items are presented in Appendix E.) Effects of

condition on task engagement were examined with a one-way ANOVA by feedback type.

Results indicated no significant effects of group feedback type on task engagement.

Task performance malleability. Effects of condition on perceptions of potential to

improve on the tasks with practice were examined with a one-way ANOVA by feedback

type. Results indicated no significant effects of group feedback type on task performance

malleability.

Task partner choice. Effects of feedback type on partner preferences were

examined with chi-square analyses. Specifically, I examined whether the percentage of

children who chose an ingroup member as a partner varied across conditions. Results

indicated no significant effects of group feedback type on partner choice. Children who

received positive ingroup feedback chose an ingroup partner 38% of the time, whereas

children who received negative ingroup feedback chose an ingroup partner 40% of the

time.

Effects of Developmental and Individual Difference Variables

For each of the major dependent variables, a regression model was run including

age, cognitive complexity (person perception, simple classification, and multiple

classification), self-esteem, theory of personality, and conformity. Separate regression

models were run for children who received positive and negative feedback. Theoretically-

relevant findings are described below. A complete presentation of developmental and individual difference analyses appears in Appendix F.

Task performance evaluations: self. Results indicated no significant effects of developmental or individual differences.

Task performance evaluations: group. Results indicated no significant effects of developmental or individual differences.

Task engagement. Children with lower cognitive complexity reported greater engagement with the task than children with greater cognitive complexity when they received positive group feedback, $\beta = -.42$, $t = -2.56$, $p < .05$, but not when they received negative group feedback.

Task performance malleability. Results indicated no significant effects of developmental or individual differences.

Task Evaluations: Effects of Self/Group Consistency

The primary purpose of the study was to examine the effects of consistency or inconsistency between personal and group feedback on children's views of themselves, their groups, and the task domains. In order to examine the effects of self-group consistency on children's views of the tasks, all children completed a task evaluation measure at the end of each task manipulation trial (after they had received both the personal and group feedback). Responses were examined with 2 (personal feedback: positive versus negative) by 2 (group feedback: positive versus negative) ANOVAs. Means and standard deviations for all task evaluation measures appear in Table 5. Correlations among task evaluation measures appear in Table 3.

Task performance evaluations: self. Children were first asked to report on their own performance on the cognitive tasks. Effects of condition on perceptions of ability were examined with a 2 (personal feedback: positive versus negative) by 2 (group feedback: positive versus negative) ANOVA. Results indicated a significant effect of personal feedback on children's perceptions of their own abilities, $F(1, 280) = 18.84$, $p < .001$, with children who received positive personal feedback stating they were better at the task than children who received negative personal feedback (see Table 5 for means).

Task performance evaluations: group. To compute a single index of ingroup bias, children's ratings of outgroup ability were subtracted from their ratings of ingroup ability. Thus, more positive scores indicate greater ingroup bias. (Separate analyses for ingroup and outgroup ratings are presented in Appendix E.) Children's scores were significantly different from chance (0), indicating that children predicted the ingroup would do better on the task than the outgroup, $M = 0.66$, $t(280) = 7.69$, $p < .001$. Effects of condition on children's ingroup bias were examined with a 2 (personal feedback: positive versus negative) by 2 (group feedback: positive versus negative) ANOVA. Results indicated a significant effect of personal feedback on ingroup bias, with children who received positive personal feedback showing greater bias than children who received negative personal feedback, $F(1, 277) = 12.96$, $p < .05$. Results also indicated a significant effect of group feedback, with children who received positive group feedback indicating greater ingroup bias than children who received negative group feedback, $F(1, 277) = 11.89$, $p < .05$. See Table 5 for means.

Task engagement. A task engagement composite score was created by averaging children's scores on task liking, desire to perform the task again, and task importance.

(Separate analyses for individual items are presented in Appendix E.) Effects of condition on engagement with the tasks were examined with a 2 (personal feedback: positive versus negative) by 2 (group feedback: positive versus negative) ANOVA. Results indicated a significant effect of personal feedback, with children who received positive personal feedback indicating greater engagement with the tasks than children who received negative personal feedback, $F(1, 280) = 7.60, p < .01$.

Task performance malleability. Effects of condition on perceptions of potential to improve on the tasks with practice were examined with a 2 (personal feedback: positive versus negative) by 2 (group feedback: positive versus negative) ANOVA. Results indicated a marginally significant effect of personal feedback, with children who received positive personal feedback claiming greater ability to improve their performance with practice than children who received negative personal feedback, $F(1,279) = 3.18, p = .076$.

Task partner choice. Effects of condition on partner preferences were examined with chi-square analyses. Results indicated no effects of personal or group feedback on partner choice.

State self-esteem. Effects of condition on the state self-esteem scale were examined with a 2 (personal feedback: positive versus negative) by 2 (group feedback: positive versus negative) ANOVA. Results indicated a marginally significant effect of group feedback on children's state self-esteem, with children who received negative group feedback showing slightly higher levels of state self-esteem than children who received positive group feedback, $F(1, 222) = 3.28, p = .071$.

Effects of Developmental and Individual Difference Variables

For each of the major dependent variables, a regression model was run including age, cognitive complexity (person perception, simple classification, and multiple classification), self-esteem, theory of personality, and conformity. Separate regression models were run for each condition. Theoretically-relevant findings are described below. A complete presentation of developmental and individual difference analyses appears in Appendix F.

Task performance evaluations: self. Self-esteem was positively related to children's ratings of their own performance for children in the overachieving and underachieving conditions, βs = .29 & .483, *t*s = 2.04 & 3.48, *p*s < .05. Self-esteem was negatively related to children's ratings of their own performance for children in the negative verifying condition, β = -.55, *t* = -2.11, *p* < .05.

Conformity was positively related to children's ratings of their own performance for children in the positive verifying condition, β = .64, *t* = 3.26, *p* < .01, but negatively related for children in the overachieving condition, β = -.44, *t* = -2.47, *p* < .05.

Task performance evaluations: group. Results indicated no significant effects of developmental or individual differences.

Task engagement. Conformity was positively related to children's task engagement for children in the positive verifying and underachieving conditions, βs = .43 & .29, *t*s = 2.33 & 1.98, *p*s < .055.

Task performance malleability. Self-esteem was positively related to children's ratings of their ability to improve with practice for children in the overachieving and underachieving conditions, βs = .31 & .44, *t*s = 1.98 & 3.02, *p*s < .055.

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State self-esteem. Self-esteem was positively related to children's ratings of state self-esteem for children in the positive verifying and underachieving conditions, βs = .64 & .57, *t*s = 3.49 & 4.32, *p*s < .01. Conformity was negatively related to children's ratings of state self-esteem for children in the positive verifying and underachieving conditions, βs = -.75 & -.42, *t*s = -3.69 & -3.01, *p*s < .01.

Intergroup Attitudes

The primary purpose of the study was to examine the effects of consistency or inconsistency between personal and group feedback on children's views of themselves, their groups, and the task domains. In order to examine the effects of self-group consistency on children's intergroup attitudes, all children completed a series of measures of intergroup attitudes after completing all three task manipulation trials. Effects of condition on children's ingroup identification and bias were examined with 2 (personal feedback: positive versus negative) by 2 (group feedback: positive versus negative) ANOVAs. Only children who participated in two or more of the task manipulations were included in the analyses of intergroup attitudes. Eight children who completed posttest measures but did not complete the required number of task manipulations were thus excluded. Means and standard deviations for all intergroup attitudes measures appear in Table 7. Correlations among intergroup attitudes measures appear in Table 6.

Group importance. Effects of condition on ratings of the importance of group membership were examined with a 2 (personal feedback: positive versus negative) by 2 (group feedback: positive versus negative) ANOVA. Results indicated a marginally significant effect of personal feedback, with children who received negative personal

feedback reporting their group membership was more important to them, $F(1, 86) = 3.40$, $p = .069$ (see Table 7 for means).

Group happiness. Effects of condition on ratings of happiness with group membership were examined with a 2 (personal feedback: positive versus negative) by 2 (group feedback: positive versus negative) ANOVA. Results indicated no significant effects of personal or group feedback on children's happiness with their group membership.

Group preference. Effects of condition on desire to maintain one's group membership were examined with chi-square analyses. Results indicated no effects of personal or group feedback on children's desire to maintain their group membership. Children in the negative verifying condition were most likely to want to maintain their group membership (83%), followed by children in the positive verifying (75%) and the underachieving (70%) conditions; children in the overachieving condition were least likely to want to maintain their group membership (67%).

Effects of condition on predictions for a new child's preferred group membership were examined with chi-square analyses. Results indicated no effects of personal or group feedback on children's predictions for a new child's preferred group membership. The majority of children (58%) stated that a new student joining their class would have no preference as to group membership. Children in the overachieving condition were most likely to state that a new student would prefer their own ingroup (42%); children in the positive verifying condition were least likely to state that a new student would prefer their own ingroup (17%).

Self-Group similarity. To compute a single index of perceived similarity, children's ratings of outgroup similarity were subtracted from their ratings of ingroup similarity. Thus, positive scores indicate greater perceived similarity to the ingroup; negative scores indicate greater perceived similarity to the outgroup. To examine whether children showed an overall similarity bias in favor of the ingroup, a t-test was conducted comparing perceived similarity ratings to chance (0). Results indicated children considered themselves more similar to the ingroup than to the outgroup ($M = 0.63$) at a level significantly above chance, $t(88) = 3.75$, $p < .001$.

Effects of condition on perceived similarity were examined with a 2 (personal feedback: positive versus negative) by 2 (group feedback: positive versus negative) ANOVA. Results indicated no significant effects of personal or group feedback on children's perceived similarity to the ingroup.

Peer preferences. To compute a single index of ingroup bias, children's ratings of outgroup peers were subtracted from their ratings of ingroup peers. Thus, more positive scores indicate greater ingroup bias. To examine whether children showed an overall bias in favor of ingroup peers, a t-test was conducted comparing levels of bias on peer preference ratings to chance (0). Results indicated that children preferred ingroup members at a level marginally above chance, $M = 0.07$, $t(87) = 1.64$, $p = .10$.

Effects of condition on peer preference ratings were examined with a 2 (personal feedback: positive versus negative) by 2 (group feedback: positive versus negative) ANOVA. Results indicated no effects of condition on children's peer biases.

Trait ratings—Bigler scale. To compute a single index of ingroup bias, children's ratings of outgroup traits were subtracted from their ratings of ingroup traits. Thus, more

positive scores indicate greater ingroup bias. To examine whether children showed an overall bias in favor of the ingroup, a t-test was conducted comparing levels of bias on trait ratings to chance (0). Results indicated that responding on the Bigler trait ratings measure was significantly different from chance, $M = 0.46$, $t(90) = 6.01$, $p < .001$. Means were significantly different from chance in all conditions.

Effects of condition on trait ratings were examined with a 2 (personal feedback: positive versus negative) by 2 (group feedback: positive versus negative) ANOVA. Results indicated no significant effects of personal or group feedback on children's trait ratings.

Trait ratings—Harter-based intergroup scale. Overall, children were mostly likely to give neutral responses (76%). When children expressed a group bias, they typically favored the ingroup (21%). Responses favoring the outgroup were rare (3%). To compute a single index of ingroup bias, children's ratings of outgroup traits were subtracted from their ratings of ingroup traits. Thus, more positive scores indicate greater ingroup bias. To examine whether children showed an overall bias in favor of the ingroup, a t-test was conducted comparing levels of bias on trait ratings to chance (0). Results indicated that responding on the Harter-based intergroup trait ratings measure was significantly different from chance, $M = 2.55$, $t(89) = 5.30$, $p < .001$. Means were significantly or marginally significantly different from chance in all conditions (all ps < .09).

Effects of condition on trait ratings were examined with a 2 (personal feedback: positive versus negative) by 2 (group feedback: positive versus negative) ANOVA. Results indicated a marginally significant effect of group feedback $F(1, 86) = 3.00$, $p =$

.087, with children who received more positive group feedback showing higher levels of bias. The main effect of group feedback was subsumed by a marginally significant personal by group feedback interaction, $F(3,86) = 2.87$, $p = .094$. Post-hoc Tukey tests indicated a marginally significant difference between the overachieving ($M = 4.5$) and positive verifying ($M = 1.25$) conditions, $p = .085$.

A secondary purpose in administering the Harter self-esteem scale and the Harter-based intergroup measure was to examine the extent to which children projected their self-views onto their ingroups. For these analyses, children's responses on each item of the self-esteem measure were first recoded as positive or negative. Because elementary-school-age children typically have highly positive self-concepts, responses indicating that a positive statement was "really true for me" were coded as positive and all other responses ("sort of true", "sort of not true", and "really not true") were coded as negative. This led to approximately equal proportions of positive and negative responses. Chi-square analyses were then conducted evaluating children's responses on the Harter-based intergroup bias measure (ingroup biased, outgroup biased, or neutral) relative to their evaluations of their own performance (positive or negative). A chi-square analysis of all children's responses was nonsignificant, $\chi^2 (2) = 1.57$, p $> .10$, indicating that, in general, children did not project their self-views onto their groups. (A full presentation of children's personal and group responses appears in Table 8.)

Chi-square analyses compared the four conditions in their likelihood of ingroup, outgroup, and neutral responding. Separate analyses were conducted for domains in which children evaluated themselves positively versus negatively. For items on which children evaluated themselves positively, results indicated a significant effect of

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condition, χ^2 (6) = 31.67, p < .001. For items on which children evaluated themselves negatively, results indicated a significant effect of condition, χ^2 (6) = 52.00, p < .001. Children in the positive verifying and underachieving conditions were more likely to show ingroup bias in domains where they rated their own ability positively. Children in the negative verifying and overachieving conditions were more likely to show ingroup bias in domains where they rated their own ability negatively.

Competency ratings. Children's judgments of who would win hypothetical contests were separated into task-relevant (i.e., those related to the task manipulations, such as a memory contest) and non-task-relevant (i.e., those not related to the task manipulations, such as an art contest). When rating task-relevant competencies, children's ingroup responses did not differ significantly from chance (1), $M = 1.08$, $t(89) = 0.65$, $p = .51$. Effects of condition on competency ratings were examined with a 2 (personal feedback: positive versus negative) by 2 (group feedback: positive versus negative) ANOVA. Results indicated no effects of condition on children's competency ratings.

When rating non-task-relevant competencies, children's ingroup responses were significantly above chance (2), $M = 2.63$, $t(91) = 2.94$, $p < .01$. Effects of condition on competency ratings were examined with a 2 (personal feedback: positive versus negative) by 2 (group feedback: positive versus negative) ANOVA. Results indicated a marginally significant effect of personal feedback on children's non-task-relevant competencies, with children who received negative personal feedback showing higher ingroup bias than children who received positive personal feedback, $F(1, 88) = 2.69$, $p = .10$.

Effects of Developmental and Individual Difference Variables

For each of the major dependent variables (including task-specific as well as intergroup attitudes), a regression model was run including age, cognitive complexity (person perception, simple classification, and multiple classification), self-esteem, theory of personality, and conformity. Due to the small sample sizes, conditions were combined for analyses of ingroup identification and intergroup attitudes. Results indicated no significant effects of developmental or individual differences on children's responses on measures of ingroup identification or intergroup attitudes. A complete presentation of developmental and individual difference analyses appears in Appendix F.

Discussion

The primary purpose of the study was to examine the effects of children's self-views on their views of social groups (i.e., ingroup and outgroup), and the reciprocal effects of children's views of social groups on their self-perceptions. Previous theoretical and empirical work has suggested effects that operate in both directions (i.e., self to group and vice versa). I was especially interested in examining outcomes among children whose self and group views conflicted. To examine the effects of self- and group-view consistency, I used an experimental design in which children were assigned to novel social groups and asked to complete novel cognitive tasks. The feedback that children received about their own performance, and the performance of their ingroup and outgroup, was manipulated. Specifically, children were assigned to one of four conditions: (a) positive self-verifying (i.e., positive feedback about personal and group performance), (b) overachieving (i.e., positive feedback about personal performance and negative feedback about group performance), (c) underachieving (i.e., negative feedback about personal performance and positive feedback about group performance), and (d) negative self-verifying (i.e., negative feedback about personal and group performance).

I first examined the consequences of feedback about the self on children's predictions for group performance. In the absence of information about group performance, children who received positive feedback about their personal performance predicted that their ingroup would be better at the task than children who received negative feedback about their performance. That is, children appeared to project their self-views onto their groups. This finding is consistent with previous research (Bigler et al., 2004; Cadinu & Rothbart, 1996; Gramzow & Gaertner, 2005; Gramzow et al., 2001;

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Robbins & Kreuger, 2005) indicating that adults and children will use information about the self to make inferences about group characteristics.

I also examined the consequences of feedback about the self on children's perceptions of the performance domain (e.g., whether performing well on a task would lead children to like the task more). Children who received positive feedback about their own performance were slightly higher in task engagement than children who received negative feedback.

I next examined consequences of feedback about the group on children's predictions for personal performance and perceptions of the performance domain. Children did not appear to project from the group onto the self; children who received positive feedback about their group's performance did not differ from children who received negative feedback when asked to predict their personal performance. This is consistent with previous research (Robbins & Krueger, 2005) indicating that people are more willing to generalize from the self to the group than from the group to the self. Feedback about the group did not appear to affect children's task engagement.

I next examined the primary question of interest: the effect of consistency between self and group views on children's views of themselves, their groups, and the task domains. In order to examine the effects of self-group consistency on children's views of the tasks, all children completed a task evaluation measure at the end of each task manipulation trial (after they had received both the personal and group feedback).

Findings indicated few effects of consistency versus inconsistency. Instead, there were several significant main effects of feedback about the self. Children who received positive feedback about their own performance were more engaged with the task,

indicated greater ability to improve their performance with practice, and showed greater ingroup bias on task performance evaluations than children who received negative personal feedback. There was also a significant main effect of group feedback on children's ingroup bias on task performance evaluations; children who received positive group feedback showed more ingroup bias than children who received negative group feedback.

Despite the lack of predicted interaction effects, inspection of the means indicated several consistent patterns of mean difference. Across several measures, children in the positive verifying condition showed the most positive views of the tasks, whereas children in the negative verifying condition showed the most negative views of the tasks. All of these findings are relevant to issues of academic disidentification. Children who are relatively high performing members of typically successful groups (such a high achieving white students) are especially likely to endorse positive views of academic tasks and enjoy high academic motivation. Children who are relatively low performing members of typically unsuccessful groups (such a low achieving African American students) are especially likely to develop negative attitudes toward academic tasks and low academic motivation (e.g., Major et al., 1998).

Unexpectedly, children who received negative feedback about their group's performance showed slightly higher state self-esteem. One possible explanation for this finding is that children who have received negative feedback might attempt to compensate for this threat to self-esteem by overestimating their abilities in other areas.

After children had completed the three task manipulation trials, they participated in a posttest session in which they completed measures of ingroup identification and

intergroup bias. There were no significant effects of condition on most measures of children's identification with their ingroups (e.g., group happiness, self/group similarity). Children who received negative personal feedback did consider their group membership marginally more important. Similar to the finding regarding state self-esteem, it is possible that these children may be searching for alternative sources of self-esteem.

Children's satisfaction with their group membership was not affected by typicality. That is, atypical children did not appear to have either a stronger ingroup identification, as predicted by optimal distinctiveness theory, or decreased satisfaction with group membership, as predicted by self-verification theory. Previous studies examining the effects of atypicality on children's ingroup identification (Bigler et al., 2004; Patterson & Bigler, in press) have found evidence for decreased satisfaction with group membership and increased perceived similarity to ingroup members among atypical children, consistent with the predictions of self-verification and optimal distinctiveness theories. One meaningful difference between the current study and these previous studies is that in the current study information regarding typicality was presented only during the manipulation trials, whereas in the previous studies information regarding typicality was consistently available, including while children were completing the posttest measures. Perhaps if the children had completed measures of group identification and satisfaction after each trial (at the time when they completed the task evaluation measure), effects of condition on group satisfaction and ingroup identification would have been evident.

In general, children showed ingroup-biased responding on the majority of the intergroup attitude measures. This finding is unsurprising given that the experimental

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context made group membership and intergroup comparisons salient. Although there were no significant differences across conditions, there was again evidence of a consistent pattern of responding across groups. Those children who received negative verifying information showed the lowest levels of ingroup bias.

The intergroup measure based on the Harter self-esteem scale allowed for the examination of ingroup bias and projection onto the ingroup. Overall, children did not appear to project their self-views onto their ingroups, as in a previous study (Bigler et al., 2004). In the previous study, however, children completed the intergroup measure shortly after assignment to the novel groups and before receiving any information about the groups. In the current study, children completed the intergroup measure at the end of the group manipulation, after receiving information about their group's performance on three different occasions. Children may be more likely to assume that their groups are like themselves in situations where little information about the group is available. Consistent with this explanation, extant research has found that individuals are more likely to project their self-views onto a novel or minimal group than onto an existing social group (Robbins & Krueger, 2005). There are, however, extant studies indicating projection onto social groups (e.g., Rudman, Greenwald, & McGhee's (2001) study of self-views and gender stereotypes).

Though children did not appear to project their self-views onto their ingroups overall, analyses revealed some intriguing effects of condition on relations between self and group views. Specifically, children in the positive verifying and underachieving conditions (those who had received positive feedback about their group's abilities on the novel tasks) were more likely than other children to show ingroup bias in domains in

which they had rated their own ability positively. Children in the negative verifying and overachieving conditions those who had received negative feedback about their group's abilities on the novel tasks) were more likely than other children to show ingroup bias in domains in which they had rated their own ability negatively. These findings indicate that children may have internalized and generalized the messages contained in the task manipulation trials and concluded that their group was successful in domain which were either self-relevant or non-self-relevant.

In addition, children demonstrated ingroup bias on the Harter-based intergroup measure. Children in the overachieving condition showed the highest levels of ingroup bias on this measure. These children, who have received feedback indicating that they performed well in a domain in which their group performed poorly, may be especially motivated to view their group positively in other domains in order to make their group views consistent with their positive self-views and the positive feedback they have received about their performance on the novel tasks. The group differences on this measure may be due to the fact that this measure specifically assessed bias in the academic domain, which may have been more closely related to children's experiences with the novel task than more general measures of bias.

The relatively small number of participants within each condition prevented statistical analyses of the role of individual and developmental differences in mediating or moderating the effects of self and group consistency on child outcomes. Nonetheless, I was able to examine the effects of age, cognitive complexity, theory of personality, and conformity on the tendency for children's self views to affect their views of the group (and vice versa).

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In examining children's responses to positive and negative personal feedback, regression analyses indicated that children with high self-esteem believed themselves to be able to improve their performance with practice, regardless of whether they received positive or negative personal feedback. This indicates that positive self-esteem may be a protective factor, insulating children from some of the detrimental effects of negative feedback.

In examining children's responses to consistency between personal and group feedback, regression analyses indicated meaningful influences of self-esteem and conformity. Children in the positive verifying and overachieving conditions who were high in conformity were also more engaged with the task, indicating that receiving positive group feedback may lead to greater identification with a domain for children who place high value on being similar to their peers.

Conformity was, however, negatively related to state self-esteem for children in the positive verifying and overachieving conditions (those who received positive group feedback). This may indicate that children high in conformity may feel increased anxiety or pressure to live up to group standards, whereas children low in conformity may be less affected by group-based expectations. This explanation is consistent with Mahalingam and Ruble's (2005) work on Asian American students and academic anxiety.

Self-esteem was related to beliefs about ability to improve with practice for children in the overachieving and underachieving conditions, indicating that children may rely on their preexisting self-concepts when information about self and group conflict. This finding is consistent with the predictions of self-verification theory. Given that limited sample size prevented analyses by condition for ingroup identification and

intergroup attitudes measures, it is possible that some effects were obscured. For example, children's preexisting level of self-esteem might have influenced ingroup identification when children were asked to reconcile conflicting feedback about self and group, but not when personal and group feedback were consistent.

Theory of personality was not a significant predictor of children's task evaluations, ingroup identification, or intergroup attitudes. One possible explanation for these findings is that the theory of personality measure specifically assessed *others'* ability to change. It may be that children's perceptions of their own ability to change are distinct from their perceptions of others' ability to do so. This possibility is consistent with the lack of relations between theory of personality and performance malleability ratings on the task evaluation measure.

The purpose of this study was to examine the reciprocal relations between children's self and group views. Though relatively little experimental work with children has examined these questions, several theoretical perspectives from social psychological research with adults made relevant predictions. First, self-categorization theory (Hogg 1996; Turner et al., 1987) posits that individuals will strive to view themselves in a way that is consistent with the expectations for their social group. For example, self-categorization theory would predict that women and girls would view themselves as less skilled at mathematics than men and boys due to self-stereotyping in the mathematics domain. In the context of the present study, self-categorization theory would predict that children who received feedback indicating that their group did not perform well in the task domain would believe themselves to be less skilled in the task domain and show

decreased interest in the task domain relative to children who received feedback indicating that their group performed well.

An alternative theory, self-verification theory (Swann & Read, 1981; Swann et al., 2004) posits that individuals wish to have others view them as they view themselves. A large body of research by Swann and colleagues (e.g., Swann et al., 1992; Swann et al., 2000; Swann et al., 2004) has found that individuals prefer feedback, relationships, and groups that confirm their self-views, even when these views are negative. In the context of the present study, self-verification theory predicts that individuals whose groups did not confirm their self-views (i.e., those who received inconsistent personal and group feedback) would be less happy with their group membership and less likely to wish to maintain their group membership than children whose self-views were confirmed (i.e., those who received consistent feedback).

A third relevant theory, optimal distinctiveness theory (Brewer, 1991) has as its main tenet the assertion that individuals wish to feel both similar to others and personally unique. Brewer argues that group membership, particularly membership in groups that are to some degree exclusive, helps to fulfill these needs. Research from the optimal distinctiveness perspective (e.g., Pickett et al., 2002) has found that when individuals are led to believe they are atypical of their ingroup, they will strive to view themselves as typical of or similar to the group in other ways. In addition, threats to optimal distinctiveness, such as atypicality, have also been found to lead to increased perceptions of difference between the ingroup and the outgroup (Pickett & Brewer, 2001). In the context of the present study, ODT predicts that children who received inconsistent personal and group feedback would feel uncomfortably distinct from others and thus

increase their ingroup identification and bias as a way to maintain feelings of optimal distinctiveness.

Overall, results of the current study indicated little support for self-categorization theory. Children did not appear to base their predictions for their own ability or liking of the task on the feedback they had received regarding their group's performance. Children were more likely to base their predictions for their group's performance on their own performance. Children showed ingroup bias in their predictions for ingroup and outgroup performance in the task domain regardless of the type of feedback they received, but this bias was stronger when children received positive group feedback. On most other measures of ingroup bias, children in all conditions showed equivalent levels of ingroup-biased responding. This finding is consistent with extant research indicating that children tend to favor their ingroups, even when those groups are negatively stereotyped (Aboud, 1988).

Results also indicated relatively little support for self-verification theory. The most common results were main effects of personal or group feedback, rather than interaction effects indicating effects of consistency versus inconsistency. Children whose self and group feedback were consistent were not happier with their group membership than children who received inconsistent feedback, nor did they have more positive views of the tasks. One finding that was consistent with self-verification theory, however, was the effect of self-esteem on children's assessments of their ability to improve with practice in the non-verifying (overachieving and underachieving) conditions. This finding indicates that children may rely on their pre-existing self-

concepts when information about self and group conflict, as self-verification theory would predict.

This study differs significantly form previous self-verification studies in that the procedure was designed to manipulate individuals' views of personal and group ability, rather than simply measuring individuals' perceptions of their abilities or characteristics and providing information that was verifying or non-verifying. This methodology allowed for greater experimental control of the messages participants received regarding their abilities and characteristics. One possible limitation, however, is that perceptions of ability resulting from a small amount of recently acquired information may not be as strongly held as other self-views and thus may have had weaker effects on children's ingroup bias and perceptions of the novel tasks. However, previous studies indicated that feedback regarding the abilities and characteristics of novel groups (Bigler et al. 1997; Bigler et al. 2004) and typicality as a novel group member (Bigler et al., 2004; Patterson & Bigler, in press) can affect children's views of themselves and their social groups.

Optimal distinctiveness theory predicts that children who received inconsistent personal and group feedback would feel uncomfortably distinct from others and thus increase ingroup identification and strive to view themselves as typical of or similar to the group in other ways. Results of this study did not support this prediction. Children who received inconsistent feedback were neither more nor less identified with their ingroups than children who received consistent feedback. Children who received inconsistent feedback were, for the most part, neither higher nor lower in ingroup bias than children who received consistent feedback.

The results of this study indicate that feedback about personal and group abilities can affect children's views of the relevant domains, and that children's reactions to differing forms of feedback may be influenced by individual differences, particularly in self-esteem and conformity. The current study was limited, however, in being conducted with children attending summer school, who may differ from other children in systematic and meaningful ways. Future research should further explore the effects of feedback and individual differences on children's ingroup identification, intergroup bias, and identification with and achievement in relevant domains with larger and broader samples.

Figure 1.

Developmental Intergroup Theory (Bigler & Liben, 2006)

Figure 2.

Method

| Assigned to novel groups | → | First testing: pretest measures | → | Experimental manipulation task trial 1 | → | Task specific measures | → | Experimental manipulation task trial 2 |

→ | Task specific measures | → | Experimental manipulation task trial 3 | → | Task specific measures | → | Posttest measures |
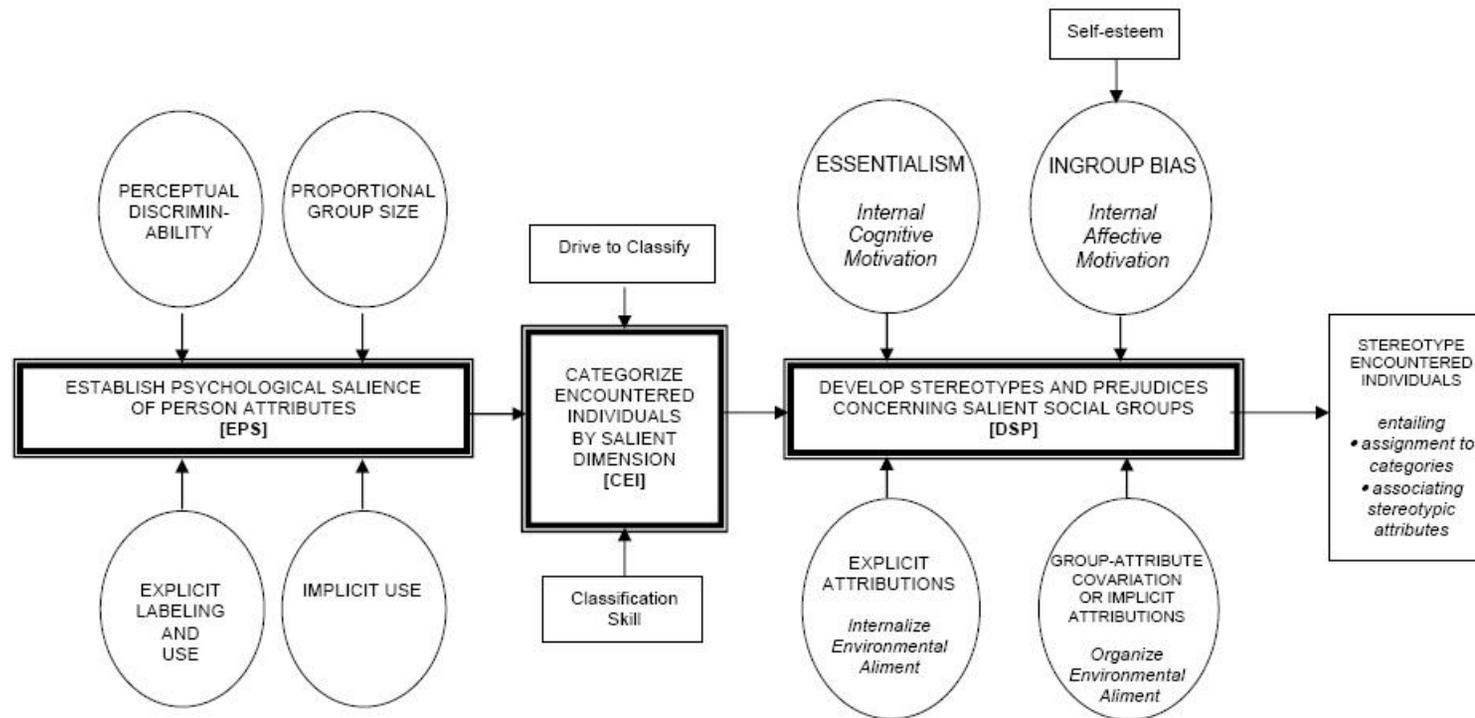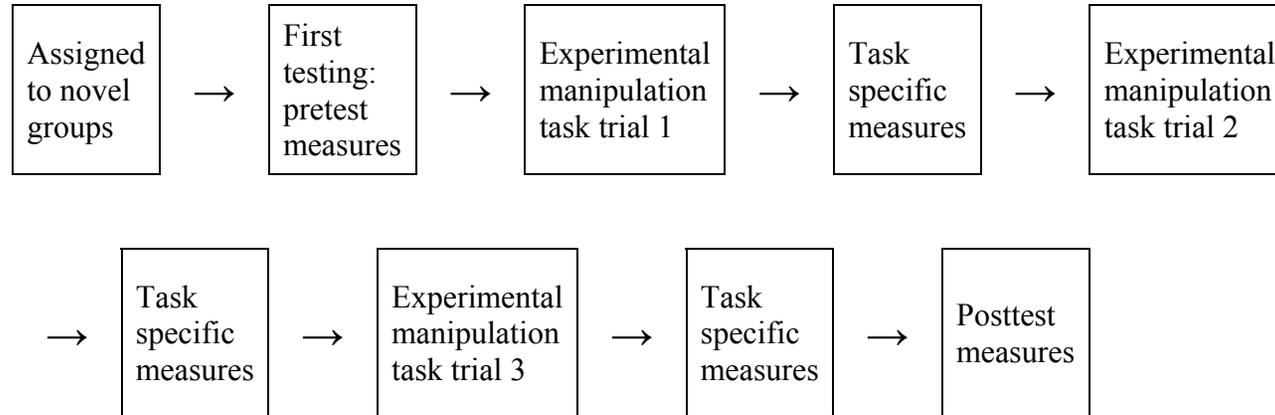
Table 1.

Pretest Measures Correlation Matrix

	2	3	4	5	6	7	8	9	10	11
1 Age (months)	-.164	-.114	.073	.110	-.095	-.126	-.080	.265*	.372**	.256*
2 Academic Self Esteem		.608**	.258**	.326**	.165†	.175†	.270**	.016	.146	-.146
3 Global Self Esteem			.125	.438**	.297**	.300**	.354**	-.032	.087	-.107
4 Academic Self Esteem Certainty				.627**	.048	.166†	.258**	.043	-.130	.003
5 Global Self Esteem Certainty					.126	.319**	.438**	.044	.037	-.057
6 Theory of Personality						.615**	.459**	.115	.003	-.076
7 Theory of Intelligence							.442**	-.010	-.127	.043
8 Conformity								.065	.174	-.171
9 Simple Classification									.464**	.059
10 Multiple Classification										.069
11 Person Perception										

Note. ** p < .01, * p < .05, † p < .10

Table 2.

Pretest Measures

	M	*SD*	Possible Range	Observed Range
Age (months)	113.3	15.80	N/A	85 to 145
Academic Self Esteem	3.13	0.57	1 to 4	1.57 to 4.00
Global Self Esteem	3.39	0.52	1 to 4	1.71 to 4.00
Academic Self Esteem Certainty	1.57	0.42	0 to 2	0.43 to 2.00
Global Self Esteem Certainty	1.64	0.34	0 to 2	0.57 to 2.00
Theory of Personality	3.18	0.65	1 to 4	1.25 to 4.00
Theory of Intelligence	3.06	0.79	1 to 4	1.00 to 4.00
Conformity	2.88	0.80	1 to 4	1.00 to 4.00
Simple Classification	1.65	0.60	0 to 2	0 to 2
Multiple Classification	1.18	0.78	0 to 2	0 to 2
Person Perception	5.39	1.10	0 to 6	0 to 6

Table 3.

Task Evaluations Correlation Matrix

	2	3	4	5	6	7	8	9
1 Age (months)	-.165**	-.018	-.165**	-.307**	-.313**	-.262**	-.224**	.193*
2 Task performance: self		.172**	.520**	.604**	.506**	.447**	.483**	.163*
3 Task performance: ingroup			.015	.206**	.188**	.280**	.207**	.142*
4 Task performance: outgroup				.431**	.340**	.335**	.288**	-.078
5 Task liking					.803**	.552**	.630**	-.040
6 Desire to try again						.513**	.596**	.048
7 Task performance malleability							.474**	.070
8 Task importance								-.066
9 State self-esteem								

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

Table 4.

Task Evaluations

Measure	Personal Feedback Condition		Group Feedback Condition	
	Positive	Negative	Positive	Negative
	M (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
Task performance: self	3.19 (1.02)	2.81 (0.99)	3.09 (0.96)	3.13 (0.92)
Task performance: ingroup bias	0.82 (1.15)	0.67 (1.22)	0.93 (1.04)	0.49 (1.59)
Task engagement	2.85 (1.01)	2.57 (1.06)	2.95 (0.89)	2.75 (1.05)
Task performance malleability	2.49 (0.70)	2.28 (0.83)	2.60 (0.68)	2.48 (0.74)

Note. Higher scores indicate more positive views. For the ingroup bias measure, positive scores indicate ingroup bias, negative scores indicate outgroup bias.

Table 5.

Task Evaluations: Effects of Self/Group Consistency

Measure	Condition			
	Positive Verifying	Negative Verifying	Overachieving	Underachieving
	M (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
Task performance: self	3.35 (0.90)	2.75 (1.03)	3.18 (0.98)	2.75 (1.14)
Task performance: ingroup bias	1.06 (1.21)	0.22 (1.59)	0.67 (1.58)	0.66 (1.23)
Task engagement	2.92 (0.93)	2.41 (1.08)	2.79 (1.15)	2.60 (1.04)
Task performance malleability	2.48 (0.70)	2.27 (0.79)	2.50 (0.66)	2.42 (0.75)
State self-esteem	2.26 (0.34)	2.40 (0.45)	2.33 (0.38)	2.25 (0.37)

Note. Higher scores indicate more positive views. For the ingroup bias measure, positive scores indicate ingroup bias, negative scores indicate outgroup bias.

Table 6.

Intergroup Attitudes Correlation Matrix

	2	3	4	5	6	7	8	9
1 Age (months)	-.249*	-.173	.057	-.135	-.063	-.146	-.053	-0.44
2 Trait bias—Bigler scale		.439**	.254*	.035	.059	.253*	.297**	.217*
3 Trait bias—Harter-based scale			.055	.110	.207†	.369**	.559**	.503**
4 Peer bias				.154	.215*	.212*	.012	-.014
5 Group happiness					.517**	.165	.164	.459
6 Group Importance						.118	.062	.107
7 Self/Group similarity							.297**	.301**
8 Task competence								.583**
9 Non-Task competence								

Note. ** p < .01, * p < .05, † p < . 07

Table 7.

Intergroup Attitudes

Measure	Condition			
	Positive Verifying	Negative Verifying	Overachieving	Underachieving
	M (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
Ingroup trait	2.19 (0.43)	1.94 (0.59)	2.09 (0.63)	2.22 (0.66)
Outgroup trait	1.74 (0.72)	1.71 (0.53)	1.66 (0.48)	1.60 (0.72)
Trait bias	0.45 (0.91)	0.23 (0.42)	0.43 (0.70)	0.62 (0.69)
Harter-based scale ingroup	1.33 (3.34)	2.89 (4.11)	4.71 (5.63)	2.70 (4.18)
Harter-based scale outgroup	0.08 (0.28)	0.89 (1.13)	0.21 (0.66)	0.52 (0.90)
Harter-based scale bias	1.25 (3.38)	2.00 (4.30)	4.50 (5.76)	2.17 (4.12)
Ingroup peers	2.11 (0.34)	1.90 (0.43)	1.85 (0.39)	1.86 (0.46)
Outgroup peers	2.01 (0.46)	1.93 (0.52)	1.77 (0.48)	1.85 (0.45)
Peer bias	0.14 (0.35)	-0.03 (0.42)	0.09 (0.35)	0.02 (0.40)
Group happiness	2.25 (0.68)	2.17 (0.86)	1.92 (1.21)	2.43 (0.94)
Group importance	1.54 (1.14)	2.00 (1.08)	1.71 (1.27)	2.09 (1.04)
Self/Group similarity	0.48 (1.81)	0.56 (1.38)	0.91 (1.44)	0.48 (1.67)

Task Competence	1.29 (1.04)	0.89 (1.13)	0.87 (1.26)	1.17 (1.11)
Non-Task Competence	2.08 (1.98)	3.00 (1.83)	2.52 (2.16)	2.91 (2.19)

Table 8.

Harter Scale Self and Group Ratings

Measure		Condition			
	Positive Verifying	Negative Verifying	Overachieving	Underachieving	Total
Self Positive					
Ingroup	19 (11%)	17 (16%)	43 (27%)	49 (31%)	128 (22%)
Outgroup	1 (>1%)	6 (6%)	4 (2%)	2 (1%)	13 (2%)
Neutral	148 (88%)	82 (78%)	114 (71%)	108 (68%)	452 (76%)
Self Negative					
Ingroup	10 (7%)	28 (27%)	64 (35%)	24 (16%)	127 (22%)
Outgroup	1 (>1%)	6 (6%)	4 (2%)	9 (6%)	20 (3%)
Neutral	133 (92%)	70 (67%)	117 (63%)	117 (78%)	437 (75%)

Note. Percentages represent the percent of responses in a given column which fall into a particular row (e.g., in the positive verifying condition, 11% of responses to questions in which children rated themselves positively were ingroup biased, >1% were outgroup biased, and 88% were neutral).

APPENDICES

Appendix A: Pretest Measures

Trait Self Esteem (Perceived Competence Scale for Children)

Some kids… Is that true for you?

	YES		NO	
	Really True	Sort of True	Sort of Not True	Really Not True
1. Are good at schoolwork	1	2	3	4
How sure are you? really sure		a little sure	not so sure	
2. Do things fine	1	2	3	4
How sure are you? really sure		a little sure	not so sure	
3. Do well in school	1	2	3	4
How sure are you? really sure		a little sure	not so sure	
4. Are happy with the way they are	1	2	3	4
How sure are you? really sure		a little sure	not so sure	
5. Are just as smart as others	1	2	3	4
How sure are you? really sure		a little sure	not so sure	
6. Feel good about the way they act	1	2	3	4
How sure are you? really sure		a little sure	not so sure	
7. Can figure out answers	1	2	3	4
How sure are you? really sure		a little sure	not so sure	
8. Finish schoolwork quickly	1	2	3	4
How sure are you? really sure		a little sure	not so sure	
9. Are good kids	1	2	3	4
How sure are you? really sure		a little sure	not so sure	

10. Remember things easily	1	2	3	4
How sure are you? really sure		a little sure	not so sure	
11. Are sure that they act right	1	2	3	4
How sure are you? really sure		a little sure	not so sure	
12. Understand what they read	1	2	3	4
How sure are you? really sure		a little sure	not so sure	
13. Want to stay the same (not change)	1	2	3	4
How sure are you? really sure		a little sure	not so sure	
14. Are sure of themselves	1	2	3	4
How sure are you? really sure		a little sure	not so sure	

THEORY OF PERSONALITY

Do you think these statements are true or not true?

1. A person can change the way they act, but they can't change how smart they really are.

YES   NO

4-Really true   3-Sort of true   2-Sort of not true   1-Really not true

2. Someone's personality is something about them that they can't change very much.

YES   NO

4-Really true   3-Sort of true   2-Sort of not true   1-Really not true

3. A person can do things to get people to like them, but they can't change their real personality.

YES   NO

4-Really true   3-Sort of true   2-Sort of not true   1-Really not true

4. How smart someone is is something about them that they can't change very much.

YES   NO

4-Really true   3-Sort of true   2-Sort of not true   1-Really not true

5. Everyone has a certain level of smartness, and it is something that they can't do too much about.

YES   NO

4-Really true   3-Sort of true   2-Sort of not true   1-Really not true

6. Everyone has a certain personality, and it is something that they can't do too much about.

YES   NO

4-Really true   3-Sort of true   2-Sort of not true   1-Really not true

7. A person can change the way they act, but they can't change their real personality.

YES   NO

4-Really true   3-Sort of true   2-Sort of not true   1-Really not true

8. A person can do things to do well in school, but they can't change how smart they really are.

YES   NO

4-Really true   3-Sort of true   2-Sort of not true   1-Really not true

CONFORMITY

Do you think these statements are true or not true?

1. I always say what I think.

YES   NO

4-Really true   3-Sort of true   2-Sort of not true   1-Really not true

2. I notice my inner feelings a lot.

YES   NO

4-Really true   3-Sort of true   2-Sort of not true   1-Really not true

3. It is always best to mix with the crowd.

YES   NO

4-Really true   3-Sort of true   2-Sort of not true   1-Really not true

4. I am always sure about what I think.

YES   NO

4-Really true   3-Sort of true   2-Sort of not true   1-Really not true

5. I can always tell when my mood is changing.

YES   NO

4-Really true   3-Sort of true   2-Sort of not true   1-Really not true

6. I like to be the same as my friends.

YES   NO

4-Really true   3-Sort of true   2-Sort of not true   1-Really not true

7. It is better to agree with people than to argue about what you think.

YES   NO

4-Really true   3-Sort of true   2-Sort of not true   1-Really not true

8. I compare myself with other people a lot.

YES   NO

4-Really true   3-Sort of true   2-Sort of not true   1-Really not true

HIERARCHICAL CLASSIFICATION

Simple Class Inclusion

The experimenter will show the child a picture of 2 grey bears and 4 grey elephants. The experimenter will ask the child (1) "Are there more bears or more animals?" and (2) "Are there more elephants or more grey things?"

Multiple Class Inclusion

The experimenter will show the child a picture of 3 grey bears, 3 brown bears, and 2 grey elephants. The experimenter will ask the child (1) "Are there more grey bears or more grey animals?" and (2) "Are there more bears or more grey bears?"

Appendix B: Sample Task Stimuli

Spatial Rotation Task

You will see a shape and then four shapes like it. Circle the shape that is like the original shape turned around, but NOT changed or flipped over.
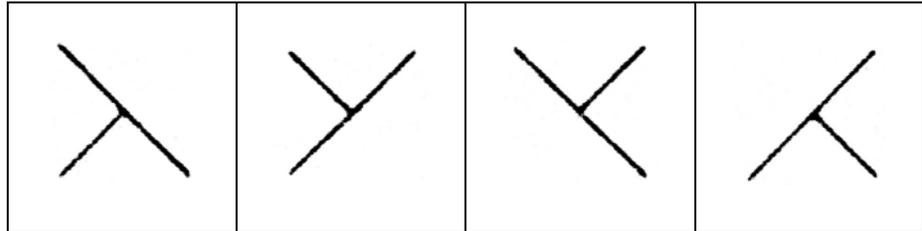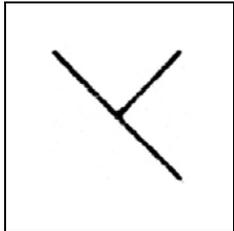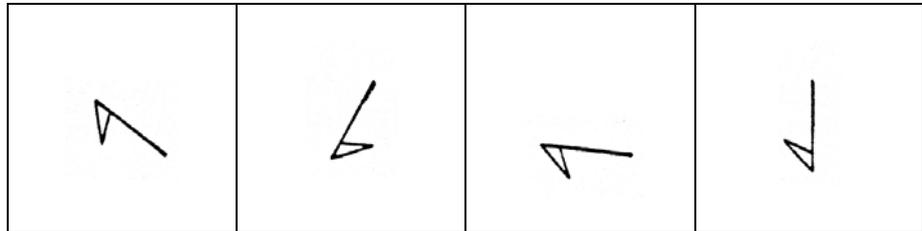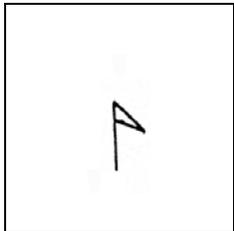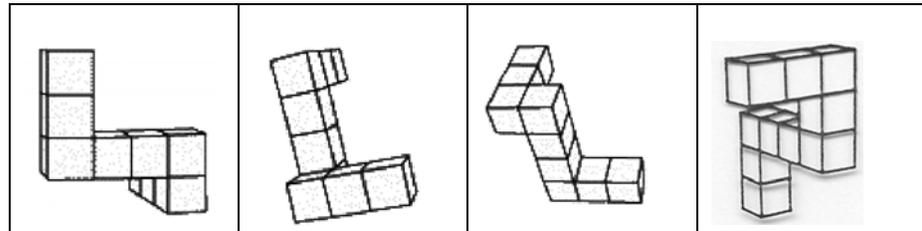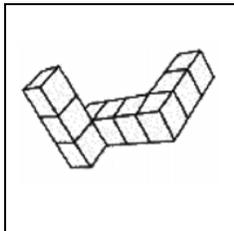
| | A. | B. | C. | D. |

| | A. | B. | C. | D. |

| | A. | B. | C. | D. |

Pattern Copying Task
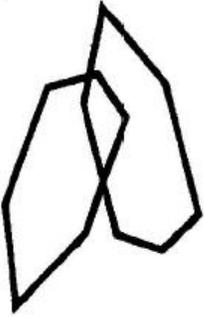
25

26
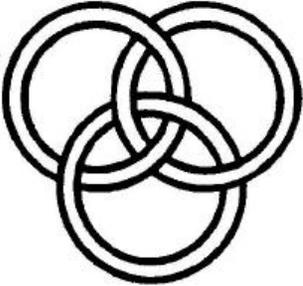
27

25

26

27

Memory Task

Remember the things you saw earlier. Use your memory to answer these questions.

1. Which of these did you see?

A. a green lizard

B. a red ribbon

C. a blue paper clip

D. a yellow bracelet

2. You saw a playing card. What card was it?

A. the two of clubs

B. the king of hearts

C. the three of hearts

D. the joker

3. What color was the square?

A. green

B. red

C. purple

D. yellow

Appendix C: Task-Specific Measures

ATTITUDES TOWARD TASK

How good do you think you are [will be] at pattern [rotation, memory] puzzles?

4-Really good   3-Pretty good   2-A little good   1-Not good

How good do you think blue kids are at pattern [rotation, memory] puzzles?

4-Really good   3-Pretty good   2-A little good   1-Not good

How good do you think red kids are pattern [rotation, memory] puzzles?

4-Really good   3-Pretty good   2-A little good   1-Not good

How much did you like the pattern [rotation, memory] puzzle?

4-A lot   3-Pretty much   2-A little bit   1-Not at all

How much would you like to do the pattern [rotation, memory] puzzle again?

4-A lot   3-Pretty much   2-A little bit   1-Not at all

How important is it to you to be good at pattern [rotation, memory] puzzles?

4-A lot   3-Pretty much   2-A little bit   1-Not at all

Do you think you could get better at the pattern [rotation, memory] puzzle if you practiced?

3-Yes, a lot better   2-Yes, a little bit better   3-No

If you were going to do the pattern [rotation, memory] puzzle with a partner, who would you

want to work with?

1-a red group member   2-a blue group member   3-either

STATE SELF-ESTEEM

	1 – Not at all	2 – A little bit	3 – Pretty much
1. I feel sure about my abilities.	1	2	3
2. I am worried about whether people think I am doing a good job or a bad job.	1	2	3
3. I feel frustrated or rattled about the job I am doing.	1	2	3
4. I feel that I am having trouble understanding things that I read.	1	2	3
5. I feel that others respect and admire me.	1	2	3
6. I feel self-conscious.	1	2	3
7. I feel as smart as others.	1	2	3
8. I feel displeased with myself.	1	2	3
9. I feel good about myself.	1	2	3
10. I am worried about what other people think of me.	1	2	3
11. I feel sure that I understand things.	1	2	3
12. I feel like I am not as good as others at this moment.	1	2	3
13. I feel concerned about how other people see me.	1	2	3
14. I feel that I am less good at school than other kids right now.	1	2	3
15. I feel like I am not doing well.	1	2	3
16. I am worried about looking dumb.	1	2	3

Appendix D: Intergroup Outcome Measures

ATTITUDES

Think about the kids in **RED** group in this school. How many of the children in the RED group are:

	ALL	MOST	SOME	NONE
Friendly	3	2	1	0
Helpful	3	2	1	0
Nice	3	2	1	0
Pretty or Handsome	3	2	1	0
Smart	3	2	1	0
Good	3	2	1	0
Hard Working	3	2	1	0

Now, think about the kids in the **BLUE** group in this school. How many of the children in the **BLUE** group are:

	ALL	MOST	SOME	NONE
Friendly	3	2	1	0
Helpful	3	2	1	0
Nice	3	2	1	0
Pretty or Handsome	3	2	1	0
Smart	3	2	1	0
Good	3	2	1	0
Hard Working	3	2	1	0

1. If you could change the color of your shirt, would you change it or would you keep the color shirt you have now?

Keep It   Change It

2. If a new student came to your class, would that student pick a red shirt or a blue shirt?

Red   Blue   Either

COMPETENCY RATINGS

1. If the red group kids competed against the blue group kids in a big school **spelling** contest, who do you think would win—the red group or the blue group (or would it be a tie)?

               Red   Blue   Tie

2. If the red group kids competed against the blue group kids in a big school **pattern puzzle** contest, who do you think would win—the red group or the blue group (or would it be a tie)?

               Red   Blue   Tie

3. If the red group kids competed against the blue group kids in a big school **math** contest, who do you think would win—the red group or the blue group (or would it be a tie)?

               Red   Blue   Tie

4. If the red group kids competed against the blue group kids in a big school **memory** contest, who do you think would win—the red group or the blue group (or would it be a tie)?

               Red   Blue   Tie

5. If the red group kids competed against the blue group kids in a big school **art** contest, who do you think would win—the red group or the blue group (or would it be a tie)?

               Red   Blue   Tie

6. If the red group kids competed against the blue group kids in a big school **rotation puzzle** contest, who do you think would win—the red group or the blue group (or would it be a tie)?

               Red   Blue   Tie

7. If we compared all the red group kids to all the blue group kids in the school, who would have most **time-outs** for bad behavior at the end of the year—the red group or the blue group (or would it be a tie)?

               Red   Blue   Tie

8. If we compared all the red group kids to all the blue group kids in the school, who would have **forgotten their homework** more at the end of the year—the red group or the blue group (or would it be a tie)?

               Red   Blue   Tie

9. If we compared all the red group kids to all the blue group kids in the school, which color group will have the most important and high paying jobs when they grow up?

               Red   Blue   Tie

SATISFACTION/SIMILARITY

You are in the _____ group. How important is being a _____ group member to you?

Very important   Pretty important   A little important   Not important

How happy are you to be the _____ group?

Very happy   Pretty happy   A little happy   Not happy

How much are you like the kids in the red group?

0-not at all alike   1-a little alike   2-somewhat alike   3-pretty much alike   4-a lot alike

How much are you like the kids in the blue group?

0-not at all alike   1-a little alike   2-somewhat alike   3-pretty much alike   4-a lot alike

Some kids… Is that true of … kids?

	ONLY Red	MOSTLY Red	Some Red/ Some Blue	MOSTLY Blue	ONLY Blue
Are good at schoolwork	1	2	3	4	5
Are sure of themselves	1	2	3	4	5
Do well in school	1	2	3	4	5
Are happy with the way they are	1	2	3	4	5
Are just as smart as others	1	2	3	4	5
Feel good about the way they act	1	2	3	4	5
Can figure out answers	1	2	3	4	5
Finish schoolwork quickly	1	2	3	4	5
Are good kids	1	2	3	4	5
Remember things easily	1	2	3	4	5
Are sure that they act right	1	2	3	4	5
Understand what they read	1	2	3	4	5
Want to stay the same (not change)	1	2	3	4	5
Do things fine	1	2	3	4	5

PEER PREFERENCE

How much do you like to play with _____? A lot, a little, or not too much?

Name	A LOT	A LITTLE	NOT TOO MUCH
_____	3	2	1
_____	3	2	1
_____	3	2	1
_____	3	2	1
_____	3	2	1
_____	3	2	1
_____	3	2	1
_____	3	2	1
_____	3	2	1
_____	3	2	1
_____	3	2	1
_____	3	2	1
_____	3	2	1

Appendix E: Additional Analyses

Task Evaluations: Effects of Personal Feedback

Group ratings. Children were then asked to report on their predictions of the abilities of the ingroup and the outgroup. When presented with information about their personal performance, for ratings of the ingroup, results indicated a significant effect of feedback type, $F(1, 171) = 4.58$, $p < .05$. Children who received positive feedback about their performance predicted that their ingroup would be better at the task than children who received negative feedback about their performance. Results indicated no effects of personal feedback type on children's predictions for the outgroup's performance.

Task liking. Children were asked to rate how much they liked the task and how much they would like to perform the task again. Effects of condition on children's liking of the tasks were examined with a one-way ANOVA by feedback type. Results indicated no effects of feedback type on liking of the task when children were presented with personal performance feedback.

Desire to perform task again. When children were asked how much they would like to complete the task again, results indicated no effects of personal feedback type on desire to perform the task again.

Task importance. Effects of condition on perceived task importance were examined with a one-way ANOVA by feedback type. Results indicated a significant effect of personal feedback type, $F(1, 171) = 6.36$, $p < .05$. Children who received positive feedback about their own performance rated the tasks as more important to them than children who received negative feedback about their performance.

Task Evaluations: Effects of Group Feedback

Group ratings. Children were then asked to report on their predictions of the abilities of the ingroup and the outgroup. Results indicated no effects of group feedback type on children's predictions for the ingroup or outgroup's performance. Children predicted that the ingroup would perform better than the outgroup regardless of whether they received positive or negative feedback about their group's performance.

Task liking. Children were asked to rate how much they liked the task and how much they would like to perform the task again. Effects of condition on children's liking of the tasks were examined with a one-way ANOVA by feedback type. Results indicated no effects of group feedback type on liking of the task.

Desire to perform task again. When children were asked how much they would like to complete the task again, results indicated a marginally significant effect of feedback type on desire to perform the task again, $F(1, 113) = 2.91$, $p = .091$, with children who received positive group feedback indicating a greater desire to perform the task again than children who received negative group feedback.

Task importance. Effects of condition on perceived task importance were examined with a one-way ANOVA by feedback type. Results indicated no significant effects of group feedback type on task importance.

Task Evaluations: Effects of Self/Group Consistency

Task performance evaluations: group. Children were then asked to report on their perceptions of the abilities of the ingroup and the outgroup. When children were asked about the ingroup's abilities, results indicated no significant effects of personal or group feedback on children's perceptions of the ingroup's abilities.

When children were asked about the outgroup's abilities, results indicated significant effects of personal, $F(1, 270) = 7.26$, $p < .01$, and group feedback, $F(1, 270) = 3.98$, $p < .05$. Children who received positive feedback about their own or their group's performance gave higher ratings of the outgroup's ability than children who received negative feedback (see Table 1 for means). Children in the overachieving and underachieving conditions did not differ significantly from children in the other two conditions.

Task liking. Effects of condition on children's liking of the tasks were examined with a 2 (personal feedback: positive versus negative) by 2 (group feedback: positive versus negative) ANOVA. Results indicated a significant effect of personal feedback on children's liking of the tasks, with children who received positive personal feedback indicating greater liking of the task than children who received negative personal feedback, $F(1, 279) = 7.21$, $p < .01$. Results also indicated a marginally significant effect of group feedback on the task, with children who received positive group feedback indicating greater liking of the task than children who received negative group feedback, $F(1, 281) = 3.35$, $p = .068$. Children in the overachieving and underachieving conditions did not differ significantly from children in the other two conditions.

Desire to perform task again. When children were asked how much they would like to complete the task again, results indicated a significant effect of personal feedback, with children who received positive personal feedback indicating a greater desire to perform the task again than children who received negative personal feedback, $F(1, 279) = 4.90$, $p < .05$. Results also indicated a marginally significant effect of group feedback, $F(1, 279) = 2.78$, $p = .097$, with children who received positive group feedback indicating a greater desire to perform the task again than children who received negative group feedback. Children in the overachieving and underachieving conditions did not differ significantly from children in the other two conditions.

Task importance. Effects of condition on perceived task importance were examined with a 2 (personal feedback: positive versus negative) by 2 (group feedback: positive versus negative) ANOVA. Results indicated a significant effect of personal feedback on children's perceptions of the importance of the task, $F(1, 279) = 6.14$, $p < .05$, with children who received positive personal feedback rating the task as more important to them than children who received negative personal feedback.

Appendix F

Task Evaluations: Effects of Personal Feedback

Task performance evaluation: self

Feedback type

Positive	β	t	p
Age (months)	-.135	-.996	.324
Cognitive complexity	-.026	-.195	.846
Self-esteem	.416	3.066	.003
Conformity	-.268	-1.652	.105
Theory of personality/intelligence	.030	.187	.852

Negative			
Age (months)	-.113	-.757	.454
Cognitive complexity	-.193	-1.278	.208
Self-esteem	.389	2.604	.013
Conformity	.122	.809	.423
Theory of personality/intelligence	-.028	-.181	.857

Task performance evaluation: ingroup bias

Feedback type

Positive	β	t	p
Age (months)	.045	.318	.752
Cognitive complexity	.034	.240	.812
Self-esteem	-.290	-2.021	.049
Conformity	-.108	-.631	.531
Theory of personality/intelligence	.076	.445	.658

Negative			
Age (months)	.118	.768	.447
Cognitive complexity	-.304	-1.964	.057
Self-esteem	-.019	-.127	.899
Conformity	-.315	-2.052	.047
Theory of personality/intelligence	.238	1.500	.141

Task engagement

Feedback type

Positive	β	t	p
Age (months)	-.448	-3.692	.001
Cognitive complexity	-.081	-.674	.503
Self-esteem	.180	1.484	.144
Conformity	.146	1.006	.319
Theory of personality/intelligence	.004	.031	.976
Negative			
Age (months)	-.277	-1.821	.076
Cognitive complexity	-.094	-.613	.543
Self-esteem	.280	1.838	.073
Conformity	.021	.137	.891
Theory of personality/intelligence	-.120	-.756	.454

Task performance malleability

Feedback type

Positive	β	t	p
Age (months)	-.313	-2.292	.026
Cognitive complexity	-.157	-1.164	.250
Self-esteem	.048	.349	.729
Conformity	.124	.756	.453
Theory of personality/intelligence	-.291	-1.781	.081
Negative			
Age (months)	-.135	-.921	.362
Cognitive complexity	.019	.127	.900
Self-esteem	.388	2.649	.011
Conformity	.066	.447	.657
Theory of personality/intelligence	.108	.707	.484

Task Evaluations: Effects of Group Feedback

Task performance evaluation: self

Feedback type

Positive	β	t	p
Age (months)	-.079	-.435	.666
Cognitive complexity	.057	.319	.752
Self-esteem	.284	1.455	.156
Conformity	.097	.531	.599
Theory of personality/intelligence	-.202	-1.095	.282
Negative			
Age (months)	-.198	-.903	.374
Cognitive complexity	.320	1.584	.124
Self-esteem	.319	1.775	.086
Conformity	-.215	-.979	.336
Theory of personality/intelligence	.131	.521	.606

Task performance evaluation: ingroup bias

Feedback type

Positive	β	t	p
Age (months)	.286	1.541	.134
Cognitive complexity	.103	.563	.578
Self-esteem	-.178	-.881	.385
Conformity	.025	.131	.897
Theory of personality/intelligence	-.268	-1.430	.163
Negative			
Age (months)	-.071	-.309	.760
Cognitive complexity	.003	.014	.989
Self-esteem	-.144	-.754	.457
Conformity	-.124	-.534	.597
Theory of personality/intelligence	-.274	-1.035	.309

Task engagement

Feedback type

Positive	β	t	p
Age (months)	-.216	-1.304	.202
Cognitive complexity	-.419	-2.558	.016
Self-esteem	.322	1.808	.080
Conformity	-.073	-.438	.665
Theory of personality/intelligence	.195	1.156	.257

Negative			
Age (months)	-.189	-.841	.407
Cognitive complexity	.339	1.635	.113
Self-esteem	.010	.057	.955
Conformity	.141	.625	.537
Theory of personality/intelligence	.196	.761	.453

Task performance malleability

Feedback type

Positive	β	t	p
Age (months)	.012	.062	.951
Cognitive complexity	-.086	-.461	.648
Self-esteem	.372	1.799	.082
Conformity	-.045	-.233	.817
Theory of personality/intelligence	.107	.560	.580

Negative			
Age (months)	-.051	-.220	.827
Cognitive complexity	.047	.222	.826
Self-esteem	.342	1.825	.078
Conformity	.310	1.351	.187
Theory of personality/intelligence	-.151	-.572	.571

Task performance evaluation: self

Positive verifying	β	t	p
Age (months)	.021	.145	.886
Cognitive complexity	.175	1.076	.289
Self-esteem	-.350	-1.939	.060
Conformity	.641	3.260	.002
Theory of personality/intelligence	.075	.454	.653
Negative verifying			
Age (months)	-.511	-1.604	.121
Cognitive complexity	.764	2.424	.023
Self-esteem	-.555	-2.111	.045
Conformity	-.240	-1.211	.237
Theory of personality/intelligence	.743	2.632	.014
Overachieving			
Age (months)	-.134	-1.024	.311
Cognitive complexity	.143	1.137	.262
Self-esteem	.289	2.038	.047
Conformity	-.443	-2.470	.017
Theory of personality/intelligence	.365	1.934	.059
Underachieving			
Age (months)	.005	.034	.973
Cognitive complexity	-.045	-.291	.773
Self-esteem	.483	3.479	.001
Conformity	.143	.995	.325
Theory of personality/intelligence	-.223	-1.350	.184

Task performance evaluation: ingroup bias

Positive verifying	β	t	p
Age (months)	-.133	-.830	.412
Cognitive complexity	.007	.038	.970
Self-esteem	-.511	-2.550	.015
Conformity	.393	1.802	.080
Theory of personality/intelligence	-.261	-1.431	.161
Negative verifying			
Age (months)	.540	1.444	.161
Cognitive complexity	-.605	-1.634	.115
Self-esteem	-.280	-.907	.373
Conformity	.025	.106	.916
Theory of personality/intelligence	.362	1.091	.286
Overachieving			
Age (months)	-.007	-.041	.967
Cognitive complexity	.185	1.215	.231
Self-esteem	.138	.789	.434
Conformity	-.029	-.131	.896
Theory of personality/intelligence	-.218	-.930	.357
Underachieving			
Age (months)	-.048	-.301	.765
Cognitive complexity	-.036	-.201	.841
Self-esteem	.039	.243	.809
Conformity	-.314	-1.910	.063
Theory of personality/intelligence	.065	.339	.736

Task engagement

Positive verifying	β	t	p
Age (months)	-.553	-4.106	.000
Cognitive complexity	-.108	-.709	.483
Self-esteem	-.191	-1.133	.265
Conformity	.426	2.326	.026
Theory of personality/intelligence	-.091	-.595	.556
Negative verifying			
Age (months)	-1.042	-3.483	.002
Cognitive complexity	1.165	3.930	.001
Self-esteem	-.324	-1.310	.202
Conformity	-.315	-1.690	.103
Theory of personality/intelligence	.351	1.322	.198
Overachieving			
Age (months)	-.240	-1.933	.059
Cognitive complexity	-.079	-.658	.514
Self-esteem	.250	1.853	.070
Conformity	-.017	-.098	.922
Theory of personality/intelligence	.403	2.244	.030
Underachieving			
Age (months)	-.041	-.296	.768
Cognitive complexity	-.062	-.397	.693
Self-esteem	.281	2.004	.051
Conformity	.288	1.985	.053
Theory of personality/intelligence	-.379	-2.277	.028

Task performance malleability

Positive verifying	β	t	p
Age (months)	-.541	-3.595	.001
Cognitive complexity	-.007	-.042	.967
Self-esteem	-.220	-1.173	.248
Conformity	.174	.851	.400
Theory of personality/intelligence	-.122	-.710	.482
Negative verifying			
Age (months)	-1.111	-3.805	.001
Cognitive complexity	.848	2.931	.007
Self-esteem	.302	1.252	.222
Conformity	-.008	-.042	.967
Theory of personality/intelligence	.015	.059	.953
Overachieving			
Age (months)	-.309	-2.134	.038
Cognitive complexity	-.026	-.186	.853
Self-esteem	.311	1.983	.053
Conformity	.263	1.324	.192
Theory of personality/intelligence	-.184	-.880	.383
Underachieving			
Age (months)	-.013	-.091	.928
Cognitive complexity	-.195	-1.203	.236
Self-esteem	.440	3.025	.004
Conformity	-.035	-.233	.817
Theory of personality/intelligence	.060	.346	.731

State self-esteem

Positive verifying	β	t	p
Age (months)	.230	1.572	.126
Cognitive complexity	.178	1.041	.305
Self-esteem	.636	3.491	.001
Conformity	-.749	-3.687	.001
Theory of personality/intelligence	.017	.102	.919
Negative verifying			
Age (months)	-.263	-.727	.476
Cognitive complexity	.178	.488	.631
Self-esteem	.362	.976	.341
Conformity	.090	.419	.680
Theory of personality/intelligence	.157	.433	.669
Overachieving			
Age (months)	.359	2.429	.020
Cognitive complexity	.003	.017	.986
Self-esteem	.220	1.325	.194
Conformity	-.297	-1.378	.177
Theory of personality/intelligence	-.016	-.073	.942
Underachieving			
Age (months)	.158	1.251	.219
Cognitive complexity	.041	.280	.781
Self-esteem	.566	4.329	.000
Conformity	-.419	-3.010	.005
Theory of personality/intelligence	-.356	-2.229	.032

Intergroup Attitudes

Trait Bias—Bigler scale	β	t	p
Age (months)	-.083	-.550	.585
Cognitive complexity	-.254	-1.672	.101
Self-esteem	.012	.083	.934
Conformity	-.192	-1.238	.222
Theory of personality/intelligence	.142	.903	.371

Trait Bias—Harter-based scale			
Age (months)	-.135	-.860	.394
Cognitive complexity	-.032	-.203	.840
Self-esteem	.078	.504	.616
Conformity	-.097	-.597	.554
Theory of personality/intelligence	-.102	-.627	.534

Group importance			
Age (months)	.022	.144	.886
Cognitive complexity	-.227	-1.472	.148
Self-esteem	.221	1.470	.148
Conformity	.129	.820	.416
Theory of personality/intelligence	-.003	-.015	.988

Group happiness			
Age (months)	-.106	-.679	.501
Cognitive complexity	-.050	-.315	.754
Self-esteem	.150	.976	.334
Conformity	.005	.029	.977
Theory of personality/intelligence	.077	.475	.637

Self/Group Similarity	β	t	p
Age (months)	-.160	-1.010	.318
Cognitive complexity	.016	.103	.919
Self-esteem	.077	.493	.624
Conformity	-.015	-.090	.929
Theory of personality/intelligence	-.068	-.413	.682

Peer Preference Bias			
Age (months)	.043	.272	.787
Cognitive complexity	-.051	-.323	.748
Self-esteem	-.120	-.762	.450
Conformity	.102	.626	.534
Theory of personality/intelligence	.031	.187	.853

Task competence			
Age (months)	.002	.013	.990
Cognitive complexity	-.116	-.726	.471
Self-esteem	-.034	-.221	.826
Conformity	-.016	-.099	.921
Theory of personality/intelligence	-.098	-.593	.556

Non-task competence			
Age (months)	-.013	-.082	.935
Cognitive complexity	-.068	-.436	.664
Self-esteem	-.052	-.344	.733
Conformity	.021	.133	.895
Theory of personality/intelligence	-.256	-1.592	.118

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