Child Development, January/February 2009, Volume 80, Number 1, Pages 224–243

Children's Group Nous: Understanding and Applying Peer Exclusion Within and Between Groups

Dominic Abrams, Adam Rutland, and Joseph Pelletier
University of Kent, UK

Jennifer M. Ferrell
University of Bedfordshire, UK

In Study 1, 167 English children aged 6–8 or 9–11 evaluated peer English or French soccer fans that were loyal or partially disloyal. In Study 2, 149 children aged 5–11 made judgments about generic inclusion norms between and within competitive groups. In both studies, children's understanding of intergroup inclusion/exclusion norms (group nous) was predicted by theory of social mind (a social perspective taking measure) but not multiple classification skill. In Study 2, the number of groups children belonged to (an index of peer group experience) also predicted group nous. Supporting the developmental subjective group dynamics model (D. Abrams, A. Rutland, & L. Cameron, 2003), children's experience and perspective taking help them make sense of inter- and intragroup inclusion and exclusion.

Exclusion from social groups is prevalent in many peer relationships and groups throughout life (Abrams & Christian, 2007). Developmental psychologists have studied peer exclusion extensively (cf. Newcomb, Bukowski, & Pattee, 1993) and shown it to be associated with depression, psychological maladjustment, poor academic achievement, violence, and dropping out of school (Graham & Juvonen, 1998; Rubin, Bukowski, & Parker, 1998). Moreover, much of this research has focused on how a child's individual social deficits can lead them to reject peers (Killen, Rutland, & Jampol, in press) such as the extent to which bullies are dispositionally aggressive or lack sensitivity to social cues (Crick & Dodge, 1994; Hawker & Boulton, 2000). We propose a different, and complementary, way to investigate exclusion by considering how children may be excluded by, or engage in exclusion of, peers for reasons other than cognitive or personality characteristics. We consider that children sometimes exclude peers as a means of asserting their group membership, in *intergroup* contexts—that is, in situations when an in-group and out-group are being compared (see Abrams, Hogg, & Marques, 2005). In these situations, ''effective'' bullying or victimization may conceivably be a strategy used by children with high levels of social competence such as an understanding of others' social perspectives (Dunn, 2004; Emler & Reicher, 1995; Sutton, Smith, & Swettenham, 1999).

Research has shown that children may exclude peers simply because they belong to a different group or social category (see Aboud, 1988; Bigler, Jones, & Lobliner, 1997; Nesdale, 2004). This form of exclusion (i.e., intergroup bias) develops because group memberships become an integral part of children's self-concepts. Developmental research is consistent with social identity theory's prediction (Tajfel & Turner, 1979) that people are motivated to reinforce their social identity by showing relatively greater favorability toward their in-groups (Nesdale, 2004; Verkuyten, 2001). Moreover, older children are also sensitive to self-presentational concerns when judging in-groups and out-groups (Rutland, 2004; Rutland, Cameron, Milne, & McGeorge, 2005).

Social developmental psychologists have recently started to examine children's exclusion judgments of members *within* in-groups and out-groups in intergroup contexts (e.g., Abrams & Rutland, 2008; Juvonen, Nishina, & Graham, 2001; Killen, Lee-Kim, McGlothlin, & Stangor, 2002). In particular, research that builds on a model of the development of ''subjective group dynamics'' (DSGD; Abrams & Rutland, 2008; Abrams, Rutland, & Cameron, 2003) has investigated how group identity can motivate children to exclude some but not others within the same groups.

In the present article, we propose that the more accomplished excluders, and perhaps avoiders of

Part of this research was funded by a grant from the Economic and Social Research Council, Grant R000230401. We are grateful to anonymous reviewers and to Drew Nesdale, Lindsey Cameron, and John Levine for suggestions and comments that contributed to the ideas developed in this article.

Correspondence concerning this article should be addressed to Dominic Abrams, Centre for the Study of Group Processes, Department of Psychology, University of Kent, Canterbury CT2 7NP, United Kingdom. Electronic mail may be sent to d.abrams@kent.ac.uk.

exclusion, may be those who have more ''nous,'' or implicit know-how, about the way group and intergroup relationships typically work (i.e., an understanding of the group dynamics involved in exclusion within peer groups). We examine the contention that the development of such ''group nous'' may involve the ability to take the social perspective of peers within an intergroup context. We also explore whether group nous reflects the extent of children's experiences of formal and informal social groups, specifically the number of groups they belong to.

One group norm that is particularly characteristic of competitive situations is that members should be loyal to their own group (Levine & Moreland, 2002; Van Vugt & Hart, 2004). Thus, if children are to sustain their inclusion in peer groups, it is likely they will need to gain an effective understanding about how loyalty norms operate (cf. Castelli, de Amicis, & Sherman, 2007). Therefore, the two studies in this article examine the relation among children's understanding of loyalty norms in competitive intergroup situations, their cognitive and social-cognitive skills (specifically, multiple classification and social perspective taking), and the extent of their experience of belonging to different groups with peers.

The DSGD Model

Research on the DSGD model examines children's evaluations of normative (e.g., conformist, rule-following) and deviant (i.e., counternormative) peers within groups. Studies have related these evaluations to judgments and reasoning about inclusion and exclusion of peers by members of in-group and out-group schools (Abrams, Rutland, Cameron, & Ferrell, 2007, Abrams, Rutland, Cameron, & Marques, 2003;), peers in competitive situations involving members of minimal groups (Abrams, Rutland, Ferrell, & Pelletier, 2008) and groups supporting national soccer teams (Abrams, Rutland, & Cameron, 2003).

The DSGD model contends that cognitive development and social experiences enable children to develop a more sophisticated understanding of how peer group members' behavior impacts their own and others' social identity and thus to engage in systematic group-based inclusion or exclusion of particular peers (Quintana, 1994; Ruble, Alvarez, Bachman, & Cameron, 2004). A central tenet of the DSGD model is that children who identify with their group should also express favorable attitudes toward specific peers (from both the in-group *and* the out-group) who demonstrate comparatively stronger support for the in-group. Specifically, as subjective understanding of group dynamics develops, children should begin to evaluate peers not simply as in-group or out-group members, and not simply as ''good'' or ''bad'' based on an absolute judgmental criterion, but in terms of the implications of peers' behavior for the relative standing of their in-groups and out-groups. For example, a disloyal in-group member may be judged less favorably than a similarly disloyal out-group member (Abrams, Rutland, & Cameron, 2003). In the DSGD model, exclusion of peers within groups is studied by examining *differential evaluation*. This is the favorable appraisal of specific individuals, from either the in-group or the out-group, who provide *relatively* greater support for the in-group (see Abrams & Rutland, 2008, for details).

The DSGD model also focuses on children's awareness of *differential inclusion*. This is an important element of the ''subjective'' aspect of the DSGD model. It is assessed by asking children how other group members would feel toward normative and deviant peers from different social groups. Differential inclusion reflects children's understanding that in-group and out-group members are likely to express opposing evaluations of normative and deviant peers within each group. For example, a normative (in the present research, loyal) in-group peer should be liked by other in-group members but may be disliked by out-group members. Conversely, a deviant (in the present research, disloyal) in-group peer is likely to be derogated by in-group members but not by out-group members. A pressing unexplored question arising from previous DSGD studies, is how children develop a subjective model of what to expect, and what is expected, of peers in intergroup situations such as competitions.

The DSGD model predicts there should be a positive relationship between differential evaluation and differential inclusion, a connection that can be labeled *inclusion-related judgment.* Specifically, children's differential evaluations of peers should tend to be in line with their perceptions of differential inclusion; that is, they should favor peers they believe will be evaluated highly by other in-group members rather than out-group members. This is an important point because it requires children to attune their own evaluation of a peer not only to the overall social desirability of that peer's actions but to the differences in evaluations they believe will be made by in-group versus out-group members.

On the basis that as they get older children should gain greater understanding of group dynamics, and specifically group loyalty norms, the DSGD model contends that the differential evaluation – differential

inclusion relationship (inclusion-related judgment), should be stronger among older than younger children (the *DSGD hypothesis*). This is qualified by a motivational hypothesis that inclusion-related judgment will be most pronounced among older children who identify and show more intergroup bias. This is because they are motivated to use differential inclusion judgments more systematically as a guide for their differential evaluations of peer group members. This hypothesis was supported in Abrams, Rutland, and Cameron's (2003) study of 5- to 11-year-old English children's judgments of loyal and disloyal supporters of an in-group (England) or out-group (Germany) soccer team in the context of the 2002 World Cup Soccer championships (see also Abrams et al., 2008). The key theoretical prediction of the *motivational hypothesis* is that when excluding peers, older children will be more likely to make use of their understanding of differential inclusion if they are more motivated to support their in-group.

Other evidence suggests that children are sensitive to potential status differences between groups (Nesdale & Flesser, 2001) and threats and challenges from out-group members (Nesdale, Maass, Durkin, & Griffiths, 2005). In addition, sensitivity to group norms is illustrated by research on the effects of accountability. Research with adults shows that peer accountability increases the derogation of in-group deviants relative to out-group deviants (Marques, Abrams, Paez, & Martinez-Taboada, 1998). The emergence of this accountability effect during childhood parallels the development of inclusion-related judgment, as shown by Abrams et al. (2007). This is consistent with the idea that the DSGD involves an increase in sensitivity to differences in in-group and out-group norms. Thus, the question for the present research is whether we can identify particular developmental variables that do (and do not) relate consistently to children's subjective group dynamics.

Social Perspective Taking, Classification Skill, and Attributions

Undoubtedly, motivational and normative variables are important in the development of children's intergroup attitudes and exclusion judgments of peers within groups (Bennett & Sani, 2004; Nesdale et al., 2005; Ojala & Nesdale, 2004; Rutland, 2004). We contend that social cognition also contributes to the DSGD (Abrams & Rutland, 2008). Study 1 extends previous research by investigating how social perspective taking, multiple classification skill, and attributions related to children's differential inclusion judgments. As described earlier, intergroup situations, particularly competition, are likely to invoke a norm that members should be loyal to their groups (Zdaniuk & Levine, 2001). We suggest that ''group nous''—know-how about group processes such as loyalty, conformity pressure, and groups showing in-group biases—is in part likely to reflect children's competence in understanding multiple perspectives in social relationships (cf. Dunn, 2004; Hymel, Vaillancourt, McDougall, & Renshaw, 2002; Ruble et al., 2004). Abrams, Rutland, and Cameron (2003; Abrams et al., 2005; Abrams & Rutland, 2008) proposed that two types of skill might facilitate understanding of multiple perspectives. Specifically, social perspective taking and multiple classification skill could both plausibly contribute to children's expectations of differential inclusion. The potentially distinctive role of these social-cognitive skills has not been examined previously.

Social Perspective Taking

Social perspective taking is important in the development of social understanding, including emotion understanding (Selman, 1971), awareness about ethnicity (Quintana, 1999), and discrimination (Spears Brown & Bigler, 2004). Perspective taking is sometimes investigated by assessing children's second-order mental state understanding (e.g., Sullivan, Zaitchik, & Tager-Flusberg, 1994). By 4 years of age, most children have developed a basic ''theory of mind'' that enables them to solve a first-order false-belief task. Then at the age of 6, children also pass second-order false-belief tasks involving an object in the physical world (Perner & Wimmer, 1985; Wimmer & Perner, 1983). However, the development of ''mind-reading'' continues well into middle childhood (Baron-Cohen, O'Riordan, Stone, Jones, & Plaisted, 1999). After 6 years of age, children begin to show understanding in false-belief tasks that employ more *social* situations that involve location of a person (Symons, McLaughlin, Moore, & Morine, 1997) or activities preferred by a friend (Nguyen & Frye, 1999) or mistaken emotions (Harris, Johnson, Hutton, Andrews, & Cooke, 1989).

Beyond 7–8 years, children continue to show more advanced theory of mind abilities (Banerjee, 2000; Baron-Cohen et al., 1999). Children develop a motivational orientation toward what various individuals think and feel, demonstrating sensitivity to the multiple links between thoughts, feelings, and behavior within social interactions. For example, children between 7 and 11 years develop the ability to recognize and explain a faux pas (e.g., an unintended insult; Baron-Cohen et al., 1999), as well as an understanding

of modesty and the social advantages of self-deprecating presentation of the self (Banerjee, 2000; Watling & Banerjee, 2007). Therefore, within this age range, children are likely develop an understanding of social perspectives and emotions that arise in *social relationships*. In particular, they should be able to distinguish their own feelings about a character from the feelings of a peer who does not share the same information about that character. This requires an ability to use information about the prior social relationship between two peers to make an inference about their feelings toward one another, independently of the child's own knowledge and feelings about that peer. Faux pas tasks measure expectations about embarrassment, but our present concern was more with children's inferences about liking and hence we devised a task to closer to a false-belief task but that would focus on liking. We label this form of social perspective taking *theory of social mind* (ToSM) to highlight the social evaluative inferences involved.

To distinguish the potential role of ToSM from mere learning about the particular norms for a specific group, the present research used a ToSM task in the interpersonal domain, the content and context of which was completely unrelated to the competitive intergroup relationship or the peers children had previously been asked to judge. We hypothesize that ToSM should relate to understanding about differential inclusion because differential inclusion involves an appreciation that members of different groups will have *different* relationship with, and hence feelings toward, the same peer (cf. Quintana, 1994, 1999; Ruble et al., 2004).

In contrast, ToSM ability should be unrelated to whether or not a child engages in differential evaluation. Specifically, whether a child favors a particular group member will sometimes accord with, and sometimes oppose, the child's view of how peers feel toward that group member, depending on whether the peers in question are in-group or out-group members and on how strongly the child is motivated to support the in-group. In summary, the *ToSM hypothesis* is that ToSM should be positively related to expectations of differential inclusion but unrelated to differential evaluation.

Multiple Classification Skill

Multiple classification skill is potentially responsible for age-related reductions in intergroup prejudice (e.g., Aboud, 1988; Bigler & Liben, 1992, 2007). The ability to classify people along multiple dimensions simultaneously (Inhelder & Piaget, 1964) should enable children to attend to the individual characteristics of each person rather than perceiving all members within a social category as being the same. However, the evidence relating to intergroup bias is mixed (Aboud, 2005; Bigler et al., 1997; Cameron, Rutland, & Brown, 2007).

Spears Brown and Bigler (2004) proposed that, "one cognitive skill that may relate to the perception of discrimination is the ability to simultaneously classify people along multiple dimensions . . . between the ages of 5 and 10 . . . children acquire the cognitive skills hypothesized to be associated with adult-like perceptions of discrimination" (p. 716). Two previous studies examined the hypothesis that multiple classification skill may contribute to children's ability to distinguish between social relationships at different levels (intergroup and intragroup) when both levels are relevant to evaluations of peers. Abrams et al. (2007) found no relation between multiple classification skill and intergroup bias when children judged peers of an in-group summer school. However, Abrams et al. (2008) found, in a minimal intergroup competition, multiple classification skill was related to reduced intergroup bias but not to differential evaluation or inclusion. These studies involved relatively novel groups, and it is conceivable that the relations with multiple classification skill were somehow suppressed for that reason. Therefore, the present research takes a further opportunity to evaluate the role of multiple classification in a competitive context involving a real in-group and out-group comparable to that used by Abrams, Rutland, and Cameron (2003). The *multiple classification hypothesis* is that better multiple classification skill should be accompanied by decreases in intergroup bias and larger differences in evaluations of different peers.

Unlike previous research, Study 1 explores two different interpretations of the above hypothesis. First, if children with better multiple classification skill adopt a more individuated form of judgment, they should distinguish more between normative and deviant peers in absolute terms, regardless of whether these are members of an in-group or an out-group. Alternatively, if children with better multiple classification skill are better able to integrate judgments at the two levels of categorization (intergroup and intragroup), they might show increased differential evaluation. That is, they should be relatively more favorable to peers that lean more toward the in-group prescriptive norm. By examining both alternatives, we reduce the possibility of falsely accepting a null hypothesis that multiple classification skill is unrelated to differentiation among members within groups.

Attributions

Study 1 provides a deeper analysis of children's reasoning about differential inclusion by investigating

attributions. There is considerable developmental research investigating children's understanding and reasoning surrounding social exclusion *between* groups. For example, drawing on social domain theory (Smetana, 1995; Turiel, 1998), developmental research on children's evaluations and justification of social exclusion (Killen, Lee-Kim, et al., 2002) shows that older children use more social-conventional justifications for social exclusion between groups such as "group functioning" (i.e., "The group won't work well with someone different in"). In addition, Spears Brown and Bigler (2004) have suggested that children's increased understanding about social discrimination may be reflected in more attributions at a group level about discriminatory acts. Our measure of differential inclusion involves understanding the role of the group, and group loyalty, for predicting how peers social exclude one another *within* groups in intergroup situations. Therefore, the present research extends previous DSGD research by measuring children's freely made attributions about differential inclusion to see whether these do indeed refer to aspects of the group and loyalty/disloyalty of peers, rather than to the personality traits of the characters (cf. Abrams et al., 2005; Levine & Moreland, 2002; Zdaniuk & Levine, 2001).

Study 1

Study 1 involves a similar intergroup context as Abrams, Rutland, and Cameron (2003) but with a different out-group. During the 2004 European Championship Soccer Finals, the English and French national teams were competing in the same section of the tournament. To check that France was a salient out-group, a pilot study asked ten 5- to 7-year-olds and twelve 9- to 11-year-olds to evaluate English and French children. In line with findings from the main study, they rated the English ($M = 4.64$, $SD = 0.79$) more positively than the French ($M = 3.41$, $SD = 1.18$), $F(1, 20) = 15.86$, $p < .001$.

In the main study, English children aged between 6 and 8 or between 9 and 11 years old evaluated English and French soccer supporters and then judged a normative and deviant soccer fan from either group. The normative peer expressed normative attitudes by favoring *only* their own team. The attitudes of the deviant peer were counternormative (i.e., disloyal) because they evaluated *both* teams positively. The age ranges were chosen both for comparability with previous research (Abrams, Rutland, Cameron, & Marques, 2003) and because evidence suggests that between these ages, children develop the ability to attend to use multiple classifications when judging group members, engage in social perspective taking (Quintana, 1994, 1999), and develop advanced theory of mind capabilities (Banerjee, 2000; Baron-Cohen et al., 1999).

To test the DSGD model, we created three indices of differentiation used in previous studies (e.g., Abrams, Rutland, & Cameron, 2003; Abrams et al., 2007, 2008): intergroup bias, differential evaluation, and differential inclusion. Table 1 summarizes how these are computed. New measures for the present research examined attributions for differential inclusion and ToSM.

Method

Design and Participants

The design involved two between-participants variables. These were age category (6–8 years and 9–11 years) and group membership of target peer group members (in-group vs. out-group). For ratings of peer group members, the within-participants variable was member (normative vs. eviant).

Participants included 86 females and 81 males from two age groups: 6–8 years ($n = 86$, $M = 87$ months) and 9–11 years ($n = 81$, $M = 119$ months). Most participants were tested at their school ($n = 116$), though some participants were attending a summer school program ($n = 51$). They were drawn from a district within which 96.6% of the population is classified as *White British* in the U.K. Census. The locality is ranked 190th of 354 in the English Indices of Multiple Deprivation. Compared with the national average (51%), 68.3% of households were classified as of medium to high socioeconomic status. Thus, the children were predominantly from middle-class backgrounds. They were tested individually by a female experimenter. All participants had consent from their parent or guardian to participate.

Procedure

Data were collected from June to August 2004, the beginning of which included the 2004 European Soccer Championship. The younger children were interviewed one on one at a table by an experimenter. The older children self-completed the questionnaire individually in small groups while experimenters assisted with any questions or concerns about the questionnaire. Children were assigned to condition randomly.

Materials

Following the same method of training and introduction as Abrams, Rutland, and Cameron

Table 1
Measures and Scoring

Measure	Computation	Scoring range and meaning
General intergroup bias	Mean of ratings of in-group minus mean of ratings of the out-group on "friendly" and "clever"	−4 = *out-group favoritism*, +4 = *in-group favoritism*
Differential inclusion	For each type of member: (a) rating of inclusion in the member's group minus rating of inclusion in opposing group. Then (b) normative members' score minus deviant members' score	(a) (−4 to +4) for each type of member and (b) 8 = *normative members included most*, −8 = *deviant members included most* (regardless of whether they belong to the in-group or out-group)
Attributions for inclusion	Group, loyalty, trait	0 = *no attribution*, 1 = *attribution using this feature*
Differential evaluation	In-group condition: Mean of 6 ratings of normative member minus 6 ratings of deviant member. Out-group condition: Mean of 6 ratings of deviant member minus 6 ratings of normative member	−4 = *favor undermining member* +4 = *favor validating member*
Absolute differential evaluation	Absolute difference in mean rating of normative minus mean rating of deviant member	0 = *evaluate both members identically*, 4 = *evaluate members maximally differently*
Multiple classification	Number of categories used without error	0 = *random or nonsystematic*, 1 = *single dimension* (color or shape), 2 = *two dimensions* (color and shape)
Theory of social mind	Understanding of false evaluation task	0 = *incorrect and unexplained*, 1 = *correct but limited explanation*, 2 = *correct plus explanation that character is unaware of member's negative actions*

(2003), most questions were answered by placing a check mark on a 5-point feeling face scale, which presented faces with the mouth in a *downward position* (1) through *horizontal* (3), to a *large smile position* (5).

Intergroup bias. Intergroup bias was assessed by asking, "How friendly do you think England/France football team supporters are?" and "How clever do you think England/France football team supporters are?" Responses on the faces scale were scored from 1 (*not at all*) to 5 (*very*). The items tap two core dimensions of adult stereotypes of most societal groups, namely warmth and competence (Fiske, Cuddy, Glick, & Xu, 2002). Fiske et al.'s (2002) research shows that in-groups are generally regarded as more competent and warmer than competing out-groups. These dimensions also correspond to the widely used "status" and "solidarity" dimensions used in previous research with adults (e.g., Locke, 2003) and younger children (e.g., Durbrow, Pena, Masten, Sesma, & Williamson, 2001; Langlois & Styczynski, 1979), as well as previous developmental intergroup research (e.g., Bigler et al., 1997).

Intragroup judgments. The next page described two boys, Alex and Mark, who were either both English and supporters of the England football team or both French and supporters of the France football team. It was explained, "They are both English/French, live in England/France, and have supported the English/French football team since they were children. Alex and Mark go to all the England/France games and watch them on TV. They are real fans of the England/France football team. Alex and Mark were asked to think about France playing England in Euro 2004. Here are some of the things they said."

Statements given by the normative peer group member (Alex) and deviant peer group member (Mark) were then presented. The order of presentation of the two peers was counterbalanced. The normative member showed complete own group support. He said "I think [own group] is the best team. Even if we lost the game with [other group] I'd still say that [own group] are the better team." The deviant member showed support to both teams. He said, "It's great when [own group] play well, they're a fantastic team. But when [other group] play well I will always clap and cheer for [other group]." (See Abrams, Rutland, & Cameron, 2003, for details of piloting of comparable items in the context of England and Germany.)

Manipulation check items asked children, "How does Alex/Mark feel about being an England

supporter?'' and ''How do you think Alex/Mark would feel about supporting the French football team instead?'' These measures had been used in previous research to exclude children who did not understand what the peer had said (Abrams, Rutland, & Cameron, 2003).

Children were reminded of each peer's statements and then answered evaluative questions about one then the other character (in the order they were presented initially). These asked, children to choose a feeling face to show, ''How do you feel towards Alex/Mark?'' ''How do you feel about what Alex/Mark said?'' ''How much would you like to be Alex's/Mark's friend?'' ''In a game, how much would you want Alex/Mark to be on your team?'' ''How friendly do you think Alex/Mark is?'' and ''How clever do you think Alex/Mark is?''

Group inclusion questions asked, ''How do you think other people who support (same/opposite team as character) would feel toward Alex/Mark?'' These were answered using the faces scale. Each question was followed by an open-ended *attribution* question, ''Why do you think they would feel that way toward Alex/Mark?'' Older children wrote their responses on lines provided, whereas younger participants responded verbally, and their responses were recorded by the experimenters. The responses were later coded for different types of explanation. After viewing the answers, three types of attributions seemed prevalent: attribution to the character's traits (e.g., ''because he is a nice person''), attribution to something about the character's group (e.g., ''because it is a good team''), and attribution to loyalty/disloyalty (e.g., ''because he wasn't as nice about his own side''). It was possible for children to make more than one attribution and therefore for each member the occurrence of each of these three types of attribution was coded separately (1 = *present*, 0 = *absent*). The coding of these responses had high interrater reliability ($r = .83$).

After answering these questions, children completed the multiple classification task and the ToSM task. The procedure for the multiple classification task was the same as that used by Abrams et al. (2007, 2008) and similar to that used by previous researchers (Bigler & Liben, 1992; Bigler et al., 1997). Children were given a sheet of paper with three red Xs, three green Xs, three red triangles, and three green triangles in a mixed arrangement at the top of the page. A large 2 × 2 matrix was displayed underneath these colored shapes. Children were instructed, ''Below are 12 things. Think about which of these things belong together. Using the red and green pens, draw the things in the grid below. Put things that belong together in the same square of the grid. You do not have to use all the squares.'' Responses were scored 0 if no categorization was used, 1 if a single dimension was used to sort the items, and 2 if the participant sorted the items using both dimensions (color and shape). Measurement properties of this task are considered further in Study 2.

The ToSM task required children to understand a ''false evaluation'' of another character. The task has a social focus, requiring understanding of how a first character will feel toward a second character who has secretly stolen the first character's toys. To answer correctly, children must dissociate their own evaluation of the thief from that held by the first character. This social situation provides a parallel context to the social-cognitive demands children may face when making social judgments about group behavior, such as how others would feel about an in-group or out-group member who supported or discredited the in-group or out-group.

Children were told, ''Jack and Chris have just met for the first time. Jack is playing a game with Chris. Jack is having fun and is enjoying playing the game a lot. Then Jack leaves the room to get a drink. While Jack is gone, Chris steals some of Jack's toys. Jack comes back after Chris has hidden the toys in his pocket.'' Children were then asked, ''Do you think Jack likes Chris?'' and ''Why/why not?'' Children who accurately take the social perspective of Jack should state that Jack likes Chris because Jack did not know about the theft.

Responses were scored according to both the judgment of whether Jack would like Chris or not and also whether the explanation indicated that the child understood that Jack was unaware Chris had stolen the toys. A score of 0 was assigned to incorrect answers (*no*) including any with the explanation that Jack would not like Chris because Chris stole/is a thief. A score of 1 was assigned to partially correct answers (*yes*) that gave limited explanation (e.g., ''because he plays with Chris''). A score of 2 was assigned to fully correct *yes* answers that included an accurate explanation (e.g., ''because he thinks Chris is nice'' or ''because he doesn't know Chris took the toys'').

Finally, children answered questions to indicate their age, birthday, gender, and school.

Results

Preliminary Analyses

Data from 11 children were excluded because they gave uniform responses (e.g., the end of the scale) for

all items or because they failed the manipulation check (i.e., inaccurately judged the deviant to be more favorable to the deviant's group than was the normative member from that group). Data for the remaining 156 children were used for subsequent analyses. Random assignment to condition was successful within both age levels (maximum difference between cell sizes in the in-group and out-group condition = 3), $\chi^2(6) = 0.11$, $p = .75$. Forty-three of the participants were tested before the France versus England football match in the 2004 European Soccer Championship, and the remainder after the match (which England lost). There were no significant effects of time of testing.

School and gender bias differences were evaluated (cf. Powlishta, Serbin, Doyle, & White, 1994). Neither variable is directly relevant to the present hypotheses or to the comparison between the soccer teams. There were no significant multivariate main effects or interactions involving either gender or school. Effects of order of presentation of the normative and deviant peer group members were also nonsignificant on all measures, $F < 2.1$, $p > .10$, so gender, school, and order are not included in remaining analyses.

Differentiation Measures

Table 1 shows how composite variables were computed. Table 2 provides the means for the judgments of specific groups and individual members, showing the effects of group and member. Separate analysis of in-group and out-group judgments, relevant for the analysis of prejudice (e.g., Aboud, 2005; Nesdale, 2004) is not germane for the present research. Details of results at the level of individual variables are available from the first author. Overall means and correlations among the composite variables are presented in Table 3.

General intergroup bias. The two items evaluating each group were averaged (Cronbach's $\alpha > .7$ for both groups). Children favored England supporters (M = 3.88, SD = 0.96) significantly more than French supporters (M = 3.10, SD = 1.10), $F(1, 151) = 65.02$, $\eta_p^2 = .301$, $p < .001$. Intergroup bias was computed by subtracting evaluation of the out-group from evaluation of the in-group. Bias was significantly greater than zero within both age categories ($M_{\text{Younger}} = 1.21$, $SD = 1.42$; $M_{\text{Older}} = 0.43$, $SD = 1.06$) and decreased with age, $r = -.28$, $p < .001$.''

Group inclusion. Following Abrams, Rutland, and Cameron (2003), the measures of group inclusion for the normative and deviant peer were reduced to a single index of *differential inclusion*. The higher the score, the more the child expects normative peers to be accepted by the member's group and rejected by the opposing group, and the more the child expects deviant peers to accepted by the opposing group but rejected by the member's group (see Table 1). Table 3 shows that differential inclusion increased significantly with age, $r = .27$, $p < .001$. As predicted by the DSGD model, 9- to 11-year-olds showed more differential inclusion ($M = 1.51$, $SD = 1.0$) than 6- to 8-year-olds ($M = 0.86$, $SD = 1.49$).

Member evaluations. The six items used to evaluate the normative member and the deviant member were factor analyzed. This revealed just two distinct factors with no cross loading items. These factors corresponded to evaluations of normative and deviant peer group members, accounting for 35% and 29.1% of the variance, respectively. Responses to the six items for each member were averaged to produce measures of normative evaluation and deviant evaluation (Cronbach's αs = .89 and .88, respectively).

A Group $\times$ Member analysis of variance on evaluations of members revealed a significant pattern of differential evaluation, $F(1, 151) = 37.79$, $\eta_p^2 = .20$, $p < .001$, (see also Table 2). To encapsulate this effect at the level of individual participants, a measure of *differential evaluation* was computed across levels of group as well as member (see Table 1). The higher the score, the more the child favors the member who is relatively more validating of the in-group (e.g., an in-group normative or an out-group deviant member). Children in both age categories showed significant levels of differential evaluation ($p < .01$) and differential evaluation decreased significantly with age (see Table 3; $M_{\text{Younger}} = 0.87$, $SD = 1.35$; $M_{\text{Older}} = 0.45$, $SD = 1.40$).''

The Relations Among Components of Differentiation

Table 3 shows that the three differentiation measures are related to one another as predicted by the DSGD model. Specifically, the data are consistent with the predicted pattern of intergroup – intragroup differentiation ($r = .34$, $p < .001$) and inclusion-related judgment ($r = .34$, $p < .001$), despite the fact that differential inclusion and differential evaluation were related in opposite directions with age.

The motivational hypothesis predicts a three-way interaction among age, intergroup bias, and differential inclusion on differential evaluation. To test this hypothesis, procedures recommended by Aiken and West (1991) were followed. We first centered age, intergroup bias, and differential inclusion and computed their two- and three-way interactions, which were then entered hierarchically as predictors of differential evaluation. There were significant main

Table 2
Means and Standard Deviations for Measures of Group Inclusion and Evaluation as a Function of Group and Type of Member Judged

	In-group		Out-group	
Group member	Normative	Deviant	Normative	Deviant
Inclusion by member's group	4.58 (0.75)	3.15 (1.53)	4.21 (1.02)	3.68_c (1.28)
Inclusion by other group	2.40_b (1.41)	3.78_c (1.32)	2.28_b (1.35)	3.66_c (1.21)
Evaluation of member	4.01_a (0.88)	3.53_b (1.17)	3.23_b (1.05)	4.02_a (0.70)

Note. Scores may range from 1 to 5. For the inclusion measures, means differ significantly unless they share a subscript ($p < .05$). For the evaluation measure, means with different subscripts differ significantly ($p < .01$).

effects of age, $\beta = -.18$, $t = 2.24$, $p < .05$; intergroup bias, $\beta = .27$, $t = 3.48$, $p < .001$; and differential inclusion, $\beta = .36, t = 4.68, p < .001, R^2 = .23, F(3, 141) = 14.47, p < .001$. There was also a significant interaction between intergroup bias and differential inclusion, $\beta = .34$, $t = 2.81$, $p < .01$. Consistent with the motivational hypothesis, this was moderated by the predicted three-way interaction with age, $\beta = .34$, $t = 2.92$, $p < .01$.

Figure 1 illustrates the simple Intergroup Bias × Differential Inclusion interaction within each age category. Among 6- to 8-year-olds, simple effects analyses revealed only significant main effects of intergroup bias, $\beta = .24$, $t = 2.45$, $p < .05$, and differential inclusion, $\beta = .53$, $t = 5.54$, $p < .001$, but not their interaction, $\beta = -.02$, $t = 0.18$. As intergroup bias and differential inclusion increased, so did differential evaluation. Among 9- to 11-year-olds, there was a significant simple main effect of intergroup bias, $\beta = .26$, $t = 2.25$, $p < .05$, and a significant interaction between intergroup bias and differential inclusion, $\beta = .37$, $t = 2.85$, $p < .01$. Within that interaction, consistent with the motivational hypothesis, when intergroup bias was low, differential inclusion was not significantly related to differential evaluation, $t = 1.25$, $\beta = -.15$, $p > .20$, but when intergroup bias was high, the relationship was highly significant, $t = 3.00$, $\beta = .34$, $p < .005$.

Social Cognition

ToSM and multiple classification skill. ToSM and multiple classification skill are potential antecedents of subjective group dynamics. Consistent with the social perspective taking literature, ToSM performance improved with age, $r = .25$, $p < .01$. ToSM was unrelated to intergroup bias or differential evaluation but, as predicted by the ToSM hypothesis, it was significantly related to differential inclusion, $r = .23$, $p < .01$. In line with cognitive developmental theory, multiple classification scores also increased significantly with age, $r = .38$, $p < .001$. Also, in line with the first expectation from the multiple classification hypothesis, increased multiple classification skill was accompanied by decreased general intergroup bias, $r = -.26$, $p < .001$.

To examine the prediction that multiple classification skill should be associated with increased within-group differentiation in two possible ways, we examined both differential evaluations and the absolute difference

Table 3
Study 1: Zero-Order Correlations Among Variables

	M	*SD*	1	2	3	4	5	6	7	8
1. Age category	—	—	—							
2. Intergroup bias	0.78	1.30	−.28***	—						
3. Differential inclusion	1.19	1.29	.27***	.06						
4. Differential evaluation	0.64	1.39	−.16*	.34***	.34***	—				
5. Multiple classification score	1.51	0.81	.38***	−.26***	.06	−.18*	—			
6. ToSM score	1.16	0.37	.25**	−.05	.23**	−.01	.11			
7. Trait attribution	0.26	0.39	−.18*	.06	−.26***	−.13	−.05	−.11		
8. Group attribution	0.33	0.39	.20*	−.01	.14	.02	.16*	.07	−.20*	
9. Loyalty attribution	0.57	0.43	.11	−.04	.36***	.10	.07	.09	−.27***	−.29***

**Note*. ToSM = theory of social mind.
*$p < .05$. **$p < .01$. ***$p < .001$.

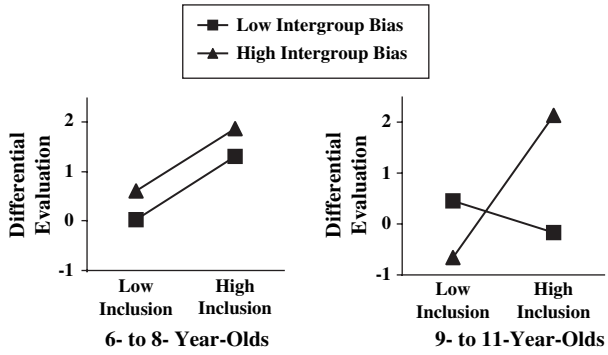

Figure 1. Study 1: Differential evaluation of normative and deviant group members as a function of age, intergroup bias, and differential inclusion.

Note. Values of differential evaluation are derived from a regression equation in which differential evaluation is the dependent variable, and age category, intergroup bias, differential inclusion, and their interaction terms are independent variables. Effects of intergroup bias and differential inclusion are represented by values +/− 1 *SD* from their mean.

score between evaluation of deviant and normative member. Multiple classification skill was associated with lower rather than higher differential evaluation, $r = -.16$, $p < .05$, and with lower rather than higher absolute differentiation between deviant and normative members, $r = -.20$, $p < .05$. There was no significant relation between multiple classification scores and differential inclusion.

To examine the independent roles of age, ToSM and multiple classification skill in the DSGD model multiple regression analyses were conducted with these variables as simultaneous predictors. Intergroup bias was predicted from both age category, $\beta = -.23$, $t = 2.60$, $p < .01$, and classification skill, $\beta = -.19$, $t = 2.14$, $p < .05$, but not ToSM, $\beta = .05$, $t = .66$. Differential inclusion was significantly predicted by age category, $\beta = .28$, $t = 3.12$, $p < .01$, and ToSM, $\beta = .18$, $t = 2.17$, $p < .05$, but not multiple classification, $\beta = -.06$, $t = 0.71$. None of the variables was a significant independent predictor of differential evaluation. These analyses show that intergroup bias reduces as multiple classification skill and age increase but is unrelated to ToSM. In contrast, differential inclusion increases as ToSM performance and age increase but is unrelated to multiple classification skill. Figure 2 presents the overall set of findings summarized in a path analysis showing statistically independent relationships within the theoretically specified model.

Attributions. Children offered attributions for how groups would judge both peer group members. For each type of attribution (traits, group, and loyalty), a score was assigned ranging from 0 to 2 (attribution made for judgments about neither member, one member, or both members). To determine the independent relationship between each type of attribution with differential inclusion, age category, multiple classification skill, and ToSM score, these four variables and the two alternative attributions were regressed onto each attribution score. In line with the assumptions of the DSGD model, group attributions and loyalty attributions were each significantly associated with differential inclusion, $\beta = .23$, $t = 3.01$, $p < .01$, and $\beta = .34$, $t = 4.87$, $p < .001$, respectively. No other relationships were significant. Thus, children explained differential inclusion in terms of attributes of the group and issue of loyalty rather than the members' personal traits.

A further possibility is that attributions mediate the relationship between ToSM and differential inclusion. However, inclusion of the three attribution scores along with ToSM, multiple classification skill and age as predictors of differential inclusion did not significantly reduce the effects of ToSM, $\beta = .16$, $p < .05$, or age, $\beta = .21$, $p < .05$.

Discussion

The present study extended previous research by demonstrating the role social perspective taking ability may play in children's exclusion of peers within intergroup contexts. Another original contribution was the demonstration that children's understanding of group exclusion is related to group and loyalty attributions. According to the DSGD model, differential inclusion provides an important basis for children's exclusion judgments of peers in intergroup contexts. Consistent with previous evidence (e.g., Abrams, Rutland, & Cameron, 2003), older children showed stronger differential inclusion. The overall pattern of their evaluations of peers was consistent with the DSGD model and in line with the motivational hypothesis. Older children who more strongly favored their in-group over the out-group showed a stronger relationship between differential inclusion and differential evaluation (inclusion-related judgment).

Cognitive and Social-Cognitive Skills

As expected, both ToSM and multiple classification skill improved with age. However, the focal issues are whether and how these two skills relate distinctively to intergroup bias and to differential inclusion. An important finding was that ToSM performance was associated only with increased differential inclusion, whereas multiple classification skill was associated only with decreased intergroup bias.

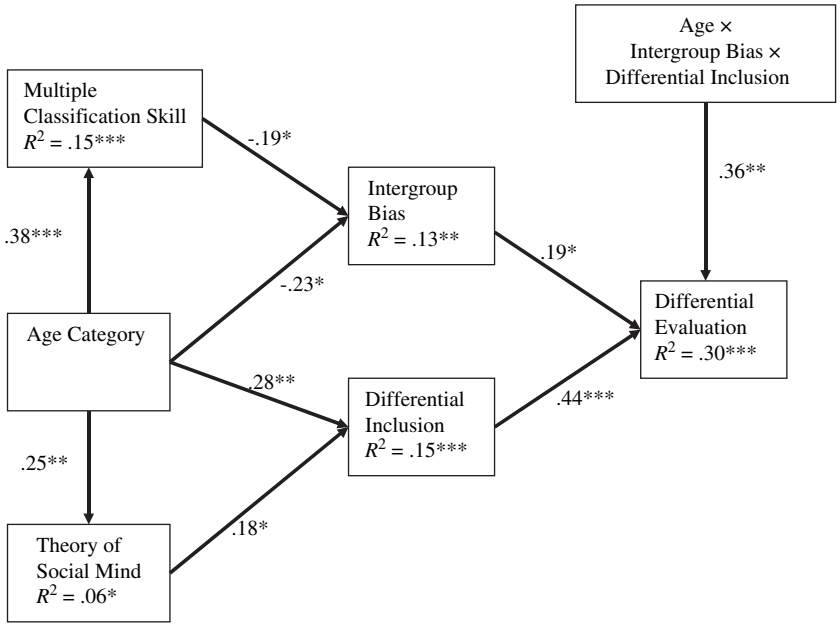

Figure 2. Study 1: Path diagram of the effects of age category, social-cognitive abilities, and intergroup bias on differential inclusion and differential evaluation.
Note. Path weights are standardized regression coefficients. Italicized coefficients within boxes are the R^2 for the relevant dependent variable. All paths are significant.
*$p < .05$. **$p < .01$. ***$p < .001$. All effect sizes derived from R^2 (Cohen & Cohen, 1983, p. 116) are either medium ($f^2 > .09$) or large ($f^2 > .25$). The R^2 statistics increase by not more than 0.02 for any of the dependent variables when all other potential predictor variables are added to the equations.

An innovation in Study 1 was the use of a false evaluation task to tap ToSM. In support of the ToSM hypothesis, children, who performed better on the ToSM task also used the group memberships' of others as a cue to judge how these others would feel toward deviant and normative members from each group. The relationship between ToSM and differential inclusion provides quite clear evidence that differential inclusion is related to general social perspective taking ability and not just understanding about particular group norms. However, in the present study, children were members of one of the groups and this may have given them a more concrete basis for inferring differential inclusion. Thus, further evidence is required to show that ToSM performance is related to *general* understanding about differential inclusion even when the child is not directly involved in the groups. This is one aim of Study 2.

Multiple classification performance was related negatively to intergroup bias, consistent with cognitive developmental theory (e.g., Aboud, 2005, Bigler & Liben, 2007) and previous DSGD research (Abrams et al., 2008). However, contrary to predictions, multiple classification skill was negatively associated with differential evaluation between normative and deviant peers. Multiple classification skill was associated with less differentiation both between and within groups. It seems quite possible that although multiple classification skill does indeed attenuate dependence on simple intercategory distinctions, it does not enhance the use of within-category differences. This seems a worthwhile avenue for future research as it may relate to the relative salience of different levels of categorization in particular situations (Bigler & Liben, 2007).

New evidence in Study 1 revealed that children who expected higher levels of differential inclusion were also more likely to *explain* inclusion and exclusion in terms of the loyalty of the members and the properties of the groups as a whole but did not make greater reference to the personal traits of the deviant or normative peers. This shows that when children made distinctions among peers within the groups, they used group-relevant dimensions or criteria for drawing those distinctions, rather than treating each child as a unique individual. This result is compatible with research showing that as they get older, children are more likely to use "group functioning" justifications in their explanations for social exclusion within-group settings (Killen et al., 2002). The attribution findings are also consistent with those of Spears Brown and Bigler (2004) who found an age trend in use of attributions to discrimination. In the present study, older children showed higher levels of differential inclusion and corresponding group-related attributions.

Intergroup Bias

The present evidence lends further support to the robustness of the DSGD model by showing that the same subjective group dynamics operate in different intergroup relationships (i.e., English–German, English–French). Abrams, Rutland, and Cameron (2003) observed age-related *increases* in intergroup bias against supporters of the German soccer team, whereas Study 1 showed age-related decrease in bias against the French. These different age trends may be explained in terms of older children's greater sensitivity to wider social norms (Abrams et al., 2007; Nesdale et al., 2005; Rutland, 1999, 2004; Rutland et al., 2005). Specifically, age variations in intergroup bias during middle childhood may depend upon the internalization of perceived social norms regarding the appropriateness of expressing bias against a *particular* group (cf. Crandall, Eshelmann, & O'Brien, 2002). Previous developmental research revealed that English children express stronger bias against Germans than against the French (see Barrett, 2005; Rutland, 1999; Rutland et al., 2005), perhaps reflecting the different historical relationships among these countries and the major role of teaching about the First and Second World War in the National Curriculum for schools in England. Perhaps, therefore it is not surprising that as children get older, they express relatively more bias against the Germans and less against the French. Significantly, the present findings illustrate that the motivational connection between intergroup bias, differential inclusion, and differential evaluation strengthens with age regardless of the overall trend of intergroup bias with age (Abrams, Rutland, & Cameron, 2003).

Study 2

The finding that age is related to differential inclusion over and above the relation between ToSM and differential inclusion suggests there is a role for additional developmental influences on children understanding of group dynamics and exclusion of peers within groups. In particular, generalizing from peer relationships within social groups may be another contributing factor in any multifaceted account of children's exclusion judgments and reasoning. Children develop friendships and begin to interact within peer groups during middle childhood, for example, within schools and clubs (Brown, 1990; Dunn, 2004; Erwin, 1993; Hartup, 1983; Howes, 1996). In this peer context, they presumably learn the ground rules of group behavior that can be extrapolated to new situations. Bigler and Liben (2007) also propose that children "infer from environmental data which bases of classifications are important within a given context" (p. 163) and that "the degree and way in which categorization processes operate will be affected by the individual child's classification skill (which undergoes age-related change) and environmental experience (e.g., the number of encounters with exemplars)" (p. 164). Consistent with this reasoning, we contend that children with more experience of peer group membership (i.e., more exemplars) are likely to make more group-related inferences about inclusion and exclusion.

In light of these considerations, Study 2 was designed to investigate how classification and social-cognitive skills and experience of peer group relations are related to children's general expectations about relationships between and within social groups (Abrams et al., 2005).

Study 2 addressed three new questions. The first was to examine how performance on the ToSM task is related to children's *group norm understanding*, that is, their *general* expectations that in intergroup competitions, peer group members will show differential inclusion of loyal in-group and disloyal out-group members. Importantly, the measure of group norm understanding in Study 2 is unconfounded with direct experience or membership of the groups. Participants were not themselves a member of the groups, which were entirely meaningless other than being defined by different colors. The group norm understanding measure is analogous to the differential inclusion measures in previous studies (including Study 1) but requires children to make inferences merely from the membership and loyalty of the members.

Study 1 showed children's social perspective taking (ToSM) is related to understanding of group dynamics. In Study 2, we hypothesize that there should also be a positive relationship between ToSM performance and group norm understanding. As group norm understanding has never been measured in previous DSGD research, confirmation of this hypothesis would advance a core assumption in the DSGD model and generalize the findings from Study 1.

The second aim was to examine whether group norm understanding is associated with experience of peer relations within social groups. Specifically, Study 2 asked children to list the different groups to which they belonged. It was hypothesized that children who belonged to a larger number of different groups should have a wider experience of typical peer group processes (e.g., pressures to conform to group expectations

and the need to act in a way that validates group norms) and therefore should have better generic group norm understanding. Confirmation of this hypothesis would support the idea that experience of peer relations within groups is implicated in children understanding of social exclusion within intergroup contexts. A further possibility is that belonging to more groups might provide children with more opportunities to observe multiple perspectives, and may therefore be related to social perspective taking skill, reflected by higher ToSM scores.

Finally, Study 2 provided a further opportunity to test whether multiple classification skill is related to differential inclusion independently of age. Based on previous evidence and findings from Study 1, it is expected that although older children should have better multiple classification skills, ToSM, and group norm understanding, multiple classification skill should be unrelated to ToSM or group norm understanding. This study also provided an opportunity to probe measurement properties of the shape and color multiple classification measure used in Study 1 and Abrams et al. (2007), details of which are provided in the Appendix.

Method

Participants and Procedure

One hundred and forty-nine children (67 male and 82 female) aged between 5 and 11 years (M = 94.7 months) from the same background population as those in Study 1 were interviewed individually by a female or male experimenter. The children were presented with four multiple classification tasks (shapes, lines, animals, and humans) and were asked to explain their solution to the task for the last of these (humans). They also completed the ToSM task from Study 1 and a group norm understanding task. The order of the different tasks was counterbalanced. Finally, children were asked to list as many groups they belong to as they could think of. There were no significant effects of order on the mean scores and no effects of participant gender or experimenter gender. Therefore, order and gender are not considered further.

Group Norm Understanding

This task involved two components. The first measured whether children understood that teams tend to show in-group bias in favor of their own members. The task described two teams, labeled and colored ''Red'' and ''Green,'' respectively. Two circles with smiley faces also represented their respective members LC (colored red) and JR (colored green). Children were told, ''A group of children are all doing a treasure hunt. There are two teams playing against each other. Each team has to work separately to find clues to find the big prize—whichever team finds the big prize will win. There is a RED team and a GREEN team. LC is on the red team. JR is on the green team. Who do you think the RED team likes more? (tick one).''

The responses were made by presenting three call out boxes. The first included a red smiley face that stated ''I think the RED team would like LC more.'' The second included a green smiley face and stated ''I think the RED team would like JR more.'' The third had no smiley face but stated ''I think the RED team would like LC and JR the same amount.'' A follow-up question asked ''Why do you think the RED team would think like that?''

Because no children chose ''both,'' answers were scored as 0 if the child chose JR (an opposite team member), 1 if the child chose LC (a same team member), and 2 if the child chose LC and accompanied the answer with an explanation that involved group membership (e.g., ''because LC is on the same team'').

The second part of the task was designed to see whether children would anticipate differential evaluation. The task stated, ''We asked LC and JR to tell everyone what they thought about their teams and this is what they said.'' Next to the picture of LC was a call out box with the statement, ''I like my team, the RED team, but I hope that the GREEN team wins the big prize.'' There was also a picture of JR with the statement, ''I like my team, the GREEN team, but I hope the RED team wins the big prize.'' We then asked, ''Based on what LC and JR said about the teams, who do you think the RED team likes more? (tick one).''

The response options were the same as in the first stage of the task. Answers were scored as 0 if the child chose LC, 1 if the child either chose JR, or chose ''both'' but explained the answer in terms of support for the Red group, and 2 if the child chose only JR and explained the answer in terms of support.

These two scores were combined to provide a mean group norm understanding score. Obviously, there could be many reasons why a group prefers a particular member. However, the aim of the task, and scoring scheme, was to focus on the specific issue of whether children would anticipate that groups favor in-group members in general, and in-group-supporting individuals from an out-group in particular. Therefore, the task and scoring represent an analog of the differential inclusion measure used in Study 1 but without the complication of the participant being a member of one

of the groups and without the complication of using real groups.

Multiple Classification

Children completed the task with red and green triangles and Xs as in Study 1. The additional multiple classification tasks are detailed in the Appendix.

Results and Discussion

Group Memberships

Children mentioned a very wide range of groups (mostly in a school context) that all involved interaction with peers and other children in a group setting. The groups listed included: after school club, ski club, skipping, tennis, cheerleaders, yellow group, blue group, computer club, tsullido, art club jujitsu club, French club, drama club, beavers, pony club, rounders (similar to baseball) team, buddy class, sports day team, youth club, trampoline club, gardening club, breakfast club, team3, football, reading group majorettes, dancing club, cricket club, Thursday club, boxing class, judo club, band, scouts, rugby club, house team, netball team, singing group, athletics club, brownies, butterflies, gymnastics, ballet, and swimming club. For example, there were 47 mentions of team sport groups (e.g., hockey team, soccer team), 22 mentions of musical or arts ensemble groups (e.g., choir, art clubs), and so on. Thirty-eight children did not mention any group. Sixty-eight children mentioned one type of group, 31 mentioned two different types of group, 10 mentioned three different types of group, and 2 mentioned four different types of group. Further details of the groups listed are available on request.

Predictors of Group Norm Understanding

Descriptive statistics and intercorrelations among variables are shown in Table 4, which shows, consistent with Study 1, that age is significantly positively correlated with both multiple classification and ToSM performance. More importantly, ToSM performance was significantly related to group norm understanding. This is in line with the finding from Study 1 that ToSM was significantly related to differential inclusion. In addition, consistent with our expectations about the contributing role of peer group experience, number of group memberships was significantly positively associated with group norm understanding and ToSM scores.

We assume that the group memberships measure provides a relatively direct index of the breadth of children's experience of peer dynamics within groups. Other inputs from the social environment as well as cognitive development may be correlated with age. Importantly, age and group memberships were unrelated, and hence, we could assess the independent contribution of each as predictors of multiple classification, ToSM, and group norm understanding.

Regression analyses showed that multiple classification performance was significantly predicted by age, $\beta = .17$, $t = 2.11$, $p < .05$, but not group memberships, $\beta = .04$, $t = 0.45$, overall $R^2 = .031$. ToSM performance was significantly predicted by both age, $\beta = .20$, $t = 2.61$, $p = .01$, and group memberships, $\beta = .30$, $t = 3.81$, $p < .001$, overall $R^2 = .13$. Group norm understanding was also significantly predicted by age, $\beta = .32$, $t = 4.18$, $p = .001$, and group memberships, $\beta = .19$, $t = 2.44$, $p < .05$, overall $R^2 = .14$.

Given that age and multiple classification were positively correlated (as in Study 1), and that both were significantly correlated with ToSM, regression analysis was used to establish whether multiple classification performance was related to ToSM independently of age. This analysis revealed that ToSM was significantly associated with age, $\beta = .18$, $t = 2.15$, $p < .05$, but not with multiple classification performance, overall $R^2 = .06$, consistent with findings in Study 1.

Table 4
Study 2: Zero-Order Correlations Among Variables

Variable	Range	*M* (*SD*)	Age in months	Number of group memberships	Multiple classification	Theory of social mind
Age in months	61–130	94.47 (21.6)				
Number of group memberships	0–5	1.29 (1.02)	.000			
Multiple classification	0–2	1.71 (0.60)	.17*	.04		
Theory of social mind	0–2	1.07 (0.54)	.20*	.30***	.20*	
Group norm understanding	0–4	1.65 (1.38)	.32***	.19*	.10	.22**

*$p < .05$. **$p < .01$. ***$p < .001$.

Mediation analysis. Finally, given that both age and group memberships were independently associated with ToSM and that both variables also independently predicted group norm understanding the conditions were fulfilled statistically to test for the idea that ToSM may mediate the relationships between age and group norm understanding and/or between group memberships and group norm understanding. The results of these analyses are depicted in Figure 3, showing standardized regression coefficients among the variables. When ToSM is included in the regression analysis, the relationship between age and group norm understanding remains significant, whereas the relationship between group memberships and group norm understanding relationship is reduced to nonsignificance. Following the method advocated by Baron and Kenny (1986), a Sobel test revealed marginal mediation of ToSM for group memberships, $Z = 1.89$, $p = .059$. A statistical possibility, though not one that we would predict, is that of reverse mediation, that is, that group norm understanding mediates between group memberships and ToSM skill. However, the standardized coefficient for the effect of group memberships on ToSM only reduced from .30 to .26 when group norm understanding was in the regression analysis and there was little indication of mediation, $Z = 1.59$, $p = .11$.

In summary, older children and those who report more group memberships have better ToSM skill and also better group norm understanding. Children with better ToSM skill have better group norm understanding, and ToSM may partially mediate the relation between group memberships and group norm understanding.

Taken together, the results of Study 2 extend and provide important convergent support for the interpretation of results from Study 1. First, as hypothesized, ToSM was associated with generic group norm understanding. Second, as hypothesized, experience of peer relations in social groups, both indirectly through age and directly through membership of social groups, was associated with generic group norm understanding. In addition, ToSM and peer group experience were positively related, suggesting that such experience may contribute to ToSM skill as well as directly contributing to group norm understanding. Third, the study verified that the shapes and colors multiple classification task taps skill that generalizes to different types of category content and supported the hypothesis that multiple classification skill is related to age but not to group norm understanding. There was no relation between multiple classification performance and number of group memberships, suggesting that age-related development of multiple classification skill may be independent of peer group experience.

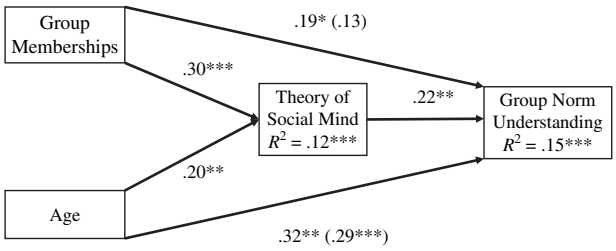

Figure 3. Study 2: Path diagram of the effects of age and group memberships on theory of social mind and group norm understanding.

Note. Path weights are standardized regression coefficients. Italicized coefficients within boxes are the R^2 for the relevant dependent variable. All paths are significant.

*$p < .05$. **$p < .01$. ***$p < .001$. Coefficients in parentheses are direct effects after ToSM is accounted for.

General Discussion

The present research provides the first evidence that second-order mental state understanding, measured with the ToSM task, is related to children's perceptions of group dynamics. Across both studies, social perspective taking was related to children's understanding of inclusion and exclusion of particular group members. The importance of this "group nous"—an implicit understanding of normative processes within and between groups—is demonstrated by the positive relationship between social perspective taking (ToSM) and understanding of social exclusion both in the case of a context-specific real competitive intergroup relationship between England and France (differential inclusion in Study 1) and a more abstract imaginary competitive intergroup relationship (group norm understanding in Study 2).

Study 1 also provided important convergent validation for the assumption that differential inclusion is associated with explanations (attributions) that are specifically concerned with group function. Study 2 showed the distinctive character of group nous by demonstrating for the first time that group norm understanding is associated with relevant experience of peer relations through memberships of social groups. Evidence across the studies consolidates the conclusion that although multiple classification skill improves with age and may be related to lower intergroup bias, it is not inevitably related to differential inclusion and exclusion of peers within groups.

The findings illustrate the value of examining processes that might lay the foundations for social psychological phenomena in adults. Older children's greater social-cognitive sophistication takes them

beyond a shift from group-based to individual-based or multiple-category-based judgment (cf. Aboud, 1988; Brewer, 1988). Children with more advanced social perspective taking ability and with greater experience of peer relations within groups also *integrate* information about group and individual characteristics so that others are judged in the *context* of their group membership and the relationship between groups. This integrative process seems consistent with current research suggesting that adults' use multiple levels of categorization flexibly and strategically to sustain a distinctive identity (cf. Hornsey & Hogg, 2000; Marques et al., 1998).

Implications and Future Directions

The present findings suggest an alternative conclusion to evidence that peer victimizers (e.g., children who derogate a deviant) necessarily have poor social-cognitive skills (Crick & Dodge, 1994; McKeough, Yates, & Marini, 1994). It may be that ''effective'' bullies are children with more group nous. If they care about their group membership, such children can use their understanding of the group dynamics in intergroup contexts strategically to derogate *or upgrade* particular peers in a way that bolsters their in-group. Thus, social perspective taking skill may facilitate older children's avoidance and engagement in indirect methods of bullying such as social exclusion within a peer group (Bjorkqvist, Lagerspetz, & Kaukainen, 1992; Emler & Reicher, 1995; Rivers & Smith, 1994).

The present research investigated the DSGD model in the context of intergroup competition. With adults (Tajfel & Turner, 1979) and children (Nesdale et al., 2005), intergroup competition, high status, and threat from out-groups can all increase levels of intergroup bias. Intergroup competition also increases subjective group dynamics effects in adults (Marques, Abrams, & Serôdio, 2001). Thus, it would be useful for future research to investigate whether children's sensitivity to variations in competition, status, and threat affects support for the DSGD model and it would provide a valuable link with research in Nesdale's (2004) social identity development theory (cf. Bennett & Sani, 2004).

In Study 1, group members in the scenarios were always male. Consistent with Abrams, Rutland, and Cameron's (2003) results, there was no evidence that boys engaged with the task more than girls. It remains to be discovered whether comparable results will be obtained if the context involves female group members in a women's sports competition. It would be useful to investigate whether the DSGD model is supported equally in the case of ethnic, religious, and other intergroup axes (Abrams et al., 2005, 2008) and also when there are strong differences in terms of stereotypes or values rather than direct competition between groups. Children also form peer networks, of cliques, in middle childhood (Brown, 1990) and it would be interesting to examine whether the group influence processes evident in the DSGD model operate in these spontaneously formed social relationship groups (Ellis & Zarbatany, 2007).

Given the DSGD model's emphasis on children's understanding about social and situational norms, a fruitful line of investigation would be whether there are cultural differences or similarities in the treatment of deviant group members (see also McAuliffe, Jetten, Hornsey, & Hogg, 2003; Oyserman, Kemmelmeier, & Coon, 2002). Evidence of variations and stability across culture and intergroup context would suggest that subjective group dynamics may affect some domains of social inclusion and exclusion, such as social-conventional justifications, but not others, such as moral justifications (Abrams & Rutland, 2008; Abrams et al., 2008; cf. Killen, Crystal, & Watanabe, 2002; Killen, Lee-Kim, et al., 2002).

Finally, while we have made substantial progress in testing the DSGD model, there remain numerous important avenues to explore. We have examined age differences in subjective group dynamics and it would now be useful to track the codevelopment of social perspective taking and group norm understanding longitudinally to gain further insight into the developmental course of these processes. In addition, it would be useful to investigate exactly how children relate their personal experiences of groups to their general expectations about group dynamics. Based on our theorizing, we would expect older children to have more coherent and explicit theories about group dynamics and to have a clearer appreciation that identification with groups, both for themselves and others, implies greater commitment, loyalty, and group-serving judgments of peers.

Conclusions

These findings provide important new evidence that children's social perspective taking and experience of peer relations within groups may contribute to their understanding of group dynamics and social exclusion within peer groups. They illuminate how and why social-cognitive skills and group processes may combine to affect peer exclusion (cf. Rutland, Abrams, & Levy, 2007). The evidence adds several pillars supporting the DSGD model. Two types of ability contribute to the DSGD in different ways. Consistent with cognitive developmental theory (Aboud, 2005; Bigler & Liben, 2007), multiple classification skill is related to

a decrease intergroup bias. However, at the same time, it appears that increased ToSM ability is related to differentiation between and exclusion of peers within groups in terms of their fit to the group norms. Thus, even if older children show less direct intergroup bias, they seem to be more sophisticated in targeting their positive evaluations at peers who support their in-group.

Experience of peer relations within groups, gained as a result of membership of a larger number of social groups, also contributes to children's understanding of group and intergroup dynamics. This group nous may be an important aspect of children's developing ability to navigate social relationships involving groups. In some circumstances, this may enable them to be or to evade bullies who exclude other children that contravene prescriptive group norms. Given the substantial influence that group processes and norms can have among adults, it is understandable that group nous is an important social survival skill that children begin to develop in middle childhood. Future research is required to explore further how children learn and apply their group nous to exclusion and inclusion of peers across different kinds of group contexts.

References

Aboud, F. E. (1988). *Children and prejudice*. Oxford, UK: Blackwell.

Aboud, F. E. (2005). The development of prejudice in childhood and adolescence. In J. F. Dovidion, P. Glick, & L. A. Rudman (Eds.), *On the nature of prejudice: Fifty years after Allport* (pp. 310–326). Malden, MA: Blackwell.

Abrams, D., & Christian, J. N. (2007). A relational analysis of social exclusion. In. D. Abrams, J. N. Christian, & D. Gordon (Eds.), *Multidisciplinary handbook of social exclusion research* (pp. 211–232). Chichester, UK: Wiley. Sons.

Abrams, D., Hogg, M. A. & Marques, J. M. (Eds.) (2005). *The social psychology of exclusion and inclusion*. New York: Psychology Press.

Abrams, D., & Rutland, A. (2008). The development of subjective group dynamics. In. S. Levy & M. Killen (Eds.), *Intergroup attitudes and relations in childhood through adulthood* (pp. 47–65). Oxford, UK: Oxford University Press.

Abrams, D., Rutland, A., & Cameron, L. (2003). The development of subjective group dynamics: Children's judgments of normative and deviant in-group and outgroup individuals. *Child Development*, *74*, 1840–1856.

Abrams, D., Rutland, A., Cameron, L., & Ferrell, J. (2007). Older but wilier: Accountability and the development of subjective group dynamics. *Developmental Psychology, 43*, 134–148.

Abrams, D., Rutland, A., Cameron, L., & Marques, J. M. (2003). The development of subjective group dynamics: When ingroup bias gets specific. *British Journal of Developmental Psychology, 21*, 155–176.

Abrams, D., Rutland, A., Ferrell, J. M., & Pelletier, J. (2008). Children's judgments of disloyal and immoral peer behavior: Subjective group dynamics in minimal intergroup contexts. *Child Development*, *79*, 444–461.

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173–1182.

Banerjee, R. (2000). The development of an understanding of modesty. *British Journal of Developmental Psychology, 18*, 499–517.

Baron-Cohen, S., O'Riordan, M., Stone, V., Jones, R., & Plaisted, K. (1999). Recognition of faux pas by normally developing children and children with Asperger's Syndrome or high functioning autism. *Journal of Autism and Developmental Disorders*, *29*, 407–418.

Barrett, M. (2005). Children's understanding of, and feelings about, countries and national groups. In M. Barrett & E. Buchana-Barrow (Eds.), *Children's understanding of society* (pp. 251–286). New York: Psychology Press.

Bennett, M. & Sani, F. (Eds.) (2004). *The development of the social self*. Philadelphia: Psychology Press.

Bigler, R. S., Jones, L. C., & Lobliner, D. B. (1997). Social categorization and the formation of intergroup attitudes in children. *Child Development*, *68*, 530–543.

Bigler, R. S., & Liben, L. S. (1992). Cognitive mechanisms in children's gender stereotyping: Theoretical and educational implications of a cognitive-based intervention. *Child Development*, *63*, 1351–1363.

Bigler, R. S., & Liben, L. S. (2007). Developmental intergroup theory: Explaining and reducing children's social stereotyping and prejudice. *Current Directions in Psychological Science*, *16*, 162–166.

Bjorkqvist, K., Lagerspetz, K. M. J., & Kaukainen, A. (1992). Do girls manipulate and boys fight? Developmental trends in regard to direct and indirect aggression. *Aggressive Behaviour, 18*, 117–127.

Brewer, M. B. (1988). A dual process model of impression formation. In T. K. Srull & R. S. Wyer (Eds.), *Advances in social cognition* (Vol. 1, pp 177–183). Hillsdale, NJ: Erlbaum.

Brown, B. B. (1990). Peer groups and peer cultures. In S. S. Feldman & G. R. Elliot (Eds.), *At the threshold: The developing adolescent* (pp. 171–196). Cambridge, MA: Harvard University Press.

Cameron, L., Rutland, A., & Brown, R. J. (2007). Promoting children's positive intergroup attitudes towards stigmatized groups: Extended contact and multiple classification skills training. *International Journal of Behavioral Development*, *31*, 454–466.

Castelli, L., de Amicis, L., & Sherman, S. J. (2007). The loyal member effect: On the preference for ingroup members who engage in exclusive relations with the ingroup. *Developmental Psychology, 43*, 1347–1359.

Cohen, J., & Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Crandall, C. S., Eshelmann, A., & O'Brien, L. (2002). Social norms and the expression and suppression of prejudice: The struggle for internalization. *Journal of Personality and Social Psychology, 82*, 359 – 378.

Durbrow, E. H., Pena, L. F., Masten, A., Sesma, A., & Williamson, I. (2001). Mothers' conceptions of child competence in contexts of poverty: The Philippines, St. Vincent, and the United States. *International Journal of Behavioral Development, 25*, 438 – 443.

Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information processing mechanisms in children's social adjustment. *Psychological Bulletin, 115*, 74 – 101.

Dunn, J. (2004). *Children's friendships: The beginning of intimacy*. Oxford, England: Blackwell.

Ellis, W. E., & Zarbatany, L. (2007). Peer group status as a moderator of group influence on children's deviant, aggressive and prosocial behavior. *Child Development, 78*, 1240 – 1254.

Emler, N., & Reicher, S. (1995). *Adolescence and delinquency: The collective management of reputation*. Oxford, UK: Blackwell.

Erwin, P. (1993). *Friendship and peer relations in children*. Chichester, UK: Wiley.

Fiske, S. T., Cuddy, A. J. C., Glick, P. S., & Xu, J. (2002). A model of (often mixed) stereotype content: Competence and warmth respectively follow from perceived status and competition. *Journal of Personality and Social Psychology, 82*, 878 – 902.

Graham, S., & Juvonen, J. (1998). Self-blame and peer victimization in middle school: An attributional analysis. *Developmental Psychology, 34*, 587 – 599.

Harris, P., Johnson, C. N., Hutton, D., Andrews, G., & Cooke, T. (1989). Young children's theory of mind and emotion. *Cognition and Emotion, 3*, 379 – 400.

Hartup, W. W. (1983). Peer relations. In E. M. Hetherington (Ed.), *Handbook of child psychology: Vol. 4. Socialization, personality, and development* (pp. 103 – 196). New York: Wiley.

Hawker, D. S. J., & Boulton, M. J. (2000). Twenty years' research on peer victimization and psychosocial maladjustment: A meta-analytic review of cross sectional studies. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 41*, 441 – 455.

Hornsey, M. J., & Hogg, M. A. (2000). Subgroup relations: A comparison of mutual intergroup differentiation and common ingroup identity models of prejudice reduction. *Personality and Social Psychology Bulletin, 26*, 242 – 256.

Howes, C. (1996). The earliest friendships. In W. M. Bukowski, A. F. Newcomb, & W. W. Hartup (Eds.), *The company they keep: Friendship in childhood and adolescence* (pp. 66 – 86). New York: Cambridge University Press.

Hymel, S., Vaillancourt, T., McDougall, P., & Renshaw, P. D. (2002). Peer acceptance and rejection in childhood. In P. K. Smith & C. H. Hart (Eds.), *Blackwell handbook of childhood social development* (pp. 265 – 284). Oxford, UK: Blackwell.

Inhelder, B., & Piaget, J. (1964). *The early growth of logic in the child*. New York: Norton.

Juvonen, J., Nishina, A., & Graham, S. (2001). Self-views versus peer perceptions of victim status. In J. Juvonen & S. Graham (Eds.), *Peer harassment in school: The plight of the vulnerable and victimized* (pp. 105 – 124). New York: Guilford.

Killen, M., Crystal, D. S., & Watanabe, H. (2002). Japanese and American children's evaluations of peer exclusion, tolerance of differences, and prescriptions for conformity. *Child Development, 73*, 1788 – 1802.

Killen, M., Lee-Kim, J., McGlothlin, H., & Stangor, C. (2002). How children and adolescents evaluate gender and racial exclusion. *Monograph of the Society for Research in Child Development, 67*(4, Serial No. 271).

Killen, M., Rutland, A., & Jampol, N. (in press). Social exclusion in middle childhood and early adolescence. In K. H. Rubin, W. Bukowski, & B. Laurenson (Eds.), *Handbook of peer interactions, relationships and groups*. New York: Guilford.

Langlois, J. H., & Styczynski, L. E. (1979). The effects of physical attractiveness on the behavioral attributions and peer preferences of acquainted children. *International Journal of Behavioral Development, 2*, 325 – 341.

Levine, J. M., & Moreland, R. L. (2002). Group reactions to loyalty and disloyalty. *Group Cohesion, Trust and Solidarity, 19*, 203 – 228.

Locke, K. D. (2003). Status and solidarity in social comparison: Agentic and communal values and vertical and horizontal directions. *Journal of Personality and Social Psychology, 84*, 619 – 631.

Marques, J. M., Abrams, D., Paez, D., & Martinez-Taboada, C. (1998). The role of categorization and ingroup norms in judgments of groups and their members. *Journal of Personality and Social Psychology, 75*, 976 – 988.

Marques, J. M., Abrams, D., & Serôdio, R. G. (2001). Being better by being right: Subjective group dynamics and derogation of ingroup deviants when generic norms are undermined. *Journal of Personality and Social Psychology, 81*, 436 – 447.

McAuliffe, B. J., Jetten, J., Hornsey, M. J., & Hogg, M. A. (2003). Individualist and collectivist norms: When it's ok to go your own way. *European Journal of Social Psychology, 33*, 57 – 70.

McKeough, A., Yates, T., & Marini, A. (1994). Intentional reasoning: A developmental study of behaviorally aggressive and normal boys. *Developmental Psychopathology, 6*, 285 – 304.

Nesdale, D. (2004). Social identity processes and children's ethnic prejudice. In M. Bennett & F. Sani (Eds.), *The development of the social self* (pp. 219 – 245). New York: Psychology Press.

Nesdale, D., & Flesser, D. (2001). Social identity and the development of children's group attitudes. *Child Development, 72*, 506 – 517.

Nesdale, D., Maass, A., Durkin, K., & Griffiths, J. (2005). Group norms, threat and children's racial prejudice. *Child Development, 76*, 652 – 663.

Newcomb, A. F., Bukowski, W. M., & Pattee, L. (1993). Children's peer relations: A meta-analytic review of

popular, rejected, neglected, controversial and average sociometric status. *Psychological Bulletin*, *111*, 99–128.

Nguyen, L., & Frye, D. (1999). Children's theory of mind: Understanding of desire, belief and emotion with social referents. *Social Development*, *8*, 70–92.

Ojala, K., & Nesdale, D. (2004). Bullying and social identity: The effects of group norms and distinctiveness threat on attitudes towards bullying. *British Journal of Developmental Psychology, 22*, 19–35.

Oyserman, D., Kemmelmeier, M., & Coon, H. (2002). Cultural psychology: A new look. *Psychological Bulletin*, *128*, 110–117.

Perner, J., & Wimmer, H. (1985). ''John thinks that Mary thinks that.'' Attribution of second-order beliefs by 5 to 10 year-old children. *Journal of Experimental Child Psychology, 39*, 437–471.

Powlishta, K., Serbin, L. A., Doyle, A., & White, D. R. (1994). Gender, ethnic, and body type biases: The generality of prejudice in childhood. *Developmental Psychology, 30*, 526–536.

Quintana, S. M. (1994). A model of ethnic perspective-taking ability applied to Mexican-American children and youth. *International Journal of Intercultural Relations*, *18*, 419–448.

Quintana, S. M. (1999). Role of perspective-taking abilities and ethnic socialization in development of adolescent ethnic identity. *Journal of Research on Adolescence*, *19*, 161–184.

Rivers, I., & Smith, P. K. (1994). Types of bullying behavior and their correlates. *Aggressive Behavior, 20*, 359–368.

Rubin, K. H., Bukowski, W., & Parker, J. G. (1998). Peer interactions, relationships, and groups. In W. Damon (Ed.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (5th ed., pp. 619–700). New York: Wiley.

Ruble, D. N., Alvarez, J., Bachman, M., & Cameron, J. (2004). The development of a sense of ''we'': The emergence and implications of children's collective identity. In M. Bennett & F. Sani (Eds.), *The development of the social self* (pp. 29–76). New York: Psychology Press.

Rutland, A. (1999). The development of national prejudice, ingroup favoritism and self stereotypes in British children. *British Journal of Social Psychology, 38*, 55–70.

Rutland, A. (2004). The development of self-regulation of intergroup attitudes in children. In M. Bennett & F. Sani (Eds.), *The development of the social self* (pp. 247–265). New York: Psychology Press.

Rutland, A., Abrams, D., & Levy, S. (2007). Extending the conversation: Transdisciplinary approaches to social identity and intergroup attitudes in children and adolescents. *International Journal of Behavioral Development*, *31*, 417–418.

Rutland, A., Cameron, L., Milne, A., & McGeorge, P. (2005). Social norms and self presentation: Children's implicit and explicit intergroup attitudes. *Child Development*, *76*, 451–466.

Selman, R. L. (1971). Taking another's perspective: Role-taking development in early childhood. *Child Development*, *42*, 1721–1734.

Smetana, J. G. (1995). Morality in context: Abstractions, ambiguities, and applications. In R. Vasta (Ed.), *Annals of child development* (Vol. 10, pp. 83–130). London: Jessica Kinglsey.

Spears Brown, C., & Bigler, R. S. (2004). Children's perceptions of gender discrimination. *Developmental Psychology, 40*, 714–726.

Sullivan, K., Zaitchik, D., & Tager-Flusberg, H. (1994). Preschoolers can attribute second-order beliefs. *Developmental Psychology, 30*, 395–402.

Sutton, J., Smith, P. K., & Swettenham, J. (1999). Bullying and ''theory of mind'': A critique of the ''social skills deficit'' view of anti-social behaviour. *Social Development*, *8*, 117–127.

Symons, D., McLaughlin, E., Moore, C., & Morine, S. (1997). False beliefs about the location of objects and caregivers. *Journal of Experimental Child Psychology, 67*, 423–447.

Tajfel, H., & Turner, J. C. (1979). The social identity theory of intergroup behavior. In W. G. Austin & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp. 33–47). Monterey, CA: Brooks-Cole.

Turiel, E. (1998). The development of morality. In W. Damon (Series Ed.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Vol. 3. Social, emotional and personality development* (5th ed., pp. 863–932). New York: Wiley.

Van Vugt, M., & Hart, C. M. (2004). Social identity as social glue: The origins of group loyalty (2004). *Journal of Personality and Social Psychology, 86*, 585–598.

Verkuyten, M. (2001). National identification and intergroup evaluations in Dutch children. *British Journal of Developmental Psychology, 19*, 559–571.

Watling, D., & Banerjee, R. (2007). Children's understanding of modesty in front of peer and adult audiences. *Infant and Child Development*, *16*, 227–236.

Wimmer, H., & Perner, J. (1983). Beliefs about beliefs: Representation and constraining function of wrong beliefs in young children's understanding of deception. *Cognition*, *13*, 103–128.

Zdaniuk, B., & Levine, J. M. (2001). Group loyalty: Impact of members' identification and contributions. *Journal of Experimental Social Psychology, 37*, 502–509.

Appendix: Measurement of Multiple Classification Skill

Study 2 also examined whether performance on the colors and shapes task is reliably associated with performance on related measures employing other more *social* classification dimensions (e.g., Aboud, 2005; Bigler & Liben, 1992). It also examined whether the simple scoring scheme for multiple classification used in Study 1 yielded results comparable to those when justifications for classification are also scored (Bigler & Liben, 1992). Therefore, three additional

classification tasks were included, the last of which required children to explain their sorting strategy.

After the colors and shapes task, children completed the task with lines that were either straight or wavy and were either short or long. Next, they completed the task with pictures of elephants or bears that were either gray or brown (as in Bigler & Liben, 1992), and finally with people who were either male or female and adults or children. All tasks were scored using the 0–2 scale used previously. At the end of the people sorting task, children were asked why they had put people in the particular boxes they had selected. Answers were coded using a more extended scheme such that 0 was assigned if no reason was offered, 1 if neither age or gender was used, 2 if only one of these categories was used, 3 if both were used, and 4 if the justification referred to equal distribution of both categories (e.g., ''some are men, some are women, and some are adults and some are children'').

Performance differed on the four tasks, $F(3, 144) = 54.18$, $p < .005$, $\eta_p^2 = .53$. Children performed equally on the shapes task ($M = 1.71$, $SD = .60$) and animals tasks ($M = 1.71$, $SD = .63$), less well on the lines task ($M = 1.55$, $SD = .68$, $p < .01$), and less well than that on the people task ($M = 0.72$, $SD = .88$, $p < .001$).

These differences may reflect the complexity of the stimulus sets. In the shapes task and the animals task, no stimuli that could fall outside the two focal dimensions so children could either distribute the stimuli randomly or use one or both dimensions systematically. However, on the lines task and humans task, the stimuli also varied in other respects that were uncorrelated with the focal dimensions. Children occasionally used some of these other features for grouping, such as the angle of the lines, or idiosyncratic features such as hairstyle that were uncorrelated with the focal dimensions and did not provide a parsimonious basis for categorization.

Factor analysis of scores on the four multiple classification tasks revealed that they all loaded on only a single factor, accounting for 57.1% of the variance. All loadings were over 0.4. The classification score for the human categories and the coded explanations for the answers to that task were highly significantly related, $r = .78$, $p < .001$. Moreover, both were correlated with a combined index of all four tasks, rs = .94 and .94, respectively.

These results are consistent with the idea that the shape and color classification task used in our previous research and in Study 1 and Study 2 taps the same ability as other multiple classification tasks, and the scoring system for that task captures much of the same variance as a scoring system based on explanations. Abrams et al. (2007) also showed that the correlation between shapes and colors classification and age was the same regardless of whether a simple or an explanation-based coding scheme was used. Data from the shapes and colors task are reported in the main text to maintain comparability with Study 1 and Abrams et al. (2007, 2008).