

Investigating Preschoolers' Categorical Thinking About Gender Through Imitation, Attention, and the Use of Self-Categories

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Whereas traditional theories of gender development have focused on individualistic paths, recent analyses have argued for a more social categorical approach to children's understanding of gender. Using a modeling paradigm based on K. Bussey and A. Bandura (1984), 3 experiments ($N = 62$, $N = 32$, and $N = 64$) examined preschoolers' (M age = 52.9 months) imitation of, and memory for, behaviors of same-sex and opposite-sex children and adults. In all experiments, children's imitation of models varied according to the emphasis given to the particular category of models, despite equal attention being paid to both categories. It is suggested that the categorical nature of gender, or age, informs children's choice of imitative behaviors.

Few things characterize children's lives as much as gender. From birth, children's environments and experiences differ based purely on their sex (Condry & Condry, 1976; Rheingold & Cook, 1975; Rubin, Provenzano, & Luria, 1974). Boys and girls receive differential treatment both at home (Siegal, 1987) and at school (Tittle, 1986), and this occurs against a backdrop of media portrayals further differentiating between the roles and status of men and women (Durkin, 1985).

Children themselves also play an active role in perpetuating this ubiquitous role of gender. At around 30–36 months of age, children display a marked preference for same-sex peers (LaFreniere, Strayer, & Gauthier, 1984; Maccoby & Jacklin, 1987; Powlishta, Serbin, & Moller, 1993), with these preferences increasing throughout childhood. By preschool age, 50% of children's play involves only opposite-sex peers (Fabes, Martin, & Hanish, 2003; Maccoby & Jacklin, 1987). Such same-sex preferences occur independent of parental, or other adult, interactions; they increase when adults are not present (Maccoby & Jacklin, 1987; Thorne, 1986); and they appear resistant to attempts to change (Serbin, Tonick, & Sternglanz, 1977). Although girls tend to initiate same-sex play more than boys at age 3 (Serbin, Moller, Gulko, Powlishta, & Colburne, 1994), this gender difference is reversed, and even heightened, by age 5 (Pitcher & Schultz, 1983).

The phenomenon of same-sex preference also becomes one of cross-sex avoidance, as it becomes equally important not to play with members of the opposite sex as it is to play with members of the same sex (e.g.,

Feiring & Lewis, 1987). This is particularly the case for boys who, even in the toddler years, actively avoid "not male" activities (Fagot, 1985a). This proclivity for gender differentiation often leads to a view of gender differences as inexorable and inevitable (a view that is explicitly challenged by the current research) and has played a role in theoretical explanations looking to within-sex rather than between-sex differences.

Despite the recognition that sex differences, and the display of sex-typed preferences, tend to occur in group settings, theories devoted to understanding gender development traditionally focused on gender development as a uniquely individual process (e.g., Bem, 1981, 1984; Freud, 1924, 1933; Kohlberg, 1966; Martin & Halverson, 1981, 1983). Being male or female, however, is not only about the individual; it implies membership of one category or another. Such explicit recognition of the group, or categorical, nature of gender has influenced more recent theoretical explanations and helps to explain why the adoption of gender norms and behaviors is essentially unrelated to individual attributes, or degree of sex typing, of the children who comprise these groups (Maccoby & Jacklin, 1987; Powlishta, 1989, cited in Maccoby, 1990). Moreover, the different experiences that boys and girls have in their same-sex groups may actually reinforce the importance of gender as an organizing property of these peer groups (Fabes et al., 2003; Maccoby, 1990) and may supersede innate differences or preference for playstyles that may have prompted the sex segregation (Fabes et al., 2003; Martin & Fabes, 2001).

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In addition to organizing information, gender can be used to inform children about appropriate behaviors—an idea that may help explain why young children imitate others of the same sex as themselves. This seems to be particularly the case for boys who appear just as intent on not imitating girls as they are on imitating boys and are more likely than girls to reject, or tease, each other for engaging in opposite-sex behavior (Feiring & Lewis, 1987). Again, however, such a view assumes that gender effects operate in a fixed way. The current research was designed to explore this idea by examining the notion of similarity to peers (and/or same-sex adults) and the contexts in which (gender-relevant) information is provided. The social categorical, or group-based, nature of gender is emphasized throughout.

Central to this idea of gender as a group phenomenon is work by Bussey and colleagues (Bussey & Bandura, 1984; Bussey & Perry, 1982) whose modeling studies demonstrate that adoption of same-sex behaviors, and rejection of opposite-sex ones, depended on those behaviors being seen as normative, or not, for a number of men or women: It appeared that children waited to see if a particular behavior was exhibited by all the men or all the women before adopting (or rejecting) it for themselves. This, the authors argue, reflects how children see their social environment. On any given day, children are exposed to numerous people exhibiting a variety of behaviors. What they encode as gender normative, however, are those behaviors exhibited most frequently and consistently by multiple members of each gender category.

This is similar to a more extreme idea put forward by Harris (1995, 1998) who claims that children are influenced more by other children than by parents or other adults. She emphasizes the group basis of lasting influence by making a clear distinction between dyadic friendships and group memberships (Harris, 1998). The effects of dyadic relationships are claimed to be short-lived, with any long-term influence attributed to the fact that friends tend to be members of the same social groups. Thus, Harris (1998) claims it is the processes functioning within the child's peer group that are responsible for the lasting transmission of culture and the resultant adult outcomes.

This approach, however, relies on a similarity-based account of identification. That is, because children see themselves as similar to other children, or because girls (or boys) see themselves as similar to other girls (or boys), they identify with, and are influenced by, these similar others or those who share category membership. Such an analysis, however, views both similarity and difference as fixed features of a stimulus.

Gender as a Group Process—The Role of Categorization

The role of categorization has been increasingly implicated in empirical investigations concerning young children's social category knowledge, although these have typically focused on primary school-aged children (e.g., Bigler, Jones, & Lobliner, 1997). These investigations have included such domains as gender (e.g., Powlishta, 1995b), race and ethnicity (e.g., Nesdale & Flesser, 2001; Verkuyten, 2002; Yee & Brown, 1992), national identity (e.g., Barrett, 2000), and, to some degree, essentialist beliefs about categories (e.g., Heyman & Gelman, 2000). Much of this work has been explicitly informed by social identity theory (SIT; Tajfel & Turner, 1986) and, to a lesser extent, self-categorization theory (SCT; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987).

According to this approach, social categorization is both adaptive—in that it provides information about the social world—and a reflection of our active engagement with that social world (e.g., Oakes, Turner, & Haslam, 1991). This view thus provides a crucial link between external differences (e.g., gender differences) and how these can be reflected, and represented, within the person.

An important outcome of the categorization process that has received much attention is the perceptual distortion (such as the accentuation of similarity and difference) that pertains to (same-sex) similarity or (same-sex) preference. Although accentuation effects have been demonstrated using racial categories (Hewstone, Hantzi, & Johnston, 1991; Taylor, Fiske, Etcoff, & Ruderman, 1978), gender categories (Frable & Bem, 1985; Jackson & Hymes, 1985), and even sexual preference (Walker & Antaki, 1986), these effects need not necessarily be considered an automatic outcome of the categorization process but can vary according to the appropriateness and meaningfulness of the salient categorization (McGarty & Penny, 1988; McGarty & Turner, 1992).

These principles of accentuation (of similarities and differences) have also been applied to categorizations of the self (Turner, 1984), whereby self-categorization in terms of a social identity maximizes both differences between one's in-group and an out-group and similarities between oneself and other in-group members. Similarly, self-categorization in terms of one's personal identity maximizes perceived differences between oneself and other individuals while simultaneously minimizing intraindividual (within oneself) inconsistencies.

Such an approach explicitly rejects the notion of similarity (or difference) as a fixed feature of a stimulus (cf. Medin, Goldstone, & Gentner, 1993; Murphy &

Medin, 1985; Yzerbyt, Rocher, & Schadron, 1997). Similarities (within categories) and differences (between categories) are guided not only by a comparative frame of reference but also by the perceiver's own expectations and theories (Brown & Turner, 2002). Children categorize children and adults (and boys and girls) not only because of perceptual similarities and differences but because there is some psychological reason to do so. They expect children and adults (and boys and girls) to look and behave differently partly because they have seen them do so and partly because they have seen the consequences of these different behaviors.

Children's Understanding of Social Categories

Applying a self-categorization approach to children's understanding of themselves and others suggests that children define themselves in a number of ways. They may regard themselves as children, as boys (or girls), as members of their family (the Johnsons or the Billington-Smythes), or even as "tadpoles" (in their learn to swim class). This self-definition is determined by both the current situation and the children's own expectations about these categorizations.

Such an approach has indeed been recently articulated by Bigler and Liben (2006, 2007) whose developmental intergroup theory (DIT) outlines the mechanisms by which children develop social stereotypes and prejudiced beliefs. This work is consistent with the adult social psychological literature in focusing on the social psychological processes implicated in such thoughts and behaviors and in emphasizing the generality of these processes. That is, these psychological processes are not confined to the domain of racial, or ethnic, prejudice but apply to the range of intergroup, or intercategory, domains, including gender.

The Current Research

The overall aim of the current research, therefore, was an empirical investigation of social categorization (specifically, the notions of variable self-definition, similarity as a reflection of perceptual and contextual features, and the effect of salience manipulations) in the domain of gender development. The three studies presented focused explicitly on examining the acquisition of gender understanding as a social category. We sought to investigate how this particular social category functions, whether it differs from other social categories (in particular, age), and what the implications are of belonging to one of those social

categories (e.g., male as opposed to female). Given that children are capable of using one of a number of social categories, we suggest that the importance of gender to children may be a consequence of the importance it is afforded, that is, its relative salience within a given context.

Relevant processes in this investigation included the imitation of observed others and the attention paid to information presented. Given its importance in the socialization process, modeling, or imitation, was a major focus of this work using a modeling paradigm (after Bussey & Bandura, 1984), which we describe subsequently.

Experiment 1

The first experiment aimed to extend Bussey and Bandura's (1984) findings of sex-linked modeling behaviors. In this earlier work, children watched videos in which a different set of behaviors was performed by adult male and female models before being given an opportunity to enact these behaviors. Although no social context had been provided for the behaviors, children showed a strong preference for imitating the same-sex models, despite demonstrating equal recall of the behaviors performed by both the male and the female models. Given the increased emphasis since the original study on nongendered play and education in early childhood settings (e.g., Yellond, 1998) and the expression of this by early childhood teachers (e.g., Cahill & Adams, 1997), the first aim was to investigate whether these preferences still exist.

The second, and related, aim was to investigate children's sex-linked modeling with peers, or other children, not only to determine the robustness of sex-linked modeling but also to pose a direct test of Harris's (1995, 1998) assertions that children are more influential models than adults. Although recognizing that this was in no way an attempt to measure lasting influence, the comparison allowed us to examine variable self-categorization in children as a result of changes in contextual features.

A measure of attention paid to models provided important information for children's imitative behaviors. If, for example, children imitate same-sex models more than opposite-sex ones, this does not tell us whether children simply ignored the information provided by the opposite sex in the first instance or if they paid attention to all the information provided. The former suggests a relatively straightforward process involving identifying self and others (models) as male or female and then finding it appropriate to

imitate the behavior of the person similar to themselves (the same-category exemplar). If, however, the latter is the case, it implies a more complex process involving consciously choosing an appropriate behavior from a wider stimulus array. It also implies that some behaviors are consciously rejected as being inappropriate behaviors to enact.

In line with Bussey and Bandura (1984), it was predicted that both boys and girls would imitate same-sex models more than opposite-sex models. Although Bussey and Bandura found greater same-sex modeling by boys, this would not be expected if boys and girls use gender categories in the same way.

With respect to modeling of adults and children, an extrapolation of Harris' (1998) argument would predict more modeling of child models than of adult models, although more contemporary social developmental understandings (e.g., DIT, extrapolations of SCT) would predict no difference between these (at least in situations of low gender salience and/or low comparative context). Because these predictions have not previously been investigated, this was of particular interest in the current study.

Finally, age of participants was analyzed to investigate any developmental change that might occur, even within the limited age span. It was anticipated that older children would have had more exposure to gender socialization pressures and this would manifest itself in greater demonstration of same-sex modeling than by younger children.

Method

Participants. Participants were 32 girls and 30 boys from university child-care centers in Canberra, Australia. They ranged in age from 39 to 68 months ($M = 53.98$ months, $SD = 6.48$). No specific data on children's socioeconomic status or race/ethnicity were obtained, although the majority of children attending these centers have parents either working or studying at the university and represent a somewhat diverse range of ethnic backgrounds. Participants had written parental consent and provided verbal consent themselves at the start of each session. All participants were able to understand and speak English.

Design. The study involved a 2 (sex of participant: boy, girl) \times 2 (age of models: adult, child) \times 2 (sex of models: male, female) mixed factorial design. The last factor was the within-participants factor, as all children saw videos of both male and female models.

Procedure. Participants watched one of four videos depicting three male and three female models

(either all adults or all children), where all the males performed one set of behaviors and all the females another. The behaviors performed by the male and female actors were counterbalanced in alternative versions of the videos. As with the child participants, the models themselves came from a range of ethnic backgrounds, although this was not emphasized in any way, nor was it commented on by any child.

After being introduced to the experimenter in a classroom situation, each participant was individually brought into the experimental room (a separate room at each child-care center). The room was set up in a manner identical to what they would see in the video, with chairs, a table with two Mickey Mouse hats, another table with a box and a toy koala, a pinboard on one wall, and a television. The child sat next to the experimenter to watch the video.

The sequences of behaviors performed by the models were those described in Bussey and Bandura (1984). In one sequence, all the male actors chose a black Mickey Mouse hat, which they placed on their head with the Mickey Mouse symbol to the front and performed a corresponding behavior sequence. In the alternative sequence, actors chose a red Mickey Mouse hat that they wore with the Mickey Mouse symbol to the back and performed the alternative behavior sequence. Each sequence of behaviors comprised 14 separate behavioral components.

After watching the entire video, each child was asked by the experimenter if he or she would like to play the game he or she had just seen. The experimenter reminded each child first to choose a hat, the only prompt provided at this stage of the study. Each child was then allowed to play with the toys as shown in the video. This behavior served as the primary "imitation" dependent measure. Where parental consent had been provided, the child's performance was videotaped.

Memory task/manipulation check. Following the imitation task, each child was asked to recall the behaviors of the male and female models. For each of the 14 behaviors, the experimenter provided participants with specific prompts, such as "Which hat did the men (boys)/women (girls) choose?" The order of questions (male followed by female or female followed by male) was counterbalanced across participants. Responses were recorded on a checklist by the experimenter.

At the end of each session, the children were thanked for their participation and allowed to choose a sticker to take home.

Results

Modeled (imitation) behavior. A checklist of the behaviors was used to record each child's performance. The total number of behaviors was calculated for each of the four categories: (a) same-sex behavior, (b) opposite-sex behavior, (c) other (i.e., new or random) behavior, and (d) nothing (i.e., no behavior performed). The final category was not used in the analyses because it was of no theoretical interest and provided no additional information to what was provided by the other categories.

Videos of 39 participants were analyzed by an independent rater using the same four categories. Using Cronbach's alpha, reliability coefficients for each of the 14 behaviors ranged from .71 to 1.00. In an attempt to reach perfect agreement, both raters reanalyzed the videos. Disagreements occurred only when tape quality was poor. The subsequent studies were not videotaped due to issues concerning parental consent and the sheer impracticality of the procedure. Given the high accuracy of the primary rater, however, this was not considered a problem.

The data were analyzed in a 2 (sex of participant: boy, girl) \times 2 (age of model: adult, child) \times 3 (modeled behaviors: same sex, opposite sex, new behavior) analysis of variance (ANOVA), with the last factor being within participants. Means and standard deviations appear in Table 1. A significant main effect for modeled behaviors, $F(2, 116) = 20.38, p < .001$, partial $\eta^2 = .26$, indicated greater performance of same-sex modeling ($M = 3.31$) than either opposite-sex modeling ($M = 1.58$) or performance of a new behavior ($M = 1.28$). This was qualified by a significant Modeled Behaviors \times Age of Model interaction, $F(2, 116) = 3.04, p = .05$, partial $\eta^2 = .05$. Children imitated same-sex behaviors more when they were modeled by adults ($M = 3.89$) than when they were modeled by children ($M = 2.73$), $t(60) = 1.95, p = .05$; children responded (nearly) equally to opposite-sex adult ($M = 1.58$) and child ($M = 1.59$) models and performed new behaviors more when models were children

($M = 1.52$) than when they were adults ($M = 1.04$), although this difference did not reach significance, $t(60) = -1.83, p = .07$. The Modeled Behaviors \times Sex of Participant interaction was nonsignificant, $F(2, 116) = 2.30, p = .11$, partial $\eta^2 = .04$.

Although the overall three-way interaction was statistically nonsignificant, our precise hypotheses led us to explore separately imitation of adult and child models.

Imitation of adult models. Both girls and boys imitated same-sex adult models significantly more than opposite-sex adult models, $F(2, 58) = 16.75, p < .001$, partial $\eta^2 = .37$. However, the linear decrease in behaviors from same-sex imitation through opposite-sex imitation to new behaviors was evident only for girls. Whereas girls' performance of opposite-sex behaviors was significantly greater than their performance of new behaviors, $t(15) = 2.05, p = .05$, boys were no more likely to perform opposite-sex behaviors than new behaviors, $t(14) = 0.34, p = .74$. In other words, boys were no more likely to imitate a woman than to invent entirely new behaviors.

Imitation of child models. The pattern of imitating child models also differed for girls and boys, $F(2, 58) = 4.69, p = .013$, partial $\eta^2 = .14$. Although girls' same-sex modeling was significantly greater than their opposite-sex modeling, $t(15) = 2.72, p = .01$, their performance of opposite-sex modeling was identical to two decimal places to that of new behaviors. Strikingly, however, the amount of behaviors in each of the three categories did not significantly differ for boys, $F(2, 28) = 0.52, p = .60$. Boys were no more likely to imitate same-sex child models than they were to imitate opposite-sex child models or to perform a completely new behavior.

Age of participants. To investigate the possibility of a developmental increase in imitation of models, even at this young age, the above analyses were again performed to include age of participants. A median split was used to divide older from younger participants: the median age was 55 months. Again, the strong main effect for modeled behaviors emerged, $F(2, 108) = 15.39, p < .001$, partial $\eta^2 = .22$. Age of participant did not enter into any significant main or interaction effects.

In summary, there was clear evidence of children's same-sex imitation that, contrary to Bussey and Bandura (1984), did not statistically differ for girls and boys. Importantly for the present study and for Harris's (1995, 1998) contention concerning the prime importance of peers, children imitated behaviors performed by adult models more than when those same behaviors were performed by child models.

Table 1
Experiment 1: Mean Number (Standard Deviations) of Modeled Behaviors of Adult and Child Models

	Adult models		Child models	
	Girls	Boys	Girls	Boys
Same sex	4.38 (2.90)	3.40 (2.29)	3.19 (2.01)	2.27 (2.02)
Opposite sex	1.63 (1.54)	1.53 (1.81)	1.38 (1.54)	1.80 (1.66)
New behavior	0.75 (0.93)	1.53 (0.98)	1.38 (1.26)	1.67 (0.90)

Memory task/manipulation check. For this task, children were specifically asked what actions the male or female models had performed. The data were summed to produce the following: (a) correct recall of same-sex models' behavior, (b) correct recall of opposite-sex models' behavior, (c) incorrect recall of same-sex models' behavior, and (d) incorrect recall of opposite-sex models' behavior. The data were analyzed in a 2 (sex of participant: boy, girl) \times 2 (age of model: adult, child) \times 4 (memory for models) mixed-model ANOVA, with memory for modeled behavior as a within-participants factor. Means and standard deviations appear in Table 2.

Strong main effects for memory for modeled behavior, $F(3, 174) = 21.28, p < .001$, partial $\eta^2 = .27$, and for age of model, $F(1, 58) = 15.58, p < .001$, partial $\eta^2 = .21$, were qualified by a significant Memory for Modeled Behavior \times Age of Model interaction, $F(3, 174) = 35.11, p < .001$, partial $\eta^2 = .12$. Of particular interest, children's correct recall of same-sex adult models' behavior ($M = 6.13$) was superior to their correct recall of those same behaviors when performed by child models ($M = 3.65$), $t(60) = 4.28, p < .001$. Similarly, their correct recall of opposite-sex models' behaviors was superior for adult models ($M = 5.75$) than for child models ($M = 3.55$), $t(60) = 3.80, p < .001$. Children's incorrect memory did not differ for adult and child models. Rather than being affected by the sex of model, children's recall of behaviors, or more specifically their correct recall of behaviors, was affected by the age of the models enacting those behaviors, with more correct recall of adult behaviors. No other main or interaction effects were found. As with the imitation measures, the analyses were repeated including age of participants. No effects were found.

Discussion

Consistent with Bussey and Bandura (1984), children showed a strong preference for imitating same-sex models. The present study extended the previous

work by showing that this preference for same-sex imitation was maintained when models were children as well as when they were adults. It must be noted, however, that the frequency of behaviors not performed was quite high (over half of all possible behaviors); we address this overall rate of imitation in our next studies.

Bussey and Bandura's (1984) finding of greater same-sex modeling by boys than by girls was not replicated in the current study. Furthermore, and contrary to predictions derived from Harris (1995, 1998), children imitated same-sex models more when those models were adults than when they were children.

Clearly, however, children responded to the gender categories provided. Specifically, we argue that children chose to enact the behaviors performed by the category of people they saw as most appropriate to imitate. With respect to gender, it could also be said that the children saw same-sex people as most similar to themselves. However, with respect to age categories it could not be argued that the children saw themselves as more similar to the other children and hence decided to imitate them to a greater extent. Indeed, the current findings indicate the reverse: Children imitated the adult models to a greater extent than the child models, suggesting that (perceptual) similarity to other children was not sufficient to produce imitation of perceptually similar (i.e., same-age) models. This is inconsistent with predictions by Harris (1995, 1998).

It is possible, however, that the children recognized the authority of adults and hence saw it appropriate to imitate adults' actions. Children also have considerable experience imitating adults, especially with respect to gender-related activities. However, given the amount, and intensity, of reinforcement provided by peers for gender stereotypical behavior—even at the age of 3 or 4 years (e.g., Huston, 1983), along with the amount of time children spend in unstructured freeplay sessions, it is unlikely that they would have more experience imitating adults than children.

What makes the current findings particularly remarkable is that the behaviors performed could best be described as behaviors more typically performed by children. In no way could the modeled behaviors (i.e., selecting toy hats, playing with toys) be described as "adult behavior." If, indeed, children are exposed to adults behaving like this, as in the preschool setting, they are equally exposed to children behaving the same way. The absence of a main effect for age of model indicates that children did not simply imitate adults more than children; rather, they imitated same-sex adults more.

Table 2
Experiment 1: Mean Number (Standard Deviations) of Recalled Behaviors of Adult and Child Models

	Adult models	Child models
Same sex correct	6.13 (2.55)	3.65 (1.98)
Opposite sex correct	5.75 (2.59)	3.55 (1.89)
Same sex incorrect	2.35 (1.11)	2.74 (1.14)
Opposite sex incorrect	2.67 (1.58)	2.78 (1.03)

In addition to examining children's actual behavior, an important component of the present study was the attention paid to models. That no sex differences were found indicates children did pay equal attention to male and female models or, at the very least, made no differentiation between them. Their correct recall of both males and females did not differ whether the models were adults or children. Thus, if children paid equal attention to both sexes, as evidenced by their recall scores, yet chose to enact mainly behaviors performed by members of their own sex, it suggests that children were not differentially processing gender-related information.

Because the only way children could be classified with adults in this instance is in terms of gender, the very fact that they paid greater attention to, and later imitated, adults suggests that same-sex adults are perceived as highly appropriate conveyors of in-group norms with respect to gender categories. However, because no condition in the present study required children to choose between adults and children directly, interpretations in this vein must be limited. This is addressed in Experiments 2 and 3.

Experiment 2

Although the results of Experiment 1 found no evidence for the superiority of peer, in preference to adult, influence, a criticism of that study was the inclusion of age of model only as a between-participants variable: Participants were not given the choice to model adults or children. The primary aim of Experiment 2, therefore, was to directly compare children's modeling of, and attention paid to, adults and other children. This was achieved by removing gender from the design: Child participants were shown videos of adult and child models, only of their own sex.

Another shortcoming of Experiment 1 was that the overall amount of modeling was relatively low, compared to the number of actions the participants were shown, and hence given the opportunity to imitate. Presumably, this was due to the difficulty of the task: Child participants viewed the entire behavior sequences and were then asked to perform the actions they saw without any prompts from the experimenter. Although this appeared to be the procedure used by Bussey and Bandura (1984), subsequent communication with the first author revealed that they had, in fact, shown the video in segments before the associated opportunity for imitative behavior. Hence, both the design of the study and the modeling task were simplified for Experiment 2.

Method

Participants. Participants were 17 boys and 17 girls attending a university-based child-care center in Canberra, Australia. Their ages ranged from 41 to 64 months ($M = 54.21$ months, $SD = 7.07$). As with Experiment 1, participants' parents were predominantly university staff and/or students from a range of ethnic backgrounds. Participants' parents provided written consent, and children provided verbal consent to child-care staff and to the experimenter.

Design. The study involved a 2 (sex of participant: boy, girl) \times 2 (age of models: adult, child) mixed factorial design. Age of models was a within-participants factor, as children saw videos of adult and child models who were the same sex as themselves. The models in the videos were those from the previous experiment.

Procedure. As with Experiment 1, participants were tested individually. Two new behavior scripts were introduced in this study and two (counterbalanced) versions of each video were used. The behavior sequences in this study were comparable to those in Experiment 1: Models selected either a green or a white Mickey Mouse cap and, accordingly, enacted one of the two behavior sequences. As with Experiment 1, each behavioral sequence comprised 14 behavioral components.

After watching the video, children were again given the opportunity to model the behaviors they had seen. An edited version of the video was used, showing three or four actions of one adult and one child model at a time. The sequence of 14 behaviors was thus divided into five segments, with a break in the video to allow the participant to perform the preceding actions before showing the next behaviors. Behaviors were recorded on a checklist by the experimenter.

Following this, the same memory task used in Experiment 1 was administered. At the end of each session, children were thanked for their participation, allowed to choose a sticker to take home, and returned to the group play area.

Results

Modeled behavior. Although the video sequence contained 14 separate behaviors performed by each of the models, this number was reduced to 12 for coding purposes. One of the behaviors (a verbal statement) was omitted because the experimenter always clarified the left or right side with the participant when he or she was placing the sticker onto the pinboard. In addition, no participant said either of the final utterances, so this behavior was also omitted.

Hence, the remaining 12 behaviors were coded into one of the four categories (adult behavior, child behavior, new behavior, and no behavior performed).

The total number of behaviors in each of the four categories was summed. Due to the change in procedure from Experiment 1, the number of no behavior responses was much lower (20% of all modeling responses). Because of this, and consistent with Experiment 1, this category was omitted from analyses. Thus, a 2 (sex of participant) \times 3 (modeled behavior: child, adult, new) mixed-model ANOVA, with modeled behavior as a within-participants factor, was performed.

This revealed a significant main effect for modeled behavior, $F(2, 64) = 33.09, p < .001$, partial $\eta^2 = .51$, indicating that children (both boys and girls) modeled other children ($M = 5.50, SD = 2.21$) significantly more than they modeled adults ($M = 3.38, SD = 2.35$), $t(33) = 3.02, p = .01$. Similarly, children's modeling of adults was significantly greater than their performance of new behaviors ($M = 0.71, SD = 1.45$), $t(33) = 4.86, p < .001$. Presumably due to the change in procedure for the modeling task, children's performance of a new behavior was extremely low in this study. Importantly, no sex differences were found; the patterns of modeling by boys and girls did not differ significantly from each other.

Consistent with Experiment 1, analyses were performed involving age of participants. Using a median split on children's age (median age = 54 months), a 2 (sex of participant) \times 2 (age of participant) \times 3 (modeled behaviors) mixed-model ANOVA was conducted. Again, there was a strong effect for modeled behaviors, $F(2, 60) = 32.11, p < .001$, partial $\eta^2 = .52$, along with a main effect for age of participant, $F(1, 30) = 4.86, p = .03$, partial $\eta^2 = .14$: Older children ($M = 3.39, SD = 0.48$) performed more behaviors than younger children ($M = 3.01, SD = 0.48$). No other main or interaction effects were found.

Memory for models. Questions concerning child behaviors and adult behaviors were each classified into three categories: correct, incorrect by substituting the opposite behavior, and other. The data were then analyzed in a 2 (sex of participant) \times 4 (memory for models: child models correct, adult models correct, child models incorrect by adult behavior, and adult models incorrect by child behavior) mixed-model ANOVA, with memory for models as a within-participants factor.

The significant main effect for memory for models, $F(3, 96) = 12.65, p < .001$, partial $\eta^2 = .28$, merely revealed that participants' correct recall of behaviors (child models: $M = 5.18, SD = 2.05$; adult models: $M = 5.09, SD = 2.35$) was greater than their incorrect

recall (child models: $M = 3.03, SD = 1.28$; adult models: $M = 2.89, SD = 1.34$). Age of participants was also investigated in a 2 (sex of participant) \times 2 (age of participant) \times 4 (memory) mixed-model ANOVA. No effect for age of participant was found. Only the main effect for memory was replicated, $F(3, 90) = 12.32, p < .001$, partial $\eta^2 = .29$.

Discussion

In this study, both boys and girls demonstrated a clear preference for imitating same-sex child models over same-sex adult models, and this occurred more than their tendency to perform an unseen behavior. No sex differences were found. Perhaps not surprisingly, older children performed more behaviors than did younger children. Older children are both more able to and more practiced at performing actions exhibited by other people.

Despite the strong preference for age-related imitation shown in the modeling task, memory for adult and child models did not differ. Moreover, children's correct recall was much greater than their tendency to misattribute behaviors to either the adult or the child models, which, in turn, was greater than their tendency to provide new responses. As was the case with gender categories in Experiment 1, children paid equal attention to models in both categories, yet chose to behave in accordance with the category most relevant to themselves. In this study, that category was age, and children modeled the behaviors of other children.

In contrast to Experiment 1, the results of the present study lend support to Harris's (1995) assertions. In a more explicit test of her claims, and removing gender as a possible confound, child participants imitated children more than they imitated adults. However, the removal of gender from the design of the present study actually changed the context from that of the first study. In the first study, the only available categorization was sex. Children overwhelmingly chose to imitate people (both adults and children) of their own sex. Although their imitation of same-sex adults was greater than that of children, their imitation based on gender was greater than that based on age. In the present study, where children only saw models who were the same sex as themselves (thereby eliminating any reason for categorization along gender lines), they imitated the child models (same-age imitation) to a greater extent than they imitated adult models. Such contextual changes, as occurred in these two studies, made it appropriate for children to act (i.e., to imitate) in accordance with their membership of the particular salient category:

Boys imitated males and girls imitated females in the first study, whereas children of both sexes imitated children, in preference to adults, in the second study.

These results provide additional evidence of young children's capacity to self-categorize according to either age or gender. This is similar to Sani and Bennett's (2001) study in which 6- and 7-year-olds varied their choice of stereotypical descriptive traits for groups depending on the comparative context in which their choice was made. Such contextual changes are reflected in the self-categorical choices made by the children—as demonstrated by children's descriptive terms (Sani & Bennett, 2001) or by behavioral measures such as imitation (in the current studies). Thus, if children are able to identify with, and therefore imitate, either same-sex people (regardless of age) or same-age people (regardless of sex) depending on which category (age or sex) was salient at the time, this could be demonstrated by experimentally manipulating (age and sex) category salience. This was explored in Experiment 3.

Experiment 3

There is abundant evidence demonstrating the effects of contextual changes on intergroup processes with adults (e.g., Haslam, Oakes, Turner, & McGarty, 1995; Platow, Mills, & Morrison, 2000). Considerably less research has been conducted with children, with most focusing on primary school-aged children. Notably, Bigler and colleagues (Bigler, 1995; Bigler, Brown, & Markell, 2001; Bigler et al., 1997; Patterson & Bigler, 2006) have shown that children as young as preschool age show in-group biases on the basis of novel, randomly assigned groups when these groups are made salient by authority figures via the labeling and use of the groups (though not when those groups are ignored) and increase their use of gender stereotyping as a result of teachers' labeling and use of gender in the classroom (Bigler, 1995). Similarly, Powlishta (1995a, 1995b, 2000) has demonstrated the importance of the intergroup context in children's judgments concerning gender. With the exception of Patterson and Bigler (2006), the youngest children in these studies were kindergarteners. Moreover, variations in context were only due to variations in the emphasis placed on gender in the different settings (similar to Experiments 1 and 2).

Our third experiment was therefore designed to vary the context (by manipulating both age and gender salience) in which children would be presented with the exact same information (similar to Ryan & David's, 2003, work with adults). Specifically,

if age were made salient, it was hypothesized that children would imitate other children (in preference to adults and regardless of sex), but when gender was made salient, girls would imitate females (in preference to males and regardless of age) and boys would imitate males (in preference to females and regardless of age). All the while, however, children would be expected to pay equal attention to, and therefore be able to recall, both sets of information equally. This is because the behavioral choice concerning which behavior to adopt is, it is suggested by the previous two experiments, indeed a choice.

Method

Participants. Participants were 32 girls and 32 boys from four child-care centers in Canberra and Melbourne, Australia. Their ages ranged from 40 to 66 months ($M = 50.5$ months, $SD = 7.64$), and the children came from a variety of ethnic backgrounds. All participants had written parental consent and provided verbal consent themselves.

Design. The study involved a 2 (sex of participant) \times 2 (category salience: age, gender) between-participants factorial design. Participants watched one of four videos depicting same-sex adult and opposite-sex child models (two videos were counter-balanced versions). The models and behavior sequences were those used in the previous experiments.

Procedure. Children were again tested individually in a separate area of the child-care center. Before watching the video, they were asked about activities that children and grown-ups (age salience condition) or males and females (gender salience condition) like to do. Specifically, they were asked, "What are some of the things that children (or ladies and girls) like to do?" followed by "What are some of the things that grown-ups (or boys and men) like to do?" They were then given a sorting task. Children were shown a series of 20 laminated color pictures, presented one at a time, which they were asked to sort into two piles: either children and adults (age salience condition) or males and females (gender salience condition).

Children were then asked to watch a video (involving same-sex adults and opposite-sex children) and given the opportunity for imitative behavior. The simplified modeling task from Experiment 2 was used, with the experimenter asking the child about his/her actions if the actions were unclear.

In an attempt to increase recall responses, a modified version of the memory task was administered. Rather than allowing for free recall, as had been the case in the previous studies, children were given a forced-choice format. This consisted of both

behavioral options that had appeared in the video. In editing the videos, the final utterance when the models returned to their chair was deleted. Hence, participants were asked a total of 16 memory questions, 8 pertaining to each of the models. Again, the order of presentation of these questions was counter-balanced across participants.

Results

All children correctly sorted all 20 pictures into the correct piles according to the (age or gender) directions they had been given.

Modeled behavior. The eight behaviors were coded into one of the four categories used in Experiments 1 and 2, and a 2 (sex of participant) \times 2 (category salience: age, gender) \times 3 (modeled behavior: salient category consistent, salient category inconsistent, new behavior) mixed-model ANOVA, with modeled behavior as a within-participants factor, was conducted.

Only a main effect for modeling emerged, $F(2, 120) = 57.74, p < .001$, partial $\eta^2 = .49$. Children imitated models of the same salient category as themselves—whether age or gender ($M = 3.67, SD = 1.64$)—significantly more than they imitated models of the salient-inconsistent category ($M = 2.73, SD = 1.45$), $t(61) = 2.57, p = .03$, and their imitation of both salient-consistent and salient-inconsistent modeling occurred significantly more than their performance of a new (or unseen) behavior ($M = 0.63, SD = 0.86$), $t(61) = 11.29, p < .001$, and $t(61) = 9.67, p < .001$ (salience consistent vs. new behavior and salience inconsistent vs. new behavior, respectively). Importantly, there was no interaction between sex of participant and modeled behavior, $F(2, 120) = 0.89$, nor between category salience (i.e., age vs. gender) and modeled behavior, $F(2, 120) = 0.20$. Boys and girls did not differ in their modeling responses to the age and gender salience manipulations nor in their amount of modeling in the gender-salient and age-salient conditions.

Memory for modeled behavior. Memory for models was recorded as either correct or incorrect according to salience-consistent or salience-inconsistent category membership. A 2 (sex of participant) \times 2 (category salience: age, gender) \times 2 (salience consistency: consistent, inconsistent) \times 2 (recall: correct, incorrect) mixed-model ANOVA was performed, where salience consistency and recall were within-participants factors.

A main effect for salience consistency, $F(1, 60) = 107.30, p < .001$, partial $\eta^2 = .63$, was qualified by a Salience Consistency \times Recall interaction, $F(1, 60) =$

$4.81, p = .03$, partial $\eta^2 = .07$. Although children's correct recall of salience-consistent ($M = 5.22, SD = 1.96$) and salience-inconsistent ($M = 5.75, SD = 1.51$) behaviors was greater than their incorrect recall of either (consistent: $M = 2.27, SD = 1.66$; inconsistent: $M = 1.81, SD = 1.48$), this difference was greater for incorrect recall of behaviors. Importantly, there was no effect for sex of participant or for category salience.

Discussion

The results of this study were clear. Depending on whether age or gender was made salient, children imitated models of their in-group on the salient dimension. That is, when age was made salient, girls chose to imitate the children (who in this case were boys) rather than the adults (who were women). When gender was salient, the girls imitated the women rather than the boys. Similarly, boys imitated men in the gender-salient condition, and they imitated girls in the age-salient condition. This last finding is particularly interesting, given boys' resistance to imitating females, demonstrated in Experiment 1 (see also Bussey & Bandura, 1984; Fagot, 1985b; Lamb & Roopnarine, 1979; Maccoby, 1980).

Consistent with Experiments 1 and 2, no sex differences were found in children's memory for behaviors. Boys and girls did not differ in the attention they paid to, or their memory for, the behaviors of models of either category. Similarly, there were no differences according to the salience of either gender or age. Indeed, children correctly remembered almost all behaviors in all conditions. Despite the salience manipulation occurring prior to children viewing the behaviors, they nevertheless paid attention to both sets of models and were able to recall the behaviors of each. It appears that children then chose to perform the behaviors in accordance with the self-categorization that had arisen from the salience manipulation. In the current study, the age and gender manipulations helped make the children perceptually ready for information consistent with, and motivated them to act in accordance with, those categories. These manipulations also provided a framework for the behaviors. Not only did children begin to think of themselves as either children (in the age salience conditions) or as boys or girls (in the gender salience conditions), the behaviors they saw in the video could be appropriately divided along these lines.

We contend that central to imitating behaviors consistent with this categorical division was the children's self-definitions as members of one of these categories. Although we had no explicit measures of categorization in the present study, the results are

clear. When age was salient, it made sense for children to self-categorize as children; when gender was salient, it made sense to self-categorize as either boys or girls.

The salience manipulations in the present study provided a context for the participants' behavior. The sorting task provided a way of dividing their world—into males and females or into adults and children. This mirrored situations that young children face every day. Boys and girls are provided with, for example, different clothes to wear and different toys to play with and are even shown different ways to behave. Similarly, there are different expectations, and permissible behaviors, for children and adults. This can be illustrated with the responses of children in the current study when asked what children and grown-ups like to do. Some of the things that children liked to do were "play with toys" and "eat lollies." Among the things grown-ups "like" to do were "driving," "cook the dinner," "drink wine," and "clean things." Young children are well aware of these differences and that they may be expected to change their behavior according to the social context. A girl may be expected to be quieter and less active than her brother but noisier and more active than her parents.

Perhaps the most important implication of the results of the current study, however, concerns the importance of gender *per se* to 3- and 4-year-olds. Taken together, the results of these three experiments suggest that there is nothing inherently important about gender that is responsible for the strong display of gender-typed preferences, such as boys' and girls' preferences for toys, dress, playmates, and so forth (see LaFreniere et al., 1984; Maccoby & Jacklin, 1987; Moller & Serbin, 1996; Powlishta et al., 1993; Thorne, 1986). Rather, we suggest that this gender divide is, first, partially due to the important role that gender is given by others and, second, that young children are sensitive, and responsive, to this. Remarkably in the present study, children did not differ in their display of category-appropriate behavior in the different contexts. Boys imitated just as many behaviors of men, when gender was salient, as they did of girls, when age was salient. The current series of studies has shown that children could, and did, behave in accordance with the relevant categorizations of gender or age. Moreover, in this final study, children could, and did, behave in accordance with whichever of these categories was salient at the time, despite being presented with the exact same information (i.e., the behavior sequences in the video presentation) in the different conditions.

Importantly, there were no gender differences exhibited: Both the boys and the girls were similarly

sensitive to the change in context, indicating that a different behavior was appropriate. The change in context provided a different meaning for those behaviors. Wearing a red hat was male behavior in one context but child behavior in another. Behavior that had previously been devoid of context was made contextually meaningful. Hence, the exact same behavior was interpreted differently depending on the social context in which it was presented.

Clearly then, young children are capable of adapting their (imitative) behaviors in ways that reflect variations in the contexts in which those behaviors occur. All the while, however, they appear to pay attention to an array of information provided to them. This is particularly the case with information pertaining to gender and age—characteristics that are frequently made salient in Australian society via explicit labeling and implicit use.

General Discussion

The present set of three experiments sought to examine preschoolers' understanding of categories, with a specific focus on gender in categorical terms. Given recent recognition of the importance of the categorization process as a guide to children's behavior, the experiments drew heavily on existing, and substantive, theories of social categorization. In utilizing SIT, we specifically drew on SCT, given its explicit integration of the personal and the social self into a single theoretical perspective. Although these theories were not conceived of as developmental theories, the psychological processes outlined in each have, in recent years, been increasingly applied to the developmental domain, particularly to work with children (e.g., Bennett, Lyons, Sani, & Barrett, 1998; Bigler et al., 1997; Powlishta, 1995b; Yee & Brown, 1992). Indeed, the approach put forward by each of these theories has been recognized as ideally suited for the integration of developmental and social psychology (Bennett & Sani, 2004) and plays a substantial role in Bigler and Liben's (2006, 2007) DIT.

Deriving from the basic assumption that gender development involves social categorical understanding, we examined the categorical nature of gender with a specific focus on children's imitation of observed others and the attention paid to information presented. In all three experiments, children's imitative preferences were consistent with the contextual variations presented, despite demonstrating equal recall of behaviors performed by members of both categorical in-groups and out-groups. It was suggested, therefore, that behavioral enactment is the

result of a deliberate choice, made by the child, concerning appropriate behavior—behavioral choice that is not simply a function of a child's similarity to models. Rather, as demonstrated in Experiment 3, it appears that children's behavioral choices reflect their (contextually sensitive) self-categorizations.

That these findings were replicated across the studies, and applied equally to boys and girls, can also be seen as evidence against an innate sex differences perspective. Learning to be a girl or a boy does not follow some preordained path. Learning about gender involves an understanding of the categorical nature of gender—being one of many girls or boys—and an understanding that categories, themselves, are flexible, changeable, and context dependent. Learning about gender involves an integration of social categorical information into one's personal self-definition. These processes are complex, yet they are utilized from an early age.

The current studies also represent an important step toward specifying conditions under which children are more likely to use gender as a guide to their behavior and as evidence of suggestions made by Bigler and Liben (2006) that children's use of categorical information is impacted by societal rules and mores. We can, for example, intensify or diminish the likelihood of children choosing to enact behaviors consistent with gender expectations by manipulating the salience of gender or that of an alternative category such as age.

We recognize, however, that these findings occurred in an individual setting. Future research could well be directed at replicating these results in a group setting, although the potential practical and administrative problems of such research cannot be underestimated.

Although derived from a different theoretical framework, the results of the current studies, and the theoretical approach taken, should not be seen as completely divergent from contemporary theories of gender development. In light of recent debate on the topic (cf. Bandura & Bussey, 2004; Martin, Ruble, & Szkrybalo, 2002, 2004), the current work can be seen as providing additional, and complementary, support toward a contemporary integrated approach to gender development. Indeed, the incorporation of social psychological theory extends this work through the articulation of causal mechanisms involved in learning about gender. That these are the same processes involved in other intergroup, or categorical, experiences (e.g., stereotyping, prejudice; cf. Bigler & Liben, 2006, 2007) is consistent with the notion that gender does not constitute a "special" category and, as such, does not require its own exclusive theory. Con-

versely, future research focusing on domain-general psychological processes affecting children's understanding of their social world should continue to prove increasingly fruitful.

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