

Accessibility of Gender Stereotype Domains: Developmental and Gender Differences in Children

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Abstract The present research examined developmental and gender differences in the relative accessibility of different gender stereotype domains. A 1988 Northeastern US sample of 256 children ages 3 to 10 years old provided open-ended descriptions of girls and boys. Responses were coded by domain to examine differences by grade, gender of participant, and gender of target. Analyses revealed that girls and older children provided a higher proportion of stereotypes, and that appearance stereotypes were particularly prevalent in descriptions of girls and activity/trait stereotypes were more prevalent in descriptions of boys. Results are discussed in terms of implications for research on the stereotype knowledge–behavior link and the need for more attention to the role of appearance stereotypes in the gender stereotype literature.

Keywords Stereotype domains · Gender stereotypes · Stereotype accessibility · Gender differences

Introduction

From birth, children are surrounded by information that communicates the beliefs and behaviors that are considered appropriate for each gender group. It is, therefore, not surprising that they amass a fair amount of gender stereotype knowledge early in life (see Martin et al. 2002 for a review). In fact, recent research suggests that even before 30 months of age, some children understand concrete gender stereotypes, such as toys associated with

girls and boys (e.g., dolls and cars; Ruble et al. 2006). Further, studies have documented that stereotype knowledge of activities and occupations increases rapidly between 3 and 5 years (see Ruble et al. 2006 for a review). Taken together, the typical 5 year old child knows a range of gender stereotypes and tends to endorse these stereotypes in a rigid and absolute manner until about 7 years of age (e.g., Ruble et al. 2006; Trautner et al. 2005).

Our understanding of the developmental course of gender stereotype knowledge is generally drawn from studies that have asked children to verbally match or sort pictures of items into gender categories (see Ruble and Martin 1998 and Signorella et al. 1993 for reviews). In these studies, children who successfully match a stereotyped item (e.g., doll) with the associated gender category (e.g., girl) are considered knowledgeable of the stereotype. This research suggests that gender stereotypes are comprised of multiple domains and that children learn stereotypes within certain domains (e.g., activities and toys) before mastering stereotypes within other domains (e.g., traits).

Traditionally, early gender stereotype measures for children generally included only one domain in their list of items. For instance, the Sex Stereotype Measure (Williams et al. 1975) assesses children's knowledge of trait gender stereotypes (e.g., gentle, aggressive), whereas the Sex Role Learning Inventory (SERLI; Edelbrock and Sugawara 1978) includes only object and activity items (e.g., baby bottles, hammers). Despite their initial popularity, the results derived from these measures provide a very limited understanding of children's knowledge of stereotypes. For instance, a researcher might conclude that preschoolers have poor knowledge based on the Sex Stereotype Measure, but well-developed knowledge based on the SERLI. Therefore, measures that contain multiple

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stereotype domains are essential for achieving a better understanding of which stereotypes are prominent in children's conceptions of girls and boys at different ages.

More recently, researchers have recognized the importance of assessing multiple domains (e.g., clothing, activities, occupations, traits) when studying the development of gender constructs (e.g., Campbell et al. 2002; Etaugh and Liss 1992; Liben and Bigler 2002; Martin et al. 1990). This approach advances earlier measures by allowing researchers to examine domain-specific trends and comparisons within the same study. For instance, multi-domain measures make it possible for researchers to examine if knowledge in one domain is associated with knowledge in another domain and if gender and cultural differences are domain-specific. Moreover, researchers can now reliably explore if knowledge within certain domains (e.g., activity and toys) predicts children's behaviors in those domains (e.g., toy preferences). These types of domain-specific analyses are essential for a comprehensive and accurate picture of gender development.

Yet, what is still missing from this domain-focused research is an understanding of how children spontaneously represent gender and which stereotype domains figure most prominently in their gender concepts. Namely, previous measures have relied on experimenter-provided domains to assess children's knowledge of gender stereotypes. While this approach assesses children's developing knowledge of particular domains, this research has not explored whether certain domains are more important to children than other domains and if this depends on age, gender, or context. For instance, results from some studies examining reactions to gender deviance show that children consider violations of gender appearance to be especially serious, particularly for boys (Blakemore 2003; Smetana 1986; Stoddart and Turiel 1985). This implies that although children may know many different gender stereotypes, stereotypes within certain domains may be more influential than others. Although this differential impact of gender stereotype domains may occur for a variety of reasons, one possible explanation concerns the extent to which certain stereotype domains are not only available, but easily activated, in memory.

The purpose of the present research was to assess which stereotype domains come to mind most readily when children are asked to think about gender. Unlike closed-ended methods previously used to measure children's gender stereotype knowledge, the present study used open-ended questions to ask children what they know about girls and boys. We measured gender stereotype knowledge in this way for two reasons. First, this method allowed us to examine gender stereotype knowledge as a multidimensional construct (Eckes and Trautner 2000; Huston 1983; Miller et al. 2006; Ruble et al. 2006). That is, by grouping open-ended responses by domains (e.g.,

activities/toys, appearance, traits), we were able to explore whether different stereotype domains contribute to children's concepts of girls and boys and examine the potential for gender and developmental differences in the use of stereotype domains. Second, this methodology allowed us to examine target differences in the stereotype domains most easily brought to mind, or activated, when children think about gender.

This idea of stereotype activation, as distinct from stereotype knowledge, is consistent with theories in social psychology that distinguish between the availability and accessibility of constructs in memory. *Availability* refers to whether or not a construct is stored or present in memory, while *accessibility* is defined as the readiness with which it is retrieved (Higgins 1996; Higgins and King 1981; Higgins and Wells 1986). Thus, having knowledge of gender stereotypes within a certain domain is distinct from the likelihood that it will be retrieved from memory. This distinction is hardly trivial as construct accessibility has been found to influence social judgments and behaviors (Fazio 1990; Higgins 1996).

In previous research, the distinction between availability and accessibility has been linked to the difference between cued recall and free recall (Higgins 1996; Higgins and Bargh 1987; Tulving and Pearlstone 1966). According to this view, available information can be retrieved under cued recall conditions, but not necessarily free recall conditions unless the information is also accessible. This distinction is analogous to the difference between the methodology used in the present study and previous measures used to assess gender stereotype knowledge. Earlier work has focused on whether children have knowledge available in memory through cued recall measures (e.g., "Which child likes the doll?") whereas the present study used a free recall procedure to elicit the domains that are most accessible in children's available knowledge (e.g., "Tell me what you know about girls?"). In fact, we measured accessibility using two different free recall methods based on procedures used with adults (Higgins and Brendl 1995; Higgins et al. 1982).

To the best of our knowledge, no study to date has examined accessibility differences of gender stereotype domains in young children. While studies examining children's emerging gender stereotypes are abundant, they often overlook the possibility that different stereotype domains may be differentially accessible and, instead, primarily rely on children's responses to experimenter provided options. This approach, although ubiquitous, provides only a limited understanding of how children think about gender. Therefore, it remains unclear to what extent children's responses to standard gender stereotype knowledge measures reflect the structure of their spontaneous representations of gender. Research with adults shows that gender stereotypes consist of multiple domains (e.g.,

traits, appearance, occupations, and role behaviors) that function relatively independently of each other and vary in the strength of their influence on social judgments (Deaux and Lewis 1984; Six and Eckes 1991). Children's gender concepts may be similarly differentiated in structure, which could have important implications for how we understand gender stereotype development in children.

For instance, it has been widely assumed among developmental researchers that boys have more stereotypical preferences than girls. The evidence for this conclusion is based on research using preference measures that rely heavily on stereotypes about toys, objects, and activities (Ruble and Martin 1998). However, the conclusion that boys show stronger stereotypical preferences than girls may be misleading because children's conceptions of boys may be structured such that activities and toys are particularly important. Therefore, boys may endorse stronger gender stereotypical preferences than girls, but only in the domain of activities and toys. Consistent with this idea, emerging evidence suggests that many girls gravitate toward pink, frilly dresses at a very young age (Ruble et al. 2007). Thus, it remains plausible that girls may show stronger gender-typed preferences than boys in other domains (e.g., appearance).

Differences in the accessibility of gender stereotype domains may also have important implications for a debate surrounding gender schema theory, which emphasizes the influential role of gender stereotype knowledge on behavior (Martin et al. 2002). Questions have been raised regarding the validity of gender schema theory (Bandura and Bussey 2004; Bussey and Bandura 1999) because evidence supporting the stereotype knowledge–behavior link has been mixed (Miller et al. 2006). However, very few studies have addressed this issue with a high degree of specificity. Such specificity is necessary when investigating the relation between children's knowledge of stereotype domains and the likelihood that they will engage in the particular behaviors within those domains (Martin et al. 2002).

Present Study

The goal of the present study was to examine which gender stereotype domains emerged from children's descriptions of girls and boys and to assess differences in the accessibility of various domains. Children's accessible stereotypes were elicited by asking 3 to 10 year olds to provide open-ended descriptions of girls and boys. As described earlier, children begin to demonstrate knowledge of gender stereotypes by about age 3 and show a dramatic increase in the number and range of stereotypes that they learn throughout elementary school (Ruble et al. 2006). Thus, the age groups targeted in the present study, which ranged from preschoolers to fifth graders, were ideal for examining

developmental differences in the accessibility of gender stereotype domains. Moreover, theoretical predictions have proposed that children think differently about same-gender and other-gender targets. In particular, gender schema theory posits that children are motivated to seek out, attend to, and remember more same-gender compared to other-gender information (Bem 1981; Martin and Halverson 1981). Gender was, therefore, included as a participant and target variable in the present design to examine this prediction as well as to explore potential domain differences when children spoke about girls compared to boys.

Research Questions

Gender stereotype domains The present study was specifically designed to investigate three research questions regarding the domains of children's stereotypes: (1) Are there domain differences in the stereotypes children use when describing girl versus boy targets (e.g., is appearance used more frequently when describing girls than when describing boys)? (2) Are there gender differences in the use of certain stereotype domains when children describe girls and boys? (e.g., do girls use more appearance stereotypes than boys?) (3) Are there age differences in the use of certain stereotype domains when children describe girls and boys (e.g., do older children use trait stereotypes more than younger children when describing girls and boys)? Given the paucity of research in this area, we did not develop specific predictions for the first two questions addressing differences in stereotype domain based on target gender and participant gender. However, for the third question, we expected that older children would have a higher frequency of trait stereotypes in their statements compared to younger children. This hypothesis was based on research on the development of children's categorization schemes, which shows that children progress from using concrete attributes (e.g., appearance, activity) to traits and internal motivations (e.g., sensitive, affectionate) to describe targets (Livesly and Bromley 1973; Rholes et al. 1990; Ruble and Dweck 1995).

Quantity of gender stereotypes While the primary goal of the present study was to examine stereotype domain differences in children's statements, our data also allowed us to explore some secondary predictions about the number of stereotypes that were included in children's statements. In particular, we examined differences in the quantity of stereotypes, regardless of domain, that children produced as a function of target gender, participant gender, and age. Analyses were conducted to test three predictions: (1) Consistent with gender schema theories (Bem 1981; Martin and Halverson 1981), we expected that children's same-gender descriptions would contain a higher proportion of

gender stereotypes compared to other-gender descriptions. (2) Based on research suggesting that girls possess more stereotype knowledge than boys (O'Brien et al. 2000; Serbin et al. 2001, experiment 2; Signorella et al. 1993), we expected that girls' statements would contain a greater number of gender stereotypes compared to boys' statements. (3) Given that older children generally have knowledge of a greater number of stereotypes (Ruble et al. 2006), we predicted that the statements provided by older children would contain more gender stereotypes compared to those of younger children.

Method

Participants

A total of 256 predominantly White, middle-class children from suburban public schools in the Northeastern US participated in this study. The sample included 69 preschoolers ($M=4.17$ years), 31 kindergarteners ($M=5.33$ years), 87 first graders ($M=6.34$ years), and 69 fourth and fifth graders ($M=9.82$ years). There were approximately equal numbers of girls and boys in each group.

Interviewing Procedure

The present research was part of a larger 3-year longitudinal study on children's cognitive, social, and gender development conducted from 1988 to 1991. The present analyses focus on children's responses to an open-ended gender knowledge measure we term the Gender Accessibility Measure (GAM) administered in the first year of the study. Children were interviewed outside of their classrooms by female interviewers and given a small prize at the end of each session.

Measure

The GAM includes two open-ended questions that ask participants to name qualities girls and boys possess. The first question states, "I bet you know a lot about girls. Tell me what you know about girls. Describe them." The second question states, "You probably know a lot about boys. Tell me about boys. Describe them." The order of the questions was held constant for all children. The interviewers recorded children's responses verbatim.

Coding Procedure and Reliability

Prior research on gender stereotype domains guided the development of the coding scheme that was used to

categorize children's responses. For instance, the gender development matrix based initially on Huston (1983) and subsequently expanded by Ruble et al. (2006) contains the following content domains: biological/categorical sex, activities/toys, personal/social attributes, social relationships, styles/symbols, and values. Further, the gender attitude measure developed by Liben and Bigler (2002) includes three separate domains: occupations, activities, and traits, and research conducted with adults (Deaux and Lewis 1984) has provided evidence for four gender stereotype components: traits, role behaviors, occupations, and physical appearance. While the domains documented in prior research served as a guide, we adjusted our domain categories on the basis of frequency of use to ensure that our coding system reliably captured the content of children's statements. In particular, some domain categories were excluded from our coding scheme because they were not represented in children's statements (e.g., values).

For the present study, children's responses were coded into general categories based on their stereotyped nature and into sub-categories based on their domains. The broad categories were: feminine stereotypes, masculine stereotypes, neutral responses (e.g., "they wear clothes"), and other category responses (i.e., "don't know" and ambiguous/questionable responses). The seven domain sub-categories used to code children's statements were: activities and toys (e.g., "boys play with trucks"), appearance (e.g., "girls wear dresses"), interpersonal (e.g., "girls whisper to each other"), occupation (e.g., "boys grow up to be firefighters"), biological characteristics (e.g., "boys are tall"), social roles (e.g., "girls do the dishes"), and traits (e.g., "girls are sensitive", "boys are mean"). Each response statement was coded into one of these categories. However, if consecutive statements reflected one idea, such responses were coded as one statement (e.g., "girls wear dresses and skirts" was coded as one feminine, appearance response).

Two independent raters, who were unaware of the gender and age of the participants, coded 20% of the total responses. Due to the high inter-rater reliability ($\kappa=.86$), one of the raters coded the remainder of the responses individually and consulted with the second rater on ambiguous responses.

Stereotype Variables

First Responses

We initially explored differences in the domain categories that were most accessible for children when they first spoke about girls and boys. These differences in domain accessibility were examined by analyzing the first responses that children provided for each question.

Proportional Analyses

In addition to examining first responses, we were also interested in assessing domain differences in the complete content of children's responses. To adjust for differences in the number of statements participants provided for each question, proportions were calculated based on the number of stereotyped responses to the total number of statements provided (including "don't know" and ambiguous responses). In all analyses, proportions were based on the number of stereotyped responses that matched the cultural stereotypes for the target's gender (i.e., feminine stereotypes for girls; masculine stereotypes for boys). Within the feminine and masculine stereotyped categories, variables were also created based on proportions for each of the seven domain categories. These domain-specific proportions were calculated by dividing the number of stereotyped responses for a given domain by the total number of statements.

Results

Gender Stereotype Domains

The mean number of domain-specific stereotypes by participant gender and grade is outlined in Table 1. Given the low frequency of interpersonal, occupational, social role, and biological stereotypes in participants' responses (combined, these domains constituted 2% of responses on average), these domains were excluded from these analyses. Thus, the domain-specific analyses were limited to the following three domains: activity/toy, appearance, and traits. As described earlier, we used two different free recall methods to assess our three research questions concerning the accessibility of children's gender stereotype domains.

The results based on children's first responses are presented in the next section, followed by the results based on the complete content of children's responses. Within both sections, the results relevant to research question 1 are presented first, followed by the results relevant to research questions 2 and 3. All analyses were performed on arcsine transformations of the proportions and pairwise comparisons were conducted using the Bonferroni adjustment for multiple comparisons.

First Responses

Target gender (research question 1) The results revealed that the most frequent response domain for the girl target was appearance (31%), followed by traits (19%) and activities (14%). In contrast, the most frequent responses for the boy target concerned traits (27%), followed by activities (19%) and appearance (13%). Overall, these percentages suggested domain differences in the most accessible stereotypes that children provided for girls versus boys, with a very notable difference for use of the appearance domain when describing girls versus boys.

Participant characteristics (research questions 2 and 3) Two-way multivariate analyses of variance (MANOVAs) were conducted to determine if there were age and gender differences in using appearance, activity, and trait stereotypes when first describing girls and boys. The analyses for the girl and boy targets were conducted separately. The three dependent variables for each analysis were the proportion of appearance, activity, and trait stereotypes that were contained in the first responses. When describing girls, there were no significant gender differences. However, significant grade differences emerged, $F(9, 598)=3.40$, $p<.001$. Follow-up analyses revealed that there were grade differences in the use of trait stereotypes, as expected. In

Table 1 Mean number of domain-specific stereotypes across both questions by participant gender and grade.

		Activity/toy	Appearance	Interpers.	Occupation	Biological	Social roles	Traits	Combined
Girls									
Pre.	(n=38)	.80 (1.14)	1.58 (1.85)	.50 (.86)	.08 (.36)	.00 (.00)	.11 (.31)	.61 (1.00)	3.66 (2.86)
K	(n=13)	1.70 (1.31)	.62 (1.19)	.08 (.28)	.00 (.00)	.08 (.28)	.00 (.00)	.92 (1.04)	3.38 (1.39)
First	(n=39)	1.05 (1.70)	1.49 (1.85)	.39 (.71)	.03 (.16)	.13 (.41)	.03 (.16)	1.44 (1.50)	4.54 (2.22)
Fourth/fifth	(n=35)	.63 (.91)	2.14 (1.91)	.26 (.78)	.00 (.00)	.11 (.40)	.11 (.53)	1.66 (1.78)	4.91 (2.16)
Total	(n=125)	.92 (1.33)	1.60 (1.84)	.35 (.75)	.03 (.22)	.08 (.30)	.07 (.34)	1.19 (1.47)	4.26 (2.40)
Boys									
Pre.	(n=31)	1.45 (1.52)	.84 (1.46)	.10 (.30)	.00 (.00)	.06 (.25)	.06 (.25)	.26 (.51)	2.77 (2.47)
K	(n=18)	1.6 (1.65)	.72 (1.56)	.28 (.83)	.00 (.00)	.11 (.32)	.00 (.00)	.50 (.62)	3.22 (2.46)
First	(n=48)	1.29 (1.56)	1.04 (1.66)	.23 (.63)	.10 (.37)	.13 (.40)	.02 (.14)	.90 (1.15)	3.71 (2.19)
Fourth/fifth	(n=34)	.74 (1.16)	1.00 (1.30)	.09 (.29)	.00 (.00)	.03 (.17)	.00 (.00)	1.94 (1.30)	3.80 (1.79)
Total	(n=131)	1.23 (1.49)	.94 (1.50)	.17 (.53)	.04 (.23)	.08 (.30)	.02 (.15)	.96 (1.19)	3.44 (2.22)

Standard deviations are presented in parentheses

particular, the first responses of first graders ($p < .05$) and fourth and fifth graders ($p < .01$) contained more trait stereotypes when compared to the first responses provided by preschoolers. In addition, there was a marginally significant grade difference in the use of appearance stereotypes. Namely, fourth and fifth graders provided more initial appearance responses when compared to kindergarteners ($p = .057$).

When describing boys, a significant main effect for grade was found, $F(9, 598) = 3.03$, $p < .01$, but not gender. However, the main effect for grade was qualified by a significant grade by gender interaction, $F(9, 598) = 1.99$, $p < .05$. Follow-up analyses revealed that the first responses of fourth and fifth grade boys contained more trait stereotypes than preschool ($p < .001$), kindergarten ($p < .01$), and first grade ($p < .001$) boys, as expected. Interestingly, however, for girls, the analyses showed that the first responses of preschool girls contained more appearance stereotypes when compared to the first grade girls ($p < .01$).

Proportional Analyses

The proportional data were analyzed using mixed design analyses of variance (ANOVAs). The first set of proportional analyses was conducted to explore our three main research questions concerning gender and grade differences in the stereotype domains contained in children's responses. Thus, a 2 (gender) \times 4 (grade) \times 3 (domain: activity,

appearance, and trait) \times 2 (gender of target: female or male) mixed design ANOVA was performed with gender and grade as between-subjects factors and domain and gender of target as within-subjects factors (see Table 2 for percentages of the three domain-specific stereotypes). Similar to the presentation of the first response results, these analyses are divided into two sections. The first section addresses our first question concerning domain-specific interactions involving descriptions of girl versus boy targets. The second section focuses on our second two questions concerning domain-specific interactions with participant gender and grade.

Target gender (research question 1) A significant interaction between domain and gender of target was found, supporting the idea that certain domain-specific stereotypes may be more accessible for girl versus boy targets, $F(2, 496) = 33.92$, $p < .001$. Consistent with the findings supported above for first responses, tests of simple effects revealed that, relative to appearance stereotypes, children's statements included more activity (e.g., likes sports) and trait (e.g., plays rough) stereotypes when describing boys ($p < .001$ for both comparisons). There were no other interactions for boy targets, which suggest that this finding was consistent across gender and grade. For girl targets, children's statements contained more appearance stereotypes compared to activity ($p < .001$) and trait ($p < .01$) stereotypes (see Table 2), which was also consistent with the first response findings. However, the appearance effect

Table 2 Mean percentages of domain-specific stereotypes by target gender, participant gender, and grade.

		Percentages for girl targets			Percentages for boy targets		
		Activity/toy	Appear.	Traits	Activity/toy	Appear.	Traits
Girls							
Pre.	($n=38$)	9 (20)	33 (39)	4 (14)	21 (35)	18 (31)	16 (29)
K	($n=13$)	20 (31)	17 (28)	29 (38)	43 (36)	3 (9)	23 (44)
First	($n=39$)	14 (20)	34 (38)	20 (32)	18 (28)	11 (23)	33 (37)
Fourth/fifth	($n=35$)	6 (18)	49 (35)	17 (26)	18 (32)	15 (28)	34 (35)
Total	($n=125$)	11 (21)	36 (37)	15 (28)	21 (33)	13 (26)	27 (35)
Boys							
Pre.	($n=31$)	19 (25)	16 (30)	3 (8)	27 (39)	8 (19)	6 (19)
K	($n=18$)	20 (34)	13 (28)	14 (28)	34 (31)	8 (18)	13 (28)
First	($n=48$)	15 (26)	23 (32)	17 (28)	33 (36)	9 (21)	15 (23)
Fourth/fifth	($n=34$)	13 (27)	25 (32)	32 (36)	16 (29)	11 (26)	45 (32)
Total	($n=131$)	16 (27)	21 (31)	17 (29)	27 (34)	9 (21)	20 (30)
Combined							
Pre.	($n=69$)	13 (23)	25 (36)	3 (11)	24 (36)	14 (26)	12 (25)
K	($n=31$)	20 (32)	15 (27)	20 (33)	37 (33)	5 (15)	17 (35)
First	($n=87$)	14 (23)	28 (35)	18 (30)	26 (33)	10 (22)	23 (31)
Fourth/fifth	($n=69$)	9 (23)	37 (36)	24 (32)	17 (30)	13 (27)	40 (34)
Total	($n=256$)	13 (24)	28 (35)	16 (28)	24 (34)	11 (24)	24 (33)

Standard deviations are presented in parentheses

for girl targets was qualified by a significant three-way interaction between domain, gender of target and gender of participant, $F(2, 496)=3.04, p<.05$. Tests of simple effects revealed that while both girls and boys provided significantly more appearance stereotypes (e.g., pretty, having long hair, wearing a dress, jewelry, and make-up) when asked about girls, this effect was stronger for girl participants, $F(1, 248)=9.08, p<.01$. Results also indicated a significant three-way interaction involving domain, gender of target, and grade of participant, $F(6, 496)=2.33, p<.05$, with pairwise comparisons indicating that, when describing girls, fourth and fifth graders used more appearance stereotypes than kindergarteners ($p<.01$). Indeed, it seems extraordinary that, on average, half of the statements of any kind made by fourth and fifth grade girls about girls referred in some way to appearance (see Table 2). Despite this emphasis on appearance stereotypes for girls, it is noteworthy that one trait and one activity were frequently used to describe girls: “Girls are nice” and “Girls play with dolls”, suggesting that some particular stereotypes, regardless of domain, may be especially accessible (see Table 3 for a description of the most frequent responses by participant’s gender, grade, and target’s gender).

Participant characteristics (research questions 2 and 3)
The results examining gender and age differences in overall

domain use revealed a marginally significant domain by gender interaction effect, $F(2, 496)=2.55, p=.079$. However, tests of simple effects indicated that gender differences in stereotype domains were limited to appearance, $F(1, 248)=5.93, p<.05$, suggesting that these stereotypes were more cognitively accessible for girls than for boys (see Table 2).

A significant interaction was also found between domain and grade, $F(6, 496)=5.67, p<.001$, with simple effects analyses showing significant age differences in the proportion of trait, $F(3, 248)=13.80, p<.001$, activity, $F(3, 248)=2.86, p<.05$, and appearance, $F(3, 248)=3.05, p<.05$, stereotypes. As expected, these age trends were generally consistent with the developmental literature on person perception, showing less use of internal characteristics (e.g., traits) among younger children. However, our findings also suggest that older children still consider concrete attributes (e.g., appearance) important (Rholes et al. 1990). More specifically, preschoolers ($p<.001$), kindergarteners ($p<.05$), and first graders ($p<.01$) reported fewer trait stereotypes compared to fourth and fifth graders. These results are consistent with the grade differences in use of traits found in children’s first responses. In addition, kindergarteners named significantly more Activity stereotypes than fourth and fifth graders ($p<.01$). Nevertheless, appearance stereotypes comprised a significantly greater proportion of fourth and fifth

Table 3 Most frequent domain-specific responses by participant gender, grade, and target’s gender.

	Total # of responses	Statements for girl targets			Statements for boy targets		
		Activity/toy	Appearance	Traits	Activity/toy	Appearance	Traits
Girls							
Pre.	102 87	Dolls/barbies (5)	Dresses (13)	Nice/sweet (2)	Video games (2)	Wears pants (5)	Fights/hits (8)
K	34 29	Dolls/barbies (9)	Dresses (9)	Nice/sweet (15)	Basketball (10)	Short hair (1)	Mean (7)
First	120 104	Dolls/barbies (5)	Dresses (11)	Nice/sweet (9)	Baseball (3)	Short hair (5)	Fights/hits (10)
Fourth/fifth	120 98	Jump rope (1)	Concern w/appearance (12)	Nice/sweet (4)	Plays/likes sports (9)	Short hair (3)	Silly/funny (7)
Boys							
Pre.	71 85	Dolls/barbies (9)	Jewelry (9)	Nice/sweet (1)	Action figures (4)	Wear shorts (4)	Play rough (2)
K	40 48	Dolls/barbies (18)	Jewelry (13)	Nice/sweet (8)	Ride bikes (8)	Wear boys’ clothes (4)	Athletic (2)
First	124 137	Dolls/barbies (9)	Long/pretty hair (6)	Nice/sweet (12)	Baseball; Video games (4)	Short hair (4)	Play rough (4)
Fourth/fifth	87 84	Dolls/barbies (2)	Long/pretty hair (8)	Nice/sweet (10)	Plays/likes sports (5)	Short hair (5)	Athletic (8)

The total number of responses when asked about girl targets is presented first, followed by the total number of responses provided when asked about boy targets. The percentage of total responses that included the statement is presented in parentheses

graders' descriptions relative to kindergarteners' descriptions ($p < .01$).

Quantity of Gender Stereotypes

Analyses were also conducted to investigate our three secondary questions involving gender and age differences in the *quantity* of stereotyped statements provided regardless of domain, and whether this differed for same- versus other-gender targets. These questions were explored with a 2 (gender) \times 4 (grade) \times 2 (gender-match: same-gender or other-gender) mixed design ANOVA with gender and grade as between-subjects factors and gender-match of the target as the within-subjects factor (see Table 4 for the mean overall stereotype percentages by participant gender, grade, and target's gender). In contrast to prediction 1, within-subjects tests failed to reveal any significant main effects or interactions, indicating that across grade and gender, participants did not differ in the number of stereotypes they used when describing same- versus other-gender targets. However, our hypotheses 2 and 3, concerning gender and age differences, were supported. Tests of between-subjects effects revealed significant main effects for gender, $F(1, 248) = 7.14, p < .01$, and grade, $F(3, 248) = 5.84, p < .01$, such that the statements provided by girls (girls 71%, boys 61%) and older children contained a significantly higher proportion of gender stereotypes. Post

hoc tests revealed that fourth and fifth graders (75%) generated a significantly higher proportion of gender stereotypes compared to preschoolers (55%), $p < .01$. No other significant interactions emerged, indicating that at every grade girls' statements contained more gender stereotypes than boys' statements.

Discussion

This examination of children's open-ended descriptions of girls and boys suggests that certain gender stereotypes are differentially accessible when children think about boys and girls. These findings have both theoretical and practical implications.

Approximately one-third of responses used to describe girls consisted of stereotypes from a domain that is given surprisingly little attention in the literature—appearance. At all ages, except for a slight deviation at kindergarten, Appearance stereotypes such as pretty, having long hair, wearing dresses, jewelry, and make-up, came to mind most readily when children described girls. In contrast, activity (e.g., liking sports) and trait (e.g., fighting, playing rough) stereotypes were more prevalent in descriptions of boys. Although the accessibility of appearance stereotypes for girls may seem to contradict research showing that children respond more harshly to boys who violate gender appearance norms (e.g., Smetana 1986; Blakemore 2003), we believe that our results help explain this phenomenon. Specifically, if girls are defined by appearance, then a boy who looks like a girl may be perceived as more like a girl than a boy who engages in or possesses female stereotyped activities and traits. Thus, boys might incur more severe social sanctions from peers if they possess feminine appearance attributes because these are considered more central to the definition of a girl.

The present results are also consistent with research demonstrating relations between physical appearance and status for girls (Graham et al. 1998) and attractiveness and femininity in children with gender identity disorder (Fridell et al. 1996; McDermid et al. 1998; Zucker et al. 1993). For instance, college students rated boys with gender identity disorder as more attractive (Zucker et al. 1993) and girls with gender identity disorder as less attractive (Fridell et al. 1996) compared to the ratings for the same-gender control groups. The results of these studies suggest that attractiveness is positively associated with femininity regardless of the target's gender. Further, the domain distinctions made in the present study are also consistent with the results from a recent study on parent-child narratives with Latino families. In particular, conversations with sons more often revolved around "action-based" activities, while conversations with daughters more often included mention of

Table 4 Mean percentages of overall stereotypes by participant gender, grade, and target's gender.

		Percentages for girl targets		Percentages for boy targets		Percentages for targets combined	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Girls							
Pre.	(<i>n</i> =38)	55	42	71	41	63	37
K	(<i>n</i> =13)	71	35	69	32	70	24
First	(<i>n</i> =39)	73	32	76	28	74	20
Fourth/fifth	(<i>n</i> =35)	77	27	74	32	76	22
Total	(<i>n</i> =125)	69	35	73	34	71	27
Boys							
Pre.	(<i>n</i> =31)	44	43	48	43	46	31
K	(<i>n</i> =18)	54	44	61	40	57	36
First	(<i>n</i> =48)	62	40	64	33	63	31
Fourth/fifth	(<i>n</i> =34)	72	36	76	27	74	25
Total	(<i>n</i> =131)	59	41	63	36	61	32
Combined							
Pre.	(<i>n</i> =69)	50	42	60	43	55	35
K	(<i>n</i> =31)	61	41	64	36	63	32
First	(<i>n</i> =87)	67	37	70	32	68	27
Fourth/fifth	(<i>n</i> =69)	75	32	75	29	75	23
Total	(<i>n</i> =256)	64	38	68	35	66	30

physical appearance (Cristofaro and Tamis-LeMonda 2008).

Despite the proclivity for children to describe girls in terms of what they look like and boys in terms of what they do, researchers investigating the influence of gender stereotypes on children's preferences and behaviors have not incorporated this distinction. Although research has shown that appearance is an important gender cue (e.g., Thompson 1975) and that children are able to make predictions about appearance from other stereotype domains (and vice versa; Bauer et al. 1998; Martin et al. 1990), investigators have given little consideration to appearance as an important stereotype domain. This idea has been echoed in the adult gender stereotyping literature by Deaux and Lewis (1984), who found that information about appearance was far more influential than gender labels on judgments of traits, social roles, and occupations.

These results also suggest that researchers need to be cognizant of the possibility that children may not consider all stereotype domains equally when making choices or evaluating female and male targets. In fact, it is possible that previous failures to find a relation between children's stereotype knowledge and preferences may be partly due to the inability of experimenter-provided stereotypes to account for individual differences in the accessibility of certain gender stereotype domains. Namely, while children might have multiple stereotypes available to them in memory, a correspondence between stereotype knowledge and behavior might be apparent only for those stereotype domains that are most accessible. For example, if the stereotypes "girls wear skirts" and "girls play with dolls" are both available, but the "girls wear skirts" stereotype is more accessible, we may be more likely to see a relation between knowledge of appearance stereotypes and a preference for wearing gender stereotyped clothing than between knowledge of activity stereotypes and a preference for playing with gender stereotyped toys. Studies failing to find a relation between gender stereotype knowledge and behavior should be re-evaluated in light of this possibility.

In addition, our results showing the prevalence of female appearance-related stereotypes in the descriptions of girls by even the youngest children raise questions about the potential implications of this finding for girls' behavioral and adjustment outcomes. Specifically, girls who deviate from gender appearance stereotypes may incur peer rejection, leaving them vulnerable to adjustment problems. Further, greater accessibility of appearance stereotypes may also imply that girls and boys receive consistent messages about the most important qualities girls should possess very early in development, which may leave girls vulnerable to psychological distress should their self-esteem become contingent on self-perceived attractiveness (Nolen-Hoeksema 2001; Ohring et al. 2002; Patrick et al. 2004).

A consideration of the content of stereotypes children viewed as most characteristic of boys raises similar issues. Specifically, some of the most frequently mentioned trait stereotypes for male targets included attributes that imply physically aggressive and anti-social behavior (e.g., mean, plays rough, fights; see Table 3). This emphasis on aggression may place boys at significant emotional and physical risks. In addition, the preponderance of activity stereotypes emphasizing athletics or sports among boys at all ages (with the exception of preschool) is striking. Such a strong emphasis on athletic ability and roughness may set an unachievable standard for boys who do not possess these qualities, potentially placing them at risk for poor adjustment.

Limitations

While our findings raise a number of questions about prior conclusions in the gender stereotyping literature, there are limitations in the present research that need to be considered when interpreting the results. First, all of the interviewers who collected the data were female. Although the gender of the interviewer was intentionally held constant to minimize unintended effects, it is unclear whether the gender and feminine appearance of the interviewers affected the stereotypes provided by the children. Second, our results are based on a predominantly white, middle-class sample from the Northeastern US. Cross-cultural studies with children reveal both similarities and differences in terms of gender stereotype knowledge (e.g., Albert and Porter 1986; Ruble et al. 2006; Ward 1985; Williams and Best 1990). Therefore, it is also possible that the relative emphasis on specific domains might depend on cultural context. Nonetheless, the general conclusions on the differential accessibility of gender stereotype domains are still relevant to understanding gender development in children from other cultural and geographical groups.

Another important limitation is that our interviews were conducted 20 years ago, which raises concerns about the historical context of the data. In particular, it is possible that the gender stereotypes provided in our study were contingent on the expectations and portrayal of females and males in the late 1980s, which potentially have limited relevance to contemporary gender development. However, it is important to note that, despite some changes in the social structure affecting gender roles, research continues to document the stability of gender stereotypes (Lueptow et al. 2001; Ruble 1983). For instance, a review of the literature by Lueptow et al. (2001) revealed that gender stereotypes have been stable from at least the 1950s to the 1990s. Further, their own trend study conducted from 1974 to 1997 not only confirmed this finding, but also revealed a steady increase in the perceived femininity of females. Overall, this finding is consistent with the stereotypical

manner in which males (e.g., aggressive) and females (e.g., appearance-focused/sex objects) continue to be portrayed in the media (APA 2007; Dill and Thill 2007; Kilbourne 2003). For instance, a content analysis of video game magazines revealed that male characters were more likely to be displayed as aggressive, whereas female characters were more likely to be displayed as sexualized and scantily clad (Dill and Thill 2007), which matches the way children described boys and girls in the present study. Taken together, we expect that contemporary analyses of children's open-ended reports of girls and boys would continue to show strong appearance effects for girls, and activity and trait effects for boys.

Even if there were some changes in the specific nature of stereotypes in the past 20 years, it is important to emphasize that the present study did not intend to examine the extent to which stereotypes are endorsed by children or the specific nature and rigidity of these stereotypes. These features of gender stereotyping (e.g., rigidity, specific content items) may have changed somewhat since 1988. In contrast, we expect that the domain categories of stereotypes, the primary focus of the present study, are less likely to have changed over the past 20 years. For instance, in 1988, a common response was "girls like My Little Pony" whereas today it might be "girls like American Girl dolls"; in both instances, the statement would be coded as a feminine, activity stereotype.

Directions for Future Research

Overall, the present study is only a first step toward better understanding the nature of children's gender concepts. In addition to children's open-ended descriptions, researchers should employ a variety of methods designed to illuminate how children think about boys and girls. Future studies should investigate the cognitive developments, personal experiences, and situational factors that may moderate the structure and accessibility of gender representations (e.g., Higgins 1996; Higgins and King 1981), making certain gender stereotype domains more chronically accessible for some groups than others. For example, although the data in this study did not allow us to make longitudinal comparisons, the significant differences by grade suggest that the accessibility of certain gender stereotype domains may change as children mature. Moreover, it is likely that personal experiences would promote individual differences in the types of stereotype domains that are chronically accessible for children. Further, it is important to assess the role that situational cues may play in the accessibility of gender stereotypes. For instance, when children are asked to make explicit comparisons, as they often are in experiments, stereotyping is more prevalent (Heyman and Legare 2004). Other situational factors, such as the setting (e.g.,

school versus laboratory) and characteristics of the people present (e.g., peers versus adults), are also variables that are likely to affect the accessibility of children's stereotype domains.

Future research should also include a more comprehensive analysis of stereotype domains. For instance, our study was limited in that we only focused on three domains: activity/toy, appearance, and traits. Although we also included interpersonal, occupation, biological characteristics, and social roles in our coding scheme, we dropped these domains from our analyses because they were minimally represented in children's descriptions. It is possible, however, that older children and adolescents may have been more likely to use the occupation and social role domains because they are more relevant to adult behaviors. Similarly, the younger children who provided occupational, social role, interpersonal, and biological stereotypes may have been demonstrating a more sophisticated understanding of gender when compared to children who primarily reported activity and appearance stereotypes. Taken together, a study that includes a wider age range (e.g., children, adolescents, and adults) may provide a more thorough understanding of developmental differences in the accessibility of various stereotype domains.

The results of this study should also prompt future researchers to examine the moderating role that accessibility may have in the relation between gender stereotypes and behavior. For instance, do children show a preference for gender-typed activities that are highly accessible compared to gender-typed activities that are available in memory, but less accessible? Answers to questions such as this one are important for the advancement of cognitive theories of gender development.

In conclusion, our results show that children may differ in the accessibility of gender stereotype domains for boys and girls. Although considerable research examining children's gender stereotype knowledge exists, our results suggest that researchers should not only consider potential differences in the quantity of gender stereotypes, but also the domains and accessibility of those stereotypes.

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