

Background

From an early age, children's awareness of social categories and stereotypes influences children's social reasoning. For example, young children may use gender information to infer another child's toy preferences or biological properties, and to predict an infant's future traits and behaviors (Gelman, Collman & Maccoby, 1986; Martin, 1989; Taylor, 1996). The present study examined the influence of gender category information, gender stereotypes, and gender salience on young children's reasoning about other people.

Specifically, we investigated the influence of adult messages about gender on children's inductive generalizations concerning biological and behavioral characteristics. According to Developmental Intergroup Theory (Bigler & Liben, 2007), both adult labeling of social categories and adult attributions about social categories are powerful influences on children's social attitudes.

Previous Research

- Gelman, Collman, & Maccoby (1986) found that 4-year-old children attributed novel biological properties and familiar behaviors on the basis of gender category membership more than similarity in appearance.
- In contrast, Pillow, Pearson, and Allen (2015) found that 3- to 5-year-olds did not generalize either novel biological properties or gender-neutral behaviors on the basis of gender more than appearance.
- In addition, Pillow et al. (2015) presented 3- to 5-year-old children with an inductive generalization task that included either (a) stereotyped behaviors and novel biological properties or (b) novel behaviors and novel biological properties. Children in the stereotyped behavior condition generalized both behaviors and biological properties on the basis of gender more than appearance; however, children in the neutral behavior condition generalized on the basis of gender and appearance equally. Reasoning about familiar gender-stereotyped behaviors appeared to increase children's tendency to make gender-based inductions concerning novel biological properties.

Aims & Hypotheses

Aims

We sought to distinguish the influence of gender categories, gender stereotypes, and gender salience on children's inductive generalizations of novel biological and behavioral characteristics. Hearing gender stereotypes might influence children's reasoning on a generalization task either by encouraging them to treat new information as stereotypical or by making gender a salient feature.

Overview

- Stereotype Condition: We presented stereotypes via brief vignettes. To examine the influence of adult messages about gender on children's reasoning, the stereotype vignettes were set in a classroom and featured a teacher who assigned gender-stereotyped play materials to boys and girls and explicitly referred to gender stereotypes.
- Salience Condition: We also included a gender salience condition that highlighted gender distinctions without mentioning stereotypes. Thus, a teacher assigned gender-neutral play materials on the basis of gender.
- **Neutral Condition:** A teacher assigned gender-neutral materials to mixed-sex groups of children.

Children performed an inductive generalization task included both novel biological items and novel behavioral items.

Predictions

For the Stereotype and Neutral conditions we made two predictions:

- Children would generalize both biological and behavioral characteristics on the basis on gender more frequently in the Stereotype condition than in the Neutral condition.
- Children would respond on the basis of gender at above chance levels in the Stereotype condition but not in the Neutral condition.

For the Salience condition we examined two possible patterns of reasoning:

- If stereotyping is necessary for gender-based induction on the triad task, then (a) children should generalize on the basis of gender more often in the Stereotype condition than in the Salience condition, and (b) performance in the Salience condition should not differ from the Neutral condition.
- If merely focusing children's attention on gender is sufficient, then children should make gender-based inductions in Salience condition more often than they do in the Neutral condition.

Young Children's Gender-based Inductive Generalizations: The Influence of Stereotypes and Categories Bradford H. Pillow, Natalie Low, Cara Allen, and Taneisha Vilma Northern Illinois University

Method

Participants

Preschool children (N = 72) were divided into younger (3 to 4.5 years) and older (4.5 to 5.5 years) age groups. Twelve children of each age participated in each of the three conditions.

Procedure

Overview

In each condition children heard an initial vignette accompanied by a picture of a classroom. Then children completed four trials of the inductive generalization task. Next, children heard another vignette, and finally completed four more trials of the inductive generalization task.

Vignettes

Stereotype condition: A teacher assigned girls to play with stereotypically feminine toys on one side of the room and boys to play with stereotypically masculine toys on the other side of the room, and the teacher explicitly stated a gender stereotype:

"One morning at school, the teacher told the children there were some new toys to play with. She said, "Good morning children. I have some new toys. There are some new footballs/trucks and some new dolls/princess costumes. Boys like football/trucks. So the boys can play with the footballs/trucks over here. Girls like to play with dolls/princess costumes. So the girls can play with the dolls/princess costumes over here." The teacher thinks that boys like football/trucks and girls like dolls/princess costumes."



Salience condition: A teacher assigned girls and boys to play with different genderneutral materials:

"One morning at school, the teacher told the children there were some new things to play with. She said, "Good morning children. I have some new things. There are some new paints/legos and some new crayons/blocks. Boys and girls can play with them today. The girls can play with the paints/legos over here. The boys can play with the crayons/blocks over here." The teacher thinks that girls and boys like paints/legos and crayons/blocks."



Neutral condition: A teacher assigned two-mixed gender groups to play with different gender-neutral materials:

"One morning at school, the teacher told the children there were some new things to play with. She said, "Good morning children. I have some new things. There are some new paints/legos and some new crayons/blocks. Children can play with them today. Some children can play with the paints/legos over here. Some children can play with the crayons/blocks over here." The teacher thinks children like to play with paints/legos and crayons/blocks."



Each child was a given a score from 0-4 for biological trials and a score from 0-4 for behavioral trials, corresponding to the number of gender-based responses made for each type of trait. Comparison of Means A 2 x 3 x 2 x 2 (Age Group x Condition x Gender x Trait) ANOVA with Trait as a

Age Group Effect: Older children gave gender-based responses significantly more often than did younger children.

Inductive Generalization Task

A triad inductive generalization task pitted gender against visual similarity. Children were asked to make generalizations about 4 novel biological and 4 novel behavioral characteristics.

Biological trial: "This boy has fibro in his blood. This girl has neutros in her blood. Now here's another boy. What does this boy have in his blood? Does he have fibro in his blood like this boy? Or does he have neutro in his blood like this girl?"





Behavioral trial: "This girl plays with samas. This boy plays with noyas.

Now here's another girl. What does this girl like to play with? Does she play with samas like this girl? Or does she play with noyas like this boy?"





Sequence:

- First classroom vignette
- 4 Inductive generalization trials
- Second classroom vignette
- 4 Inductive generalization trials

Results

Scoring

repeated measures factor yielded significant effects of Age Group, F(1,60) = 12.94, p = .001, partial $\eta 2 = 0.177$, and Condition, F(2,60) = 3.59, p = .034, partial $\eta 2 = .107$.

Condition Effect: Children gave more gender-based responses in the Stereotype condition than in either the Salience condition, t(46) = 2.19, p = .034, or the Neutral condition, t(46) = 2.34, p = .024.



Comparisons with Chance

Neutral condition:

Younger children did not perform significantly different from chance for either biological or behavioral traits. Older children attributed both biological, t(11) = 3.08, p = .01, and behavioral traits, t(11)= 2.97, p = 0.013, on the basis of gender more frequently than would be expected by chance.

Summary of Results:

As predicted, children generalized on the basis of gender more often in the Stereotype condition than in the Neutral condition.

However, contrary to expectations, older children also made gender-based inductions in the Neutral condition.

Gender Stereotyping

Stereotyping seemed to increase gender-based reasoning, but did not appear to be necessary, at least among older preschool children.

The effect of stereotyping on children's reasoning is consistent with the findings reported by Pillow et al. (2015), as well as with Developmental Intergroup Theory (Bigler & Liben, 2007).

Stereotyping may contribute to the tendency to use gender as a basis for generalization, and in turn gender-based induction may contribute the further development of stereotyped beliefs.

Gender Salience

The gender salience manipulation did not have a clear influence on children's reasoning. This finding suggests that the impact of gender stereotypes was due to stereotyping rather than to merely highlighting gender.

Category-based Induction

Gelman, S. A., Collman, P., & Maccoby, E. E. (1986). Inferring categories from properties vs.inferring properties from categories: The case of gender. *Child Development,* 57, 396-404.

Martin, C. L. (1989). Children's use of gender-related information in making social judgments. Developmental Psychology, 25, 80-88.

Pillow, B. H., Pearson, R. M., & Allen, C. (2015). Young children's inductive generalizations about social categories: When is gender essential? Merrill-Palmer Quarterly, 61, 441-467.

Taylor, M. (1996). The development of children's beliefs about social and biological aspects of gender differences. Child Development, 67, 1555-1571.

Stereotype condition:

Both age groups made gender-based attributions for both biological and behavioral traits significantly more often than would be expected by chance:

Younger children: biology: t(11) = 2.24, p = .046, behavior: t(11) = 2.24, p = .046• Older children: biology: t(11) = 2.42, p = .034, behavior: t(11) = 7.09, p < .001

Salience condition:

Younger children did not perform significantly different from chance for either biological or behavioral traits.

Older children attributed behavioral traits on the basis of gender significantly more often than would be expected by chance, t(11) = 2.271, p = .043, but did not perform differently from chance for biological traits.

Conclusions

Older preschool children made gender-based inductions even in the absence of gender stereotype information. This finding suggests that by 4.5 to 5 years of age children view gender categories as a guide for generalization of novel characteristics; however, for younger children gender alone may not provide a consistent basis for generalization, especially for novel characteristics that are not related to children's existing gender knowledge. Accumulating gender knowledge during the preschool years may lead the gender categories to become more firmly entrenched in children's thought.

References

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