Conceptualizations of Gender in Language

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Abstract

Previous research has shown that speakers of gendered languages think about and categorize nouns in accordance with the noun's grammatical gender. Past studies have often used languages that do not mark grammatical gender as "genderless" control languages. We examine whether this characterization of non-gendered languages is in fact correct, by examining whether native speakers attribute gender to English nouns and adjectives. Our results suggest that adult and child native speakers of English do attribute gender to adjectives and nouns, despite the lack of grammatical gender in English. Additionally, these gender attributions appear to be ones that develop with age.

Keywords: Language and cognition; grammatical gender; semantic gender; cross-cultural comparisons; cross-linguistic comparisons; language development

Introduction

In the past, nouns in various gendered languages have been studied to determine whether the gender of a noun influences the way people think about that noun (e.g., Boroditsky, et al., 2003; Sera, et al., 2002). For example, a native speaker of a gendered language, such as Spanish, is more likely to categorize a feminine noun with stereotypically feminine conceptualizations (e.g., Konishi, 1993; Sera, et al., 1994). The consensus view is that these effects emerge because grammatical gender (and often the sound properties of the words) is associated with semantic gender for semantically gendered nouns (e.g., *la* in Spanish is associated with the nouns that label girl, queen, nun, and so forth), and thus through an associated contagion effect imparts notions of semantic gender to what would seem to be neutral things, such as shoes and bridges. In contrast to past studies, this study examines whether native speakers attribute gender to English nouns. Theoretically, English nouns do not have gender; however, associations among words with and without semantic gender in English may, through processes that create the observed effects in gendered languages, also cause English speakers to consistently attribute gender to nouns.

Study 1

The purpose of this study was to collect a set of adjectives that adult English speakers consistently associate with masculine, feminine, or neutral genders. These adjectives will be used in subsequent studies to measure participants' attributions of genders to nouns.

Method

Participants Twenty participants between eighteen and twenty-five years of age were recruited for this study. Participants were undergraduate students at Indiana University and native, monolingual speakers of English.

Stimuli Twenty-one stereotypically gendered adjectives were collected for this study via three methods. In the first method, adjectives were elicited from Indiana University undergraduate students between the ages of eighteen and twenty-two years. These students were asked, "What adjectives do you use to stereotypically describe femininity and masculinity?" *The MacArthur-Bates Communicative Development Inventory: Words and Sentences* (MCDI) and/or a thesaurus was used when the adjective suggested would not be appropriate for a child between the ages of four- and five-years (e.g., *clean* for *hygienic*).

In a second method, adjectives were collected from children's picture books, fairytales, poetry, television shows, and movies. For example, in the children's book *Peter Rabbit,* adjectives that described Peter were selected as stereotypically masculine; adjectives that described Peter's younger sisters were selected as stereotypically feminine. The adjectives that described both Peter and his sisters were considered neutral, and used as a control. Data obtained through these methods are listed in Table 1.

In a third method, the strength of the gender associations among these adjectives was explored. Pairs of adjectives from Table 1 were matched to twelve pairs of male and female stick figures, as shown in Figure 1. The stick figures were given American names that are stereotypically male and female, listed in Table 2.

Table 1: Adjectives.

Masculine	Feminine	Neutral
messy	pretty	old
naughty	clean	young
strong	nice	happy
careless	careful	sleepy
handsome	good	playful
brave	sweet	warm
wild	smart	long

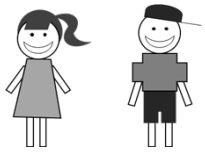


Figure 1: Sample stick figures.

Table 2: Names.

Male Names	Female Names
Todd, Patrick, David, Ben, Frank, Tom, Ken, Michael, Joe, Andrew, Bob, Christopher	Jane, Lisa, Jenny, Mary, Laura, Katie, Chelsea, Hannah, Sarah, Kristen, Nicole, Melissa

Procedure Judgments were elicited from adult native speakers of English to determine whether particular genders are in fact associated with English adjectives. The participants were each shown twelve pairs of stick figures—one male and one female—and were asked which stick figure is best characterized by a particular description: "*This is [male name from Table 2] and this is [female name from Table 2]. Who's [adjective from Table 1]?*" For example, a participant may be told, "*This is Michael and this is Katie. Who's brave?*" and have the options of choosing Michael (i.e. the male stick figure) or Katie (i.e. the female stick figure).

Results

Adjectives were assigned the gender of the stick figure with which they were associated, and a "gender score" was calculated based on the sum of all responses. Specifically, male stick figures were coded as -1 and female stick figures were coded as +1. A gender score was calculated for each adjective by using these values and obtaining a sum of all the responses given for each adjective. Adjectives with more positive scores were interpreted as feminine, and adjectives with more negative scores were interpreted as masculine. Adjectives with gender scores near zero had been associated by participants with the male and female stick figures at roughly equal rates; these adjectives were interpreted as neutral gender. Percentages of these scores were calculated for the purpose of comparison and are given in Figure 2.

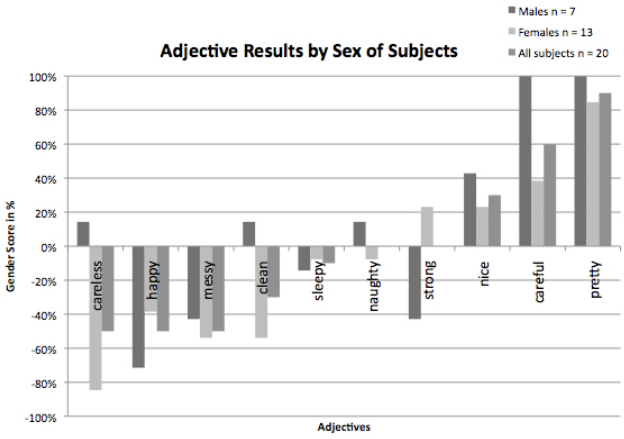


Figure 2: Adults' adjective results.

These results suggest that adult native English speakers do consistently attribute gender to adjectives, although some associations are stronger than others. Regardless of the sex of the participant, the adjective *pretty* was strongly associated with feminine gender, and *messy* was strongly associated with masculine gender. However, *strong* was associated with feminine gender among female participants while being associated with masculine gender among male participants. In contrast, *clean* is associated with masculine gender among female participants but associated with feminine gender among male participants. The gender association differences between adjectives and between the sexes of the participants suggested by Method 3 are issues we plan to explore in future studies. We use the adjectives in Table 1 in Studies 2, 3, and 4 described below.

Study 2

The purpose of this study was to measure attributions of gender to common English nouns by adult English speakers.

Method

Participants Forty participants between eighteen and twenty-five years of age were recruited for this study. Participants were undergraduate students at Indiana University and native, monolingual speakers of English.

Stimuli Forty-eight early-learned, common nouns were used. Half the nouns label natural objects and the other half label artificial (or man-made) objects that are used by both sexes. Additionally, half the objects are labeled by nouns rooted in Latinate languages, whereas the other half have Germanic roots; both roots are gendered. These nouns are listed in Table 3 by semantic and etymological categories. Black-and-white clipart pictures of these objects were also found online from open sources; examples are given in Figure 3.

Table 3: Nouns.

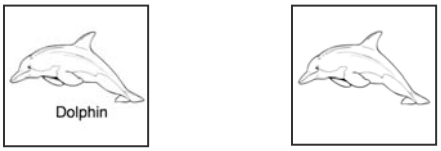
	Natural	Artificial
Germanic Origin	chicken	soap
	nose	toothbrush
	eye	boot
	hand	door
	tooth	knife
	ice	spoon
	moon	book
	cloud	pen
	sun	house
	tree	bench
	apple	boat
	leaf	truck

	Natural	Artificial
Latinate Origin	elephant	towel
	dolphin	mitten
	turtle	spatula
	tiger	bicycle
	hippopotamus	diaper
	alligator	umbrella
	volcano	vacuum
	mountain	fork
	flower	paper
	lemon	lamp
	carrot	kitchen
	mushroom	train

Figure 3: Sample clip art stimuli.

Procedure Participants were asked to decide whether a target noun was better described by a stereotypically feminine, masculine, or neutral adjective. The adjectives used were obtained in Study 1. Participants were randomly divided into the Labeled condition, the Unlabeled condition, or the Survey condition.

In the Labeled and Unlabeled conditions, participants were shown forty-eight clipart pictures of target nouns and were asked, *"Is this [adjective judged as feminine / masculine / neutral in Study 1]? Or is this [adjective judged as feminine / masculine / neutral in Study 1]?"* An example trial would involve showing the participant a clipart picture of an object (e.g., a dolphin) and asking, *"Is this pretty? Or is this messy?"* Participants were asked to choose one of the two statements. The Labeled and Unlabeled conditions involved the same procedure, except that in the Labeled condition, participants were shown the clipart pictures with the object named underneath (e.g., Dolphin); in the Unlabeled condition, participants were shown only the clipart pictures.



(a) (b)

(c) A dolphin is sweet. A dolphin is naughty.

Figure 4: (a) Example of Labeled Condition; (b) Example of Unlabeled Condition; (c) Example of Survey Condition.

In the Survey condition, no clipart stimuli were provided. Participants were instead given a survey with forty-eight sets of statements about the objects (e.g., "*A dolphin is good." / "A dolphin is careless.*") and were asked to circle one of the two statements. Examples of the stimuli used in each of these conditions are given in Figure 4.

Results

Nouns were assigned the genders of the adjectives with which they were associated, and a "gender score" was calculated based on the sum of all responses, in a manner similar to that used in Study 1. Specifically, masculine adjectives received a score of -1; feminine adjectives received a score of +1; and neutral adjectives received a score of 0. Gender scores for the nouns were calculated by obtaining the sum of all the responses given for each noun.

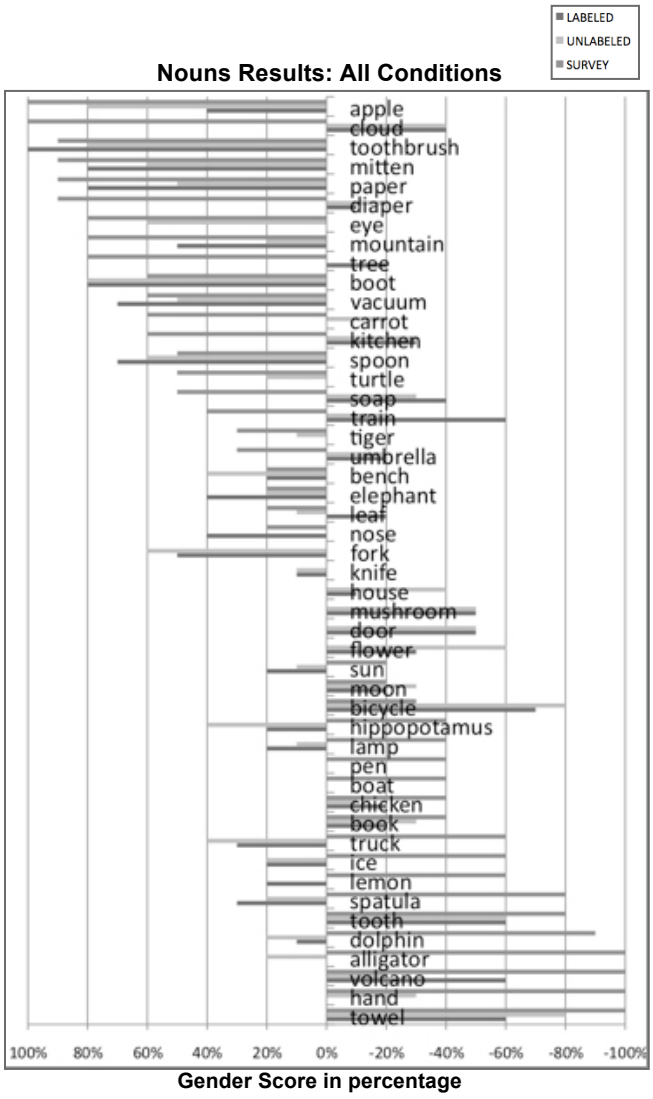


Figure 5: Adults' noun results.

Thus, more positive scores (obtained by participants choosing more feminine adjectives to describe that noun) were interpreted as feminine; more negative scores (obtained by participants choosing more masculine adjectives to describe that noun) were interpreted as masculine; and scores near zero (obtained by participants choosing (1) roughly equal numbers of masculine and

feminine adjectives, or (2) more neutral adjectives to describe that noun) were interpreted as neutral. Percentages of these scores were calculated for comparison.

Overall, our results suggest that adult native English speakers do consistently attribute gender to nouns, although some associations appear to be stronger than others. *Apple, toothbrush,* and *mitten* were judged to be very strongly feminine; *towel, volcano,* and *tooth* were judged to be very strongly masculine; and *knife, house,* and *nose* were rated as relatively neutral. Some nouns—e.g., *cloud, diaper, leaf, sun,* and *truck*—did not have a consistent gender across conditions; this requires further investigation into the roles pictures and words play in our understanding of language.

There are many questions raised by Studies 1 and 2 that require further investigation. One such question involves the developmental trajectory of these gender associations in children, an issue we explore in Studies 3 and 4.

Study 3

The purpose of this study was to determine whether young English speakers consistently attribute masculine, feminine, or neutral genders to adjectives, and if so, whether their gender associations are similar to the adults' in Study 2.

Method

Participants Sixteen children between the ages of four and five years (4;0 - 5;11) were recruited for this study. All participants were native, monolingual speakers of English, and residents of Bloomington, Indiana.

Stimuli The stimuli used in Study 1 were used here. The twenty-one stereotypically gendered adjectives used in Study 1 (Table 1) were randomly matched to the twelve pairs of male and female stick figures used in Study 1 (Figure 1). All stick figures were given the stereotypically American male and female names used in Study 1 (Table 2.)

Procedure The procedure used in Study 1 was used here, with the sole difference that the children were shown six pairs of stick figures, instead of the twelve pairs shown to the adults. Child participants were asked which stick figure is best characterized by a particular description: "*This is [male name from Table 2] and this is [female name from Table 2]. Who's [adjective from Table 1]?*" For example, a participant may be told, "*This is Michael and this is Katie. Who's brave*?" with the option of choosing Michael (i.e. the male stick figure) or Katie (i.e. the female stick figure).

Results

A gender score was calculated for each adjective, in a manner identical to that used in Study 1. Adjectives were assigned the gender of the stick figure with which they were associated. Male stick figures were coded as -1 and female stick figures were coded as +1; a gender score was calculated for each adjective by adding up all the responses given for each adjective. Adjectives with more positive scores were interpreted as feminine, and adjectives with more negative scores were interpreted as masculine. Adjectives with gender scores near zero were interpreted as neutral gender. Percentages of these scores were calculated for the purpose of comparison and are given in Figure 6.

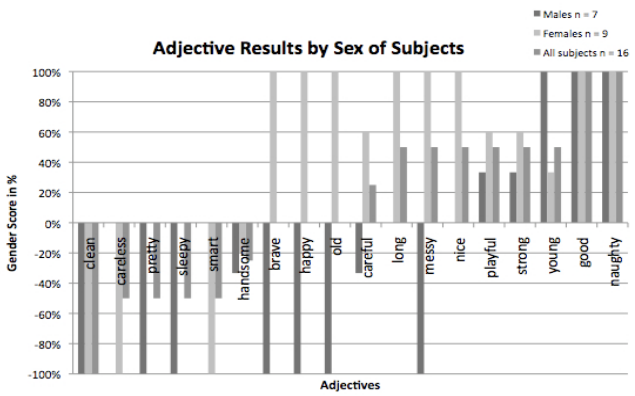


Figure 6: Children's adjective results.

Overall, our results suggest that children who speak English do consistently attribute gender to adjectives, although some associations appear to be stronger.

Some adjectives were consistently judged a particular gender by both boys and girls. Regardless of the sex of the participant, *naughty* and *good* were both strongly associated with feminine gender, while *clean* was strongly associated with masculine gender. The children's judgments of *naughty* and *clean* are contrary to uses of these adjectives in children's media and require further investigation.

Judgments on some other adjectives differed by the sex of the participant. *Brave, happy, old,* and *messy* were strongly associated with the feminine gender among female participants, while being associated with masculine gender among male participants. Examining this divergence of gender association is another issue to explore in the future.

Study 4

The purpose of this study was to measure attributions of gender to English nouns by children who speak English.

Method

Participants Sixteen children between the ages of four and five years (4;0 - 5;11) were recruited for this study. All participants were native, monolingual speakers of English and residents of Bloomington, Indiana.

Stimuli The stimuli used in Study 2 were used here. Forty-eight early-learned and common nouns were used, taken from the MCDI (Table 3). Black-and-white clipart pictures of these objects (e.g., Figure 3) were also found online from open sources.

Procedure The procedure used in Study 2 was used here, with the sole difference that the children were given half as many trials as the adults. Participants were asked to decide

whether a target noun was better described by a stereotypically feminine, masculine, or neutral adjective, obtained in Study 1. Participants were randomly divided into the Labeled condition or the Unlabeled condition. No Survey condition was used in Study 4 as most four- and five-year-olds cannot yet read at that level.

Participants were shown clipart pictures of twenty-four target nouns and asked, for each noun, *"Is this [adjective judged as feminine / masculine / neutral in Study 1]? Or is this [adjective judged as feminine / masculine / neutral in Study 1]?"* An example trial would involve showing a participant the clipart picture of the dolphin (Figure 4) and asking, *"Is this pretty? Or is this messy?"* Participants could choose one of the two adjectives to describe the noun.

Results

Following Study 2, nouns were assigned the genders of the adjectives with which they were associated, and a "gender score" was calculated based on the sum of all responses.

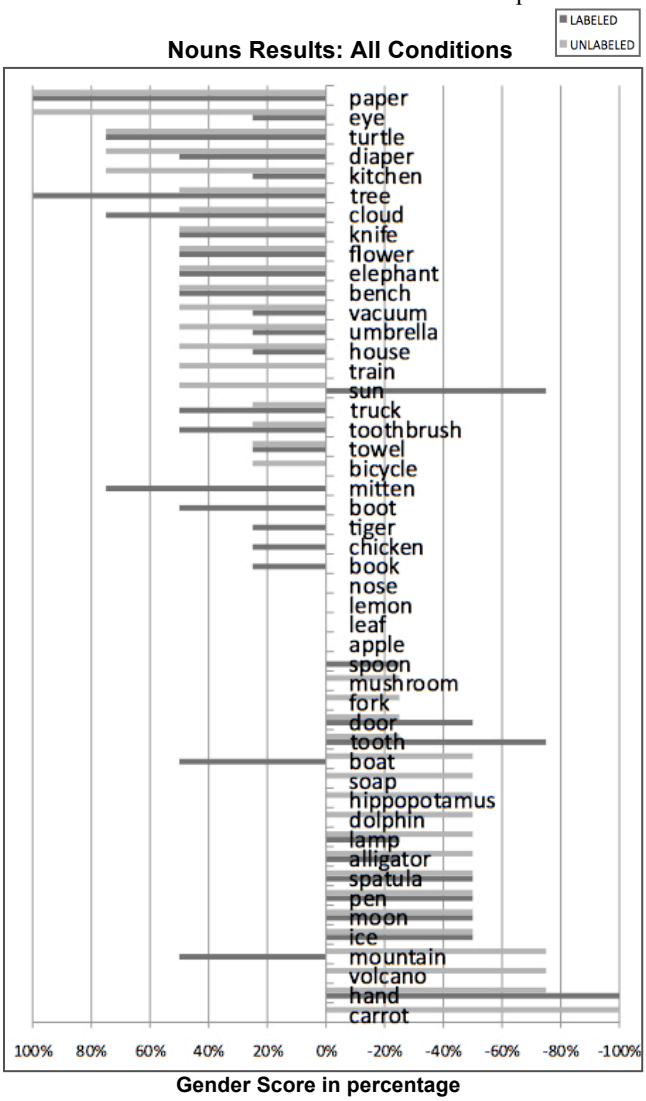


Figure 7: Children's noun results.

Specifically, masculine adjectives received a score of -1; feminine adjectives received a score of +1; and neutral adjectives received a score of 0. Thus, more positive scores were interpreted as feminine; more negative scores were interpreted as masculine; and scores near zero were interpreted as neutral. The percentages of these scores were calculated for the purpose of comparison.

Overall, children who speak English do appear to consistently attribute gender to nouns, although some associations appear to be stronger than others. *Paper* was judged as feminine 100% of the time across both conditions, and *turtle* and *diaper* were also judged to be very strongly feminine. *Hand* was judged to be very strongly masculine, while *nose, lemon, leaf*, and *apple* were rated as relatively neutral. Some nouns—such as *carrot, mountain, boat*, *mitten,* and *sun*—did not have an agreed upon gender across conditions and require further investigation.

General Results

A comparison of the results from Studies 2 and 4 show some interesting trends. First, although both children and adults show a bias towards choosing the stereotypically feminine adjectives, the children show a "feminine bias", describing the majority of nouns with feminine adjectives, as shown in Figure 8.

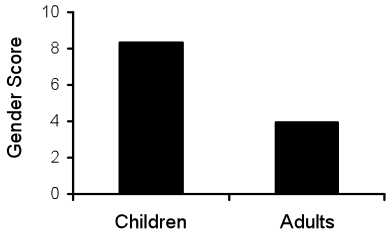


Figure 8: "Feminine bias" among children vs. adults.

As suggested by Sera, Berge, and del Castillo Pintado (1994), natural and artificial objects tend to be considered feminine and masculine, respectively, by Spanish and English speakers. Our results show exactly this same trend, with natural objects rated as more feminine than artificial objects by both children and adults (Figure 9); however, children in general rated both natural and artificial objects overall as more feminine than adults did.

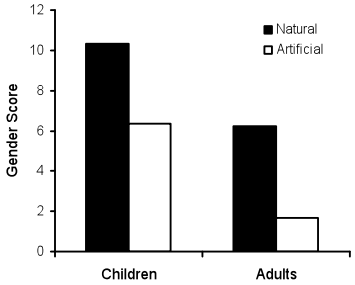


Figure 9: Natural vs. artificial objects

Lastly, we were interested in whether etymological roots played a role in gender assignment. In examining children and adults' ratings of Latinate vs. Germanic nouns, we interestingly find large differences, but in opposite directions, for children and adults. Overall, children judge Latinate nouns as more feminine than Germanic nouns, whereas adults associate more feminine adjectives with Germanic nouns than Latinate nouns, shown in Figure 10.

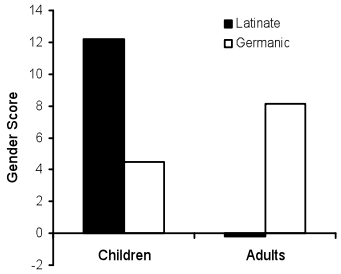


Figure 10: Latinate vs. Germanic roots

The interpretation of these results remains to be fully explored; however, both child and adult speakers of English clearly do associate gender with English nouns, and these associations appear to undergo some change with age.

General Discussion

The results obtained in Studies 1, 2, 3, and 4 suggest that gender associations exist for English nouns and adjectives, despite the fact that English has no grammatical gender or other forms of overt markings of gender, raising the question of whether there are more factors involved in categorizing gender in languages than previously thought.

Previous research has shown that grammatical gender influences semantic gender and vice versa in gendered languages; following this, it has been assumed that semantic gender exists solely with reference from biological sex in non-gendered languages (Boroditsky, et al., 2003; Konishi, 1993; Sera, et al., 1994). However, it could be that this account still applies to the gender associations observed in the English data presented here. It may be the case that these English gender associations arise from associations within the language between nouns that label categories with and without biological gender, a possible gender contagion based in co-occurrence and associative relations and perhaps in the sound patterns of the words themselves.

Alternatively, it may be the case that our results suggesting the presence of gender associations in a non-gendered language can still be explained by grammatical gender, through the influence of a "heritage" grammatical gender on a related non-gendered language. In the case of English, the "heritage" grammatical gender would be derived from its Latinate and Germanic roots. To test for this possibility, further studies must be conducted in which the "heritage" of these nouns is varied more systematically.

A third issue regards comparisons of our preliminary adult and child data, which suggest that adult and child English speakers do not necessarily attribute the same genders to each noun. For example, children appeared to have a "feminine bias". These differences suggest that gender associations may (1) change over the course of cognitive and social development, or (2) differ by generation and be influenced by cohort effects.

Finally, a larger issue raised by this study is whether these lesser-considered influences impact established gendered languages, as well as whether they exist in other non-gendered languages. The larger scope of this project examines these questions in a cross-linguistic study of English, Japanese, Spanish, German, and Dutch, which offer possible examples of different historical linguistic roots.

English and Japanese are languages spoken by members of our experimental group; Spanish, German, and Dutch are the languages spoken by members of our control group. Examining these languages would enable us to further our understanding of how social, cultural, historical, and linguistic factors interact to influence the formation of gender conceptualizations and categorizations.

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