



Photo: Valerie Schmidt

Suggested

~~Perceived~~ Gender Affects Ratings of the Quality of Children's Spoken Narratives

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The Bigger Picture

- Men and women's spoken language differs from one another on a number of dimensions
 - Pragmatic, lexical, syntactic, etc. etc. etc.
 - Phonetic. These differences are pervasive in the speech signal, in consonants, vowels, and higher-level prosodic organization
- There is a growing consensus that gendered phonetic variants are...
 - Not the mere consequence of laryngeal and vocal-tract differences between men and women
 - Linguistically and culturally specific
 - **Learned**
 - When do children learn them? How do they express gender?
 - This is what I'm interested in, as part of a broader research program examining relationships between speaker-attribute perception and the perception of other types of linguistic information through speech

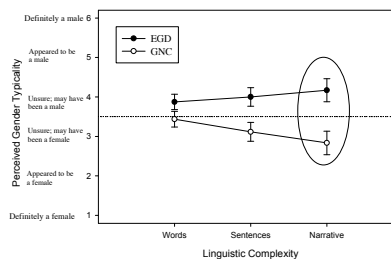


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So, How did I Get Here, then?

- I have been studying a large (n=~120) cohort of children who vary in their gender expression
 - Boys and girls who meet cultural expectations for boy-like behavior
 - Boys who do not meet cultural expectations and who received the clinical label of Gender Identity Disorder [GID] (Zucker, 2005)
 - We use the term Gender Non-Conforming [GNC]
- The GNC boys are consistently rated as sounding less boy-like than the boys with expected gender development [EGD].
- The differences are largest when listeners base their ratings on samples of spoken narratives
- Narratives were taken from the Alien Picture section of the *Test of Narrative Language* (Gillam & Pearson, 2004)



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Taken from Gillam & Pearson, *Test of Narrative Language*, © 2004, Pro-Ed

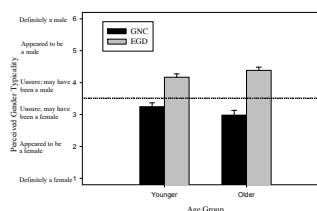
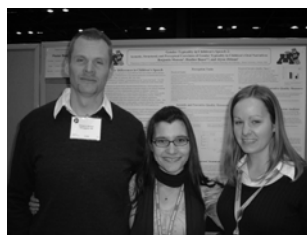


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Munson, Bauer, & Zittnan (2008)

- Measures of the sex typicality of narratives is confounded by the possibility that the content of the narratives might have affected ratings beyond the influence of acoustic-phonetic factors.
 - Listeners might have recruited a belief that girls are better language-users than boys, and rated linguistically more-complex narratives as more girl-like.



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Munson, Bauer, & Zittnan (2008)

- We found that ratings of the sex-typicality of spoken narratives were not correlated objective measures of the content of these narratives
 - Length of the narrative in C-Units, Mean length of C-Units (in morphemes), Number of Different Words used, Story Grammar (scored according to the TNL guidelines)



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Munson, Bauer, & Zittnan (2008)

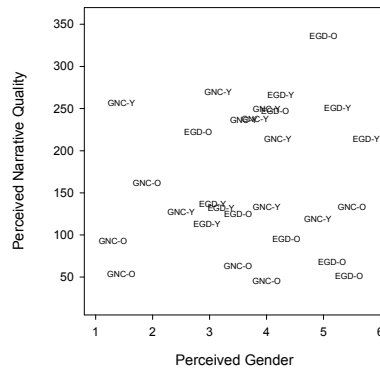
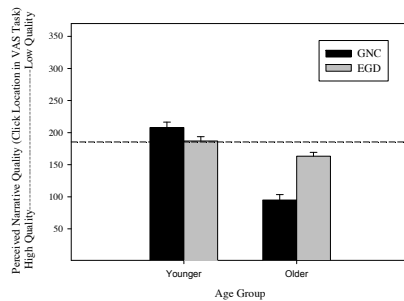
- MBZ also found that they were not correlated with subjective measures. Our experiment was an extension of Newman and McGregor (2006)
 - These were elicited using a visual analog scale, rather than the Likert scale used by Newman and McGregor



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Gender Typicality and Narrative Quality were Uncorrelated



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Bias and Narrative Ratings

- It's noteworthy that others *have* found a relationship between perceived speaker attributes and subjective assessments of language content.
- Shepherd (2009) found that teachers rate the *same* answer to a question (*Why do we celebrate Thanksgiving? What is a police officer's job*) when it was spoken by someone identifiable as a white girl than when spoken by a white boy, or a non-white boy or girl



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Bias and Narrative Ratings

- MBZ wasn't the strongest possible test of whether presumed gender influences narrative quality, as nothing about the narrative-rating task required listeners to think about gender.
- The current study is a stronger test of this relationship. In this experiment we suggest more directly the talkers' gender by pairing narratives with boys' or girls' faces.



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Hypotheses

- Ratings of narrative quality should differ when narratives are paired with faces of boys and faces of girls.
 - Ratings should be higher when they are paired with girls' faces
- These differences should be greatest for the narratives that were rated previously to be less-prototypically boy- or girl-like, as these would be the narratives easiest to imagine being produced by either a boy or a girl.



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Listeners

- Listeners were 30 adults, naïve to the purposes of the study
- They listened to 15 narratives paired with a picture of a girl, and 15 paired with a picture of a boy
- Listeners were told to focus on (1) the amount of information conveyed, (2) the ease of understanding the story, and (3) the ease of presentation on the part of the speaker, and *not* on how well the speaker articulates



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Narratives

- Spoken narratives were the same 30 narratives used by MBZ
 - 30 narratives, all produced by boys, aged 5 to 13 years, grouped into younger (mean age = 7 years) and older (mean age = 10 years)
- There were six unique pairings of pictures and narratives. Each narrative was paired with three different boy faces and three different girl faces.
- Pictures were taken from public-access corpora on the internet. We attempted to estimate the age of the children in the pictures and pair them with narratives produced by children of similar age.



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Survey

- After the experiment, listeners conducted a 20-item survey asking which pieces of information they used when making these judgments on a seven-point Likert scale. Newman and McGregor categorize these in five thematic areas:
 - Vocabulary
 - Syntax
 - Grammar
 - Fluency
 - 'Sparkle'



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Analysis

- Average ratings (click locations on the VAS line, in pixels) were averaged separately for older children and younger children, TGD and GNC, paired with boys' pictures or girls' pictures
- These were submitted to a three-way within-subjects ANOVA.
- Before we get to the statistics, surely you wait with baited breath to find out: did people rate narratives differently when paired with boys' and girls' pictures?

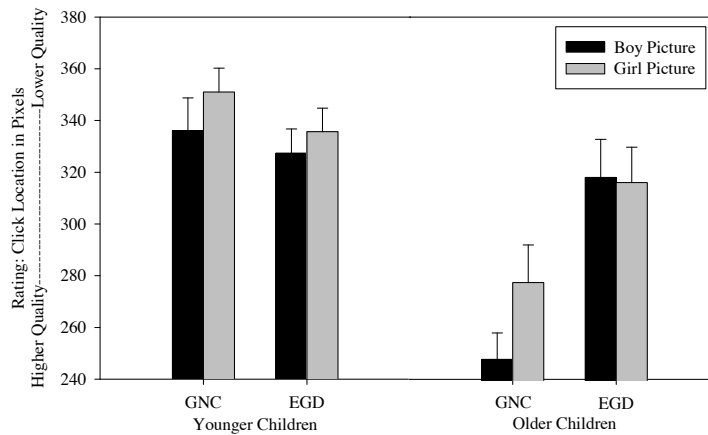


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YES

In the opposite-than-predicted direction



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Results: ANOVA

- Significant main effects of
 - Picture sex ($F[1,28] = 5.9, p = 0.021, \eta^2_{\text{partial}} = 0.17$)
 - Gender typicality ($F[1,28] = 15.4, p < 0.001, \eta^2_{\text{partial}} = 0.35$)
 - Age ($F[1,28] = 15.4, p < 0.001, \eta^2_{\text{partial}} = 0.35$)
- The latter two interacted, ($F[1,28] = 15.4, p < 0.001, \eta^2_{\text{partial}} = 0.35$)
- No other higher-order interactions
 - ...though a few are quite suggestive.

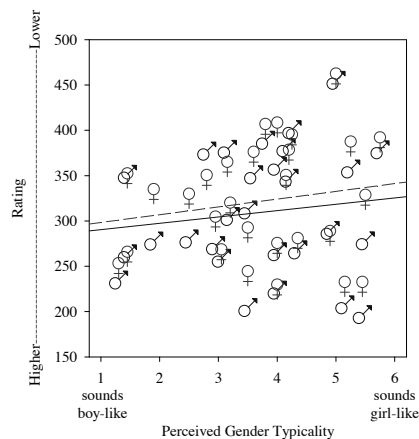


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Acoustic Gender Typicality and Gender Bias

- The ambiguous narratives were not especially susceptible to biasing from the pictures
- These data points are averages for
 - ♂: Average ratings paired with male faces
 - ♀: Average ratings paired with female faces

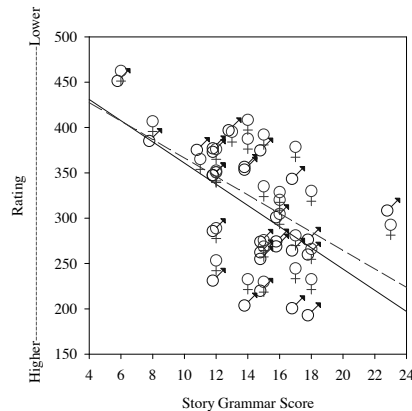


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Narratives were not equally susceptible to bias

- But the more-complex narratives were more susceptible to bias than the less-complex ones.

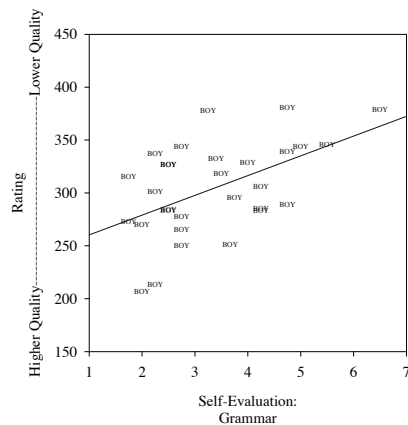


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Listeners were biased in different ways

- Listeners who reported that they listen to grammar, syntax, and vocabulary were more prone to rate narratives as higher quality when paired with boys' faces than were those who said that they didn't attend to these things

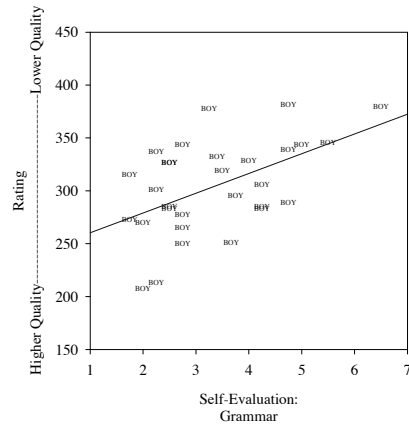


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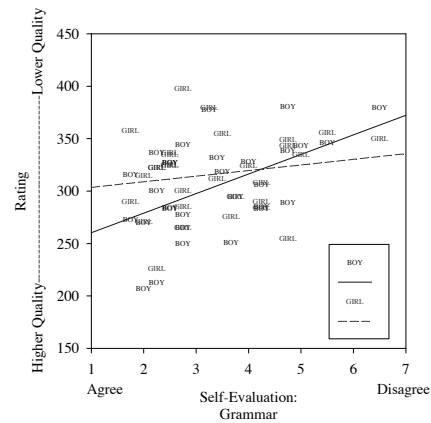


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Why are (apparent) boys' narratives better than (apparent) girls' narratives?

- Why didn't we replicate Shepherd? Two possibilities
 - 1. The listeners in this study do in fact believe that girls have better language than boys, but the subjective nature of the rating task led them to 'raise the bar' when they thought they were listening to girls
 - What's good enough for a boy might not be good enough for a girl
 - 2. The listeners in Shepherd were teachers. Perhaps the general public (from which our listeners were drawn) believes differently.



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Tying it up

- Whatever the source of the bias was, the take-home message is that subjective ratings are subject to bias based on beliefs about gender and linguistic complexity
- When incorporating subjective appraisals of language ability into assessments of children's performance, consider these potential biases, including in your own ratings.



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