The Effect of a Modeled /r/ Articulatory Disorder on Listener Perceptions of Speech Skills and Personality Traits

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ABSTRACT: Purpose: There has been little research regarding the perceptions of adults with an /r/ articulatory disorder. The present study investigated students’ perceptions of an individual who was either modeling an /r/ articulatory disorder or speaking normally. Method: A sample of 188 undergraduate students volunteered to participate in this study. They listened to an audiotape of an adult female speaker who was either modeling an /r/ articulatory disorder or speaking normally, then completed a questionnaire designed to assess their perceptions of the speaker. Results: The students viewed the speech of the individual who was modeling an /r/ articulatory disorder as significantly less fluent, less intelligible, less grammatically correct, and having less appropriate levels of volume than the speech of the individual who was speaking normally. Students felt less comfortable listening to the individual who was modeling an /r/ articulatory disorder, were less likely to hire her, and perceived her as more uncomfortable speaking when she used disordered speech. The speaker in this condition was also rated as being significantly less organized, less employable, and less educated than the speaker who was speaking normally. Conclusion: Results confirm previous findings suggesting that listeners perceive individuals with speech disorders more negatively than they do individuals without speech disorders.

KEY WORDS: articulation disorders, speech-language pathology, perceptions, attitudes, survey, students
samples of speech from a male actor who either spoke normally or mimicked a lisp, stuttering, hoarseness, or Wernicke’s aphasia. They found that the no-disorder sample was rated higher in several traits.

Studies of people with voice disorders yielded similar results. Gilmore (1974) found that listeners perceived esophageal speakers as being less socially acceptable, less able to handle jobs, and deserving lower prestige and lower public contact jobs than normal speakers. Blood et al. (1979) examined the effect of a harsh, breathy voice and a hypernasal voice and found that these voices elicited more negative judgments about the speaker’s personality and appearance than did a typical voice. Overby et al. (2007) studied intelligibility in children and showed that teachers rated a student more negatively in academic competence, social acceptance, behavioral conduct, and overall self-perception profile score when the student’s speech sample was less intelligible than normal. Overby et al. also found that a child with lower intelligibility was expected to struggle in school, have literacy delays, and be more shy and timid.

Although most of the research on individuals with speech disorders points to generally negative listener perceptions, not all of the findings are consistent. Williams and Dietrich (1996) conducted a study asking students to rate a description of an individual with no disorder or with a stuttering, voice, or articulation disorder. Results revealed that the description of an individual with no disorder was rated highest in self-esteem, emotional stability, and social adjustment. However, it was also rated lowest in decisiveness, reliability, and tension. The description of an individual who stuttered was rated highest in intelligence, decisiveness, and ambition, but lowest in self-esteem and social adjustment. The description of an individual with a voice disorder was rated highest in employability and lowest in emotional stability. Lastly, the description of an individual with an articulation disorder was rated as most reliable but least intelligent. However, these interesting findings are somewhat limited, as the investigators asked participants to rate a written description of an individual rather than an audio or video recording of an actual speaker with a disorder. The mere description of a speech disorder may not elicit reactions that are as realistic as an audio or video sample of disordered speech (Wenker, Wegener, & Hart, 1996).

There is less research on the /r/ articulatory disorder and its effects on listeners’ perceptions of the individual who has it. Unfortunately, the few findings published suggest that listeners’ perceptions are often negative. For example, Silverman and Paulus (1989) found that sophomores in high school rated a peer with an /r/-/w/ substitution more negatively than they rated a peer without such a disorder. Hall (1991)
found that fourth and sixth graders judged a peer with an /r/ or an /s/-/z/ articulatory disorder negatively; the children with disordered speech experienced less popularity and acceptance from their peers.

Although these studies highlight negative perceptions of children with an /r/ articulatory disorder, there is a paucity of research examining the perceptions of adults with an /r/ articulatory disorder. More current research is needed to examine if these stigmas continue to persist, especially when respondents are presented with an actual sample of the disordered speech rather than merely a written description. As school speech-language pathologists (SLPs) frequently have individuals with articulation disorders on their caseloads, it is important to examine the current perceptions of these individuals. This is especially important in unfortunate cases in which the articulation disorder persists into adulthood. Therefore, the present study was conducted to address these issues using recordings of a speaker who modeled an /r/ disorder in one sample and spoke normally in another sample. We hypothesized that listeners would rate the individual more negatively when she modeled the /r/ articulation disorder than when she used normal speech.

**METHOD**

**Participants**

Students enrolled in several introductory-level university classes in anthropology, communications, psychology, and sociology were invited to participate in the study. There was a total of 188 participants, of whom 68 were male and 118 were female (two did not identify). The age of the participants ranged from 14 to 27 years (M = 19.37, SD = 1.51). There were 76 first-year students, 39 second-year students, 32 third-year students, 23 fourth-year students, and 18 students who did not indicate class rank. Participants reported a wide variety of majors, the most prevalent of which were business (15.4%), education (13.3%), communication (11.7%), and creative arts (10.1%).

The self-identified racial background of the participants included 153 Caucasians (81.4% of the sample), three African Americans (1.6%), six Asian Americans (3.2%), and five Latin Americans (2.7%). There were five students (2.7%) who selected “other” for race, and 16 students (8.5%) did not provide information about their race.

Additional information was collected with regard to the students’ exposure to and knowledge of speech disorders. More than nine percent of students (9.6%) reported having a speech disorder, 14.9% reported having a family member with a speech disorder, 43.1% reported having a friend with a speech disorder, and 37.8% reported having knowledge of speech disorders.

**Materials**

Two audiotapes were recorded by a female graduate student in communication disorders and sciences. She was trained by two certified SLPs and also listened to various samples of /r/-disordered speech in order to prepare for modeling an /r/ disorder. After several hours of training, she recorded two audiotaped samples. Both recordings used an identical script of a story about a trip to New York City. In one recording, the graduate student spoke normally; in the other recording, she modeled an /r/ articulatory disorder.

The audiotapes were analyzed independently by two certified SLPs who were blind to the purpose of the study in order to verify the presence of a mis-articulated /r/ in the “disordered” recording. The /r/ symbol is used to represent the alveolar approximant rather than the current symbol used by the International Phonetic Association (i). This preference was based on the fact that the speaker in this study was a native English speaker, as well as the fact that the /r/ symbol is used to represent this sound in major dictionaries of American and British English pronunciation (Ladefoged, 2005).

Each of the two SLPs was provided with a scoring sheet that listed all 136 exemplars of /r/ that occurred in the script that was used to record the audio samples (e.g., travelled). Each reviewer checked off whether each exemplar of /r/ was produced correctly or incorrectly (i.e., a substitution, distortion, or omission). The word position of each exemplar (i.e., initial, medial, or final) was also noted. The second author later calculated the percentage correct production of /r/ for each of the two audio samples (i.e., disordered and normal) for both reviewers. Percentage correct production of /r/ in the normal recording was judged by both reviewers to be 100.0%. Percentage correct production in the disordered recording was judged to be 24.3% by Reviewer 1 and 13.2% by Reviewer 2. The results indicate an obvious, clinically significant difference in /r/ articulation between the normal speech and disordered speech.

A more detailed inspection of the SLPs’ analyses revealed that Reviewer 1 identified 20 substitutions, 75 distortions, and eight omissions (103 total errors), and Reviewer 2 identified 34 substitutions, seven distortions, and 77 omissions (118 total errors). Regarding word position of the articulation errors, Reviewer 1 identified six errors in initial position, 68 errors in medial position, and 29 errors in final position, and
Reviewer 2 identified five errors in initial position, 76 errors in medial position, and 37 errors in final position.

**Instrument**

The investigators designed a survey that was similar to the one found in Lake, Blanchet, Levonyan-Radloff, and Klonsky (2009). This survey contained five comprehension questions, five speech skills questions, five perception questions about the speaker’s general characteristics, 20 personality trait questions, and 10 optional demographic questions. The comprehension section contained five multiple-choice questions about the script that were designed as a selective measure to eliminate participants who did not demonstrate adequate comprehension of the story. The inclusion criterion was four correct answers, or 80% correct; participants who scored lower than 80% were excluded from the analysis.

The speech skills section of the survey measured the students’ perceptions of the speaker’s speech rate, fluency, grammar, intelligibility, and volume. These were measured using a 5-point scale ranging from 1 to 5, with lower numbers indicating positive ratings and higher numbers indicating negative ratings (see the Appendix). The five perception questions measured the students’ perceptions of speaker comfort, listener comfort, how likely the participant was to befriend and hire the speaker, and where the participant thought the speaker was from. The first four questions were measured using a 5-point scale, with the left side being negative and the right side being positive. Lastly, the 20 personality questions used a 7-point bipolar scale ranging from 1 to 7, with lower numbers indicating more positive qualities and higher numbers indicating more negative qualities.

**Procedure**

The investigators recruited students from introductory-level classes in anthropology, sociology, psychology, and communications. The investigators asked instructors’ permission to come into classrooms during the final 15 min of class and requested that the instructor be absent during this time so the students would not feel pressured to participate. Of the classes that agreed to participate, half were randomly assigned to the modeled /r/ condition and half were randomly assigned to the typical speech condition. The first author visited all classrooms within a 2-week period. After the instructor left the classroom, the investigator explained the purpose of the study, gave the option to not participate, and distributed the consent forms. The investigator used a written script to ensure that all classrooms received the same instructions. Participants were asked to listen to the audiotape and fill out a questionnaire based on what they heard. Those who chose not to participate were allowed to leave or to read literature about a topic in psychology that was provided by the investigator.

**Data Analysis**

We computed mean, standard deviation, and standard error values for speech skills, other perceptions, and personality characteristics. Two-tailed independent-samples t tests were employed. In order to reduce the likelihood of a Type I error, we divided the experiment-wise significance level of 0.05 by the number of comparisons made. Thus, the significance levels for both speech skills and perception were 0.0100 (0.05/5), whereas the personality trait significance level was 0.0025 (0.05/20).

**RESULTS**

Mean, standard deviation, and standard error values for speech skills, other perceptions, and personality characteristics are shown in Tables 1, 2 and 3, respectively. Results revealed that students perceived the modeled /r/ disordered speech as being significantly less fluent, less grammatically correct, less intelligible, and having less appropriate volume levels than the normal speech. The students perceived the person modeling the /r/-disordered speech as being less comfortable talking than when this same person used her normal speech. The students also reported that they felt less comfortable listening to the /r/-disordered speech than the normal speech. They also reported being less likely to hire the person when she modeled the /r/ articulatory disorder than when she used her normal speech. As for personality characteristics, the speaker was rated significantly lower on organization, employability, and education level when she modeled the /r/ disorder than when she used normal speech.

**DISCUSSION**

The present results support previous findings that people have negative perceptions of individuals with speech disorders (Allard & Williams, 2008; Blood et al., 1979; Dorsey & Guenther, 2000; Gilmore, 1974; Hall, 1991; Kalinowski et al., 1987; McKinnon et al., 1986; Mowrer et al., 1978; Overby et al., 2007; Silverman, 1976; Silverman & Paulus, 1989; Turnbaugh et al., 1979; Woods & Williams, 1976). The results
of this study indicate that the speaker received lower ratings on speech skills when she modeled the /r/-disordered speech than when using her normal speech. For example, the speaker was perceived as having poorer grammar when she modeled the /r/-disordered speech, even though the script used for the two recordings were identical. This suggests that it was the disordered speech articulation, rather than the wording, that affected listeners’ perceptions. Likewise, the speech was rated as less fluent and less intelligible when the speaker modeled the /r/ disorder than when she spoke normally. This suggests that the presence of a misarticulated /r/ makes speech more difficult to understand, which may make the listener uncomfortable or frustrated. Consistent with this, students rated themselves as being less comfortable talking, less employable, less organized, and less educated than when using her normal speech.

Previous studies examining gender differences in the perceptions of individuals with speech disorders have yielded mixed results. Some of the literature on stuttering has shown that females tend to view people who stutter more positively than males do (Dietrich et al., 2001). Other studies, however, have not yielded significant differences between males and females (Wenker et al., 1996). The present study did not find any significant effects of gender on the students’ perception of the speaker. Future studies may consider investigating the effects of the speaker’s gender on listeners’ perceptions more thoroughly.

The influence of age was not directly examined in this study. Future studies may examine the effects of the age of the speaker or the age of the listeners on listeners’ perceptions. For example, children with articulation disorders may be viewed differently than adults with the same disorder (Hall, 1991; Silverman & Paulus, 1989). At the same time, younger listeners may perceive an individual with an articulatory disorder differently than older listeners.

During the /r/ articulation disorder condition, the speaker was rated as being less comfortable talking, less employable, less organized, and less educated than when using her normal speech.

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### Table 1. Means, standard deviations, standard errors, and results of t tests for each of five bipolar speech scales reported comparing the speaker’s typical speech and her /r/-disordered speech.

<table>
<thead>
<tr>
<th>Scale item</th>
<th>Typical speech</th>
<th>Modeled /r/ speech</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>SE</td>
<td>M</td>
</tr>
<tr>
<td>Appropriateness/Inappropriateness of speed</td>
<td>1.59</td>
<td>0.82</td>
<td>0.08</td>
<td>1.86</td>
</tr>
<tr>
<td>Fluentness/Disfluency</td>
<td>1.43</td>
<td>0.74</td>
<td>0.07</td>
<td>2.73</td>
</tr>
<tr>
<td>Correctness/Incorrectness of grammar</td>
<td>1.73</td>
<td>0.80</td>
<td>0.08</td>
<td>2.45</td>
</tr>
<tr>
<td>Intelligibility/Unintelligibility</td>
<td>1.70</td>
<td>0.82</td>
<td>0.08</td>
<td>2.34</td>
</tr>
<tr>
<td>Appropriateness/Inappropriateness of speech volume</td>
<td>1.53</td>
<td>0.82</td>
<td>0.08</td>
<td>1.91</td>
</tr>
</tbody>
</table>

*Note. This table shows items in a 5-point bipolar scale, with lower numbers indicating positive qualities and higher numbers indicating negative qualities.

* p ≤ 0.01.

### Table 2. Means, standard deviations, standard errors, and results of t tests for each of four bipolar perception scales reported comparing the speaker when she used her typical speech and when she modeled /r/-disordered speech.

<table>
<thead>
<tr>
<th>Scale item</th>
<th>Typical speech</th>
<th>Modeled /r/ speech</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>SE</td>
<td>M</td>
</tr>
<tr>
<td>Uncomfortable/Comfortable talking</td>
<td>4.26</td>
<td>0.88</td>
<td>0.09</td>
<td>3.83</td>
</tr>
<tr>
<td>Uncomfortable/Comfortable listening</td>
<td>4.17</td>
<td>0.86</td>
<td>0.09</td>
<td>3.49</td>
</tr>
<tr>
<td>Unlikely/Likely to befriend</td>
<td>3.13</td>
<td>1.13</td>
<td>0.11</td>
<td>3.31</td>
</tr>
<tr>
<td>Unlikely/Likely to hire</td>
<td>3.87</td>
<td>0.87</td>
<td>0.09</td>
<td>3.36</td>
</tr>
</tbody>
</table>

*Note. This table shows items in a 5-point bipolar scale, with lower numbers indicating negative qualities and higher numbers indicating positive qualities.

* p ≤ 0.01.
Lastly, the severity of the disorder may also affect listeners’ perceptions. Although Turnbaugh et al. (1979) did not find that perceptions varied due to the severity of stuttering, there has been no research regarding the effects of the severity of articulation disorders on listeners’ perceptions. Perhaps a mild articulation disorder would be less conspicuous than a more severe articulation disorder, whereas any form of stuttering is immediately obvious, so that even mild stuttering will affect listeners’ perceptions. More severe articulatory disorders may elicit stronger negative perceptions than milder, less noticeable disorders. Future research investigating this issue is warranted.

Study Limitations

Although the present study was conducted with attention to detail, there were several limitations that should be noted. First, the graduate student recording the scripts was simply modeling the /r/-disordered speech. An individual with an actual disorder may be rated differently than an individual who is merely modeling such a disorder. The use of audiotapes also limited the study in that participants were not able to see the speaker. Perceptions of an individual with an articulatory disorder may be influenced not only by their disorder, but also by their appearance. A future study might use a video or live presentation to examine the effects of the /r/-speech disorder on the speaker’s perceived appearance. Lastly, although participants in the present study were asked optional questions regarding the number of family members, friends, and acquaintances with speech disorders, no correlations were attempted due to the limited number of participants choosing to provide this information. Future investigators may wish to examine this relationship between exposure to individuals with disordered speech and perceptions more directly.

As the results of this study, along with those of previous studies, suggest that listeners have negative perceptions of speakers with speech disorders, the next step would be to study methods of reducing or eliminating stigmas associated with individuals with an /r/-articulatory disorder or other speech disorders and to help individuals cope with these perceptions. As stated by McKinnon et al. (1986), SLPs can help their clients deal with negative perceptions by counseling them. Individuals with speech disorders can make others aware of their condition, which might reduce negative perceptions of that individual and

Table 3. Means, standard deviations, standard errors, and results of t tests for each of 20 bipolar personality scales reported comparing the speaker when she used her typical speech and when she modeled /r/-disordered speech.

<table>
<thead>
<tr>
<th>Scale item</th>
<th>Typical speech</th>
<th>Modeled /r/ speech</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>SE</td>
<td>M</td>
</tr>
<tr>
<td>Talkative/Quiet</td>
<td>2.58</td>
<td>1.27</td>
<td>0.13</td>
<td>2.94</td>
</tr>
<tr>
<td>Outgoing/Shy</td>
<td>2.66</td>
<td>1.43</td>
<td>0.14</td>
<td>2.91</td>
</tr>
<tr>
<td>Not frustrated/Frustrated</td>
<td>2.24</td>
<td>1.34</td>
<td>0.13</td>
<td>2.53</td>
</tr>
<tr>
<td>Intelligent/Unintelligent</td>
<td>2.47</td>
<td>1.17</td>
<td>0.12</td>
<td>2.92</td>
</tr>
<tr>
<td>Friendly/Unfriendly</td>
<td>1.80</td>
<td>0.96</td>
<td>0.10</td>
<td>1.89</td>
</tr>
<tr>
<td>Socially competent/Socially incom</td>
<td>2.21</td>
<td>1.23</td>
<td>0.12</td>
<td>2.51</td>
</tr>
<tr>
<td>Relaxed/Tense</td>
<td>2.46</td>
<td>1.35</td>
<td>0.14</td>
<td>2.71</td>
</tr>
<tr>
<td>Competent/Incompetent</td>
<td>2.10</td>
<td>1.15</td>
<td>0.12</td>
<td>2.60</td>
</tr>
<tr>
<td>Confident/Insecure</td>
<td>2.23</td>
<td>1.15</td>
<td>0.12</td>
<td>2.63</td>
</tr>
<tr>
<td>Attractive/Unattractive</td>
<td>3.60</td>
<td>1.25</td>
<td>0.13</td>
<td>3.70</td>
</tr>
<tr>
<td>Organized/Uorganized</td>
<td>2.45</td>
<td>1.30</td>
<td>0.13</td>
<td>3.03</td>
</tr>
<tr>
<td>Approachable/Unapproachable</td>
<td>2.15</td>
<td>1.26</td>
<td>0.13</td>
<td>2.59</td>
</tr>
<tr>
<td>Employable/Not employable</td>
<td>2.2</td>
<td>1.18</td>
<td>0.12</td>
<td>2.99</td>
</tr>
<tr>
<td>Credible/Not credible</td>
<td>2.32</td>
<td>1.12</td>
<td>0.11</td>
<td>2.78</td>
</tr>
<tr>
<td>Reliable/Unreliable</td>
<td>2.39</td>
<td>1.24</td>
<td>0.13</td>
<td>2.64</td>
</tr>
<tr>
<td>Sincere/Insincere</td>
<td>2.27</td>
<td>1.21</td>
<td>0.12</td>
<td>2.22</td>
</tr>
<tr>
<td>Likeable/Unlikeable</td>
<td>2.23</td>
<td>1.17</td>
<td>0.12</td>
<td>2.37</td>
</tr>
<tr>
<td>Unafraid/Fearful</td>
<td>2.52</td>
<td>1.32</td>
<td>0.13</td>
<td>2.67</td>
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<tr>
<td>Educated/Uneducated</td>
<td>2.14</td>
<td>1.15</td>
<td>0.12</td>
<td>2.77</td>
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<tr>
<td>Popular/Unpopular</td>
<td>3.20</td>
<td>1.30</td>
<td>0.13</td>
<td>3.62</td>
</tr>
</tbody>
</table>

*Note.* This table shows items in a 7-point bipolar scale, with lower numbers indicating negative qualities and higher numbers indicating positive qualities.

*p < 0.0025.
increase awareness of speech disorders. Increasing awareness and educating the public about negative stereotypes associated with speech disorders might also lessen the amount of stigma associated with these disorders.

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**REFERENCES**


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APPENDIX (p. 1 of 3). STUDY SURVEY

In the following survey, you will be asked several questions about the speaker and her vacation. Please mark your answers on this paper.

**Comprehension**

1. What city did the speaker travel to?
   a. Chicago   b. New York City   c. San Francisco   d. Los Angeles

2. Where did the speaker stay?
   a. A friend’s house   b. A fancy hotel   c. A motel   d. A hostel

3. Why was the speaker unable to go to the Metropolitan Museum of Art (the Met) when she first arrived to the city?
   a. She had no money. b. The museum was closed. c. She had her suitcase with her. d. She was banned from entering.

4. What was the speaker’s complaint about the Met?
   a. The exhibitions were boring. b. The food was expensive. c. It was too big. d. It was crowded.

5. What was the speaker’s recommendation on how to find your way around the city?
   a. Ask a pedestrian. b. Get directions online. c. Get a subway map. d. Ask someone working at a hotel or restaurant.

**Speech Skills**

Please circle a number for each category to indicate your opinion of the speaker’s performance.

1. Presentation Speed:
   Appropriate    1 2 3 4 5   Inappropriate

2. Speech Fluency:
   Fluent    1 2 3 4 5   Disfluent

3. Grammar:
   Completely correct    1 2 3 4 5   Completely incorrect

4. Intelligibility:
   Intelligible    1 2 3 4 5   Unintelligible

5. Speech Volume:
   Appropriate    1 2 3 4 5   Inappropriate

**Other Perceptions**

Circle a number for each question.

1. How comfortable does this person seem at talking?
   Not at all comfortable    1 2 3 4 5   Extremely comfortable

2. How comfortable were you listening to this person speak?
   Not at all comfortable    1 2 3 4 5   Extremely comfortable

3. How likely are you to befriend this person if you met them in real life?
   Not likely    1 2 3 4 5   Very likely
### APPENDIX (p. 2 of 3). STUDY SURVEY

4. If you were an employer, how likely are you to hire this person?
   - Not likely 1 2 3 4 5 Very likely

5. Where do you think this person is most likely from?
   - City
   - Rural
   - Suburb
   - Another country
   - I don’t know

### Personality Characteristics

For the following questions, please circle one number on each line, indicating your opinion of the speaker. For example, for the “Talkative/Quiet” category, a 1 would indicate extremely talkative, whereas a 7 would indicate extremely quiet.

<table>
<thead>
<tr>
<th>Number</th>
<th>Category</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<tbody>
<tr>
<td>1</td>
<td>Talkative</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
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<td>2</td>
<td>Outgoing</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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<td>3</td>
<td>Not frustrated</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
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<td>4</td>
<td>Intelligent</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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<td>6</td>
<td>Socially</td>
<td>1</td>
<td>2</td>
<td>3</td>
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APPENDIX (p. 3 of 3). STUDY SURVEY

Demographic Information

The following questions are OPTIONAL

1. Gender ___________                      2. Age ________________
3. Race
   • African American
   • Asian American
   • Caucasian American
   • Latino(a) American
   • Other (Please specify): ___________________________
4. Major: ________________________________
5. Class Rank (freshman, sophomore, junior, senior, or graduate student): ________________
6. Parental Occupations (job titles):
   father: ___________________________________
   mother: ___________________________________
   Parental Education (highest level):
   father: ___________________________
   mother: ___________________________
7. Do you have or have you ever had a speech disorder? (circle)   Yes    No
8. Any family members with a speech disorder? (circle)   Yes    No
9. Any friends or acquaintances with a speech disorder? (circle)   Yes    No
10. Do you have any previous knowledge or experience with speech disorders? Yes  No