SAGE Research Methods Cases Psychology (in press)

Case Title

Using Experimental and Correlational Methods to Assess the Role of Accents and Gender on Perceptions of Competence.

Margaret L. Signorella

Penn State Brandywine, United States

Email: msignorella@psu.edu

Article to be discussed:

Nelson, L. R., Signorella, M. L., & Botti, K. G. (2016). Accent, gender, and perceived competence. *Hispanic Journal of Behavioral Sciences*, 38(2), 166-185. doi: 10.1177/0739986316632319

Abstract

Research on the impact of different accents on perceptions of individuals is both important and difficult. The main challenge is in creating realistic portrayals of accents that also control for potential confounding variables. The advantages and disadvantages of three different options are reviewed: the same person speaking in different accents, different persons speaking in different accents, and computer generated accents. This case study describes the method, procedure and results from a study in which the decision was made to use different persons to convey different accents. Although the experimental manipulations were not as controlled as might be ideal, they were used with the aim of increasing realism and external validity. Manipulation checks are described that tested whether the experimental manipulations were effective in conveying similar levels of accents in male and female speakers. Procedures for reducing the risk of experimenter bias are also described. The inclusion of an unmanipulated variable, participant gender, and the interpretational issues, are also discussed. There continues to be a need for research on the impact of speaking with an accent, in spite of the methodological complications.

Project Overview and Context

One key to getting students involved in and excited about research is to encourage them to explore topics about which they are passionate. One of my department's advanced undergraduate students, Larry Nelson, approached me about an idea he had for his capstone project. He explained that he had observed persons in the US state of Pennsylvania seemingly treated differently depending on whether they spoke with an indigenous accent (in this case, North American-accented English) or not. In particular, he felt that those who spoke with a nonindigenous accent were perceived as less competent than those speaking in the local accent. He wanted to test that observation experimentally.

To Nelson's original idea, I added the variable of speaker gender. My research focuses on the development and consequences of stereotyping, but with an emphasis on gender. Several of my studies and meta-analyses had supported the conclusion that information processing might be impacted by gender and gender stereotypes. Studies on the content of gender stereotypes, such as one by Spence and Buckner (2000) in which college students compared typical men and women on personality traits, tend to show that competence and other similar traits are stereotyped as masculine. I suggested, therefore, that the judgment of a speaker's gender might be another crucial variable in understanding the impact of accents on how individuals are perceived.

An early step in any research project is a review of the literature, and the review of studies on accents and perceptions highlighted two areas that informed the subsequent design of the research. Nelson had already found some articles suggesting that speaking with a nonindigenous accent might be associated with less favorable perceptions, but he needed to expand his review to include gender. Another area that needed attention was the types of nonindigenous accents that had been studied, as there were some exceptions to the general finding that nonindigenous accents were associated with negative perceptions. In addition to searching the primary database in psychology, PsycINFO, we also performed additional searches that are sometimes associated with meta-analyses, but which are good general strategies for capturing the relevant literature. These included checking the reference lists of all relevant articles, and checking the citations of those publications.

Two insights emerged from this review. One was that gender had rarely been considered in the study of accents. As we described subsequently in our article (Nelson, Signorella, & Botti, 2016), many accent studies used only male speakers, a few only female, and some did not analyze results by participant gender. The tendency to consider male individuals as the default, to fail to test all genders, or to neglect gender as a consequential variable, has a long history in psychology research (e.g., Sherif, 1998), and perhaps should not have been unexpected. The second conclusion from the literature review was that there were relatively few studies in which Spanish-accented English was compared to North American-accented English. Recently, Hugo Lopez & Gonzalez-Barrera (2013) presented data showing that Spanish is the second most common language spoken in the US following English. Nonetheless, researchers studying prejudice have observed fewer studies on bias toward Hispanic persons than might be expected

(Dovidio, Gluszek, John, Dittmann, & Lagunes, 2010). We thus decided that the accents to be compared should be North American-accented English versus Spanish-accented English, and also that we needed to vary speaker gender.

Research Practicalities

There was one overarching methodological question to be resolved in planning this project. The review of the literature on biases related to accents showed that there were two major ways in which accents were manipulated. As described by Hosoda and Stone-Romero (2010, p. 128), some studies used a “matched guise” technique, using speakers who could speak in different accents. Other studies used the “verbal guise” method, in which different persons were used to convey the different accents being tested.

Both matched and verbal guise procedures have advantages and disadvantages. Using the same speaker controls for other aspects of oral expression, such as pitch, but relies on one speaker who may have other characteristics that are unknowingly influencing the outcomes. Using different speakers introduces other variables beyond accent, but the alternative, finding individuals who can realistically speak in two accents, is challenging. It is not uncommon for movie reviewers to criticize the accents used by actors who presumably have dialect coaches to train them, such as Gliberman’s 2016 review of the film *Denial*. The additional practical concern was whether we had any chance of finding someone who could perform different accents.

One other option we considered was to generate the speech artificially. Different voices and accents can be computer generated. For example, Apple’s Siri can be set to speak with a typical male or female voice using different languages and accents. Nelson tested the computer-generated voice option and we concluded that the voices sounded noticeably artificial. At some point, the technology will be able to create realistic-sounding voices, but that was not a plausible alternative for us as we developed the materials for the study.

We thus concluded that the only practical choice, and one that was both defensible and testable regarding internal validity, was to use different speakers for each combination of accent and speaker gender. This decision required that Nelson find speakers, and fortunately he was able to find willing volunteers. Three of the four persons who agreed to record their oral reading of a passage were high school teachers. Two served as the male and female native North American English speakers and one as the female native Spanish speaker. The individual recruited as the male native Spanish speaker was not currently working as a teacher but had previous acting experience.

The speakers were neither matched by age nor by country of origin. The speaker differences were potential threats to the internal validity of the study. The ages of the speakers were not the biggest issue, however, because the ages were within the adult range in which there are not large changes in a person’s voice, according to the National Center for Voice and Speech. A greater concern, given the focus of the research, was that one native Spanish speaker was from

Chile and one from Colombia. Previous research, such as the study by Podberesky and colleagues (1990), had shown, however, that student participants are not able to correctly match Spanish accents with particular Spanish-speaking countries.

As will be explained in the research design section below, we asked the study participants to answer several questions that served as manipulation checks. We needed to find out whether the study participants could correctly identify the recorded speaker's gender, whether the participants perceived an accent in the recorded speaker's recitation, and if the participants thought that the recorded speaker had an accent, what type of accent was it.

Finding a passage for the speakers to read was a relatively easier methodological task. Given that we were assessing competence, it seemed appropriate to use a nonfiction passage from a news article.

Research Design

The objectives of the project were to test whether speaker accents, speaker gender, or participant gender impacted perceptions of a speaker's knowledge and competence. We needed, therefore, to recruit sufficient numbers of female and male participants, and needed to randomly assign those participants by gender to one of the four possible combinations of speaker gender and speaker accent (male speaker, Spanish accent; male speaker, North American English accent; female speaker, Spanish accent; female speaker, North American English accent). In the section on *Method in Action* I will describe the process used to make the random assignments. Once participants were recruited and randomly assigned to one of the conditions, they listened to the assigned recording and answered a series of questions.

At the time the study was conducted, it was still considered adequate to have 10 male and 10 female participants in each of the conditions. The final numbers of participants in each were close to the target of 10, for a total of 80. If we were doing the study today, we would like to have at least double those numbers, to increase statistical power. We also were not able to randomly sample from the population of students at our campus, but rather, as will be described in more detail below, our participants were volunteers who were then randomly assigned within gender to one of the conditions.

The design used in this study is sometimes called a mixed factorial design, in that we had two manipulated variables or factors and one that was not manipulated. The two manipulated factors, or independent variables, were speaker accent (North American accented English; Spanish accented English) and speaker gender (female, male). The unmanipulated factor was participant gender (female, male). Opinions differ as to whether it is appropriate to call an unmanipulated factor such as gender or ethnicity an independent variable, but it is common practice to do so. The technical terminology for the overall design was 2 X 2 X 2, which results in 8 cells or groups representing all possible combinations of the three factors. In addition, all three factors were between subjects, meaning that different persons were recruited for each cell of the design.

To assess whether the four recordings were interpreted as intended regarding gender and accent, we asked several questions as manipulation checks. Manipulation checks typically are used in experimental research to see if the manipulation was noticed by participants and interpreted as intended by the researchers. Rating scales and open-ended questions were used to measure participant perception of the extent of a speaker's accent, the type of accent, and the speaker's gender. Specifically, we asked participants "Was the recording you heard spoken with an accent?" and provided a 5-point rating scales (anchored by 1=none detected to 5=distinct accent). The open-ended question on accent was: "If you thought the person was speaking with an accent, please identify the country of origin. If you could not tell or do not know, please indicate so." The question about gender, "What was the gender of the person speaking?", had the following possible answers: female, male, or could not tell. The manipulation checks for accent allowed us to determine if the different ages and countries of origin of the speakers may have impacted comprehension of the accents. In addition, all of these questions provided a check on whether the speakers were realistically conveying the social categories we intended.

The main dependent variables were ratings of the speaker's competence and knowledge. Two questions were aimed at whether the participants thought they could understand what the speaker was saying, and two questions addressed more broadly their perceptions of the speaker's competence and knowledge. Whenever more than one question is asked about what may be a concept all have in common, it is a good idea to test whether the various questions are similar enough that they should be combined into one measure. When we computed correlations among the four competence questions, we discovered that the two questions about the speaker's ability to be clear and understandable were highly correlated, as were the two questions about the speaker's knowledge of the material in the passage. As a result, we combined each of these pairs into single measures (communication competence, knowledge). Student participants were also asked for standard demographic information about their gender, age, and ethnicity. Participant gender was one of the factors to be analyzed, and ethnicity was potentially a moderating factor if there were a significant number of Hispanic students who participated in the study.

Method in Action

Before commencing data collection, any research study with human participants must receive approval from the researcher's local Institutional Review Board (IRB). IRB approval requires a complete description of the materials and procedures, method for obtaining informed consent, and documentation of any possible risks to (or benefits from) the research.

Nelson and I recruited undergraduate psychology students to serve as the experimenters. Nelson trained the students in the procedure, which included mock testing sessions, and once testing began, monitored their delivery of the protocol. The students received independent research credit for their assistance in the project.

To control as much as possible for any experimenter effects or other biases, we used several procedures during the recruitment and testing of the participants. First, as described above, we

had several student experimenters who recruited and tested the participants. By not having the person who designed the study interacting with the participants, there was less opportunity for experimenter expectations to influence the participants. There were still potential problems to address with the experimenters because the student experimenters could not be kept completely naïve. Certain aspects of the protocol they would be exposed to as experimenters—most notably, the questionnaire with its clear focus on accents and gender, and the debriefing statement given at the end—likely were clues to the theme of the study.

To control as much as possible for experimenter expectations, therefore, Nelson designed a process for data collection to ensure that any experimenter collecting data was blind to which condition participants had been assigned. In other words, the experimenters did not know which recording the participant was being given out of the four possible combinations of speaker accent and speaker gender. Each of the four recordings were given eight random code numbers generated from [RANDOM.ORG](https://www.random.org). For example, the audio file with the female speaking with a Spanish accent would be duplicated eight times and given eight different file names from the randomly generated code numbers (e.g., 33.mp3, 45.mp3, etc.). All copies of the four recordings were loaded on an mp3 player. Two ordered lists of recording numbers were prepared for the experimenters to use: one list for male and one for female participants. The structure of the lists insured that each condition was used equally often by each experimenter team and for each participant gender. This procedure not only prevented the experimenters from concluding how many recording conditions there were but also which recording was being given to which participant. Presumably, then, the experimenters would not be able to communicate any expectations to the participants, or treat participants differently based on the condition to which the participants had been assigned.

Following a recruitment script, pairs of experimenters approached persons in the student union building on campus and asked if they would agree to participate in a study. Those who agreed were taken to a quiet corner of the building and given the implied consent form, which described the study but which did not require a signature. Next, the designated recording (selected from the ordered lists of audio files described above) was played for the participant on an Apple iPod with headphones. The participants were then given the questionnaire containing the manipulation check questions, the dependent measures, and the demographic items. Following completion of the questionnaire, the participants were debriefed by being given a written explanation.

Practical Lessons Learned

The results of this study showed some biases related to the type of accent and gender of speaker. Participants rated the speakers with Spanish accents lower in communication competence than were the participants who heard the speakers with North American English accents. On the perceptions of knowledge, female speakers were rated as more competent when speaking with a North American English accent than when speaking with a Spanish accent. These results supported the hypothesis that speaking with a nonindigenous accent

lowered perceptions of competence and that women speaking with nonindigenous accents would be perceived as less knowledgeable.

An important aspect of internal validity is attempting to control as many aspects of the study as possible so to assure that the manipulations are the only systematic variations in the study. When dealing with different individuals speaking in various accents, control is challenging, as described above. If the decision is to go with the more natural and thus less controlled option, there must be internal checks on possible threats to validity.

In this example, our manipulation checks asked for perceptions of the speakers' gender and accent. Almost all participants correctly identified the gender of the speaker. The two speakers with Spanish-accented English were rated near the top of the 5-point accent scale (about 4.5), whereas the two speakers with North American accented English were rated near the bottom (about 1.7). Participants were aware of the differences in conditions we were trying to create. Importantly, the success of the accent manipulation was not impacted by any other factor. There were no other differences in accent rating by gender of speaker or gender of participant. Participants also responded to an open-ended question about accent, and here the results were more problematic. The participants had marked difficulty identifying the type of accent, and as we reported, erred at a higher rate than in some other studies, such as the one by Hosoda and Stone-Romero in 2010. We did then check to see if the accuracy in identifying the type of accent had any relation to other responses in the study, and found no impact. The main issue to consider in future research is whether there is a more general bias against nonindigenous accents and whether other cues (such as providing names for the actors) might be needed to accurately assess bias against a particular ethnic group.

Another methodological improvement that could be considered would be to have more than one actor in each accent+gender category. This would allow a test of whether any idiosyncratic voice characteristics were influencing the results, or whether the pattern of bias we observed generalized across different speakers. Doing so would require many more participants than we recruited for this study.

The presence of the unmanipulated variable, participant gender, meant that any significant effects needed to be interpreted without concluding that the participants' gender caused the effect. There were two significant effects of participant gender. One was that male participants rated the speakers with Spanish accents as less knowledgeable than the speakers with North American accents, a pattern consistent with other research showing that men score higher on some measures of prejudice than do women. The other significant effect of participant gender was not predicted and was not easily interpretable. Men were more likely to rate speakers as high in communication competence than were women.

To answer the question of whether participant gender has a causal relation to accent biases, there must be much more research on accents that includes all genders, as participants and as actors. A consistent finding that participant gender is related to a pattern of bias would make us

more confident that gender (or some characteristic associated with gender) was having a direct impact.

Conclusions

The concern that speaking with a nonindigenous accent creates negative impressions, including perceptions of lesser competence, is one that merits further study. A controversy ensued recently when a newspaper was criticized for quoting a Houston baseball player from the Dominican Republic in what was described as “broken English.” Richard Prince reported in *The Root* (2016) that the player and others felt that the language difficulties the player experienced during the interview served to portray him as unintelligent. The challenge for researchers is to manipulate different accents realistically and to do so across all the identities and contexts that may intersect with accent, such as gender, ethnicity, or social situation.

Further Readings

Cargile, A. C., & Bradac, J. J. (2001). Attitudes towards language: A review of speaker-evaluation research and a general process model. In W. B. Gudykunst (Ed.), *Communication Yearbook 25* (pp. 347-382). Mahwah, NJ: Lawrence Erlbaum.

Cooper, H. (2017). *Research synthesis and meta-analysis* (5th ed.). Los Angeles, CA: Sage.

Signorella, M. L., Bigler, R. S., & Liben, L. S. (1997). A meta-analysis of children's memories for own-sex and other-sex information. *Journal of Applied Developmental Psychology, 18*(3), 429-445. doi:10.1016/S0193-3973(97)80009-3

Weyant, J. M. (2007). Perspective taking as a means of reducing negative stereotyping of individuals who speak English as a second language. *Journal of Applied Social Psychology, 37*, 703-716. doi:10.1111/j.1559-1816.2007.00181.x

Wilson, T. D., Aronson, E., & Carlsmith, K. (2010). The art of laboratory experimentation. In S. T. Fiske, D. T. Gilbert, & G. Lindzey (Eds.), *Handbook of social psychology* (Vol. 1, pp. 51–81). Hoboken, NJ: Wiley.

Web Resources

RANDOM.ORG. (1997-2017). True Random Number Service. Retrieved from <https://www.random.org>

References

- Dovidio, J. F., Gluszek, A., John, M.-S., Dittmann, R., & Lagunes, P. (2010). Understanding bias toward Latinos: Discrimination, dimensions of difference, and experience of exclusion. *Journal of Social Issues*, 66, 59-78. doi:10.1111/j.1540-4560.2009.01633.x
- Gleiberman, O. (2016, September 11). Toronto Film Review: Denial. *Variety*. Retrieved from <http://variety.com/2016/film/reviews/denial-review-toronto-film-festival-rachel-weisz-1201857542/>
- Hosoda, M., & Stone-Romero, E. (2010). The effects of foreign accents on employment-related decisions. *Journal of Managerial Psychology*, 25, 113-132. doi:10.1108/02683941011019339
- Hugo Lopez, M., & Gonzalez-Barrera, A. (2013, September 5). What is the future of Spanish in the US? *Pew Research Center Fact Tank*. Retrieved from <http://www.pewresearch.org/fact-tank/2013/09/05/what-is-the-future-of-spanish-in-the-united-states/>
- National Center for Voice and Speech. (n.d.) Voice changes throughout life. Retrieved from <http://www.ncvs.org/ncvs/tutorials/voiceprod/tutorial/changes.html>
- Nelson, L. R., Signorella, M. L., & Botti, K. G. (2016). Accent, gender, and perceived competence. *Hispanic Journal of Behavioral Sciences*, 38(2), 166-185. doi: 10.1177/0739986316632319
- Podberesky, R., Deluty, R. H., & Feldstein, S. (1990). Evaluations of Spanish- and Oriental-accented English speakers. *Social Behavior and Personality*, 18(1), 53-63. doi: 10.2224/sbp.1990.18.1.53
- Prince, R. (2016, May 14). Houston paper sorry after quoting Dominican player's broken English. *The Root*. Retrieved from <https://journalisms.theroot.com/houston-paper-sorry-after-quoting-dominican-player-s-br-1790888405>
- RANDOM.ORG. (1997-2017). Random integer generator. Retrieved from <https://www.random.org/integers/>
- Sherif, C. W. (1998). Bias in psychology. *Feminism & Psychology*, 8, 58-75.
- Spence, J. T., & Buckner, C. E. (2000). Instrumental and expressive traits, trait stereotypes, and sexist attitudes. *Psychology of Women Quarterly*, 24, 44-62. doi:10.1111/j.1471-6402.2000.tb01021.x