

THE ROLE OF EXPERIENCE IN THE PERCEPTION OF NON-
NATIVE SPEECH

by

PETRA CHINSANGARAM

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Approved: Melissa Baese-Berk, Ph.D.
Primary Thesis Advisor

Research, especially in the United States, has found that individuals are biased against non-native speech. This can result in discrimination, such as employers being less likely to hire non-native English speakers. Some research has found that more exposure to non-native speech can change a person's perception. The current study explored how an individual's level of exposure to non-native speech during their childhood impacts their perception of non-native speech. Participants were categorized into three groups: those who had experience hearing non-native English speech at home from their parents, those who had a lesser level of experience during their childhood, and those who had little to no experience hearing non-native English speech in their childhood. They listened to native and non-native English speech and rated the speakers according to various characteristics. In general, participants with more experience demonstrated less bias against non-native speakers (i.e., rating non-native speakers as more intelligent and professional than participants with less experience), although the results were less clear for some characteristics (i.e., friendliness). Results indicate that less importance is given to native-like speech in the perception of qualities like intelligence and professionalism among individuals with more childhood experience. Additionally, individuals with more childhood experience may demonstrate higher levels of solidarity with non-native speakers, thus impacting their perception of qualities like friendliness and resourcefulness.

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Introduction

When he was 25 years old, my dad left Thailand to pursue a PhD in microbiology at the University of California, Davis. Although he had learned English in school, he had not previously stepped foot in an English-speaking country. He met my mom in a microbiology lab, they earned their Ph.Ds together, and the rest is history. By the time I was born, my dad had been living in the United States for 14 years and was completely fluent in English. However, an individual's native language has a tendency to make itself known in the form of an accent. Even now, having spent more of his life in the United States than in Thailand, my dad retains a noticeable Thai accent.

My dad's story is not unique. The United States is home to millions of immigrants, many of whom carry with them an accent that makes them easy to pin as "foreign." Sometimes, these accents are used as the basis of discrimination. As is true for many other children of immigrants, I have never heard my dad speak my native language of English without his non-native accent. Because of this, when I hear my dad speak English, I don't notice his accent—he just sounds like my dad. However, his accent is likely to be one of the first things a stranger would notice when they first met him. Does this mean that the way I hear Thai-accented English speech is fundamentally different from the way an American without my experience does? If so, how might this difference apply to other varieties of non-native speech? Has my experience of hearing my dad speak English in my childhood influenced the way my brain processes non-native speech? These questions, based on my personal experience, have formed the basis of this thesis.

Although speech is not the only way in which language is used (written language and signed language are two exceptions), one of the most common ways for people to interact with

each other is by speaking. However, as anyone who has encountered a conversational misunderstanding will know, merely speaking the same language as another person is not always sufficient for both parties to understand each other perfectly. There are many factors involved in conversation. To investigate these factors, linguists study speech from two perspectives: speech production and speech perception. As one might imagine, speech production focuses on the process of speech being produced—that is, anything ranging from the mind stringing together a sentence to the movement of the lips and tongue when speaking. Speech perception is the other side of the coin, focusing on the similarly complicated process that starts with sound waves reaching the ear and ends with a fully realized thought in the mind.

For my research, I have chosen to focus on speech perception. Specifically, I am interested in how social factors influence the way we perceive speech. If people have biases that cause them to treat people differently based on their way of speaking, what characteristics of the speaker and the listener influence these biases? In the completion of this thesis, I hope to make a meaningful contribution to the dialogue surrounding speech perception with a focus on the perception of non-native speech.

Literature Review

Native speaker bias

In the past, speech perception research focused on native speech—i.e., English speech produced by native English speakers. However, recently, more focus has been placed on non-native speech and how it is perceived by native listeners. For example, it has been well established that native listeners have a more difficult time understanding non-native speech than they do native speech (Munro & Derwing, 1995). Further research has additionally explored non-native speech perception beyond the level of understandability. Non-native speech is a relevant topic especially in the United States, where there is incredible cultural and linguistic diversity, and yet discrimination remains extremely prevalent. When native English speakers hear non-native speech, this can be grounds for discrimination in and of itself. This has been demonstrated in many studies which have found that job candidates with "standard" accents are considered more hireable than those with "non-standard" accents (Spence et al., 2024). Specifically, non-native accents tend to receive a higher level of bias than accents which are merely specific to different regions, like the American “Southern” accent. This finding that non-native speakers are considered less competent has been extended to other predominantly English-speaking environments, as well, and it’s not specific to the United States. In a study in which Canadian students were asked to rate the competence of doctors, they rated Chinese-accented doctors as less competent than Canadian-accented doctors (Baquiran & Nicoladis, 2020).

Since people have generally become more socially aware over time, it could be easy to argue that attitudes toward non-native speech have improved and are no longer an issue. However, it is important to note that people may not always show their attitudes freely. When implicit and explicit responses are separated, native English listeners continue to harbor an

implicit bias toward native accented speech even when they do not report an explicit bias (Pantos & Perkins 2013). Although cultural changes may discourage the presentation of a native speech bias, the bias may simply become less explicit for some. In general, it has been shown that non-native speakers are not given the same level of credibility as native speakers. In a study in which trivia statements were assessed by native listeners, the same statements were judged as less true when spoken by non-native speakers than by native speakers (Lev-Ari & Keysar, 2010). Overwhelmingly, evidence points to biases which native listeners continue to hold against non-native speech and speakers.

Speaker variability

In efforts to better understand this native speaker bias, previous research has explored how speaker variability impacts the listener's perception. For example, a study by Dragojevic and Goatley-Soan (2022) asked American listeners to rate non-native speech produced by speakers of various native languages (Arabic, Farsi, French, German, Hindi, Hispanic, Mandarin, Russian, and Vietnamese). They found that a hierarchy emerged between the different non-native accents, with accents like French and German being rated more positively than accents like Arabic, Farsi, and Vietnamese. They hypothesized this to be connected to social categorization, with some languages, and therefore accents, carrying more social credibility than others. Furthermore, between varying levels of accentedness (e.g., strong vs. weak accents), individuals with heavier accents are attributed less status, are considered less prototypical, and receive a more negative emotional response (Dragojevic et al., 2017). However, speaker variability is not the only factor involved in native speaker bias.

Listener variability

In comparison to speaker variability, less is known about how listener variability impacts bias. Since the speaker is often assumed to be the most important factor in the perception of non-native speech, the majority of the literature places its focus there. However, it has been suggested that an individual's social biases are likely to affect their perception of non-native speech (Lindemann & Subtirelu, 2013). It is commonly understood that, in general, there are individual differences in the amount of bias and discrimination that people exhibit. Thus, it would make sense for the same to apply to native speech bias. Indeed, it has been demonstrated that alongside speaker differences, differences between listeners affect the perception of non-native speech as well (Baese-Berk et al., 2020). These factors can include cognitive differences, as well as an individual's language background and attitudes. One study compared how monolingual and bilingual listeners rated qualities of non-native speakers (Fuse et al., 2018). They found that bilingual listeners considered non-native speech to be more understandable and rated the speakers more positively, but they did not find that bilingual listeners rated native speakers of their shared language more positively. In a study which played audio recordings of the same native English speaker alongside a photo of a white or Asian face, native listeners rated the speech as more accented and considered the speaker to be less similar to themselves when it was paired with an Asian face (Rubin, 1992). Alongside these examples, another point of listener variability which plays a role in non-native speech perception is experience.

Experience

Even Americans who are monolingual English speakers generally have some amount of experience hearing non-native speech, but the level of experience varies between individuals. Some individuals have only heard non-native speech in passing, while others might hear it when

talking with friends and family. Still others might work in an environment in which they are regularly exposed to non-native speech. Some research has demonstrated that an individual's level of experience influences how they perceive non-native speech and speakers. A study by Kennedy and Trofimovich (2008) found that native listeners with more experience hearing non-native speech understood non-native speech better than listeners with less experience. However, they rated it the same for comprehensibility and accentedness. This seems to indicate a discrepancy between the effect of experience on implicit and explicit responses. In terms of speaker judgments, a different study demonstrated that, when asked to give ratings for Mexican American speakers, Mexican American listeners gave higher ratings of solidarity to speakers with stronger accents (Brennan & Brennan, 1981). Solidarity is often used as a measurement of, essentially, how likely it is that the rater would be friends with a person. It has also been demonstrated that native listeners can learn to adapt to non-native speech when exposed to a substantial amount of it (Baese-Berk et al., 2013). This adaptation was shown to apply even for speakers with native languages not represented in the training period. These examples demonstrate that experience can impact perception of non-native speech in some instances, but the effects do not appear to be as strong in all cases.

Language attitudes in children

We have established thus far that listeners make judgements of individuals based on their accent, but this research has largely ignored children. Research on the language attitudes of children has demonstrated that they “learn” to make connections between accents and speaker characteristics throughout their development (Giles et al., 1983). Children who were asked to evaluate native and non-native speakers generally rated native speakers more positively than non-native speakers (Nesdale & Rooney, 1996). Since these attitudes have been demonstrated to

exist even at a very young age (McCullough et al., 2019), the developmental period appears to be an important time in this process. For this reason, it is worth considering that many children growing up in the United States have one or more parent whose native language is not English. Not only would these individuals likely have a greater than average amount of experience hearing non-native accented speech, but much of this experience would have occurred during their developmental years. Therefore, there is evidence to suggest that these individuals would demonstrate differences from the overall population in terms of how they perceive non-native speech.

Overall, the literature seems to support that there is some effect of a listener's experience on their perception of non-native speech. It also supports childhood being an important time in the development of language attitudes, including those toward non-native speech. This project aims to take these two understandings a step further by exploring how a listener's childhood experience impacts their perception of non-native speech.

Research question

In this thesis I strove to answer the following question: Do listeners who grew up hearing non-native accented speech have a different perception of non-native speech and speakers than listeners who did not grow up hearing non-native speech? I hypothesized that experienced listeners would both find non-native speech to be more easily understandable and have a more positive view of non-native speakers when compared to less experienced listeners.

Method

Participants

For this study, 50 participants were recruited through the online data collection website Prolific. Of these, two were left out of analysis because of unclear survey responses. In the final analysis, there were 12 participants with experience hearing non-native speech from their parents or guardians, 10 participants with experience hearing non-native speech from other people during their childhood, and 26 participants with no experience. All participants were between 18 and 35 years of age, were residents of the United States, and spoke English as their native language. These parameters were achieved by editing the study participation requirements on Prolific. Participants were compensated monetarily for their time.

Stimuli

The stimuli for this study consisted of pre-recorded speech samples sourced from the ALLSSTAR corpus of scripted and spontaneous speech. They included simple scripted sentences in English spoken by native speakers of English, Spanish, and Mandarin Chinese. Spanish and Mandarin Chinese were chosen as the native languages other than English because of the amount of data available in ALLSSTAR produced by native speakers of these languages, and because they are two languages that make up a significant portion of non-native English speakers in the United States. Two female speakers were chosen for each L1, the non-native speakers having been judged to have similar strengths of non-native accent. Some examples of sentences that were included are “The picture came from a book,” and “The buckets fill up quickly.”

Procedure

Participants were asked to participate in an online Qualtrics perception study. They began with the consent process, which detailed any possible risks and benefits of their participation. It also informed them that their participation was voluntary and that they could withdraw at any time. After completing the consent portion, participants began the perception task. This entailed participants listening to the stimuli as described above, with 15 audio clips from each individual speaker being presented in a group. Participants were asked after each audio clip to rate the speech on a Likert scale for comprehensibility. For this portion, participants were asked to report their level of agreement with the statement “That sentence was easily comprehensible,” with options ranging from “Strongly disagree” to “Strongly agree.” After the participant responded to each audio clip from a single speaker, they were asked to rate that speaker on a similar Likert scale for English proficiency of the speaker, level of accentedness, intelligence, friendliness, professionalism, and resourcefulness.¹ Statements in this portion were phrased along the lines of “The previous speaker was highly intelligent,” with the same response options given as for comprehensibility. This process was repeated for each speaker.

After completing the perception task, participants were asked to complete a language background questionnaire. This included both multiple choice questions and questions with text boxes in which participants could type out their answers. The questions asked participants to provide information regarding which languages and non-native accents they would have been exposed to during their childhood and adult life. In terms of their exposure to non-native speech, this included the language(s) spoken by the participants’ parents or guardians, as well as by other

¹ The inclusion of resourcefulness as a characteristic may invite further explanation. Although each participant had to personally decide how to measure resourcefulness, it was hypothesized that ratings of resourcefulness (as well as of friendliness) may be an indicator of solidarity.

individuals close to the participant. There were also questions regarding the language(s) the participants themselves could speak, as well as their self-reported levels of fluency in said language(s).

Analysis

In order to analyze participants' childhood experience variable, participants were placed into one of three groups. In the language background questionnaire, participants were asked to list the language(s) spoken by their parents or guardians. For each language, they indicated whether that language was the native language of one or more of their parents/guardians. If a participant indicated that a language other than English was the native language of one or more of their parents/guardians, it was assumed that they had been exposed to non-native speech from their parents/guardians during their childhood, and they were placed into the "parents" experience group. Also in the questionnaire was the question "Other than your parent(s)/guardian(s), were you regularly around people whose native language was not English during your childhood?" If a participant did not fit the "parents" criteria but answered "yes" to this question, it was assumed that they had been exposed to non-native speech during their childhood, but likely to a lesser extent, and they were placed into the "other" experience group. If a participant did not fit into either of these categories, it was assumed that they had been minimally exposed to non-native speech during their childhood, and they were placed into the no experience, or "none," group.

The data from this study includes the Likert scale data and the questionnaire responses. The statistical programming software R was used to run statistical models on the data from the Likert scale questions. The questionnaire responses were analyzed manually in order to

categorize the participants into levels of experience. This allowed for the Likert scale results to be compared between the groups.

A multiple linear regression was run for each of the variables: English proficiency, accentedness, intelligence, friendliness, professionalism, resourcefulness, and understandability. For each dependent variable, fixed effects and interactions were calculated for participant experience (none, other, parents) and speaker L1 (English, Mandarin, Spanish). The data was helmert coded, meaning that contrasts for participant experience level were between some and no experience and between “parents” and “other” experience. Contrasts for speaker L1 were between native and non-native speakers and between Mandarin L1 and Spanish L1 speakers.

In addition to the linear models, a box plot was created for each variable. Results from the box plots and each of the linear models will be discussed in the following section.

Results

Overall, there were clear differences and interactions between groups for all the variables I tested. Since there is a lot of data to discuss, the results of each linear model will be discussed in detail separately. However, to orient with the data, it will be beneficial to first consider the box plots for each variable and explore some general trends and observations.

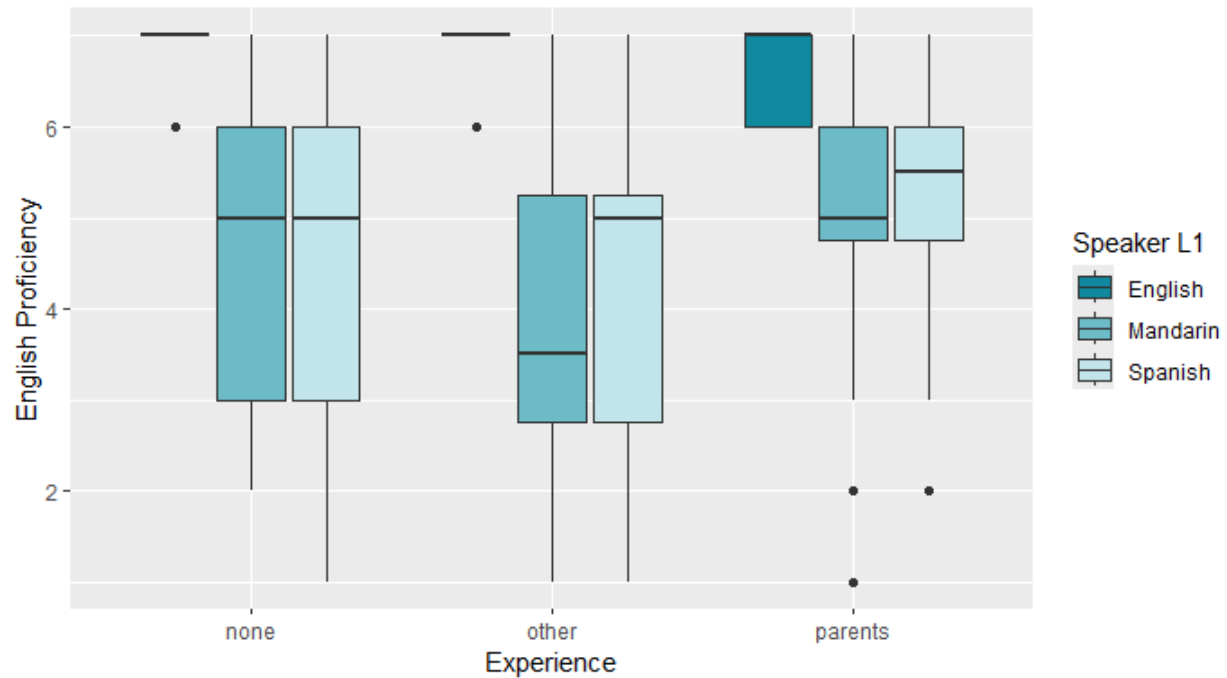


Figure 1: English Proficiency by Experience and Speaker L1

Responses to the statement “That speaker is highly proficient in English.” Possible ratings range from 1 (Strongly disagree) to 7 (Strongly agree).

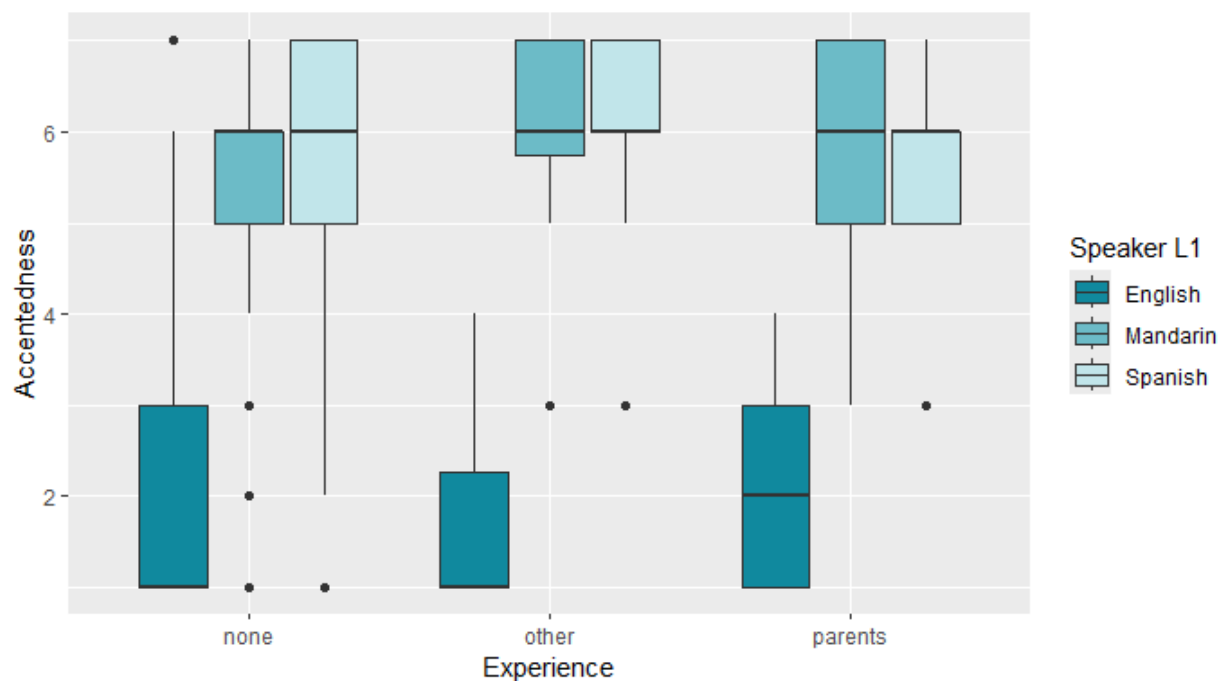


Figure 2: Accentedness by Experience and Speaker L1

Responses to the statement “That speaker has a strong accent.” Possible ratings range from 1 (Strongly disagree) to 7 (Strongly agree).

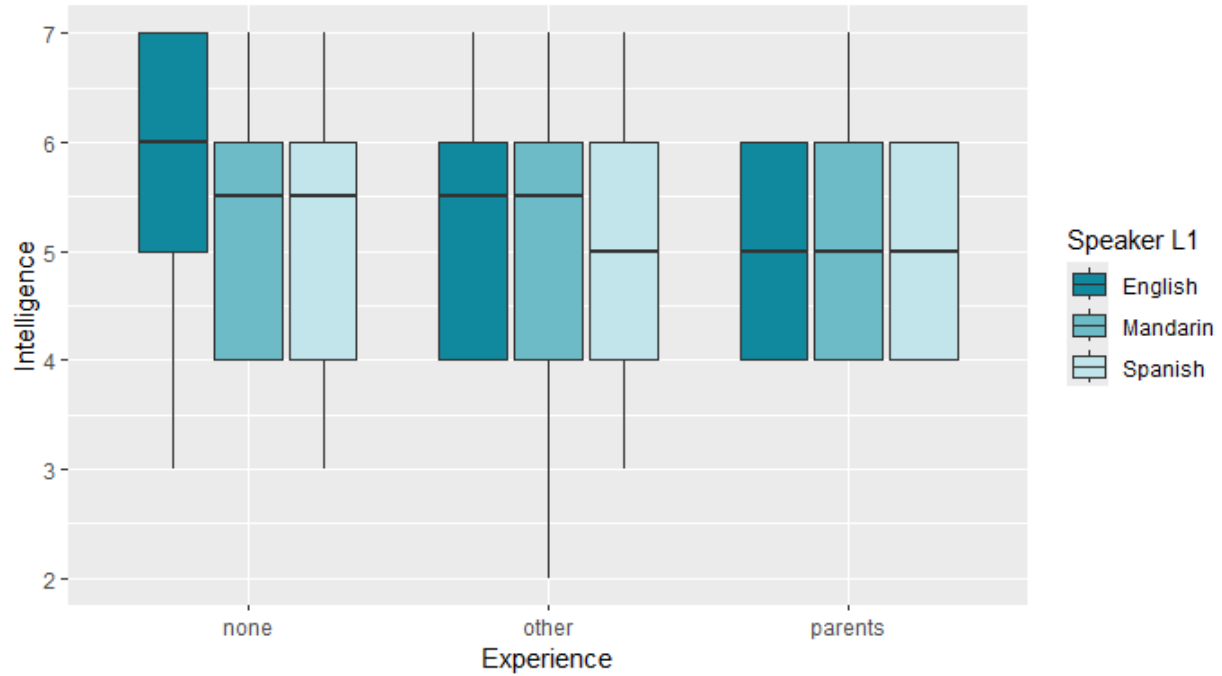


Figure 3: Intelligence by Experience and Speaker L1

Responses to the statement “That speaker is intelligent.” Possible ratings range from 1 (Strongly disagree) to 7 (Strongly agree).

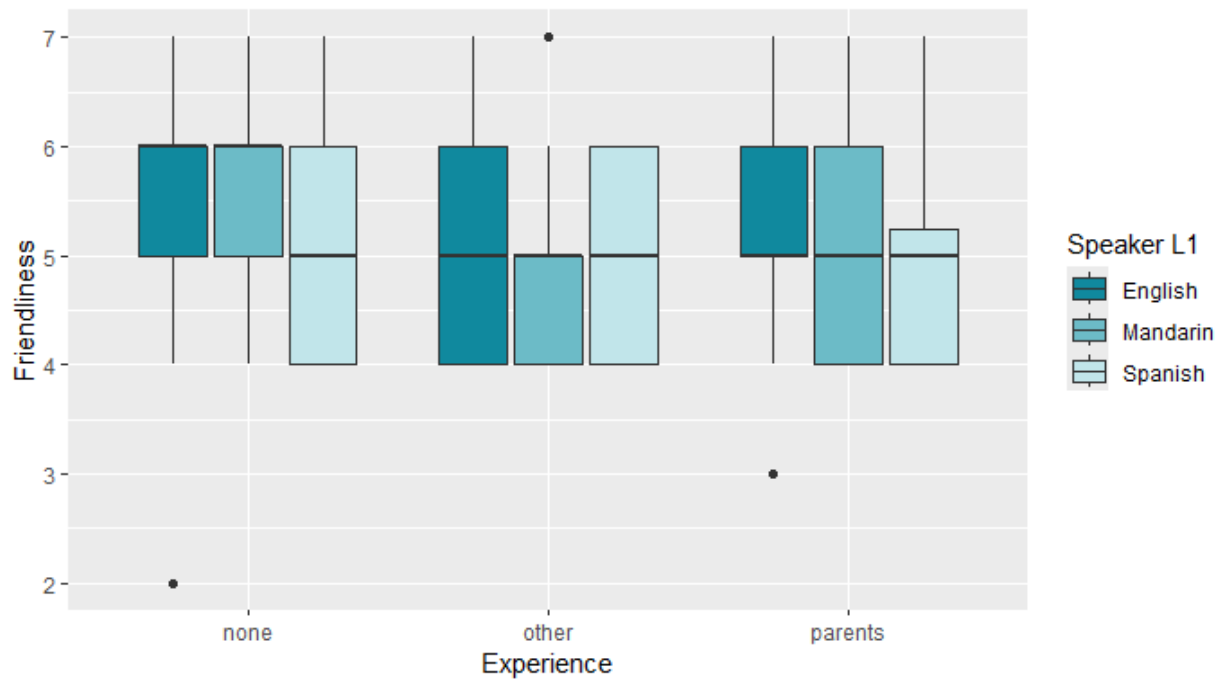


Figure 4: Friendliness by Experience and Speaker L1

Responses to the statement “That speaker is friendly.” Possible ratings range from 1 (Strongly disagree) to 7 (Strongly agree).

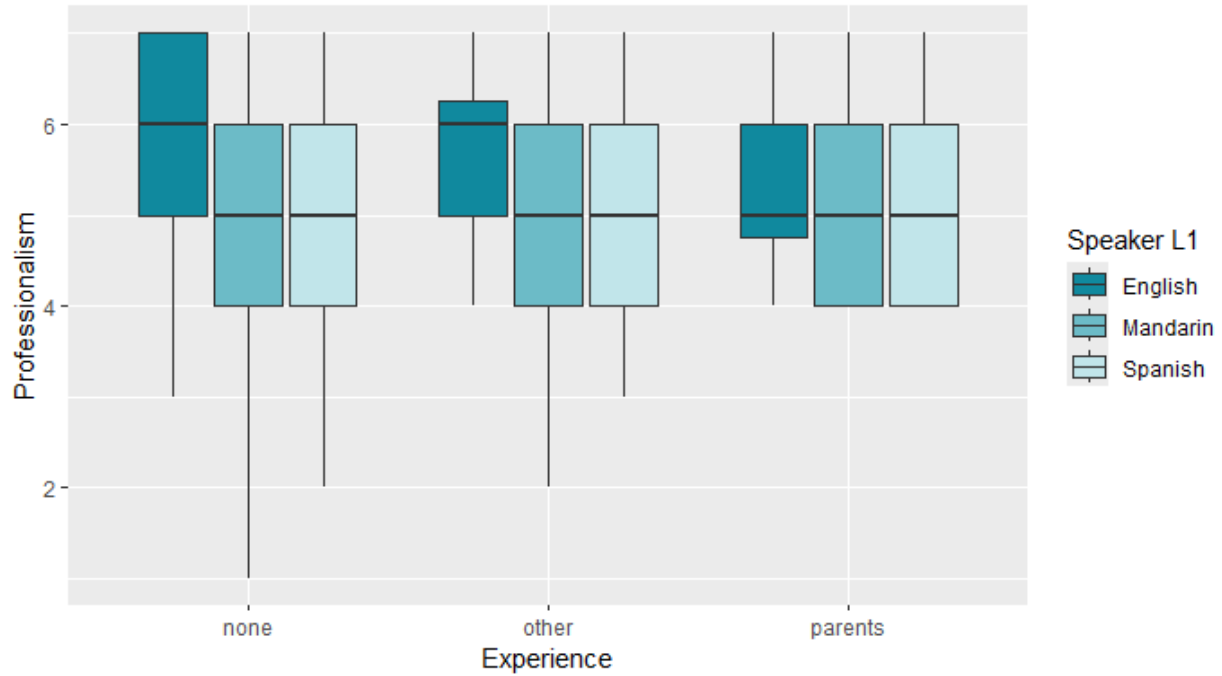


Figure 5: Professionalism by Experience and Speaker L1

Responses to the statement “That speaker is professional.” Possible ratings range from 1 (Strongly disagree) to 7 (Strongly agree).

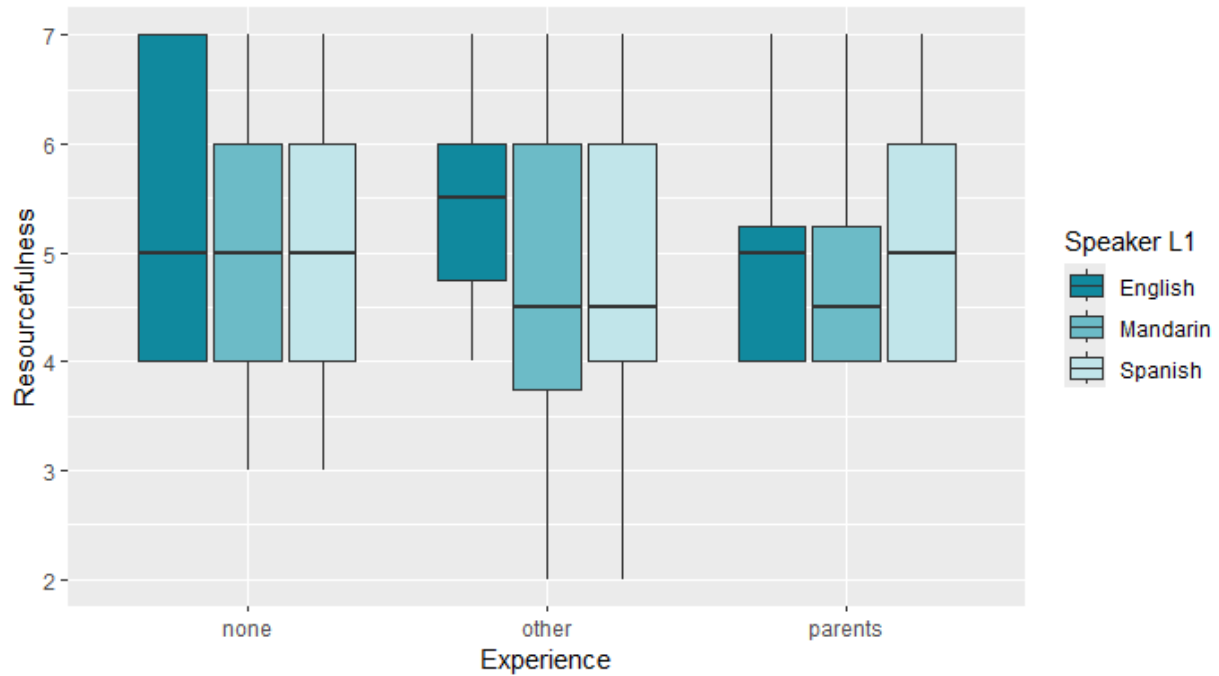


Figure 6: Resourcefulness by Experience and Speaker L1

Responses to the statement “That speaker is resourceful.” Possible ratings range from 1 (Strongly disagree) to 7 (Strongly agree).

In the English proficiency plot, native English speakers are rated mostly at the ceiling, while native Mandarin and Spanish speakers are rated more toward the middle of the scale. This can be understood by the fact that native speakers are highly proficient, while non-native speakers are less so. The most notable comparison here is that, while participants with “none” and “other” experience had similar responses, those with “parents” experience responded very differently. Among those with “parents” experience, native English speakers were rated lower for English proficiency, and non-native speakers were rated higher.

In the accentedness plot, again, there are clear differences between native and non-native speakers. This can be explained by presuming that English proficiency and accentedness are less subjective characteristics than friendliness and resourcefulness, for example. However, this plot is more difficult to parse than the English proficiency plot, and it’s hard to make out any clear patterns, since the data for Spanish and Mandarin L1 speakers varies seemingly unpredictably. This may indicate that the data is not clearly or fully explained by these variables.

In the intelligence plot, all responses seem very similar, with medians around 5.5, except for participants with no experience rating English L1 speakers. For this one group, intelligence ratings are higher, with the third quartile at the ceiling. This supports differences in perception between participants with some and no experience, but not between those with “parents” and “other” experience.

In the friendliness plot, responses again are similar to each other and more difficult to parse. Medians are constant between participants with some experience, but participants with no experience rated English and Mandarin native speakers similarly higher than Spanish native speakers.

The professionalism plot is similar to the intelligence plot, with the main difference being in ratings of L1 English speakers. However, both participants with no experience and with “other” experience rated native speakers as more professional than non-native speakers.

In the resourcefulness plot, participants with no experience and those with “other” experience rated speakers similarly, with native speakers rated slightly higher. Participants with “parents” experience had more similar ratings, with only Spanish L1 speakers being rated slightly higher than the others.

Having looked at the box plots, we will move onto the results from the linear models. Below are tables of data from R Studio of the results for each model. For each of these tables, there are four fixed effects. “Experience: some/none” compares participants with some experience (“parents” or “other”) to participants with no experience. “Experience: parents/other” compares participants with “parents” experience to participants with “other” experience. “Speaker L1: native/non-native” compares non-native (Mandarin or Spanish L1) speakers to native (English L1) speakers, and “Speaker L1: Mandarin/Spanish” compares Spanish L1 speakers to Mandarin L1 speakers. There are also four interactions for each model. Each interaction takes two of the main effects and calculates if they have any influence on each other.² I will explain the meaning of each significant interaction below.

English Proficiency

	Estimate	Std. error	t-value	p-value
Grand mean	5.36352	0.02156	248.794	< 2e-16
Experience: some/none	0.14472	0.04009	3.610	0.00031

² For example, a positive interaction of x between main effect A (i.e., y vs z experience) and main effect B (i.e., m vs n speaker) indicates that the effect of having z experience on participants’ ratings is x higher (or lower, if x is negative) for n speaker than for m speaker.

Experience: parents/other	-0.56389	0.05860	-9.623	< 2e-16
Speaker L1: native/non-native	2.22306	0.04573	48.611	< 2e-16
Speaker L1: Mandarin/Spanish	-0.04389	0.05281	-0.831	0.40595
Some/no experience, native/non-native speaker	-0.04958	0.08505	-0.583	0.55994
Parents/other experience, native/non-native speaker	1.27083	0.12430	10.224	< 2e-16
Some/no experience, Mandarin/Spanish speaker	0.45583	0.09821	4.641	3.572e-06
Parents/other experience, Mandarin/Spanish speaker	-0.30833	0.14353	-2.148	0.03176

Table 1: Results from a linear regression: English Proficiency ~ Experience * Speaker L1

Responses to the statement “That speaker is highly proficient in English.” Possible ratings range from 1 (Strongly disagree) to 7 (Strongly agree).

The grand mean for English proficiency was 5.36.³ The English proficiency model was statistically significant ($F(8, 4221) = 362.2, p < 0.01$).⁴ Experience level had a statistically significant fixed effect for rating of English proficiency at all levels. Participants with some experience rated English proficiency 0.14 points higher ($p < 0.01$) than participants with no experience. Participants with “parents” experience rated English proficiency 0.56 points higher ($p < 0.01$) than participants with “other” experience. The speaker’s L1 was statistically

³ Questions in this study were posed as statements, with responses solicited in the form of a 7-point Likert scale ranging from Strongly disagree to Strongly agree. The responses were converted into numbers, ranging from 1 (Strongly disagree) to 7 (Strongly agree). Therefore, the grand mean for English proficiency being 5.36 means that the average response across all participants to the statement “That speaker is highly proficient in English” was between “Somewhat agree” and “Agree.”

⁴ The inclusion of the word “statistically” here and throughout this paper is to clarify that I am referring to significance by its statistical meaning, not its colloquial meaning. In this statement, I mean that the likelihood of the data resulting in this linear model if the linear regression did not actually fit is less than 1%.

significant only in comparison of native and non-native speakers; non-native speakers were rated 2.22 points lower ($p < 0.01$) than native speakers.

In terms of interactions, all were statistically significant ($p < 0.05$),⁵ except between some/no experience and native/non-native speakers. The largest interaction was between other/parents experience and native/non-native speakers. The effect of the speaker being non-native on the participant's rating of English proficiency was 1.27 points less ($p < 0.01$) for those with “parents” experience than with “other” experience, and the effect of the participants having “parents” (vs “other”) experience was 1.27 points less ($p < 0.01$) when the speaker was non-native. The effect of the speaker being an L1 Spanish speaker, rather than Mandarin, on the participant's rating of English proficiency was 0.46 points less ($p < 0.01$) for those with some experience than with no experience, and the effect of the participants having some experience was 0.46 points less ($p < 0.01$) when the speaker was a Spanish L1 speaker. Finally, the effect of the speaker being an L1 Spanish speaker, rather than Mandarin, on the participant's rating of English proficiency was 0.31 points more ($p = 0.032$) for those with “parents” experience than with “other” experience, and the effect of the participants having “parents” experience was 0.31 points more ($p = 0.032$) when the speaker was a Spanish L1 speaker.

Overall, the English proficiency data showed that native speakers were rated higher than non-native speakers were. There was some correlation between participants having less experience and rating native and non-native speakers more similarly. However, this correlation applied specifically when comparing participants with “other” and “parents” experience, and not when comparing those with some and no experience. Between non-native L1s, participants with some experience rated English proficiency lower for Spanish L1 speakers than Mandarin

⁵ To reiterate, this means that the possibility of having these results if there was no interaction in actuality is less than 5%.

speakers in comparison to those with no experience, but participants with “parents” experience rated it higher in comparison to those with “other” experience.

Accentedness

	Estimate	Std. error	t-value	p-value
Grand mean	4.54778	0.02189	207.711	< 2e-16
Experience: some/none	-0.03167	0.04072	-0.778	0.436814
Experience: parents/other	0.11667	0.05951	1.960	0.050017
Speaker L1: native/non-native	-3.73500	0.04645	-80.416	< 2e-16
Speaker L1: Mandarin/Spanish	-0.30778	0.05363	-5.739	1.02e-08
Some/no experience, native/non-native speaker	0.45750	0.08638	5.296	1.24e-07
Parents/other experience, native/non-native speaker	-0.52500	0.12624	-4.159	3.27e-05
Some/no experience, Mandarin/Spanish speaker	-0.34833	0.09974	-3.492	0.000484
Parents/other experience, Mandarin/Spanish speaker	-0.21667	0.14577	-1.486	0.137271

Table 2: Results from a linear regression: Accentedness ~ Experience * Speaker L1

Responses to the statement “That speaker has a strong accent.” Possible ratings range from 1 (Strongly disagree) to 7 (Strongly agree).

The grand mean for accentedness was 4.55. The accentedness model was statistically significant ($F(8, 4221) = 906.8, p < 0.01$). There was no statistically significant main effect of experience on ratings of accentedness. However, the speaker’s L1 was statistically significant. Non-native

speakers were rated 3.74 points higher ($p < 0.01$) for accentedness than native speakers, and Spanish L1 speakers were rated 0.31 points higher ($p < 0.01$) than Mandarin L1 speakers.

In terms of interactions, all were statistically significant except between parents/other experience and Mandarin/Spanish L1 speakers. The effect of the speaker being non-native on the participant's rating of accentedness was 0.46 points less ($p < 0.01$) for those with some experience than with no experience, and the effect of the participants having some experience was 0.46 points less ($p < 0.01$) when the speaker was non-native. The effect of the speaker being non-native on the participant's rating of accentedness was 0.53 points more ($p < 0.01$) for those with “parents” experience than with “other” experience, and the effect of the participants having “parents” experience was 0.53 points more ($p < 0.01$) when the speaker was non-native. The effect of the speaker being an L1 Spanish speaker, rather than Mandarin, on the participant's rating of accentedness was 0.35 points more ($p < 0.01$) for those with some experience than with no experience, and the effect of the participants having some experience was 0.35 points more ($p < 0.01$) when the speaker was a Spanish L1 speaker.

Overall, the accentedness data demonstrated correlations between different levels of childhood experience and ratings of accentedness. Participants with some experience rated native and non-native speakers more similarly than participants with no experience. However, within participants with some experience, those with “parents” experience rated native and non-native speakers less similarly than those with “other” experience. Between non-native L1s, participants with some experience rated Spanish L1 speakers as less accented than Mandarin speakers in comparison to participants with no experience.

Intelligence

	Estimate	Std. error	t-value	p-value
Grand mean	5.22222	0.01825	286.085	< 2e-16
Experience: some/none	0.46667	0.03395	13.746	< 2e-16
Experience: parents/other	0.30000	0.04962	6.046	1.61e-09
Speaker L1: native/non-native	0.20000	0.03872	5.165	2.523e-07
Speaker L1: Mandarin/Spanish	0.14222	0.04471	3.181	0.00148
Some/no experience, native/non-native speaker	0.30000	0.07202	4.166	3.17e-05
Parents/other experience, native/non-native speaker	0.20000	0.10525	1.900	0.05748
Some/no experience, Mandarin/Spanish speaker	0.02667	0.08316	0.321	0.74848
Parents/other experience, Mandarin/Spanish speaker	-0.06667	0.12154	-0.549	0.58335

Table 3: Results from a linear regression: Intelligence ~ Experience * Speaker L1

Responses to the statement “That speaker is intelligent.” Possible ratings range from 1 (Strongly disagree) to 7 (Strongly agree).

The grand mean for intelligence was 5.22. The intelligence model was statistically significant ($F(8, 4221) = 40.47, p < 0.01$). All main effects were statistically significant for intelligence. Participants with some experience rated intelligence 0.47 points lower ($p < 0.01$) than participants with no experience, and participants with “parents” experience rated intelligence 0.3 points lower ($p < 0.01$) than participants with “other” experience. Non-native speakers were rated 0.2 points lower ($p < 0.01$) for intelligence than native speakers, and Spanish L1 speakers were rated 0.14 points lower ($p < 0.01$) than Mandarin L1 speakers.

The only statistically significant interaction was between some/no experience and native/non-native speaker. The effect of the speaker being non-native on the participant's rating of intelligence was 0.30 points less ($p < 0.01$) for those with some experience than with no experience, and the effect of the participants having some experience was 0.30 points less ($p < 0.01$) when the speaker was non-native.

The intelligence data showed that participants with some childhood experience rated native speakers as having lower intelligence than those without childhood experience did. On the other hand, all participants rated non-native speakers as similarly intelligent.

Friendliness

	Estimate	Std. error	t-value	p-value
Grand mean	5.16815	0.01682	307.307	$< 2e-16$
Experience: some/none	0.43778	0.03128	13.996	$< 2e-16$
Experience: parents/other	-0.17778	0.04571	-3.889	0.000102
Speaker L1: native/non-native	0.30028	0.03568	8.417	$< 2e-16$
Speaker L1: Mandarin/Spanish	0.03833	0.04119	0.931	0.352142
Some/no experience, native/non-native speaker	0.04458	0.06635	0.672	0.501658
Parents/other experience, native/non-native speaker	-0.22083	0.09697	-2.277	0.022815
Some/no experience, Mandarin/Spanish speaker	0.15250	0.07661	1.990	0.046602
Parents/other experience, Mandarin/Spanish speaker	-0.27500	0.11197	-2.456	0.014089

Table 4: Results from a linear regression: Friendliness ~ Experience * Speaker L1

Responses to the statement “That speaker is friendly.” Possible ratings range from 1 (Strongly disagree) to 7 (Strongly agree).

The grand mean for friendliness was 5.17. The friendliness model was statistically significant ($F(8, 4221) = 39.2, p < 0.01$).

Participants with some experience rated friendliness 0.44 points lower ($p < 0.01$) than participants with no experience, and participants with “parents” experience rated friendliness 0.18 points higher ($p < 0.01$) than participants with “other” experience. Speaker L1 was only statistically significant between native and non-native speakers; non-native speakers were rated 0.3 points lower ($p < 0.01$) for friendliness than native speakers.

In terms of interactions, all were statistically significant except between some/no experience and native/non-native speakers. The effect of the speaker being non-native on the participant's rating of friendliness was 0.22 points more ($p = 0.023$) for those with “parents” experience than with “other” experience, and the effect of the participants having “parents” (vs “other”) experience was 0.22 points more ($p = 0.023$) when the speaker was non-native. The effect of the speaker being an L1 Spanish speaker, rather than Mandarin, on the participant's rating of friendliness was 0.15 points less ($p = 0.047$) for those with some experience than with no experience, and the effect of the participants having some experience was 0.15 points less ($p = 0.047$) when the speaker was a Spanish L1 speaker. Finally, the effect of the speaker being an L1 Spanish speaker, rather than Mandarin, on the participant's rating of friendliness was 0.28 points more ($p = 0.014$) for those with “parents” experience than with “other” experience, and the effect of the participants having “parents” experience was 0.28 points more ($p = 0.014$) when the speaker was a Spanish L1 speaker.

The friendliness data showed that, within participants with some childhood experience, those with “parents” experience perceived non-native speakers as less friendly than those with “other” experience did. In comparing non-native L1s, participants with some experience rated Spanish L1 speakers as more friendly in comparison Mandarin speakers than participants with no experience. Within those with some experience, participants with “parents” experience rated Spanish speakers as less friendly in comparison to Mandarin speakers than participants with “other” experience.

Professionalism

	Estimate	Std. error	t-value	p-value
Grand mean	5.27722	0.01894	278.692	< 2e-16
Experience: some/none	0.19417	0.03522	5.513	3.73e-08
Experience: parents/other	0.17500	0.05147	3.400	0.000680
Speaker L1: native/non-native	0.62667	0.04017	15.601	< 2e-16
Speaker L1: Mandarin/Spanish	-0.02333	0.04638	-0.503	0.614947
Some/no experience, native/non-native speaker	0.30500	0.07471	4.083	4.54e-05
Parents/other experience, native/non-native speaker	0.30000	0.10918	2.748	0.006027
Some/no experience, Mandarin/Spanish speaker	0.30500	0.08626	3.536	0.000411
Parents/other experience, Mandarin/Spanish speaker	-0.25000	0.12607	-1.983	0.047434

Table 5: Results from a linear regression: Professionalism ~ Experience * Speaker L1

Responses to the statement “That speaker is professional.” Possible ratings range from 1 (Strongly disagree) to 7 (Strongly agree).

The grand mean for professionalism was 5.28. The professionalism model was statistically significant ($F(8, 4221) = 52.76, p < 0.01$).

Participants with some experience rated professionalism 0.19 points lower ($p < 0.01$) than participants with no experience, and participants with “parents” experience rated friendliness 0.18 points lower ($p < 0.01$) than participants with “other” experience. Speaker L1 was only statistically significant for professionalism between native and non-native speakers; non-native speakers were rated 0.62 ($p < 0.01$) points lower than native speakers.

In terms of interactions, all were statistically significant. The effect of the speaker being non-native on the participant's rating of professionalism was 0.31 points less ($p < 0.01$) for those with some experience than with no experience, and the effect of the participants having some experience was 0.31 points less ($p < 0.01$) when the speaker was non-native. The effect of the speaker being non-native on the participant's rating of professionalism was 0.30 points less ($p < 0.01$) for those with “parents” experience than with “other” experience, and the effect of the participants having “parents” (vs “other”) experience was 0.30 points less ($p < 0.01$) when the speaker was non-native. The effect of the speaker being an L1 Spanish speaker, rather than Mandarin, on the participant's rating of professionalism was 0.31 points less ($p < 0.01$) for those with some experience than with no experience, and the effect of the participants having some experience was 0.31 points less ($p < 0.01$) when the speaker was a Spanish L1 speaker. Finally, the effect of the speaker being an L1 Spanish speaker, rather than Mandarin, on the participant's rating of professionalism was 0.25 points more ($p = 0.047$) for those with “parents” experience

than with “other” experience, and the effect of the participants having “parents” experience was 0.25 points more ($p = 0.047$) when the speaker was a Spanish L1 speaker.

Overall, the professionalism data demonstrated a clear hierarchy between level of experience and ratings of native speakers. Participants with some experience rated native speakers as less professional than participants with no experience, and participants with “parents” experience rated native speakers as less professional than participant with “other” experience. Regarding non-native L1s, participants with some experience rated Spanish L1 speakers as less professional than Mandarin speakers in comparison to participants with no experience, while participants with “parents” experience rated Spanish L1 speakers as more professional than Mandarin speakers in comparison to participants with “other” experience.

Resourcefulness

	Estimate	Std. error	t-value	p-value
Grand mean	5.00074	0.01901	263.117	< 2e-16
Experience: some/none	0.21889	0.03535	6.193	6.49e-10
Experience: parents/other	0.07778	0.05166	1.506	0.132
Speaker L1: native/non-native	0.29222	0.04032	7.248	5.00e-13
Speaker L1: Mandarin/Spanish	0.02889	0.04655	0.621	0.535
Some/no experience, native/non-native speaker	-0.04833	0.07498	-0.645	0.519
Parents/other experience, native/non-native speaker	0.5333	0.10959	4.867	1.18e-06
Some/no experience, Mandarin/Spanish speaker	0.13667	0.08658	1.578	0.115

Parents/other experience, Mandarin/Spanish speaker	0.13333	0.12654	1.054	0.292
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Table 6: Results from a linear regression: Resourcefulness ~ Experience * Speaker L1

Responses to the statement “That speaker is resourceful.” Possible ratings range from 1 (Strongly disagree) to 7 (Strongly agree).

The grand mean for resourcefulness was 5.00. The resourcefulness model was statistically significant ($F(8, 4221) = 15.5, p < 0.01$).

Experience was only statistically significant for resourcefulness between participants with some and no experience; participants with some experience rated resourcefulness 0.22 points lower ($p < 0.01$) than participants with no experience. Speaker L1 was only statistically significant between native and non-native speakers; non-native speakers were rated 0.29 points lower ($p < 0.01$) than native speakers.

The only statistically significant interaction was between parents/other experience and native/non-native speaker. The effect of the speaker being non-native on the participant's rating of intelligence was 0.53 points less ($p < 0.01$) for those with “parents” experience than with “other” experience, and the effect of the participants having “parents” (vs. “other”) experience was 0.53 points less ($p < 0.01$) when the speaker was non-native.

The resourcefulness data showed that among participants with some childhood experience, those with more experience rated resourcefulness lower for native speakers than those with less experience did. However, there was no statistically significant finding when comparing participants with some and no experience.

Understandability

	Estimate	Std. error	t-value	p-value
Grand mean	5.85765	0.02055	285.075	< 2e-16
Experience: some/none	0.09019	0.03822	2.360	0.0183
Experience: parents/other	0.14037	0.05585	2.513	0.0120
Speaker L1: native/non-native	1.32213	0.04359	30.332	< 2e-16
Speaker L1: Mandarin/Spanish	0.31181	0.05033	6.195	6.38e-10
Some/no experience, native/non-native speaker	0.03181	0.08107	0.392	0.6948
Parents/other experience, native/non-native speaker	0.20361	0.11848	1.719	0.0858
Some/no experience, Mandarin/Spanish speaker	0.14628	0.09361	1.563	0.1182
Parents/other experience, Mandarin/Spanish speaker	-0.04611	0.13681		0.7361

Table 7: Results from a linear regression: Understandability ~ Experience * Speaker L1

Responses to the statement “That sentence was easily understandable.” Possible ratings range from 1 (Strongly disagree) to 7 (Strongly agree).

Although there was not a box plot for the responses, participants were also asked to rate each individual sentence for understandability.

The grand mean for the responses was 5.86. The responses model was statistically significant ($F(8, 4221) = 143.6, p < 0.01$). All main effects were statistically significant for responses. Participants with some experience rated sentence understandability 0.09 points lower

($p = 0.018$) than participants with no experience, and participants with “parents” experience rated understandability 0.14 points lower ($p = 0.012$) than participants with “other” experience. Non-native speakers were rated 1.32 points lower ($p < 0.01$) for understandability than native speakers, and Spanish L1 speakers were rated 0.31 points lower ($p < 0.01$) than Mandarin L1 speakers.

None of the interactions were statistically significant. Although there is less to analyze because there were no statistically significant interactions, the understandability responses will be addressed in the discussion section.

Discussion

This study aimed to examine the relationship between an individual's childhood experience hearing non-native speech and how that individual currently perceives non-native speech. Based on previous research, I hypothesized that there would be a difference in how individuals with different amounts of childhood exposure perceive non-native speech. I expected that people with more childhood experience would have an easier time understanding non-native speech and have a more positive perception of non-native speakers.

From the results, it is apparent that an individual's childhood experience hearing non-native speech is a meaningful factor in their perception of non-native speech and speakers. Correlations were found for judgments about the speech itself (e.g., English proficiency and accentedness) as well as perceived qualities of the speaker (e.g., intelligence, friendliness, professionalism, and resourcefulness). Since the results are a bit complicated, it will be beneficial to unpack them a bit here.

In this discussion, since there are many results, analysis and interpretation will focus largely on the most interesting or notable results, rather than investigating every result.

Results by type of interaction

We'll first consider the simplest interactions of this data, in which non-native speakers are compared to native speakers and participants with some experience are compared to participants without experience. There were statistically significant interactions for accentedness, intelligence, and professionalism. Participants with experience reported slightly less of an accentedness difference between native and non-native speakers. They also reported slightly less of a difference between native and non-native speakers for intelligence and professionalism. It's clear from looking at the box plots that these differences largely stem from participants with no

experience rating native speakers higher than participants with experience, rather than from any meaningful differences in ratings of non-native speakers. This indicates the presence of biases that are less pronounced for individuals with childhood experience hearing non-native speech. The fact that accentedness, but not English proficiency, had an interaction may indicate that individuals with more experience assign less of a correlation between accentedness and proficiency than individuals with less experience do. That is, where individuals without experience hear a non-native accent and presume lower proficiency, this may not be the case for individuals with experience.

Now, to dive into differences between participants with different amounts of experience, we can explore the “parents”/“other” experience comparisons. Still focusing on the native/non-native speaker dichotomy, there are statistically significant interactions for English proficiency, accentedness, friendliness, professionalism, and resourcefulness. Participants with “parents” experience showed much less of a native/non-native difference for English proficiency ratings than participants with “other” experience. This was also true, on a smaller scale, for professionalism and resourcefulness. For all three cases, this can be seen in the box plots as “other” participants both rating native speakers as higher and non-native speakers as slightly lower than “parents” participants. Thus, for English proficiency, professionalism, and resourcefulness, the hypothesis is supported that people with more childhood experience have less bias. However, for accentedness and friendliness, “parents” experience participants reported slightly more of a difference. These results are a bit more complicated, and don’t seem to support the hypothesis. They will be further explored later in the discussion, but this may indicate that accentedness and friendliness don’t follow the same pattern as the other characteristics.

In terms of difference between the non-native L1s as they interact with the some/no experience comparison, there are statistically significant interactions for English proficiency, accentedness, friendliness, and professionalism. English proficiency, friendliness, and professionalism showed less of a difference between Spanish and Mandarin speakers for participants with some experience than with no experience. Accentedness showed more of a difference for participants with some experience.

Finally, interactions between Spanish/Mandarin L1s and parents/other experience were statistically significant for English proficiency, friendliness, and professionalism. For all three, participants with “parents” experience reported slightly more of a difference between Mandarin and Spanish L1 speakers than participants with “other” experience. None of these interactions are very apparent in the box plots. It’s difficult to make claims about the meaning of this data without a deeper look into individual data, but out of the 12 participants with “parents” experience, four reported Spanish as the native language of one or more of their parents, and one reported Mandarin as the native language of one or more of their parents. Of the 10 participants with “other” experience, seven reported experience with native Spanish speakers, and one reported experience with native Mandarin speakers. This might indicate a stronger level of solidarity among those with “parents” experience for native Spanish speakers.

This study supported the original hypotheses overall, but there were differences between how the different variables used presented themselves. Childhood experience did interact with how participants rated native and non-native speakers, but this differed according to what was being measured. In general, as hypothesized, participants with more experience rated English proficiency, accentedness, intelligence, friendliness, professionalism, and resourcefulness as more similar between native and non-native speakers than participants with less experience. This

supports previous research that found childhood to be an important time for the development of language attitudes and establishes this finding for attitudes toward non-native accents. This also supports the idea that when children are exposed to non-native speech during their childhood, biases against non-native speech are lessened. Alternatively, it could be argued that these biases are simply not allowed to develop to the same extent in children with non-native speech exposure.

Interestingly, in this data, the largest differences were in how different groups perceived native English speakers, rather than in how they perceived non-native speakers. That is, individuals with less experience did not rate non-native speakers as less intelligent than individuals with more experience did. Instead, individuals with less experience rated native speakers as more intelligent than individuals with more experience did. This suggests, at some level, that the biases we see are not so much a result of people viewing non-native speakers as less intelligent (or whatever other factor), so much as viewing native speakers as more intelligent. Alternatively, it might suggest that individuals who do not show the same biases still view non-native speakers as less intelligent, but did not develop the perspective of viewing native speakers as more intelligent.

Results by individual factors

It will be worth taking a moment to explore each of the individual qualities as they were represented by the data, and what the findings might mean. Intelligence did not show interactions at the more detailed level. However, we did find that participants with some experience did not demonstrate the same native speaker bias that participants with no experience did. This is an unfortunate, but not entirely unexpected, finding. Non-native speakers being perceived as less intelligent is a clear demonstration of why we may have seen a hiring bias in previous research.

It could also be connected to the perception of non-native speech as less truthful. On the other hand, listeners with more experience rated intelligence at a similar moderate level for non-native speakers as they did for native speakers. As previously discussed, this suggests that instead of individuals without experience having a bias against non-native speech, they instead show a bias toward native speech. This seems like a small distinction, but it is demonstrated multiple times in this data. Individuals with experience do not perceive non-native speakers as more intelligent than individuals without experience do—they just don't perceive native speakers as any more intelligent than non-native speakers. Interestingly, this means that individuals without experience perceived speakers to be, on average, more intelligent—the baseline of intelligence was higher.

With friendliness, the data seem counterintuitive to my hypotheses. The only interactions showed that people whose parents spoke with a non-native accent perceive non-native speakers as less friendly than people who had other childhood experience. It had been assumed that high ratings of friendliness might follow feelings of greater solidarity, and that experience from parents might create greater feelings of solidarity for non-native speaker. However, the results may indicate that either ratings of friendliness do not positively correlate with feelings of solidarity, or that experience from one's parents does not create (and may even hinder) solidarity. It is also possible that solidarity as a mediating factor is irrelevant in this situation. To examine this further, let's consider that while those with some experience rated Spanish speakers as more friendly in comparison to Mandarin speakers, those with "parents" experience rated Spanish speakers as less friendly. As previously discussed, more participants with "parents" experience had parents with a Spanish L1 than Mandarin. If we consider solidarity, then this suggests that individuals have less solidarity with those similar to their parents. However, this could also suggest that friendliness is not something that is so closely connected to a person's parents. This

could indicate that what one considers to be friendly may be, in some ways, different than what they perceive in their parents. Since all these effects were relatively small in the data, it's hard to reach any strong conclusions, but the data does bring up some interesting questions.

Professionalism is another factor that is revealing in its demonstration of the hiring bias as discussed in the literature review. Similarly to intelligence, professionalism showed a clear bias toward native speakers among listeners without experience which was lessened among listeners with more experience. It makes sense that professionalism showed similar results to intelligence, since the two are likely highly correlated (in terms of perception). Again, individuals with less experience reported a higher baseline of professionalism because of their high ratings of native speakers. This may indicate that, either consciously or subconsciously, “fluent” or “native-like” speech is a less important factor in perception of professionalism (as well as intelligence) for individuals with more experience. However, more so for professionalism than intelligence, there is still some perception of native speakers being more professional than non-native speakers for individuals with a high level of exposure.

Resourcefulness can be a complex quality, but part of the reason it was chosen was to explore a different angle than characteristics like intelligence and professionalism, which are hypothesized to be associated with whiteness (and therefore, native/standard speech). While resourcefulness does in a sense suggest intelligence, it can also carry a connotation of survival amidst difficulty. An individual who is resourceful can make the best of a tough situation. Participants with “parents” experience rated native speakers slightly higher for resourcefulness than participants with “other” experience. Based on the box plot, this appears to derive from English and Mandarin L1 speakers being rated as lower for those with “parents” experience, but Spanish L1 speakers being rated similarly. As discussed in the friendliness section, more

participants with “parents” experience listed Spanish as their parents’ L1 than Mandarin. This might indicate some solidarity for participants with experience hearing Spanish L1 speech from their parents, specifically arising in resourcefulness.

What has not yet been discussed in this section is the understandability ratings that participants gave for each sentence. These have not been discussed because we have been focusing on the interactions from the linear models, and there were no statistically significant interactions for the understandability responses. However, it will still be worth discussing why the interactions were not statistically significant. Since the main effects did show that sentences produced by non-native speakers were rated less understandable, the reason for the lack of statistically significant interactions is likely that greater childhood exposure to non-native speech does not result in a greater ability to understand all non-native speech. This can be at least partially explained by the fact that exposure to non-native speech produced by an L1 speaker of one language (e.g., Spanish) is unlikely to influence an individual’s ability to understand non-native speech produced by an L1 speaker of a different language (e.g., Mandarin). Further research and analysis could explore this interpretation of the findings.

Research meta-analysis

Given the monetary and time constraints, there are plenty of potential issues in this study. This was a relatively small study in terms of both the number of speakers and the number of participants. For the speakers, the only non-native L1s used were Mandarin and Spanish, and there were only two speakers for each L1. This narrows the conclusions that can be drawn from this data. Similarly, there were only 50 participants, which is not so small as to be meaningless, but any conclusions could be strengthened with more participants.

As discussed in the literature review, there can be a discrepancy between implicit and explicit bias. In this study, there were no fully implicit measures (e.g., physiological measures). However, since the results did demonstrate some bias, it's apparent that the measures used did not entirely obscure the discrepancy between groups.

In terms of future research directions, any attempts to replicate this study would be of benefit, as any corroboration of these findings would make them much stronger. It would be enlightening to expand this research to encompass other non-native L1s, including ones that are less common in the United States. It would also be beneficial to engage in more of a comparison between individuals with different levels of experience both during childhood and adulthood. This would help to tease out the extent to which childhood experience, in particular, is important.

This research having been conducted and the results analyzed, it follows to consider what more policy-based actions might be taken to address native speaker bias. We have come to the conclusion that childhood exposure matters. Thus, efforts should be made to expose children to non-native speakers. For example, children's television features many voices that are generally native English speakers. An effort could be made to incorporate non-native voice actors. In schools, recorded educational material could include more non-native speakers. Additionally, a larger step could involve making an effort to hire more non-native educators.

This can be a polarizing issue. Many Americans feel concerned about having a country with many immigrants, and there are fears about "born-and-raised" white Americans losing their jobs, especially to Hispanic individuals. Many of these individuals speak Spanish as their native language, which opens the door for accent-based discrimination. However, it's important to recognize the reality of the ever-increasingly diverse United States of America, where non-native speakers make up a large proportion of the population. If children are not exposed to this reality,

harmful prejudice will likely continue to brew in mostly white, native English-speaking areas.

When it's baked in at such a young age, prejudice can be difficult to shake. Thus, we must make efforts to prevent the development of such harmful language ideologies.

Conclusion

This study explored the impact of childhood experience on an individual's perception of non-native speech. Based on the previous literature, it was hypothesized that individuals with more exposure to non-native speech during their childhood would both find non-native speech to be more understandable and view non-native speakers more positively. Overall, the hypothesis was supported by the evidence. Experience level was correlated with speaker L1 for ratings of English proficiency, accentedness, intelligence, friendliness, professionalism, and resourcefulness. In general, these correlations could be visualized as participants with less childhood experience rating native speakers higher (for English proficiency, intelligence, friendliness, professionalism, and resourcefulness; lower for accentedness), with all participants rating non-native speakers similarly.

Results generally point to less consideration given to native-like speech in perception of qualities like intelligence and professionalism among individuals with more childhood experience. Additionally, it was suggested that individuals with more childhood experience may demonstrate higher levels of solidarity with non-native speakers, thus impacting their perception of qualities like friendliness and resourcefulness.

Future directions for research include further exploring and unraveling the separation between childhood and adult experience (if such a separation does exist) and expanding to include other non-native L1s. Some policy recommendations include increasing exposure to non-native speech for children, especially in education and children's entertainment.

Appendix: Survey questions

Below are images of the questions from the Qualtrics survey.

Please indicate your level of agreement with the following statement:

That sentence was easily understandable.

Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
☐	☐	☐	☐	☐	☐	☐

Please indicate your level of agreement with the following statements about the speaker you were just listening to.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
That speaker is highly proficient in English	☐	☐	☐	☐	☐	☐	☐
That speaker has a strong accent.	☐	☐	☐	☐	☐	☐	☐
That speaker is intelligent.	☐	☐	☐	☐	☐	☐	☐
That speaker is friendly.	☐	☐	☐	☐	☐	☐	☐
That speaker is professional.	☐	☐	☐	☐	☐	☐	☐
That speaker is resourceful.	☐	☐	☐	☐	☐	☐	☐

Please list the language(s) you speak, including English.

For each language, describe how you learned the language and select your proficiency level.

	Language e.g. English, Spanish, etc.	How did you learn this language? e.g. this is my native language, in high school classes, etc.	What is your proficiency level in this language?
Language 1			v
Language 2			v
Language 3			v
Language 4			v

Please list the language(s) spoken by your parent(s) or guardian(s) (whoever you spent most of your time with in your childhood), including English (if applicable).

For each language, describe whether it is a native language for one or more of your parent(s)/guardian(s) and how often it was used during your childhood.

	Language e.g. English, Spanish, etc.	Is this the native language of one or more of your parents/ guardians?	How often was this language used in your household during your childhood?
Language 1		v	v
Language 2		v	v

Other than your parent(s)/guardian(s), were you regularly around people whose native language was not English during your childhood?

☐ Yes

☐ No

☐ Unsure

Please explain your relationship to these individual(s), as well as what their native language(s) are.

Have you regularly been around people whose native language is not English in your adulthood?

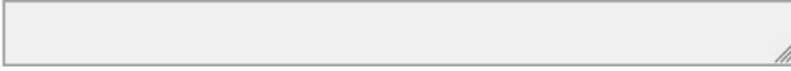
☐ Yes

☐ No

☐ Unsure

Please explain your relationship to these individual(s), as well as what their native language(s) are.

Is there anything else that might be relevant to share about your language experiences in childhood and adulthood? If so, please share here.



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