

1
2
3 **Research Article**

4
5 **SOCIAL ATTITUDES AND SPEECH RATINGS**
6 **EFFECTS OF POSITIVE AND NEGATIVE BIAS ON MULTIAGE LISTENERS’**
7 **JUDGMENTS OF SECOND LANGUAGE SPEECH**
8

9
10
11 **Kym Taylor Reid***
12 *Concordia University*

QA

13
14 **Pavel Trofimovich**
15 *Concordia University*

16
17
18 **Mary O’Brien**
19 *University of Calgary*
20
21
22

23 **Abstract**

24 This study examined whether social bias manipulation can influence how naïve multiage listeners
25 evaluate second language (L2) speech. Sixty native English-speaking listeners (Montreal residents)
26 rated audio recordings of 40 Quebec French speakers of L2 English for five dimensions of oral
27 performance (accentedness, comprehensibility, segmental accuracy, intonation, flow) using 1,000-
28 point continuous scales. Immediately before rating, 20 listeners heard critical comments about
29 Quebec French speakers’ English language skills, while 20 heard positive comments. Twenty
30 listeners (baseline group) received no manipulation. Compared to baseline listeners, positively
31 oriented listeners (younger and older) rated four of five dimensions more favorably. However,
32 listeners’ behavior diverged under negative bias. Compared to age-matched baseline listeners,
33 younger listeners upgraded speakers while older listeners downgraded speakers for all targeted
34 measures. Findings cast doubt on the relative stability of L2 speech ratings and point to the
35 importance of social context and generational differences in untrained rater assessments of L2
36 speaking performance.
37
38

39
40 This study was supported by grants from the Social Sciences and Humanities Research Council of Canada to the
41 second and third authors. We are deeply grateful to Zeshan Yao for his programming assistance and to the
42 anonymous reviewers and the editor, Susan Gass, for the insightful comments and suggestions that helped us
43 refine this article.

44 *Correspondence concerning this article should be addressed to Kym Taylor Reid, Department of Education,
45 Concordia University (FG 5.150), 1455 de Maisonneuve Blvd W., Montreal, Quebec, Canada H3G 1M8.
46 E-mail: kym.taylor@concordia.ca

1 Across various social domains, including speech communication, perception of others
2 can largely be seen as a problem-solving task, one in which impressions are formed based
3 on a combination of concrete knowledge and assumptions about an individual or group
4 (e.g., Yzerbyt, Schadron, Leyens, & Rocher, 1994). When these impressions are formed,
5 however, concrete knowledge is often relegated to the background in favor of socially
6 constructed beliefs, resulting in skewed or overgeneralized judgments known as ster-
7 eotyping or biases (e.g., Stroebe & Insko, 2013). Socially constructed biases thus reflect
8 the imbalance between real evidence and perceivers' views acquired through their
9 experience in a given environment, and these attitudes are often used to justify dislike of
10 those considered to be different based on misinformation and unfounded beliefs. The
11 chief objective of this study was to extend prior research on socially constructed biases to
12 the domain of second language (L2) speech. Specifically, the goal was to determine the
13 extent to which social biases can be manipulated—within a speech rating task—to
14 influence listeners' judgments of L2 speakers in terms of global dimensions of L2 speech
15 (accentedness, comprehensibility, flow) and its specific characteristics (segmental
16 accuracy, intonation).

17
18 **LINGUISTIC STEREOTYPING**

AU1

19
20 Humans generally seek to construct a favorable identity and secure their membership as
21 part of an “in group” (i.e., the group to which they belong) by comparing themselves to
22 outsiders; these comparisons frequently involve linguistic factors, including dialectal
23 variations in pronunciation and speech colored by features common to other languages
24 (e.g., Bourhis, Sioufi, & Sachdev, 2012; Giles & Watson, 2013). For instance, as
25 demonstrated in Labov's (1972) classic study, speakers can use their pronunciation (e.g.,
26 variation in vowel quality) to create an identity so as to differentiate themselves from
27 members of other groups. It is now common knowledge that speakers use language as a
28 primary group distinction when judging others, exploiting variations in speech to make
29 inferences about speakers' social groups and attributing (often stereotypical) judgments
30 to these speakers and their groups (e.g., Bourhis et al., 2012; Dragojevic, Gasiorek, &
31 Giles, 2016; Ryan, 1983; Wigboldus, Spears, & Semin, 2005).

AU2

32 Ensuing speech-based attitudes can be positive. For instance, Dalton-Puffer, Kal-
33 tenboeck, and Smit (1997) found that native speakers of British English with a Received
34 Pronunciation (RP) accent were rated by L2 learners as more courteous, educated, and
35 organized than those with other native accents. This stereotypical attitude is not par-
36 ticularly harmful to those who speak with a RP accent, but it may lead to unfair
37 generalizations about those speakers who do not. However, most frequently, speech-
38 based attitudes are negative, especially when expressed by majority groups targeting
39 minority status speakers. For example, in an early study, Ryan, Carranza, and Moffie
40 (1977) showed that native English listeners' evaluations of L2 speakers were strongly
41 associated with speakers' accents, such that listeners judged Spanish speakers with heavy
42 accents in English to be of lower status (in terms of their eventual occupation), to be
43 lower in solidarity (in terms of the likelihood of becoming friends), and to generally
44 speak less pleasantly. Similarly, compared to speakers of regional and standard dialects,
45 L2 speakers in the United States reported feeling more stigmatized by native speakers
46 and expressed weaker affiliation to the country, with stronger accents associated with the

1 perception of being an outsider (Gluszek & Dovidio, 2010a; Gluszek, Newheiser, &
2 Dovidio, 2011).

3 Attitudes toward specific cultural groups, societal norms regarding minority speakers,
4 and the importance of language to a particular society—including how it is used in
5 education, politics, and the media—can all influence listener perception and stigmati-
6 zation of L2 speakers (see Gluszek & Dovidio, 2010b). However, it appears that
7 expectations might influence listeners' attitudes and behaviors at least as much as the
8 actual speech they hear (Lindemann & Subtirelu, 2013). This was the case in Linde-
9 mann's (2002) study, which paired native English speakers with native Korean speakers
10 in an interactive task in English. Throughout the task, some native English speakers who
11 had been identified as having negative attitudes toward Koreans refrained from com-
12 municating vital information to their partners or neglected to acknowledge communi-
13 cation from them. These speakers also reported their interactions to be less successful
14 than did those native speakers who were identified as having positive attitudes toward
15 Koreans. Indeed, most observed instances of avoidance and problematizing involved the
16 "negative attitude" participants, implying that attitudes of the listener prevail over
17 proficiency of the speaker.

18 Biases become even more problematic when linguistic differences are used to judge
19 speakers based on imagined or preconceived ideas. Kang and Rubin (2009) define this
20 type of bias as reverse linguistic stereotyping, or the process by which general attributes
21 of a speaking community negatively influence how a speaker is perceived, often through
22 reference to characteristics that are completely imagined. For example, in a study of
23 Grade 3 and 4 schoolchildren, Ford (1984) showed that teachers preferred the writing
24 samples produced by students when those samples were paired with the speech of native
25 English speakers than when paired with the speech of Spanish-accented L2 learners,
26 regardless of which learners produced the written work. In a striking demonstration,
27 Rubin (1992) showed that native listeners attributed strong accent to a university lecture
28 when paired with an image of a Chinese-looking female and, in fact, understood sig-
29 nificantly less content from this lecture, compared to the same lecture paired with an
30 image of a Caucasian female, even though the audio was recorded in both instances by
31 the same native English speaker from Ohio.

32 Stereotypical judgments of this kind generally reflect people's individual experiences. In
33 a study of 158 culturally diverse individuals (i.e., native and L2 speakers with various
34 levels of exposure to, education in, and experience with English), Kang and Rubin (2009)
35 showed that speech ratings were influenced by rater background in that listeners with less
36 exposure to L2 speakers in their daily lives both rated the same English speech sample less
37 favorably (in terms of quality of instruction and perceived "standardness" of accent) and
38 understood less of what was being said when it was presented under the guise of an East
39 Asian L2 English speaker rather than a Euro-American native English speaker. Similarly,
40 Hu and Lindemann (2009) showed that Cantonese speakers of L2 English were evaluated
41 significantly higher in three out of four rating tasks when listeners were told that the speech
42 sample they heard belonged to an English speaker from the United States as opposed to
43 when they were told that it belonged to an English speaker from China. In sum, listeners'
44 evaluations of other speakers' linguistic performance—particularly the performance by L2
45 speakers—are often influenced by listeners' beliefs, expectations, experiences, and
46 stereotypical views rather than the speakers' actual performance.

1 **MANIPULATING SOCIAL BIAS**

2 The special role of speech as a source of stereotyping and social biases is unsurprising,
3 given that preference for familiar speech patterns emerges in the first year of a child's life
4 (e.g., Kinzler, Dupoux, & Spelke, 2007) and that speech acts as a dominant cue guiding
5 children's and adults' perceptions and actions, for example, when choosing friends (e.g.,
6 Girard, Floccia, & Goslin, 2008). Speech patterns are also prioritized over other sources
7 of bias such as race, gender, or appearance (e.g., Kinzler, Shutts, DeJesus, & Spelke,
8 2009; Rakić, Steffens, & Mummendey, 2011). What is surprising, however, in light of
9 the important role of speech in guiding listeners' attitudes and behaviors, is that little
10 research has targeted the impact of socially constructed biases on listeners' evaluations of
11 L2 speech. In fact, most work in this area (as reviewed in the preceding text) has been
12 concerned with documenting listeners' attitudes toward various types of native and
13 nonnative speech patterns, labeled as "accents" (e.g., Beinhoff, 2013; Giles & Rakić,
14 2014), but not with examining relative effects of various degrees of socially constructed
15 biases on listeners' assessments of L2 speech, for instance, in terms of global dimensions
16 (e.g., comprehensibility, fluency) or specific characteristics (e.g., segmental, supra-
17 segmental accuracy). Because listener-based evaluations of L2 speech are common to
18 both research settings (e.g., Derwing & Munro, 2015) and assessment contexts (e.g.,
19 Harding, 2012; Isaacs, 2013), understanding the impact of social biases on listener
20 evaluations of L2 speech is a priority.

21 Several strands of prior research suggest that socially constructed biases can be
22 manipulated to the extent that they could produce varying degrees of impact on listeners'
23 evaluations of speech. For instance, research focusing on bias reduction through explicit
24 training has shown that socially constructed attitudes can be mitigated through
25 instruction. Staples, Kang, and Wittner (2014) involved native-speaking undergraduate
26 students in informal, cooperative contact activities with L2 speakers for eight weeks. At
27 the end of the intervention, the contact group, compared to the noncontact group, rated
28 L2 instructors as being less accented, more comprehensible, and having greater teaching
29 ability (see also Kang, Rubin, & Lindemann, 2015). In another training study, Derwing,
30 Rossiter, and Munro (2002) exposed three groups of native-speaking students enrolled in
31 a social work class to various combinations of exposure to L2 speech, cross-cultural
32 discussion, and instruction on specific pronunciation targets, all with a focus on
33 Vietnamese-accented speakers of L2 English. Following an eight-week intervention,
34 there were no clear effects of exposure and explicit teaching about the features of
35 Vietnamese-accented English on listeners' ability to understand it. However, listeners
36 reported improved confidence that they could interact with L2 speakers, attributing that
37 confidence to instruction.

38 Explicit instruction is not the only means to influence socially constructed biases
39 toward speech. Niedzielski (1999), for example, showed that American listeners differed
40 significantly in their perception of vowel sounds produced by the same speaker as a
41 function of a single piece of information provided about the speaker, namely, whether the
42 speaker was a resident of the United States or Canada. Furthermore, even a general social
43 bias against L2 speakers can be manipulated, as demonstrated through Hansen, Rakić,
44 and Steffens's (2014) study of 42 German speakers who were asked to judge the
45 competence and employability of native Turkish speakers of L2 German. Researchers
46

1 were able to mitigate listener bias against L2 speakers by engaging listeners in “per-
2 spective taking.” Those listeners who had the opportunity to use their L2 (English) in a
3 brief exchange with a research confederate prior to the rating session provided higher
4 ratings for L2 German speakers, compared to listeners who did not engage in L2
5 production before rating. L2 learner performance can also be manipulated through
6 socially constructed biases. Paladino et al. (2009), for instance, found that Italian
7 participants underperformed in written and oral tests of L2 German when simply
8 reminded of the widely held perception that Italians of the region were known to have
9 poor ability in German.

11 THE CURRENT STUDY

13 If socially constructed biases can be manipulated through instruction by engaging
14 language users in particular experiences, or simply through providing (and even merely
15 implying) certain information, then it is important to determine the degree to which
16 listeners’ speech ratings are susceptible to such manipulations. Should L2 speech ratings
17 be shown to be easy to influence—by highlighting listeners’ existing biases or by
18 creating new ones—such findings could have consequences for the validity of speech
19 ratings carried out in various settings (Derwing & Munro, 2015). Despite the abundance
20 of research on ways to influence language users (see Molden, 2014), the current study is
21 among the first in the field of L2 speech learning to subtly incorporate a social bias *into*
22 the rating task and to examine social influences on multiple rated measures of L2 speech
23 as assessed by naïve, untrained listeners. These rated measures captured global listener-
24 based characteristics of L2 speech such as comprehensibility (ease or difficulty of
25 understanding), accentedness (extent to which a speaker sounds nativelike), and flow
26 (overall pacing and speed of utterance delivery). The measures also included specific
27 listener-based accuracy measures, targeting individual segments (accuracy in production AU3
28 of consonants and vowels) and intonation (natural rise and fall in pitch, speech melody).

29 The chief objective of this study was to determine the effect of deliberate positive and
30 negative social bias manipulation on listeners’ ratings of native French speakers of L2
31 English from Quebec. Immediately before the rating task, one third of the listeners heard
32 a short (scripted and rehearsed but naturally delivered) personal opinion by the researcher
33 praising L2 English skills of native French speakers. Another third of the listeners heard a
34 personal opinion by the researcher criticizing L2 English skills of native French speakers,
35 while the remaining third of the listeners were exposed to no biasing opinion. The
36 assumption guiding this study was that a fleeting bias introduced at the outset of a rating
37 session (in a social environment with a history of tension between English- and French-
38 speaking communities) would either enhance or suppress the ratings provided by naïve
39 listeners, relative to the ratings of listeners who were not exposed to a social bias
40 manipulation.

41 Because the impact of social bias on listeners’ judgments of L2 speech is likely
42 influenced by their specific experiences (e.g., Kang & Rubin, 2009; Wigboldus et al.,
43 2005), the naïve, untrained listeners for this study were recruited to represent a broad age
44 range (18–72). Our working assumption was that older and younger listeners would
45 differ in the extent to which they were impacted by the 1977 French Language Charter
46 (Bill 101), which designated French as the sole official language of Quebec and restricted

1 the use of English in public domains (including education) as a way of strengthening the
 2 ethnolinguistic vitality of Francophones in Quebec (Corbeil, 2007). Older listeners (e.g.,
 3 those older than 40) would represent members of Quebec's anglophone community who
 4 had been children or young adults when the status of English changed from majority to
 5 minority, which might make them particularly sensitive to the issues surrounding the
 6 status of English in Quebec. In contrast, younger listeners would be considered Quebec's
 7 anglophones who had been raised and schooled at a time when the official status of
 8 French would be less contested, which might make these listeners less sensitive to
 9 English-centered social bias. Therefore, a more specific prediction was that, if present,
 10 the effect of a social bias manipulation might be qualified by listeners' age (a continuous
 11 variable in this study), such that bias may be more pronounced for older than younger
 12 listeners. The following research question guided the study: Does a social bias
 13 manipulation (positive or negative) influence the ratings of listeners of different ages in
 14 terms of the comprehensibility, accentedness, consonant and vowel errors, intonation,
 15 and flow of L2 speech?

17 **METHOD**

19 ***LISTENER GROUPS***

20 Listeners included 60 native English speakers (36 females, 24 males), all self-identified
 21 members of the English-speaking anglophone community of Quebec and all residents of
 22 Montreal. All listeners were born and raised in monolingual English households in
 23 Quebec and most (37) were schooled in English, with 21 listeners reporting bilingual
 24 English-French education at the secondary level, one reporting English-Hebrew edu-
 25 cation at the elementary level, and one reporting French immersion at the elementary
 26 level. Of the 60 listeners, 17 graduated from a junior college and 46 were finishing or had
 27 already obtained a postsecondary degree. Most (51) listed English as their ethnic
 28 language; of the nine remaining, one provided no language, and the others listed Italian
 29 (2), Urdu (2), Kanienkha (Mohawk) (1), Hebrew (1), Yiddish (1), and Hungarian (1).
 30 Three were employed at an English-speaking university in administrative or support
 31 positions, while the remaining were professionals unaffiliated with educational insti-
 32 tutions or students outside of language-related disciplines. When asked to rate how well
 33 specific labels describe them on a 9-point scale (1 = "not at all," 9 = "perfectly"),
 34 listeners clearly preferred the "Canadian" ($M = 8.3$, $range = 1-9$) and the "Anglophone
 35 Quebecer" ($M = 7.7$, $range = 1-9$) labels to the "French Canadian" ($M = 2.2$, $range =$
 36 $1-9$) and the "Quebecois" ($M = 3.9$, $range = 1-9$) labels. As shown in Table 1, which
 37 summarizes listeners' background characteristics, all listeners reported knowledge of
 38 French and high familiarity with French-accented English.

39 The 60 listeners were randomly assigned to three experimental groups ($n = 20$), then
 40 exposed to either a positive manipulation (12 females, 8 males), a negative manipulation
 41 (11 females, 9 males), or no manipulation (13 females, 7 males) before the rating task.
 42 The group receiving no manipulation was designated as the baseline listener group.
 43 As indicated by nonsignificant results of Levene's tests of homogeneity of variance
 44 ($p > .05$), all demographic, background, and social attitudinal variables for the three
 45 listener groups, except for listener age (where a Levene's test yielded a significant value
 46

TABLE 1. Listeners' background characteristics

Background variables	Positive ($n = 20$)		Negative ($n = 20$)		Baseline ($n = 20$)	
	M (SD)	Range	M (SD)	Range	M (SD)	Range
Age	44.2 (20.4)	18–72	38.6 (16.2)	19–66	38.2 (15.1)	20–65
Daily use of English ^a	90.0 (9.2)	70–100	90.5 (9.4)	60–100	86.3 (14.4)	40–100
Daily use of English with native speakers ^a	81.0 (16.2)	50–100	73.0 (20.5)	20–100	78.0 (15.0)	50–100
Familiarity with French-accented English ^b	8.4 (0.8)	6–9	8.3 (0.9)	7–9	8.4 (0.8)	6–9
Daily use of French ^a	23.5 (19.0)	0–70	20.3 (10.6)	0–40	21.3 (13.2)	10–50
Daily use of French with native speakers ^a	63.0 (34.5)	10–100	56.0 (34.4)	0–100	62.5 (31.9)	10–100
Pride in Anglophone group ^c	38.0 (8.1)	17–45	36.0 (10.7)	5–45	34.9 (11.2)	8–45
Role of English in Quebec ^c	29.4 (8.8)	11–45	33.2 (8.7)	7–45	31.3 (7.2)	19–45
Attitudes toward immigrants ^c	19.8 (12.1)	5–44	19.8 (10.0)	6–36	16.2 (7.7)	5–32
Feelings toward other ethnic groups ^c	34.5 (5.7)	24–45	35.2 (6.8)	22–45	32.5 (8.8)	7–45

^aBased on a 0–100% scale.

^bBased on a 1–9 scale (1 = “not at all,” 9 = “very much”).

^cSum of the question responses ($max = 45$) targeting this construct (see Appendix 1), based on a 1–9 scale (1 = “disagree,” 9 = “agree”).

at $p = .003$), included similar data distributions within the three groups. Therefore, as suggested by Field (2009), for between-group comparisons, we report F statistics (equal variances assumed) in all cases except comparisons of age, for which we report Welch's F (equal variances not assumed). As shown in Table 1, the three groups did not differ significantly in any background or language variables, $F(2, 57) < 1.08$, $p > .35$, including age; Welch's $F(2, 37.48) = .63$, $p = .54$;¹ responses to a social attitudes questionnaire (see Appendix 1) targeting the strength of listeners' pride for their ethnic group (5 questions, Cronbach's $\alpha = .90$); their perception of the role of English in Quebec (5 questions, $\alpha = .71$); their attitudes toward immigrants (5 questions, $\alpha = .86$); and their feelings toward other ethnic groups (5 questions, $\alpha = .76$), $F(2, 57) < 1.04$, $p > .36$.² While most listeners (58) reported normal hearing, one listener each in the positive and negative bias groups indicated having hearing issues (partial hearing loss in one ear, perception difficulty with low registers). Excluding these two listeners from analyses resulted in no change in the findings; therefore, the reported analyses included the entire dataset of 60 listeners.

SPEECH MATERIALS

The target audio samples evaluated by listeners included the speech of 40 Quebec francophones (27 women, 13 men) from the dataset analyzed by Isaacs and Trofimovich (2012). All were native speakers of French born and raised in French-speaking Quebecois families and schooled exclusively in French ($M_{age} = 35.6$ years, $range = 18$ –61). The speakers recorded brief narratives in English in response to the “Suitcase Story”—an eight-panel picture story describing two passers-by who ran into each other at a busy intersection and inadvertently took each other's similar-looking suitcases (Derwing, Rossiter, Munro, & Thomson, 2004). The samples included approximately the first

1 30 seconds of each narrative (23–36 seconds) with initial disfluencies (including false
 2 starts and hesitations) removed.

3
 4 **RATING PROCEDURE**
 5

6 The rating procedure was the same across all listener groups. Each listener, tested
 7 individually, provided two sets of ratings in the same sequence: two global variables
 8 (accentedness, comprehensibility) and three specific pronunciation variables (segmental
 9 errors, intonation, flow), all summarized in Table 2. The ratings were carried out in the
 10 same session using 1,000-point sliding scales programmed in the custom-built speech
 11 evaluation software Z-Lab (Yao, Saito, Trofimovich, & Isaacs, 2013). The endpoints of
 12 each scale were not labeled numerically, and the scale contained no interval markings;
 13 however, the endpoints were identified as negative (frowning face) and positive (smiling
 14 face) and corresponded to the ratings of 0 and 1,000. The scales for accentedness and
 15 comprehensibility appeared on screen together, and listeners were required to listen to
 16 each sample (presented in randomized order) once before providing their ratings, on the
 17 assumption that accent and comprehensibility reflect initial, intuitive perceptual judg-
 18 ments. The scales for the remaining three variables (segmental errors, intonation, flow)
 19 also appeared together, but listeners were permitted to replay each sample multiple times
 20 after the initial playback before providing their ratings.

21 At the beginning of each session, listeners were first shown the picture story described
 22 by the speakers. They were then instructed about each rating category using definitions
 23 and examples and were asked to evaluate three extra practice samples before proceeding
 24 to rate the 40 target speech samples (using headsets). The critical manipulation involved
 25 the researcher providing a memorized and well-rehearsed biasing anecdote to listeners
 26 after they rated the practice samples, which was casually shared as the researcher made
 27 necessary adjustments to the computer to close the practice sample file and open the
 28 target sample file. In the negative manipulation group, listeners heard a short (scripted
 29 and rehearsed but naturally delivered) personal opinion by the researcher about her
 30 experience getting food at a local eatery prior to the experiment and not being served
 31
 32

33 **TABLE 2. Summary of rated categories with scalar endpoint descriptors (0–1,000)**

Rated measure	Left endpoint	Right endpoint	Category summary
Accentedness	Heavily accented	No accent at all	How different a speaker sounds from a native English speaker
Comprehensibility	Hard to understand	Easy to understand	Ease or difficulty of raters' understanding of L2 speech
Segmental errors	Frequent	Infrequent or absent	Errors in production of individual consonants and vowels within a word
Intonation	Unnatural	Natural	Appropriateness of pitch moves within speech, such as rising tones in yes/no questions
Flow	Disjointed, speech does not flow	Speech flows naturally and fluidly	Speaker's overall pacing and speed of utterance delivery

adequately in English by a native French-speaking employee who, according to the researcher, had an atrocious accent, had poor grammar, and had not bothered to learn the other official language of Canada. In the positive manipulation group, listeners heard a comparable opinion of the same length and emotional content, except that it shared the researcher's positive experience at the same local eatery where she had been served by a native French-speaking employee whose accent and grammar were excellent and who, according to the researcher, made a great effort to learn the other official language of Canada (see Appendix 2 for full scripts). Listeners in the baseline group received no social bias manipulation.

At the end of the session, listeners filled out a language background questionnaire, a social attitudes questionnaire, and the final debrief questionnaire, which asked them to retrospectively judge the pleasantness of the rating session, the researcher's helpfulness, the rating task difficulty, and their confidence in rating, using 100-millimeter continuous semantic differential scales (see Appendix 3). Listeners were invited to comment about any part of their interaction with the researcher that might have affected their ratings. They were also debriefed after each session; these final comments, as well as detailed notes about listeners' reactions during the session, were recorded as field notes by the researcher.

DATA ANALYSIS

All ratings within each listener group were first checked for internal consistency (Cronbach's α). As shown in Table 3, listeners were highly consistent in their ratings, with reliability indexes falling within the .95–.98 range, which is comparable to reliability estimates reported previously with similar rater samples (e.g., Derwing & Munro, 1997). The debrief questionnaire responses were scored in terms of the distance (in millimeters) between the left endpoint of the scale and the listener's mark (cross or checkmark) on the 100-millimeter scale. Comparisons of these ratings confirmed that the three listener groups did not differ in their reactions to the session or the researcher (equal variances assumed based on nonsignificant results of Levene's tests), $F(2, 57) < 1.26$, $p > .29$,³ finding the experience pleasant ($M_{\text{positive}} = 84.2$, $M_{\text{negative}} = 87.0$, $M_{\text{baseline}} = 92.8$) and the researcher helpful ($M_{\text{positive}} = 95.1$, $M_{\text{negative}} = 94.6$, $M_{\text{baseline}} = 97.8$), or in their understanding and use of the rating criteria, evaluating task difficulty similarly ($M_{\text{positive}} = 71.5$, $M_{\text{negative}} = 70.6$, $M_{\text{baseline}} = 74.0$) and being similarly confident in their speech ratings ($M_{\text{positive}} = 80.0$, $M_{\text{negative}} = 73.9$, $M_{\text{baseline}} = 81.6$).

The field notes were analyzed broadly for direct quotes from the listeners reflecting their awareness of a bias manipulation and their positive or negative stance toward any aspects of L2 speech. Because the field notes contained spontaneous, unstructured reflections (as opposed to elicited responses to a predefined question set), these analyses were descriptive and used for illustrative purposes only. Before the purpose of the experiment was revealed to them at the end of the session, all listeners responded "no" or "not really" to the question asking if they thought anything that the researcher said influenced their ratings, occasionally commenting on the helpfulness of the researcher (e.g., "she just made me more comfortable and I listened to her instructions," "she was very clear without being leading," "she made me feel very at ease," "I was completely objective with no bias"). Therefore, the three listener groups appeared to be similarly

TABLE 3. Interrater reliability across listener groups (Cronbach's α)

Rated measure	Positive	Negative	Baseline
Accentedness	.980	.978	.968
Comprehensibility	.970	.969	.959
Segmental errors	.968	.973	.965
Intonation	.948	.964	.951
Flow	.974	.975	.966

unaware of the social bias manipulation and seemed comparable in their reactions to the researcher and the testing situation.⁴

To determine the effect of social bias manipulation on L2 speech ratings, multilevel linear models were computed in R (Bates, Mächler, Bolker, & Walker, 2015) using the nlme package (Pinheiro, Bates, DebRoy, Sarkar, and R Core Team, 2018). Multilevel linear models are generally not subject to the assumptions of homogeneity of regression slopes and data independence and can also cope with missing data, which makes these models a robust alternative to ANOVAs (see Field, 2009). In each set of models, the relevant speech rating (accentedness, comprehensibility, segmental errors, intonation, flow) served as the dependent variable, with social bias manipulation (negative, positive, baseline), listeners' age (continuous variable), and social bias \times age interaction as fixed factors, random intercepts for speakers and listeners, and random slope for social bias. The baseline listener group was designated as the reference group. Model fit was evaluated through a chi-square test on each successive model, proceeding from simpler to more complex models, with a more complex model adopted only when it improved fit. Prior to reporting each final model, we established that random intercepts and (where appropriate) also random slopes across the three groups were distributed normally; these assumptions were met. For all model parameters, 95% confidence intervals (CIs) were derived to determine the statistical significance of each parameter (i.e., interval does not cross zero). Whenever listeners' ratings were predicted by a significant social bias \times age interaction, this interaction was broken down by fitting separate multilevel models for younger versus older listeners (using the median value of 31.5 years for listener grouping but treating age as a continuous variable within each group) with social bias as a fixed factor.

In the last step, to account for potential effects of listeners' individual experience with L2 English speech and their preexisting social biases, the final model for each dependent variable was updated by using an additional seven predictors as fixed factors—(a) listeners' familiarity with French-accented English, (b) amount of daily use of French, (c) amount of daily use of French with native French speakers, (d) listeners' pride for their ethnic group, (e) their perception of the role of English in Quebec, (f) their attitudes toward immigrants, and (g) their feelings toward other ethnic groups. Because of space limitations, the results of multilevel modeling are illustrated graphically only for the ratings of accentedness and comprehensibility (which are representative of all findings). Appendix 4 includes color figures illustrating the full dataset.

TABLE 4. Model for accentedness with baseline group used as the reference level

Parameter	<i>b</i>	<i>SE</i>	95% CI	<i>t</i>	<i>p</i>
(Intercept)	370.70	32.73	[306.60, 434.79]	11.33	< .0001
Positive vs. baseline	89.32	23.06	[44.15, 134.49]	3.87	.0001
Negative vs. baseline	145.92	24.23	[98.47, 193.37]	6.02	< .0001
Listener age	0.00	0.43	[-0.83, 0.84]	0.01	.9955
Positive × Listener age	-1.06	0.51	[-2.06, -0.05]	-2.06	.0393
Negative × Listener age	-3.16	0.57	[-4.28, -2.05]	-5.58	< .0001
Random effects	<i>SD</i>		Information criteria		Estimate
Speakers (intercept)	174.73		Log-likelihood		-15788.11
Positive bias (slope)	38.67		AIC		31614.21
Negative bias (slope)	39.90		BIC		31724.09
Listeners (intercept)	176.98		Conditional R^2		0.99
Positive bias (slope)	122.90				
Negative bias (slope)	154.31				

Notes: AIC = Akaike information criterion, BIC = Bayesian information criterion. Conditional R^2 = variance explained by fixed and random factors.

RESULTS

SOCIAL BIAS AND L2 SPEECH RATINGS

The results of multilevel modeling for accentedness are summarized in Table 4 and illustrated graphically in Figure 1 (left panel), which depicts the relationships between listeners' age and accentedness ratings separately for each listener group. As shown in Table 4, there was a significant effect of positive bias, relative to baseline listeners' performance. However, this effect was qualified by a significant age-based interaction. This interaction was driven by younger listeners upgrading speakers to a greater extent (+63 points on a 1,000-point scale), $b = 62.59$, $t(1158) = 4.16$, $p < .0001$, 95% CI [33.11, 92.07], compared to older listeners (+23 points only), $b = 22.58$, $t(1158) = 1.77$, $p = .0777$, 95% CI [-2.48, 47.63], relative to baseline listeners' ratings. There was also a significant effect of negative bias, which was further qualified by an interaction. Younger listeners upgraded speakers (+80 points), $b = 80.01$, $t(1158) = 5.18$, $p < .0001$, 95% CI [49.74, 110.27], while older listeners downgraded them (-32 points), $b = -32.47$, $t(1158) = -2.51$, $p = .0124$, 95% CI [-57.86, -7.07], relative to baseline listeners' scores.

The results of multilevel modeling for comprehensibility, summarized in Table 5 and illustrated in Figure 1 (right panel), revealed a significant effect of positive bias, with no significant interaction. Regardless of age, positively oriented listeners provided significantly higher ratings (+65 points), relative to the performance of baseline listeners. However, the effect of negative bias was qualified by an age-based interaction. As with the ratings of accentedness, younger listeners upgraded speakers (+74 points), $b = 73.84$, $t(1158) = 4.64$, $p < .0001$, 95% CI [42.67, 105.00], while older listeners downgraded them (-35 points), $b = -34.75$, $t(1158) = -2.24$, $p = .0256$, 95% CI [-65.21, -4.29], relative to baseline listeners' scores.

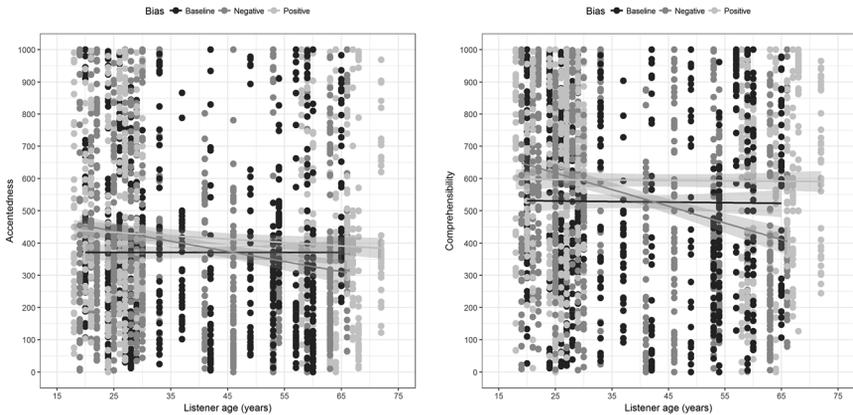


FIGURE 1. Scatterplot of accentedness (left panel) and comprehensibility (right panel) ratings as a function of listeners' age, with regression lines depicting the best linear fit for each listener group and shaded areas encompassing 95% confidence intervals.

For segmental errors (summarized in Table 6), there was no significant effect of positive bias, meaning that positively oriented listeners and baseline listeners rated speakers similarly regardless of listeners' age. However, the statistically significant effect of negative bias was qualified by an interaction, such that younger listeners upgraded speakers in their ratings (+31 points), $b = 31.13$, $t(1158) = 2.53$, $p = .0115$, 95% CI [7.03, 55.23], while older listeners showed a (nonsignificant) tendency to downgrade the same speakers (-25 points), $b = -25.35$, $t(1158) = -1.90$, $p = .0581$, 95% CI [-51.53, 0.84], relative to baseline listeners scores.

TABLE 5. Model for comprehensibility with baseline group used as the reference level

Parameter	<i>b</i>	<i>SE</i>	95% CI	<i>t</i>	<i>p</i>
(Intercept)	534.48	36.73	[462.54, 606.42]	14.55	< .0001
Positive vs. baseline	65.04	26.67	[12.80, 117.28]	2.44	.0148
Negative vs. baseline	211.76	29.27	[154.43, 269.09]	7.23	< .0001
Listener age	-0.18	0.52	[-1.20, 0.84]	-0.35	.7273
Positive × Listener age	0.06	0.62	[-1.15, 1.26]	0.09	.9272
Negative × Listener age	-4.98	0.70	[-6.35, -3.60]	-7.10	< .0001
Random effects	<i>SD</i>		Information criteria		Estimate
Speakers (intercept)	188.94		Log-likelihood		-16241.33
Positive bias (slope)	12.26		AIC		32520.66
Negative bias (slope)	27.83		BIC		32630.54
Listeners (intercept)	216.48		Conditional R^2		.99
Positive bias (slope)	119.35				
Negative bias (slope)	178.42				

Notes: AIC = Akaike information criterion, BIC = Bayesian information criterion. Conditional R^2 = variance explained by fixed and random factors.

As summarized in Table 7, for ratings of intonation, multilevel modeling revealed significant effects of positive and negative bias, with both effects qualified by interactions. Under positive bias, the interaction effect was driven by younger listeners providing higher intonation ratings (+83 points), $b = 83.09$, $t(1158) = 6.04$, $p < .0001$, 95% CI [56.15, 110.02], compared to older listeners' ratings (+39 points), $b = 39.37$, $t(1158) = 2.82$, $p = .0048$, 95% CI [12.05, 66.69], with both younger and older listeners upgrading speakers in their ratings, relative to baseline listeners' scores. Under negative bias, younger listeners upgraded speakers (+61 points), $b = 61.47$, $t(1158) = 4.47$, $p < .0001$, 95% CI [34.53, 88.40], while older listeners downgraded them (-37 points), $b = -37.34$, $t(1158) = -2.68$, $p = .0075$, 95% CI [-64.66, -10.02], relative to baseline listeners' performance.

Finally, for the ratings of flow (summarized in Table 8), multilevel modeling showed significant effects of positive and negative bias, with both effects qualified by interactions. Under positive bias, the interaction was driven by younger listeners providing higher flow ratings (+70 points), $b = 70.43$, $t(1158) = 5.48$, $p < .0001$, 95% CI [45.22, 95.63], compared to the scores by baseline listeners, whereas older listeners' ratings did not differ from baseline listeners' assessments, $b = 5.48$, $t(1158) = 0.39$, $p = .6952$, 95% CI [-21.92, 32.88]. Under negative bias, younger listeners upgraded speakers (+26 points), $b = 26.16$, $t(1158) = 2.03$, $p = .0421$, 95% CI [0.96, 51.36], while older listeners showed a (nonsignificant) tendency to downgrade speakers (-26 points), $b = -25.93$, $t(1158) = -2.68$, $p = .0639$, 95% CI [-53.33, 1.47], relative to baseline listeners' scores.

LISTENERS' EXPERIENCE AND PREEXISTING SOCIAL BIAS

A series of models with additional predictors used to account for listeners' prior experience and preexisting biases yielded the findings that were identical to those reported previously through simpler models (as summarized in full in Appendix 5).

TABLE 6. Model for segmental errors with baseline group used as the reference level

Parameter	<i>b</i>	<i>SE</i>	95% CI	<i>t</i>	<i>p</i>
(Intercept)	405.22	35.41	[335.87, 474.56]	11.44	< .0001
Positive vs. baseline	31.00	23.66	[-15.35, 77.34]	1.31	.1904
Negative vs. baseline	99.03	24.57	[50.91, 147.14]	4.03	.0001
Listener age	-0.12	0.43	[-0.98, 0.73]	-0.29	.7745
Positive × Listener age	0.89	0.54	[-0.17, 1.95]	1.64	.1018
Negative × Listener age	-2.49	0.60	[-3.65, -1.32]	-4.18	< .0001
Random effects	<i>SD</i>		Information criteria	Estimate	
Speakers (intercept)	193.40		Log-likelihood	-15968.77	
Listeners (intercept)	167.08		AIC	31955.53	
			BIC	32007.58	
			Conditional R^2	0.93	

Notes: AIC = Akaike information criterion, BIC = Bayesian information criterion. Conditional R^2 = variance explained by fixed and random factors.

TABLE 7. Model for intonation with baseline group used as the reference level

Parameter	<i>b</i>	<i>SE</i>	95% CI	<i>t</i>	<i>p</i>
(Intercept)	419.50	32.87	[355.12, 483.87]	12.76	< .0001
Positive vs. baseline	129.56	25.66	[79.30, 179.83]	5.05	< .0001
Negative vs. baseline	132.75	26.65	[80.57, 184.94]	4.98	< .0001
Listener age	0.22	0.47	[-0.71, 1.14]	0.46	.6437
Positive × Listener age	-1.58	0.59	[-2.73, -0.43]	-2.69	.0073
Negative × Listener age	-3.13	0.65	[-4.39, -1.86]	-4.85	< .0001
Random effects	<i>SD</i>		Information criteria	Estimate	
Speakers (intercept)	168.12		Log-likelihood	-16154.99	
Listeners (intercept)	181.95		AIC	32327.98	
			BIC	32380.03	
			Conditional R^2	0.92	

Notes: AIC = Akaike information criterion, BIC = Bayesian information criterion. Conditional R^2 = variance explained by fixed and random factors.

However, these analyses also revealed several additional findings regarding the contributions of experiential and social variables to listener assessments of L2 speech. As summarized in Table 9, which lists statistically significant *b* values for relevant predictors, listeners' familiarity with French-accented English contributed negatively to the ratings of intonation and flow, resulting in a decrease in ratings by about 22–28 points as listeners' familiarity rating increased by 1 point on a 9-point self-rated familiarity scale. Listeners' self-rated use of French contributed negatively to the ratings of accentedness (with ratings being lower by about 21 points for every 10% increase in self-reported L2 French use), while self-reported French use with native speakers of French yielded trivial

TABLE 8. Model for flow with baseline group used as the reference level

Parameter	<i>b</i>	<i>SE</i>	95% CI	<i>t</i>	<i>p</i>
(Intercept)	351.78	35.37	[282.51, 421.04]	9.95	< .0001
Positive vs. baseline	142.20	24.49	[94.24, 190.15]	5.81	< .0001
Negative vs. baseline	73.45	27.27	[20.05, 126.85]	2.69	.0071
Listener age	1.13	0.47	[0.21, 2.05]	2.41	.0162
Positive × Listener age	-2.51	0.56	[-3.61, -1.42]	-4.50	< .0001
Negative × Listener age	-1.91	0.65	[-3.18, -0.64]	-2.95	.0032
Random effects	<i>SD</i>		Information criteria	Estimate	
Speakers (intercept)	187.48		Log-likelihood	-16055.38	
Positive bias (slope)	24.89		AIC	32148.76	
Negative bias (slope)	33.29		BIC	32258.64	
Listeners (intercept)	195.37		Conditional R^2	0.99	
Positive bias (slope)	119.25				
Negative bias (slope)	213.61				

Notes: AIC = Akaike information criterion, BIC = Bayesian information criterion. Conditional R^2 = variance explained by fixed and random factors.

contributions to the ratings of accentedness and flow. Finally, self-rated social variables demonstrated consistent, albeit small, effects on listener assessments. In general, a stronger sense of pride for listeners' ethnic group and stronger anti-immigrant sentiments were associated with higher ratings for four speech measures (12–37 points higher for a 10-point increase on the 45-point social scale). Stronger beliefs about the role of English in Quebec and more positive feelings about other ethnic groups were linked to lower ratings for five and two speech measures, respectively (17–34 points lower for a 10-point increase on the 45-point scale).

DISCUSSION

This study was motivated by research into the manipulation of socially constructed biases and stereotypes (e.g., Hansen et al., 2014; Paladino et al., 2009), with the view of extending research into what are generally understood to be stable ratings of L2 speech (e.g., Derwing & Munro, 2015). The main goal was to determine whether ratings provided by listeners exposed to either a positive or a negative anecdote about L2 English skills of native speakers of Quebec French immediately before the rating task would differ from ratings provided by listeners who heard no anecdote. We also sought to clarify whether effects of a bias manipulation would depend on listeners' age (i.e., for listeners representing different generations).

In brief, we found strong, consistent effects of both positive and negative bias manipulation, relative to the performance of baseline listeners, with these effects dependent on listeners' age. Positively oriented younger listeners provided higher ratings for four of the five measures (accentedness, comprehensibility, intonation, flow), upgrading speakers by 63–83 points, compared to baseline listeners' assessments. Positively oriented older listeners also upgraded speakers (39–65 points higher) relative to baseline listeners' ratings, but only for two measures (comprehensibility, intonation). However, the rating behaviors of younger and older listeners diverged under a negative bias manipulation. Negatively oriented younger listeners provided *more favorable* ratings for all five measures (26–80 points higher), compared to baseline listeners' assessments. By contrast, negatively oriented older listeners downgraded the same speakers relative to baseline listeners' ratings (25–37 points lower) for all measures (most notably, accentedness, comprehensibility, and intonation). These effects held even after

TABLE 9. Summary of listener background variables predicting L2 speech ratings

Background variables	Accentedness	Comprehensibility	Segmental errors	Intonation	Flow
Familiarity with French accent			-27.65**	-22.19**	
French use	-2.11**				
French use with native speakers	0.41*				-0.73**
Pride in Anglophone group	2.44**	1.79**	1.22*		1.83**
Role of English in Quebec	-2.17**	-2.09**	-1.70*	-2.96**	-3.39**
Attitudes toward immigrants	3.65**	-1.53*	2.16**	2.15**	
Feelings toward other groups				-3.28**	-2.47**

Note: ** $p < .001$, * $p < .01$.

several experiential and social variables had been factored into multilevel models (see Appendix 5).

ROLE OF SOCIAL BIAS MANIPULATION

The three target listener groups did not differ in terms of strength of pride for their ethnic group; their perception of the role of English in Quebec; their attitudes toward immigrants and other ethnic groups; their reactions to the rating session and the researcher; or their understanding and use of the rating criteria. Furthermore, potential preexisting individual differences across listeners (i.e., in experience with L2 English speech by Quebec French speakers) were also factored into statistical analyses and used as predictors. Therefore, the obtained differences between the groups' ratings are most likely attributable to the social bias manipulation. Setting listener age aside, social manipulations produced an effect on listeners—either positive or negative—affecting all speech measures.

These results support research pointing to the powerful role of stereotypes in listeners' reactions to speech (e.g., Gluszek & Dovidio, 2010b). Exposure to a short anecdote about L2 speech may have been sufficient for listeners in the negative manipulation group (particularly those who were older than the median age of 31.5 in the current sample) to regard French speakers of English as out-group members. Comments provided by negatively oriented listeners (particularly older ones) point to the relative social distance they perceived between themselves and the speakers, whom most listeners referred to as “the French” or “they.” For example, one listener (age 63) commented, “I love the French, but they've got blinders on,” while another listener (age 19) shared, “It's especially a problem in retail. I mean, I am the customer. I deserve to be waited on in the language of my choice. I know it's Quebec, but ... come on!” This increased social distance may have encouraged at least some listeners to amplify the differences between their own speech and that of the speakers whose speech samples they were rating. By contrast, positively oriented listeners—and (as discussed in the following text) younger listeners exposed to negative bias—likely experienced enhanced solidarity with the speakers, similar to listeners who received increased exposure to L2 speech (e.g., Staples et al., 2014) or those who had firsthand experience using an L2 (e.g., Hansen et al., 2014). One listener (age 60) in particular spoke of his empathy with the L2 speakers being rated: “It is good because these people we're listening to sound like me when I'm speaking French.” And another, younger listener (age 29) noted: “Yeah, I think there are a lot of people who try hard to speak English if they feel like it will make it easier for someone else. Montreal is nice that way.” Positively oriented listeners may thus have given L2 speakers the benefit of the doubt and rated them significantly more favorably.

The obtained effects of positive and negative social bias are compatible with multiple frameworks in social psychology, including the social identity theory (e.g., Tajfel & Turner, 1986), self-categorization theory (e.g., Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), communication accommodation theory (e.g., Dragojevic et al., 2016), and intergroup communication and acculturation model (e.g., Bourhis et al., 2012). While the focus of each framework varies—for example, in terms of analyzing communication at the level of individuals, groups, and even societies—these views are consistent in their predictions. When people regard each other in terms of social and

1 group identities, as opposed to considering each other as individuals, they tend to
 2 emphasize similarities between groups or enhance (perceived) differences across them. It
 3 is likely that a social bias manipulation, either positive or negative, was sufficient to
 4 render the rating context as an intergroup situation (cf. Bourhis & Giles, 1977) as
 5 opposed to a setting where *individual speakers* are heard and evaluated, with the
 6 consequence that listeners either converged to the speakers (appreciating their effort in
 7 speaking L2 English and providing more generous ratings) or diverged from them
 8 (acknowledging their status as members of the French-speaking community and pro-
 9 viding harsher evaluations). In their comprehensive review of literature on communi-
 10 cation behaviors, Dragojevic et al. (2016) asserted that “*most interactions are actually*
 11 *intergroup in nature*” (p. 8, original emphasis) rather than interpersonal encounters,
 12 which suggests that social stereotyping might be unavoidable in any interaction, with
 13 interlocutors’ expectations and biases guiding their behaviors. While the rating of audio
 14 clips in a research setting by no means qualifies as communication, researchers and, by
 15 extension, language testers potentially as well, should be aware of possible social biases
 16 that might be introduced by interviewers and raters during (noninteractive) L2 speech
 17 assessments.

18 The finding that positive and negative social bias manipulations influenced L2
 19 speech ratings also aligns with results of research on the role of mood induction (i.e.,
 20 manipulation of people’s affective states through exposure to happy versus sad music
 21 or video) in linguistic and nonlinguistic performance. For instance, participants who
 22 have been put into a negative mood tend to focus more on details, while those whose
 23 mood has been positively altered engage in more global, abstract processing (e.g.,
 24 Beukeboom & Semin, 2006; Vissers et al., 2010). Mood induction may influence the
 25 extent of attentional resources allocated by participants to semantic and visuospatial
 26 tasks, with happy moods linked to a broader, more distributed scope of attention (e.g.,
 27 Rowe, Hirsh, & Anderson, 2007). Mood induction may also affect speaker behavior in
 28 interaction, with happy moods associated with a speaking style that is less sensitive to
 29 the needs of the listener (e.g., Kempe, Rookes, & Swarbrigg, 2013). When listeners in
 30 the current study rated audio samples, those exposed to the negative bias may have
 31 downgraded their ratings because they were excessively focused on form-level detail in
 32 the speakers’ output—for example, attending to phonetic substitutions or nonnative
 33 intonation patterns which contribute to the perception of L2 speech as more accented or
 34 more effortful to understand. However, positively biased listeners may have
 35 approached speech rating holistically and were able to overlook local issues, thus rating
 36 the dimensions of accentedness, comprehensibility, intonation, and flow higher.
 37 Needless to say, the link between affective states and social biases, in reference to L2
 38 speech ratings, should be studied further (e.g., Cargile & Giles, 1997; Dragojevic &
 39 Giles, 2016) to clarify the extent to which the impact of bias manipulation is based on
 40 socially constructed stereotypes and to which it is driven by listeners’ mood states at
 41 the time of rating.

42 43 **LISTENERS’ AGE AND SOCIAL BIAS MANIPULATION**

44
45 The current findings revealed an age-based distinction in listeners’ reactions to a social
 46 bias manipulation. In response to a positive bias, both younger and older listeners

1 upgraded speakers in their ratings, with younger listeners providing higher ratings for
2 accentedness, comprehensibility, intonation, and flow, and older listeners rating com-
3 prehensibility and intonation higher, relative to age-matched baseline listeners'
4 assessments. However, in response to a negative bias, younger listeners upgraded
5 speakers in their ratings for all five measures, while older listeners downgraded speakers
6 for accentedness, comprehensibility, and intonation (with nonsignificant trends to also
7 downgrade speakers for segmental errors and flow). In essence, younger listeners seemed
8 particularly prone to both negative and positive bias, reacting to both similarly—by
9 consistently providing higher ratings relative to the assessments of baseline listeners.
10 Most importantly (as shown in Figure 1 for accentedness and comprehensibility and in
11 Appendix 4 for the rest of the data), the age effect under negative bias was not categorical
12 but linear. Indeed, response functions under negative bias showed a linear decrease in
13 ratings for all five measures as listeners' age increased. Judging from *b* values (see Tables
14 4–8), the decrease in ratings under negative bias amounted to about 2 points (for
15 segmental errors and flow), 3 points (for accentedness and intonation), and 5 points (for
16 comprehensibility) on a 1,000 scale for an increase by one year in listeners' age. Put AU6
17 differently, a 20-year difference in listener age would amount to about a 40- to 100-point
18 rating difference under a negative bias manipulation, with younger listeners assessing the
19 same speakers higher than older listeners.

20 While research regarding rater differences based on age is scant, and seemingly
21 nonexistent in L2 speech research, there is some prior work investigating reactions to
22 native speech to indicate that rater age matters. Younger and older raters may align in
23 some aspects of speech rating, as in Caplan and Samter's (1999) finding that speech act
24 type was perceived similarly by both younger and older raters. However, other aspects of
25 speech rating, like tolerance of offensive language (Mulac, 1976), judgments of story
26 quality (Beaudreau, Storandt, & Strube, 2006), and the ability of a speaker to stay AU7
27 focused on the topic (James, Burke, Austin, & Hulme, 1998), may be perceived dif-
28 ferently. For instance, in Mulac's study, older raters (mean age 43.6) downgraded the
29 aesthetic quality of speakers who used obscenities in their persuasive speeches sig-
30 nificantly more than did younger raters (mean age 20.3). In Beaudreau et al.'s research,
31 when raters of two age groups (mean ages 20.3 and 76.3) were presented with positively,
32 negatively, or neutrally worded personal stories told by older and younger speakers,
33 older raters judged older speakers' stories to be of better quality, whereas younger raters
34 made no such distinction. But younger speakers also have their preferences, as found in
35 James et al.'s work on biographical interviews, where younger raters (mean age 18.3)
36 judged older speakers to be significantly more off-topic than younger speakers, whereas
37 older raters (mean age 72.3) made no such distinction. Findings such as these might
38 reflect cases of raters preferring linguistic output by speakers of their own age group,
39 such that higher ratings are assigned to those whom raters feel are most like themselves.

40 While it is impossible from the current (rather limited) speaker sample to make a clear
41 case for younger and older listeners preferring, through their rating behavior, speakers of
42 their own age, multiage listeners (particularly when exposed to a negative bias) reacted to
43 the same speakers differently—most likely along generational lines. In fact, visual
44 inspection of the data (see Figure 1 and Appendix 4) indicate that response functions for
45 the baseline and negative bias groups intersected around the values of 40–45 years for
46 listener age, which is consistent with our original prediction of how the 1977 French

1 Language Charter (Bill 101) might have impacted multiage anglophone speakers. AU8
 2 Lamarre, Paquette, Kahn, and Ambrosi (2002), who observed 190 conversations
 3 between Montrealers (ages 18–35), provide additional support for this generational
 4 difference. Although Montreal’s linguistic neighborhoods are still intact, younger
 5 speakers seem to navigate across linguistic boundaries for work and social interaction,
 6 much more so than older Montrealers. This is a generation of highly efficient codes-
 7 witchers who often engage in bilingual conversations to equalize interlocutor power and
 8 reduce potential linguistic tension. A preference toward linguistic accommodation is also
 9 characteristic of this generation, which may reflect global changes in language use, as
 10 young Montrealers do not insist on settling on one language for communication, instead
 11 choosing whichever language—English, French, something else, or a combination of
 12 two or more—that results in the most effective communication.

13 Based on the idea that young Montrealers not only accept linguistic diversity but also
 14 prefer the flexibility of varied language use, regardless of interlocutor proficiency
 15 (Lamarre et al., 2002), it is likely that the younger listeners in the current sample, when
 16 exposed to a negative bias, experienced some degree of solidarity with the L2 speakers
 17 and associated themselves with the fellow multilingual speakers, thereby canceling out
 18 the effect of the negative manipulation and, in fact, lending an additional rating boost in
 19 response. This reaction would be in line with the findings of Pantos and Perkins (2013),
 20 who found that American university students (mean age 20) rated Korean-accented
 21 English higher than American-accented English, a finding likely based on raters feeling
 22 reluctant to be seen as discriminatory, choosing instead to overcorrect. Leaving aside the
 23 extent to which implicit versus explicit attitudes contributed to rater behavior (an issue
 24 that should be addressed in future research), many younger listeners in this study
 25 expressed a protective view over L2 speakers in debrief comments, such as “I think there
 26 are probably a lot of people in Montreal, especially the older generation who are ... I
 27 don’t want to say racist, but who judge people unfairly” (age 25). Many younger listeners
 28 also verbally “pushed back” upon hearing the negative manipulation, noticeably more so
 29 than older listeners. For instance, one listener (age 30) commented: “It seems like only
 30 the older generation has that view. I am so used to speaking both languages and hearing
 31 all of the different accents that I don’t care.” Another listener (age 21) shared, “Yeah, but
 32 I also think about the other side of it. I know a lot of English speakers who can’t get a job
 33 because they don’t speak French well enough.”
 34

35 **IMPLICATIONS FOR RESEARCH**

36
 37 Previous research has held human judgments up as a gold standard for speech assessment
 38 (e.g., Eskenazi, 2009). The results of the current study cast doubt on the relative stability
 39 of human ratings of L2 speech and point to the importance of social context, defined both
 40 narrowly (e.g., immediate rating situation) and broadly (e.g., sociopolitical environ-
 41 ment). Although the local context in this study was tightly controlled, in that it took place
 42 in a laboratory in which listeners heard a biasing anecdote about an interaction involving
 43 an L2 speaker, the real-world settings in which assessors find themselves before they pass
 44 judgment on L2 speech are less rigidly controlled. Moreover, as prior research has
 45 shown, people are likely unaware of the experiences that activate stereotypes and of their
 46 subsequent impact (e.g., Molden, 2014). The negative stereotypes attributed to L2

1 speakers can result in overt behaviors with important real-life consequences that extend,
2 for example, to employment (e.g., Hansen & Dovidio, 2016).

3 The current research demonstrated that many L2 speech ratings (comprehensi-
4 bility, accentedness, flow, intonation, segmental errors) may be susceptible to social
5 bias manipulation. In future lab-based studies, researchers might overcome the role
6 of socially constructed biases by relying on a large number of raters and by
7 employing raters who come from heterogeneous social groups and perhaps represent
8 different age ranges. In the real world, though, most L2 learners do not have the
9 luxury of having their speech assessed by more than one or two people. Extrapolating
10 from the current findings, it is possible that an unfriendly encounter at a café, an
11 unpleasant hallway conversation, or cheerful banter prior to an interview or a rating
12 session could influence raters' assessments. Therefore, future rater training should
13 address the role of biases and stereotypes and the extent to which even seemingly
14 minor prior experiences may play a role in judgments of L2 speech and, by extension,
15 L2 speakers. In laboratory studies, this may mean that possible preexisting biases
16 must be identified and brought to the attention of the listeners prior to rating.
17 Becoming aware of and attending to biases is essential for changing behavior
18 (Bodenhausen & Moreno, 2000).

19 Setting social bias aside, one reassuring finding of this study was that baseline lis-
20 teners' assessments of L2 speech appeared to be stable across listeners' age. As shown in
21 Figure 1 illustrating the data for accentedness and comprehensibility (and in Appendix 4,
22 which depicts results for the remaining measures), linear response functions in the
23 baseline group were independent of age, perhaps with the exception of flow ratings,
24 suggesting that—in the absence of a social bias manipulation—listeners representing a
25 broad age spectrum tend to provide comparable L2 speech ratings. The relationship
26 between listeners' age and their L2 speech assessments may need to be explored further,
27 taking into consideration listeners' individual characteristics (hearing acuity, attention
28 control) or specific types of assessments (global ratings, accuracy scores).

29 One ancillary, yet not less interesting, finding of this study pertained to additional
30 contributions of several individual differences in listeners' experience and in their social
31 attitudes to listener assessments of L2 speech. For instance, listeners with more
32 familiarity with French-accented L2 English, those with more experience of daily French
33 use, and those espousing stronger beliefs about the role of English in Quebec tended to
34 provide harsher ratings. In turn, listeners with stronger opinions about immigrants and
35 other ethnic groups and those with a stronger sense of pride in their ethnicity tended to
36 provide more lenient ratings (see Table 9). It would be imprudent for us to elaborate on
37 these findings extensively because these analyses were used to control for preexisting
38 differences across individual listeners, not to explore these effects in detail. Nevertheless,
39 the obtained associations align well with results of prior work documenting listener
40 experience effects in L2 speech research (e.g., Kang & Rubin, 2009) and research
41 targeting the roles of social biases and attitudes in evaluations of L2 speech (e.g.,
42 Dragojevic & Giles, 2016; Lindemann, 2002). These findings invite further, more
43 focused investigations of the interplay between listeners' prior experience, socially
44 manipulated biases, and speech ratings.

45 The current study took place in Montreal, Quebec, where the relationship between
46 the English and French has been tenuous. The listeners have all been affected by the

1 official language policy that classifies them locally as members of the linguistic
2 minority. Within Canada, however, these same individuals belong to the linguistic
3 majority. Future research that seeks to determine whether it is possible to manipulate
4 biases locally should consider investigating other language pairings that differ in
5 their relative status within a given speech community. The researcher who met with
6 listeners is a doctoral student in Montreal and a native speaker of English from the
7 northeastern United States (a 15-minute drive from the Canadian border). Although
8 she shared a language with all listeners, she was not a member of the local speech
9 community. None of the participants commented on the researcher's American
10 accent, but a few asked post-rating if she was from western Canada. Having a
11 researcher who speaks a different variety of the language than that of the listeners
12 (including also a researcher who speaks the target language as an L2) or one whose
13 education level aligns more with that of the listeners might have an effect on the
14 findings of future studies. Furthermore, it would be interesting to investigate other
15 relationships that emerge from the dataset, including, for instance, any evidence of a
16 relationship between participants' preferred ethnic and linguistic labels and their
17 rating behaviors.

18 During the rating sessions, participants occasionally paused between samples to ask if
19 they should rate word stress, grammar, or vocabulary. While these factors were not the
20 focus of this study, it would also be interesting to explore additional factors such as word
21 stress and sentence stress, as these prosodic features are easily identifiable, even for
22 untrained listeners (Munro, 1995). In future work, it would also be possible to make use
23 of a range of listeners, including teachers, younger participants, multilinguals, or fellow
24 L2 learners of the target language, and to target other measures of speaking performance,
25 not necessarily those that are confined to pronunciation.

27 CONCLUSION

29 The current study examined the extent to which typical listener-based judgments of L2
30 speakers' oral performance are susceptible to effects of a brief social manipulation
31 biasing listeners toward positive versus negative aspects of L2 speakers' performance.
32 We found strong, consistent effects of positive and negative bias manipulations on all
33 five targeted speech ratings, such that the ratings provided by listeners under a social bias
34 manipulation diverged significantly from the ratings provided by baseline listeners.
35 These results demonstrate that listener ratings may be more manipulable than previously
36 assumed. The current findings add to the growing body of research in applied linguistics
37 (e.g., Winke, Gass, & Myford, 2013) and social psychology (e.g., Paladino et al., 2009)
38 targeting various sources of bias on measures of L2 learning and use, and invite further
39 investigations into social, attitudinal, and emotional underpinnings of listener assess-
40 ments of L2 speech. Such research will provide valuable insights into the validity of
41 listener judgments.

43 SUPPLEMENTARY MATERIAL

45 To view supplementary material for this article, please visit <https://doi.org/10.1017/S0272263118000244>

NOTES

¹These between-group comparisons were associated with the following Cohen's d values: $d = 0.10$ – 0.30 (age), $d = 0.09$ – 0.28 (daily use of English), $d = 0.06$ – 0.39 (use of English with native speakers), $d = 0.19$ – 0.31 (familiarity with French-accented English), $d = 0.16$ – 0.26 (daily use of French), $d = 0.17$ – 0.31 (use of French with native speakers). All these values fell below the benchmark for a small effect size (0.40), according to Plonsky and Oswald's (2014) field-specific guidelines.

²These between-group comparisons were associated with the following Cohen's d values: $d = 0.11$ – 0.25 (pride in Anglophone group), $d = 0.06$ – 0.15 (role of English in Quebec), $d = 0.07$ – 0.32 (attitudes toward immigrants), $d = 0.09$ – 0.24 (feelings toward other ethnic groups). All these values fell below the benchmark for a small effect size (0.40), according to Plonsky and Oswald's (2014) field-specific guidelines.

³These between-group comparisons were associated with the following Cohen's d values: $d = 0.04$ – 0.22 (experience pleasant), $d = 0.04$ – 0.29 (researcher helpful), $d = 0.20$ – 0.29 (task difficulty), $d = 0.04$ – 0.26 (rating confidence). All these values fell below the benchmark for a small effect size (0.40), according to Plonsky and Oswald's (2014) field-specific guidelines.

⁴As noted by a reviewer, it is possible that participants may have had some level of preexisting bias that did not reveal itself over the course of the study.

REFERENCES

- Bates, D., Mächler, M., Bolker, B., & Walker, S. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software*, 67, 1–48.
- Beaudreau, S. A., Storandt, M., & Strube, M. J. (2005). A comparison of narratives told by younger and older adults. *Experimental Aging Research*, 32, 105–117.
- Beinhoff, B. (2013). *Perceiving identity through accent: Attitudes towards non-native speakers and their accents in English*. Oxford, UK: Peter Lang.
- Beukeboom, C. J., & Semin, G. R. (2006). How mood turns on language. *Journal of Experimental Social Psychology*, 42, 553–566.
- Bodenhausen, G. V., & Moreno, K. N. (2000). How do I feel about them? The role of affective reactions in intergroup perception. In H. Bless & J. P. Forgas (Eds.), *The message within: Subjective experience in social cognition and behavior* (pp. 283–303). Philadelphia, PA: Psychology Press.
- Bourhis, R. Y., & Giles, H. (1977). The language of intergroup distinctiveness. In H. Giles (Ed.), *Language, ethnicity, and intergroup relations* (pp. 119–135). London, UK: Academic.
- Bourhis, R. Y., Sioufi, R., & Sachdev, I. (2012). Ethnolinguistic interaction and multilingual communication. In H. Giles (Ed.), *The handbook of intergroup communication* (pp. 100–115). New York, NY: Routledge.
- Caplan, S. E., & Samter, W. (1999). The role of facework in younger and older adults' evaluations of social support messages. *Communication Quarterly*, 47, 245–264.
- Cargile, A. C., & Giles, H. (1997). Understanding language attitudes: Exploring listener affect and identity. *Language and Communication*, 17, 195–217.
- Corbeil, J. C. (2007). *L'embarras des langues: Origine, conception et évolution de la politique linguistique québécoise*. Montréal, QC: Québec Amérique.
- Dalton-Puffer, C., Kaltenboeck, G., & Smit, U. (1997). Learner attitudes and L2 pronunciation in Austria. *World Englishes*, 16, 115–128.
- Derwing, T. M., & Munro, M. J. (1997). Accent, intelligibility, and comprehensibility: Evidence from four L1s. *Studies in Second Language Acquisition*, 20, 1–16.
- Derwing, T. M., & Munro, M. J. (2015). *Pronunciation fundamentals: Evidence-based perspectives for L2 teaching and research*. Amsterdam, The Netherlands: John Benjamins.
- Derwing, T. M., Rossiter, M. J., & Munro, M. J. (2002). Teaching native speakers to listen to foreign-accented speech. *Journal of Multilingual and Multicultural Development*, 23, 245–259.
- Derwing, T. M., Rossiter, M. J., Munro, M. J., & Thomson, R. I. (2004). Second language fluency: Judgments on different tasks. *Language Learning*, 54, 655–679.
- Dragojevic, M., Gasiorek, J., & Giles, H. (2016). Communication accommodation theory. In C. R. Berger & M. E. Roloff (Eds.), *The international encyclopedia of interpersonal communication* (pp. 1–20). New York, NY: Wiley.

- 1 Dragojevic, M., & Giles, H. (2016). I don't like you because you're hard to understand: The role of processing
2 fluency in the language attitudes process. *Human Communication Research*, 42, 396–420.
- 3 Eskenazi, M. (2009). An overview of spoken language technology for education. *Speech Communication*, 51,
4 832–844.
- 5 Field, A. P. (2009). *Discovering statistics using SPSS*. London, UK: Sage.
- 6 Ford, C. E. (1984). The influence of speech variety on teachers' evaluation of students with comparable
7 academic ability. *TESOL Quarterly*, 18, 25–40.
- 8 Giles, H., & Rakić, T. (2014). Language attitudes: Social determinants and consequences of language variation.
9 In T. Holtgraves (Ed.), *The Oxford handbook of language and social psychology* (pp. 11–26). New York,
10 NY: Oxford University Press.
- 11 Giles, H., & Watson, B. (Eds.). (2013). *The social meanings of language, dialect, and accent: International
12 perspectives on speech styles*. New York, NY: Peter Lang.
- 13 Girard, F., Floccia, C., & Goslin, J. (2008). Perception and awareness of accents in young children. *British
14 Journal of Developmental Psychology*, 26, 409–433.
- 15 Gluszek, A., & Dovidio, J. F. (2010a). Speaking with a nonnative accent: Perceptions of bias, communication
16 difficulties, and belonging in the United States. *Journal of Language and Social Psychology*, 29, 224–234.
- 17 Gluszek, A., & Dovidio, J. F. (2010b). The way they speak: A social psychological perspective on the stigma of
18 non-native accents in communication. *Personality and Social Psychology Review*, 14, 214–237.
- 19 Gluszek, A., Newheiser, A.-K., & Dovidio, J. F. (2011). Social psychological manipulations and accent
20 strength. *Journal of Language and Social Psychology*, 30, 28–45.
- 21 Hansen, K., & Dovidio, J. F. (2016). Social dominance manipulation, nonnative accents, and hiring rec-
22 ommendations. *Cultural Diversity and Ethnic Minority Psychology*, 22, 544–551.
- 23 Hansen, K., Rakić, T., & Steffens, M. C. (2014). When actions speak louder than words: Preventing dis-
24 crimination of nonstandard speakers. *Journal of Language and Social Psychology*, 33, 68–77.
- 25 Harding, L. (2012). *Pronunciation assessment. The encyclopedia of applied linguistics*. Oxford, UK: Wiley-
26 Blackwell.
- 27 Hu, G., & Lindemann, S. (2009). Stereotypes of Cantonese English, apparent native/non-native status, and their
28 effect on non-native English speakers' perception. *Journal of Multilingual and Multicultural Development*,
29 30, 253–269.
- 30 Isaacs, T. (2013). Assessing pronunciation. In A. J. Kunnan (Ed.), *The companion to language assessment* (pp.
31 140–155). Hoboken, NJ: Wiley.
- 32 Isaacs, T., & Trofimovich, P. (2012). Deconstructing comprehensibility: Identifying the linguistic influences on
33 listeners' L2 comprehensibility ratings. *Studies in Second Language Acquisition*, 34, 475–505.
- 34 James, L. E., Burke, D. M., Austin, A., & Hulme, E. (1998). Production and perception of “verbosity” in
35 younger and older adults. *Psychology and Aging*, 13, 355–367.
- 36 Kang, O., & Rubin, D. (2009). Reverse linguistic stereotyping: Measuring the effect of listener expectations on
37 speech evaluation. *Journal of Language and Social Psychology*, 28, 441–456.
- 38 Kang, O., Rubin, D., & Lindemann, S. (2015). Mitigating U.S. undergraduates' attitudes toward international
39 teaching assistants. *TESOL Quarterly*, 49, 681–706.
- 40 Kempe, V., Rookes, M., & Swarbrigg, L. (2013). Speaker emotion can affect ambiguity production. *Language
41 and Cognitive Processes*, 28, 1579–1590.
- 42 Kinzler, K. D., Dupoux, E., & Spelke, E. S. (2007). The native language of social cognition. *Proceedings of the
43 National Academy of Sciences of the United States of America*, 104, 12577–12580.
- 44 Kinzler, K. D., Shutts, K., DeJesus, J., & Spelke, E. S. (2009). Accent trumps race in guiding children's social
45 preferences. *Social Cognition*, 27, 623–634.
- 46 Labov, W. (1972). On the mechanism of language change. In J. J. Gumperz & D. Hymes (Eds.), *Directions in
sociolinguistics* (pp. 312–338). New York, NY: Holt, Rinehart, and Winston.
- Lamarre, P., Paquette, J., Kahn, E., & Ambrosi, S. (2002). Multilingual Montreal: Listening in on the language
practices of young Montrealers. *Canadian Ethnic Studies*, 34, 47–78.
- Lindemann, S. (2002). Listening with an attitude: A model of native-speaker comprehension of non-native
speakers in the United States. *Language in Society*, 31, 419–441.
- Lindemann, S., & Subtirelu, N. (2013). Reliably biased: The role of listener expectation in the perception of
second language speech. *Language Learning*, 63, 567–594.
- Molden, D. C. (Ed.) (2014). *Understanding priming effects in social psychology*. New York, NY: Guilford
Press.

- 1 Mulac, A. (1976). Effects of obscene language upon three dimensions of listener attitude. *Communications*
2 *Monographs*, 43, 300–307.
- 3 Munro, M. J. (1995). Nonsegmental factors in foreign accent: Ratings of filtered speech. *Studies in Second*
4 *Language Acquisition*, 17, 17–34.
- 5 Niedzielski, N. (1999). The effect of social information on the perception of sociolinguistic variables. *Journal of*
6 *Language and Social Psychology*, 18, 62–85.
- 7 Paladino, M.-P., Poddesu, L., Rauzi, M., Vaes, J., Cadinu, M., & Forer, D. (2009). Second language compe-
8 tence in the Italian-speaking population of Alto Adige/Südtirol: Evidence for linguistic stereotype threat.
9 *Journal of Language and Social Psychology*, 28, 222–243.
- 10 Pantos, A. J., & Perkins, A. W. (2013). Measuring implicit and explicit attitudes toward foreign accented
11 speech. *Journal of Language and Social Psychology*, 32, 3–20.
- 12 Pinheiro, J., Bates, D., DebRoy, S., Sarkar, D., & R Core Team (2018). nlme: Linear and nonlinear mixed effects
13 models. R package version 3.1-137. Retrieved from <https://CRAN.R-project.org/package=nlme>.
- 14 Plonsky, L., & Oswald, F. L. (2014). How big is “big”? Interpreting effect size in L2 research. *Language*
15 *Learning*, 64, 878–912.
- 16 Rakić, T., Steffens, M. C., & Mummendey, A. (2011). Blinded by the accent! The minor role of looks in ethnic
17 categorization. *Journal of Personality and Social Psychology*, 100, 16–29.
- 18 Rowe, G., Hirsh, J. B., & Anderson, A. K. (2007). Positive affect increases the breadth of attentional selection.
19 *Proceedings of the National Academy of Sciences of the United States of America*, 104, 383–388.
- 20 Rubin, D. L. (1992). Nonlanguage factors affecting undergraduates’ judgments of nonnative English-speaking
21 teaching assistants. *Research in Higher Education*, 33, 511–531.
- 22 Staples, S., Kang, O., & Wittner, E. (2014). Considering interlocutors in university discourse communities:
23 Impacting U.S. undergraduates’ perceptions of ITAs through a structured contact program. *English for*
24 *Specific Purposes*, 35, 54–65.
- 25 Stroebe, W., & Insko, C. A. (2013). Stereotype, prejudice, and discrimination: Changing conceptions in theory
26 and research. In D. Bar-Tal, C. F. Graumann, A. W. Kruglanski, & W. Stroebe (Eds.), *Stereotyping and*
27 *prejudice: Changing conceptions* (pp. 3–36). New York, NY: Springer.
- 28 Tajfel, H., & Turner, J. C. (1986). The social identity theory of intergroup behavior. In S. Worchel & W.
29 G. Austin (Eds.), *Psychology of intergroup relations* (pp. 7–24). Chicago, IL: Nelson-Hall.
- 30 Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherell, M. S. (1987). *Rediscovering the social*
31 *group: A self-categorization theory*. Oxford, UK: Blackwell.
- 32 Vissers, C. T. W. M., Virgillito, D., Fitzgerald, D. A., Speckens, A. E. M., Tendolkar, I., Van Oostrom, I., &
33 Chwilla, D. J. (2010). The influence of mood on the processing of syntactic anomalies: Evidence from P600.
34 *Neuropsychologia*, 48, 3521–3531.
- 35 Wigboldus, D. H., Spears, R., & Semin, G. R. (2005). When do we communicate stereotypes? Influence of the
36 social context on the linguistic expectancy bias. *Group Processes & Intergroup Relations*, 8, 215–230.
- 37 Winke, P., Gass, S., & Myford, C. (2013). Raters’ L2 background as a potential source of bias in rating oral
38 performance. *Language Testing*, 30, 231–252.
- 39 Yao, Z., Saito, K., Trofimovich, P., & Isaacs, T. (2013). Z-Lab [Computer software]. Retrieved from [https://](https://github.com/ZeshanYao/Z-Lab)
40 github.com/ZeshanYao/Z-Lab.
- 41 Yzerbyt, V. Y., Schadron, G., Leyens, J. P., & Rocher, S. (1994). Social judgeability: The impact of meta-
42 informational cues on the use of stereotypes. *Journal of Personality and Social Psychology*, 66, 48–55.
- 43
44
45
46