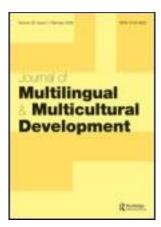# Exploring Linguistic Stereotyping of International Students at a Canadian University

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Abstract

Although international students often report satisfaction with their studies and view Canada as being tolerant and multicultural, increasing anti-Asian sentiment triggered by the global pandemic has highlighted the importance of exploring whether international students, especially from South and East Asia, experience discrimination. This study examines how university students perceive the speech characteristics (accentedness, comprehensibility), status attributes (e.g., competent, intelligent), and solidarity traits (e.g., pleasant, attractive) of international students from Europe, China, and South Asia along with their interest in participating in academic activities with international students. Eighty university students in Canada evaluated short speech samples from six fellow students from Mandarin Chinese, European (Romanian, German), and South Asian (Urdu) backgrounds, with the voices presented with an image matching or mismatching the speaker's ethnic features. Results showed that the Chinese and South Asian students were rated as more accented and less comprehensible than the European students. They were also viewed less favorably in status and solidarity and received lower academic engagement ratings. Students whose speech was easier to understand received higher status, solidarity, and academic engagement ratings. The findings are discussed in relation to various ways in which universities can reduce prejudicial and discriminatory behaviors toward international students.

Keywords: linguistic stereotyping; discrimination; international students; comprehensibility; reverse linguistic stereotyping

Exploring Linguistic Stereotyping of International Students at a Canadian University

Introduction

According to the most recent immigration data, Canada's international student population grew by 13% in 2019, which placed Canada third behind the United States and Australia for total numbers of international students (El-Assal, 2020). According to Statistics Canada (2020a), over 300,000 international students were enrolled in Canadian universities in 2018–2019 with most studying in Ontario, British Columbia, and Quebec. Due to the importance of immigration for maintaining a productive workforce, the Canadian government has identified international students as excellent candidates for permanent residency, providing various immigration pathways for graduates, such as the Canada Express Entry program, to help address current and future labour market needs (International Education, 2020). Across Canada, more than 50% of international students are from China and India, which has resulted in calls to attract students from other countries (International Education, 2020).

With international students in Canada recognized as an important revenue source, generating $22.3 billion in 2018 (Statistics Canada, 2020b), and optimal candidates for immigration, it is important to consider whether they have positive university experiences. A recent survey of 14,000 international students by the Canadian Bureau of International Education (2018) indicated that 93% were satisfied or very satisfied with their decision to study in Canada. Furthermore, most students intended to work in Canada either temporarily on a three-year work permit (21%) or by becoming permanent residents (49%). Their top three reasons for choosing Canada were the quality of education, reputation as a tolerant and non-discriminatory society, and perception as a safe country. Contributing to its reputation, Canada adopted multiculturalism as a policy in 1971, and recent surveys indicate that nearly 25% of Canadians stated

"multiculturalism" when asked to name Canada's most positive contribution (Canada World Survey, 2018). However, multiculturalism's popularity has been challenged, particularly in Quebec due to its unique national self-determination policy (Eisenberg, 2020), which calls for provincial authority in affairs typically managed by the federal government, such as taxation and immigration.

Although international students have reported satisfaction with their studies and viewed Canada as being tolerant and multicultural, increasing anti-Asian sentiment triggered by the global pandemic (Frose, 2021) highlights the importance of exploring whether international students, especially those from South and East Asia, are experiencing discrimination. Defined as either overt or covert actions to exclude, avoid, or distance (Hecht, 1998), discrimination is usually based on prejudice, which is attitudes and beliefs (typically negative) about entire groups of people (Nieto, 2004). Researchers have explored whether international students have experienced discrimination on campus, in the community (e.g., stores, public transportation), and in workplace settings. Although recent research has focused on migrants' experiences with linguistic racism in English-speaking countries (e.g., Dovchin & Dryden, 2021; Dryden & Dovchin, 2022; Tankosić & Dovchin, 2021), the current study focuses narrowly on relationships among university students by examining whether they engage in linguistic stereotyping, both directly (based on the speaker's actual speech) and indirectly (based on the speaker's presumed ethnic origin).

International Students and Perceived Discrimination

In a survey of international students in the U.S., Hanassab (2006) found that students from the Middle East, Latin America, and Asia reported higher rates of discrimination when interacting with classmates than European students. The European (i.e., White) students reported

that unlike students from other countries, they were "okay" and were often taken as Americans. In contrast, non-white students reported discrimination from classmates, with some attributing their negative experiences to their English pronunciation. Interview data from another U.S. university similarly revealed that European international students experienced little perceived discrimination, which they attributed to their physical appearance and English skills, while Asian students reported feeling left out of classroom interactions and study groups (Lee & Rice, 2007). A survey of domestic and international students at four Canadian universities (Grayson, 2014) revealed that students from diverse groups reported similar rates of being treated unfairly by fellow students, but Chinese and South Asian students reported more unfair treatment by professors and staff. Similarly, a case study of engineering international teaching assistants (ITA) at Ontario universities reported that a European (white) ITA experienced little difficulty with his French-accented English while the non-white ITAs reported numerous micro-aggressions (Ramjattan, 2020).

International students who speak English as a second language (L2) often perceive discrimination in relation to how classmates react to their English skills. For example, international students in Australia reported feeling excluded from group discussions with classmates because of their English skills (Haugh, 2016). International students have also reported that domestic Australian students laughed at them and expressed annoyance with their English presentations (Robertson et al., 2000). Similarly, international students in the US have reported feeling that domestic classmates negatively judged their English skills, which led them to avoid participating in class discussions (Maeda, 2017). Although international students from India at New Zealand universities reported few challenges with English proficiency for their academic work, they felt profiled as having poor English when seeking employment through

university job-search services (Kukatlapalli et al., 2020). Finally, international students with low self-ratings of their English proficiency have reported perceived discrimination, reduced participation in class discussions, and limited interactions with classmates (Karuppan & Barari, 2011).

Much of the prior research has used questionnaires to elicit student experiences of discrimination, such as the discrimination items from Sandhu and Asrabi's (1994) acculturation questionnaire. These scalar items ask respondents to indicate their agreement with statements about equal treatment, bias, and discrimination. However, a few studies have assessed student experiences by asking a single question about whether they believe visible minority students are treated the same as other students (Grayson, 2007) or if they feel that they receive unequal treatment because of their background (Poyrazli & Lopez, 2007). Qualitatively-oriented studies have interviewed students to obtain more details about their experiences with discrimination (Lee & Rice, 2007; Maeda, 2017; Samuel & Burney, 2003). Despite methodological variation, most studies have elicited information about international students' experience of discrimination, rather than investigate the behavior of potential discriminators. An exception is a New Zealand survey that elicited information from domestic students, which showed that local students rarely interacted with international students for typical academic tasks like exam preparation, working in a study group, sharing notes, or doing group assignments (Ward et al., 2005).

Linguistic Stereotyping

To understand the behaviour of students toward international students, applied linguists have investigated the phenomenon of linguistic and reverse linguistic stereotyping. In linguistic stereotyping, people react to speech varieties (e.g., regional dialects, minority languages) associated with lower-prestige groups by attributing negative characteristics to the speakers. A

classic example of linguistic stereotyping is when a listener hears a regional variety, foreign

accent, or nonstandard grammatical features (e.g., *ain't* or double negatives) and then evaluates

the speaker as being uneducated or untrustworthy (Kinzler, 2021). A metanalysis about the effect

of speaker accents on interpersonal evaluations (Fuertes et al., 2012) confirmed that speakers

with nonstandard accents receive lower evaluations of their intelligence, competence, ambition,

education, and social class, which are collectively referred to as status traits, as well as lower

ratings for their similarity to the listener, attractiveness, benevolence, and trustworthiness, which

are collectively called solidary traits. Reverse linguistic stereotyping, however, captures the

opposite situation, namely, when listeners attribute negative characteristics to speakers based on

their presumed social identity, including ethno-racial background. For example, students may

evaluate instructors as being more accented or as having poorer qualifications based on their

visual appearance even if their actual speech has no foreign accent.

In an initial study of reverse linguistic stereotyping, Rubin (1992) presented two short

lectures recorded by the same American English speaker to undergraduate students paired with

an image of either a White or an Asian woman. Even though it was the same recording,

undergraduate students rated the speech as more accented and downgraded the speaker's

competence (a status trait) and social attractiveness (a solidarity trait) when the Asian image was

shown. The lower speech ratings were attributed to the cognitive load involved in processing the

Asian speakers' presumed "foreign" accent. Subsequent studies have confirmed the tendency for

students to perceive native English speakers more negatively when their speech is presented with

Asian images (Kang & Rubin, 2009). Students' stereotypes about Asians lead them to evaluate

the speaker as being accented and having less desirable personal qualities, for example, in terms

of education, competence, or intelligence, which are status traits, and social attractiveness,

warmth, or friendliness, which are solidarity traits, even when the speech sample comes from a native English speaker. Furthermore, studies have shown that American raters react more negatively to regional varieties of English (American, British, Indian) when the speech samples are paired with South Asian images instead of White images (Kutlu et al., 2021). English L2 university students have been shown to similarly engage in reverse linguistic stereotyping; not only did they evaluate speech paired with an Asian image lower than the same voice paired with a White image, but they also gave lower ratings for the speaker's interpersonal qualities and teaching competence (Ghanem & Kang, 2021).

Additional insight into American undergraduates' stereotypes about international students has been provided by studies that administered map-labeling and country-ranking tasks (Lindemann, 2005). When asked to rank and comment about how well students from a variety of countries speak English, the undergraduate students gave higher rankings and more positive comments to Western European countries (e.g., France, Germany) than Asian countries (e.g., China, Japan, India). The rankings and comments confirm the findings of perceived discrimination studies described previously in which European international students tended to report fewer issues than students from other countries (Hanassab, 2006; Lee & Rice, 2007). Although these studies have provided evidence for the existence of stereotypes toward international students, especially toward those from Asian countries, and the influence of those stereotypes on evaluations of speaker accentedness, they have not explored whether students react similarly when asked to evaluate other speech dimensions, such as comprehensibility. Whereas accentedness captures how closely a speaker approximates the expected language variety (such as Canadian or American English), comprehensibility refers to how easily a listener understands a speaker (Munro & Derwing, 1995). Comprehensibility, which is an intuitive and

easy-to-interpret measure of understanding, is arguably more important than accentedness, given that a speaker can be highly comprehensible even if she is accented (Nagle & Huensch, 2020) and that most people would prefer to communicate with an interlocutor who is easy to understand (comprehensible) rather than non-accented (Levis, 2020).

Another important issue yet to be addressed in linguistic stereotyping research is whether it affects students' willingness to collaborate with international students. As described previously, international students frequently report that they believe their classmates are unwilling to interact with them for typical academic tasks, such as class discussions or group projects (Hanassab, 2006; Lee & Rice, 2007). While Ward et al. (2005) reported that local students in New Zealand rarely interacted with international students, they did not explore whether willingness to engage in academic tasks was affected by a speaker's perceived ethno-racial identity, accentedness, or comprehensibility. To further investigate these issues, the current study examines listener perceptions about the speech of international students from Europe, China, and South Asia in terms of the speaker's speech (accentedness, comprehensibility), status traits (e.g., trustworthy, competent), and solidarity traits (e.g., attractive, honest), along with the listener's interest in engaging in academic tasks with them. It also examines whether the listeners show evidence of reverse linguistic stereotyping. The study addresses three research questions:

1. Are there differences in university students' perceptions about the speech, status, and solidarity characteristics of international students from Europe, China, and South Asia or their interest in academically engaging with them?

2. Is there a relationship between university students' perceptions of international students' English skills and their assessment of status traits, solidarity characteristics, and interest in academic engagement?

3. Do university students show evidence of reverse linguistic stereotyping when evaluating the speech of international students?

Method

Corpus Overview

The speech samples and still images were drawn from the Corpus of English as a Lingua Franca Interaction (CELFI, McDonough & Trofimovich, 2019). After receiving ethics approval from Concordia University (#30001284), the CELFI corpus was compiled to provide local researchers and graduate students with access to a collection of conversations between English L2 university students for the analysis of L2 speech and interaction. CELFI consists of 224 pairs of L2 English speakers from different backgrounds who carried out three 10-minute communicative tasks: identifying challenges faced by newcomers to Canada, exchanging personal narratives, and discussing one of four academic topics (medical ethics, nature vs. nurture, advertising, and motivation). As university students in Montreal (67% at Concordia University), they met the minimum English language requirement for admission (minimum TOELF iBT score of 75 or equivalent with additional language study) and were at the B2 (independent language user) to C1 (proficient language user) levels in the Common European Framework of Reference, which has six levels ranging from A1 to C2. All paired interactions were video- and audio-recorded, and the audio recordings were transcribed by research assistants with one student making the initial transcript and a second student listening to the audio-recording and correcting any errors or omissions in the transcript. This study focused only on speech samples from the audio recordings of the academic discussion task, along with the relevant still images from the video. For this task (10 minutes), each pair self-selected one of the four topics, and each student read a short research report related to that topic. They then

exchanged information about the research studies and discussed their opinions about the topic.

Throughout the conversation, there were segments when the students spoke longer turns to share

information about their research reports as well as more interactive segments with shorter turns

and more rapid turn-taking.

Speech and Image Sampling

Based on the previous research and the distribution of international students at Concordia

University, we sampled two speakers (one male, one female) from the following backgrounds:

Mandarin Chinese, European (Romanian & German), and South Asian (Urdu). We included

speakers from both sexes because prior reverse linguistic stereotyping has demonstrated its

occurrence using stimuli from both women (e.g., Rubin, 1992) and men (e.g., Kang & Rubin,

2009). Each speaker contributed two speech samples of approximately 35 seconds in length with

the first sample presenting factual information about the research study and the second sample

expressing personal opinions about the topic. The samples were selected from the points in the

conversation when the speakers were taking longer turns to deliver information, but they were a

few minimal backchannels from the interlocutors (e.g., *mhm*, *okay*, *yeah*, *right*). To pair with the

speech samples, 12 still images were sampled from students with the similar backgrounds (4

images × 3 backgrounds): Mandarin Chinese, European (White French and Dutch students), and

South Asian (Telugu, Hindi, Kannada).[1] Screenshots of the students with a neutral expression

were extracted and cropped to the size of 300 × 300 pixels. The 18 international students who

contributed speech or images had a mean age of 23 years (*SD* = 2.97) and had studied English

for a mean of 13.9 years (*SD* = 5.71). These students had lived in Canada from one month to 9

years (*M* = 2.26 years, *SD* = 2.50). Four speech samples and eight images from Latin American

and Middle Eastern international students were also included in the experimental materials, but

their data were collected for a larger study about rater characteristics and are not reported here.

Raters

Students (*N* = 80) were recruited from the same university community where the CELFI

corpus was created. They included both domestic (26%) and international (74%) students, on the

assumption that they represented potential classmates of the speakers. The raters had a mean age

of 24.7 years (*SD* = 5.04) and included a mix of genders (1 non-binary, 39 women, 40 men). The

raters born outside Canada had a mean length of residence of 5.1 years (*SD* = 6.1). Over half

(50/80) were enrolled in undergraduate degree programs, while the rest were studying graduate

degrees. In terms of their background, 25% were native English speakers, while the remaining

students spoke 21 different home languages, the most frequent being French, Spanish, Mandarin

(7 each), Arabic (6), Turkish (5), along with Hindi and Tamil (4 each). The L2 English students

previously studied English for a mean of 11.36 years (*SD* = 8.65), and they reported high

listening skills (*M* = 90.36, *SD* = 13.24, where 0 = *not fluent at all*, 100 = *very fluent*) and a

considerable percentage of their time per day listening to English (*M* = 81.23%, *SD* = 17.63).

Rating Materials and Procedure

The target 12 speech samples and 12 still images were integrated into LimeSurvey, which

is an online survey tool (https://www.limesurvey.org). To ensure that each speech sample

occurred with an image from the same background (e.g., Chinese speech sample paired with

Chinese image) as well as the other backgrounds (e.g., Chinese speech sample paired with White

European image), there were eight counterbalanced versions of the survey. Each survey

randomly presented 20 speech samples with 10 voice–image matches and 10 voice–image

mismatches. The survey first presented a still image to activate any potential perceptions about

speakers of that background, followed by a speech sample, and a comprehension question to encourage the listener to pay attention to the speakers' content. The image and the speech sample were then presented again, followed by a series of 100-point sliding scales, with the initial slider position at 50.

The first scales elicited perceptions about the speaker's comprehensibility (i.e., whether the speaker was easy or difficult to understand) and accentedness (i.e., whether the speaker was heavily accented or not at all) along with the listener's interest in academically engaging with the speaker. Interest in academic engagement was assessed through six scales from discrimination surveys (Karuppan & Barari, 2011; Ward et al., 2005): ask to share notes, text or email a question about the course, believe an explanation, do a presentation, spend free time outside class, and join group discussions. The final six scales elicited perceptions about the speaker's status (trustworthy, competent, intelligent) and solidarity traits (pleasant, attractive, sincere).

After receiving certification of ethical acceptability for research involving human subjects from Concordia University(#30009422), the researchers distributed recruitment advertisements to potential participants electronically by posting information on website and emailing listservs. Students interested in participating in the study clicked a hyperlink in the advertisement to access the consent form and research activities. The consent form outlined the conditions for participation including the statement that their responses were confidential. The raters completed the survey online along with background questionnaires, which took approximately 60 minutes, and were remunerated $30 CAD. All ratings, which were automatically exported to a spreadsheet, were checked for internal consistency using two-way, consistency, average-measure intraclass correlations which yielded high values for accentedness (.97), comprehensibility (.99), status (.95), solidarity (.97), and interest in academic engagement

with the speaker (.97). The accentedness and comprehensibility ratings were retained as single

ratings (i.e., one rating item per variable). However, the status, solidarity, and interest in

academic engagement variables had multiple rating items. Therefore, all the ratings associated

with each variable were summed for each rater and divided by the number of items to obtain a

single average rating of status, solidarity, and interest in academic engagement.

Results

Perceptions of International Students

The first research question asked whether there were differences in university students'

perceptions of international students from Europe, China, and South Asia. Descriptive statistics

for matched trials (e.g., South Asian image paired with South Asian audio) from the three groups

are provided in Table 1. The European students were rated as the least accented and most

comprehensible and received the highest ratings for interest in academic engagement, status, and

solidarity, followed by the South Asian and Chinese students.

Table 1 *Ratings for Matched Speech and Voice Trials (N = 80)*

	Chinese		South Asian		European	
Rated variable	*M*	*SD*	*M*	*SD*	*M*	*SD*
Accentedness	71.51	21.81	56.92	18.32	40.13	25.54
Comprehensibility	37.24	18.70	56.33	19.94	73.84	16.86
Willing to interact	52.35	18.93	60.53	20.16	75.89	16.04
Status	57.98	17.71	63.21	19.24	74.43	14.60
Solidarity	52.90	16.58	60.29	17.56	73.66	14.76

Note. For all measures, higher values indicate more favourable ratings except accentedness,

where higher ratings indicate stronger accent.

The ratings were compared through repeated-measures ANOVAs using the Greenhouse-Geisser value when sphericity could not be assumed. There were significant differences among the groups for accentedness, $F(1.63, 128.63) = 38.73$, $p < .001$, $\eta^2_p = .33$, comprehensibility, $F(1.81, 143.32) = 109.38$, $p < .001$, $\eta^2_p = .58$, interest in academic engagement, $F(2, 158) = 63.37$, $p < .001$, $\eta^2_p = .45$, status, $F(2, 158) = 30.40$, $p < .001$, $\eta^2_p = .28$, and solidarity, $F(2, 158) = 20.66$, $p < .001$, $\eta^2_p = .35$. Post hoc comparisons with Bonferroni corrections indicated that the Europeans received the highest ratings, followed by the South Asians and the Chinese for accentedness, comprehensibility, solidarity, and interest in academic engagement. However, for status, although the Europeans were rated the highest, there was no difference between the Chinese and South Asian students. Table 2 presents the post hoc comparisons, which includes the mean difference in scores, the standard error, along with the probability value and effect size (Cohen's *d*).

Table 2 *Repeated-Measures Post Hoc Tests for Rated Variables (N = 80)*

Rated variable	Student group	Student group	M_{diff}	SE	p	d
Accentedness	European	South Asian	16.79	3.23	.001	0.76
		Chinese	31.39	4.33	.001	1.43
	South Asian	Chinese	14.59	3.00	.001	0.72
Comprehensibility	European	South Asian	17.51	2.05	.001	0.95
		Chinese	36.60	2.56	.001	2.06
	South Asian	Chinese	19.09	2.74	.001	0.99
Interest in academic engagement	European	South Asian	15.36	1.86	.001	0.83
		Chinese	23.54	2.25	.001	1.34
	South Asian	Chinese	8.18	2.24	.001	0.42
Status	European	South Asian	11.21	2.17	.001	0.66
		Chinese	16.45	2.17	.001	1.01
	South Asian	Chinese	5.24	2.26	.069	0.28
Solidarity	European	South Asian	12.50	3.65	.004	0.82
		Chinese	23.70	3.39	.001	1.32
	South Asian	Chinese	11.20	4.00	.024	0.43

Note. The effect sizes (Cohen's *d*) indicated small (.60), medium (1.00) and large (1.40) values based on benchmarks for applied linguistics research (Plonsky & Oswald, 2014).

Relationships with Perceived English Skills

The second research question asked about relationships among perceptions of international students' English skills, the assessment of status and solidarity traits, and interest in academic engagement. Pearson correlation coefficients showed that there were no statistically significant relationships between accentedness and status (Chinese = –.10, South Asian = .05, and European = –.01), solidarity (Chinese = –.15, South Asian = –.07, and European = .07), or academic engagement (Chinese = –.15, South Asian = .06, and European = .11), with all values below the threshold (.25) for a weak relationship (Plonsky & Oswald, 2014). However, for comprehensibility, there were statistically significant ($p = .001$) and medium-to-strong associations for the status (Chinese = .42, South Asian = .57, and European = .46), solidarity (Chinese = .46, South Asian = .63, and European = .58), and academic engagement (Chinese = .71, South Asian = .74, and European = .61). In sum, the raters perceived status and solidarity traits higher and were more willing to carry out academic tasks with the international students if they were easy to understand. Conversely, more difficulty in understanding was linked to lower status and solidarity ratings along with less interest in academic engagement.

Occurrence of Reverse Linguistic Stereotyping

The final research question asked whether university students show evidence of reverse linguistic stereotyping when evaluating the speech of international students. Having demonstrated that the Chinese and South Asian students received less favourable ratings than the European students, the crucial question is whether simply presenting images of Chinese and South Asian students negatively influences ratings. If raters engage in reverse linguistic stereotyping by ascribing negative attitudes based on a speaker's appearance, their ratings for the European speech samples should be lower when paired with Chinese and South Asian images.

Table 3 summarizes the ratings given to the European voices paired with the Chinese and South

Asian images. To facilitate comparison, the ratings provided to the European voices paired with

the European (White) images (previously shown in Table 1) are repeated. There were only slight

differences in the ratings attributed to the European voices across image types, and the ratings for

the matched European voice–image trials were not always more favourable than the ratings for

the European voices occurring with the Chinese or South Asian images.

Table 3 *Ratings for European Speech Samples by Image (n = 40)*

Rated variable	Chinese image		South Asian image		European image	
	M	*SD*	*M*	*SD*	*M*	*SD*
Accentedness	33.42	25.31	43.30	28.96	40.12	25.54
Comprehensibility	70.55	23.93	75.70	20.97	73.84	16.86
Willing to interact	72.77	18.07	74.43	19.52	75.89	16.04
Status	74.74	16.29	71.00	19.16	74.43	14.60
Solidarity	68.88	14.20	71.38	16.13	73.66	14.76

Paired-samples *t* tests explored if there were any significant differences between the

ratings provided to the European voices paired with the Chinese or South Asian images versus

the European images. Table 4 provides the *t* values, probability values, and effect sizes for the

European–Chinese and European–South Asian comparisons. There were no significant

differences for any variable and none of the effect sizes reached the benchmark for a small effect

(0.60). Thus, these students did not engage in reverse linguistic stereotyping in that their ratings

of European voices were not influenced by images of Chinese or South Asian students.

Table 4 *Comparison of European Voice Ratings by Image*

Rated variable	Chinese–European			South Asian–European		
	t	*p*	*d*	*t*	*p*	*d*
Accentedness	1.27	.212	0.26	0.04	.965	0.12
Comprehensibility	0.60	.551	0.16	0.33	.747	0.10
Willing to interact	0.99	.327	0.18	1.39	.172	0.08
Status	0.67	.508	0.02	1.49	.146	0.20
Solidarity	1.86	.070	0.33	1.26	.216	0.15

Although our main focus was on reverse linguistic stereotyping where speech receives negative impressions (or is downgraded) because of a speaker's ethno-racial identity, an equally plausible scenario is that speech can receive positive evaluations (or is upgraded) because of a speaker's appearance. In the current data, upgrading would be demonstrated if Chinese or South Asian voices received higher ratings when paired with European images. Drawing on data from the larger experiment, we carried out a post hoc analysis to explore whether upgrading occurred. Table 5 provides the mean ratings from a subset of raters who evaluated Chinese voices paired with both Chinese and European faces ($n = 40$) as well as raters who evaluated South Asian voices paired with both South Asian and European faces ($n = 40$). For all rated variables, the mean scores for both Chinese and South Asian voices were similar regardless of image type.

Table 5 *Comparison of Chinese and South Asian Voice Ratings by Image*

	Chinese voice				South Asian voice			
	Chinese image		European image		South Asian image		European image	
Rated variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Accentedness	69.56	21.84	65.35	23.87	54.11	18.70	55.20	34.32
Comprehensibility	41.48	17.45	41.93	23.76	56.45	21.47	57.95	31.90
Willing to interact	54.88	17.22	58.61	21.26	59.01	21.60	63.51	26.03
Status	58.98	14.81	61.39	20.05	61.85	21.99	66.41	20.81
Solidarity	55.33	14.30	62.67	20.47	59.41	18.13	60.86	21.92

Paired-samples *t* tests were carried out and the statistical output is provided in Table 6. The only comparison to reach statistical significance was the solidarity ratings provided to Chinese voices, which were rated higher when paired with European faces. Thus, the post hoc analysis confirms the main finding that these raters were largely unaffected by images when rating voices when presented with scenarios which could result in potential downgrading or upgrading of the speakers' ratings.

Table 6 *Comparison of Chinese and South Asian Voice Ratings by Image*

Rated variable	Chinese–European images			South Asian–European images		
	t	*p*	*d*	*t*	*p*	*d*
Accentedness	1.05	.303	.17	0.19	.848	.03
Comprehensibility	0.11	.913	.02	0.38	.707	.06
Willing to interact	1.04	.152	.17	1.26	.216	.20
Status	0.94	.178	.15	1.28	.207	.20
Solidarity	2.47	.018	.39	0.45	.658	.07

Discussion

This study elicited perceptions about Chinese, European, and South Asian international students focusing on speech characteristics (accentedness and comprehensibility), status and solidarity traits, and interest in academic engagement. The student raters found the Chinese and South Asian students to be more accented and less comprehensible than the European students. They also perceived them less favourably in terms of their status and solidarity traits and expressed less interest in academically engaging with them. International students whose speech was easier to understand were rated higher in status and solidarity and considered more desirable collaborators for academic tasks. Finally, the raters did not engage in reverse linguistic stereotyping in that Chinese and South Asian images did not influence their ratings of European voices. Furthermore, the post hoc analysis provided further evidence that these raters were largely unaffected by images as there was only one instance of upgrading involving solidarity ratings for Chinese voices paired with European images.

A key finding of this study is that university students appear to readily distinguish among voices of speakers from different ethno-racial groups, rating Europeans more favourably

followed by South Asians, and Chinese. In terms of status and solidarity traits, these findings highlight the important role of speech in the development and maintenance of attitudes (Kinzler, 2021), extending prior work on evaluative hierarchies (Bayard et al., 2001; Lindemann, 2005). Recent research has shown that the American listeners attributed high status and solidarity to L2 English speakers from Western Europe but downgraded South Asian speakers (e.g., Hindi) in solidarity and East Asian speakers (e.g., Chinese, Vietnamese) in status (Dragojevic & Goatley-Soan, 2020). Through their ratings, these listeners effectively categorized the speakers into preferred (e.g., Western European) versus non-preferred (e.g., Latin, Middle Eastern, South and East Asian) groups. Our raters also considered the Europeans more trustworthy, competent, and intelligent (greater status) and more attractive, pleasant, and sincere (greater solidarity) than the Chinese and South Asians, thus confirming speech-driven biases. In terms of interest in academic engagement, the findings suggest that negative status and solidarity evaluations might go hand-in-hand with discriminatory behaviours, such as exclusion from academic activities, presentations, or study groups (Haugh, 2016; Karuppan & Barari, 2011), micro-aggressions (Ramjattan, 2020), or overt mockery, derision, and disrespect (Robertson et al., 2000).

Conceptually speaking, speech-based attitudes might arise through two routes. One involves listeners engaging in social categorization when they associate a speech pattern (e.g., a Chinese accent in English) with a social group (e.g., Chinese students), which activates negative attitudes about that group and leads to lower speaker evaluations (Ryan, 1983). A second route involves processing difficulty, or the amount of struggle experienced while listening to a speaker (Dovidio & Gluszek, 2012). If listeners find the speech difficult to understand, they attribute this difficulty to the speaker's competence or social skill, which leads to lower evaluations (Dragojevic et al., 2017). As shown by the correlation findings, comprehensibility was associated

with status, solidarity, and willingness to interact, which provides evidence for prior claims that

ease of understanding may be more important than accent (Levis, 2020; Nagle & Huensch,

2020). Serving as a proxy for listeners' processing effort, a speaker's comprehensibility is thus a

catalyst for evaluative judgments.

Considering the correlations with comprehensibility (but not accentedness), our findings

suggest that the students may have expressed bias against the Chinese and South Asians as a

function of speaker comprehensibility. Although the students demonstrated a clear hierarchy in

their ratings, it was likely driven by processing effort rather than ethnic categorization. The

Chinese students sounded less comprehensible to the listeners than the South Asian students, and

both these groups were perceived less comprehensible than the Europeans (see Table 1). The

listeners' attitudes about status, solidarity, and interest in academic engagement may have

reflected this comprehensibility hierarchy rather than the degree to which their accents marked

them as members of stigmatized groups. Although prejudice toward international students is

sadly commonplace, this finding is potentially encouraging. Given that L2 speakers can be

highly comprehensible even if they are moderately to strongly accented (Nagle & Huensch,

2020), negative attitudes might be mitigated through interventions targeting comprehensibility

(Dragojevic, 2020).

In previous work, when presented with images of South and East Asian speakers, raters

often engaged in reverse linguistic stereotyping, lowering ratings based on speakers' origin or

appearance rather than their speech (Ghanem & Kang, 2021; Kang & Rubin, 2009; Kutlu, 2020).

However, our student raters did not show evidence of this behaviour, even though they evaluated

Asian students more negatively than European ones. Furthermore, our raters did not engage in

upgrading when Chinese or South Asian voices were paired with European images. It is possible

that the images of Chinese and South Asian speakers failed to trigger a biased response because

they were not recognized as belonging to their respective groups. However, when the images

were shown to additional 10 student listeners during pilot testing, they received comparable

prototypicality ratings (0 = *not typical at all*, 100 = *very typical*), with values of 78.46 for

Chinese, 73.03 for South Asian, and 78.25 for European images. Alternatively, it might be that

only L1 English students are prone to reverse linguistic stereotyping (Rubin, 1992), whereas our

student raters included both English L1 and L2 speaking students. However, this explanation is

incompatible with prior research that showed L2 listeners engaging in reverse linguistic

stereotyping (Ghanem & Kang, 2021; Hu & Su, 2015).

The most plausible reason for the absence of reverse linguistic stereotyping is that our

raters were ethnically and linguistically diverse speakers residing in a large multilingual and

multicultural city. In a replication and extension of Rubin's (1992) study, Eisenchlas and

Michael (2019) found no reverse linguistic stereotyping for a large cohort of students from 52

different linguistic backgrounds studying at a comprehensive Australian university with a large

international enrolment and substantial ethnolinguistic diversity among the faculty and staff. The

present study was carried out in a similar context in Canada, where a total of 46,077 university

students in 2019–2020 included 48% native English speakers, 20% native French speakers, and

32% students with other home languages, with India (16%) and China (15%) being the two top

origin countries for 10,024 (22%) international students. Concordia University is also located in

the ethnically diverse city of Montreal, where 62% of the residents report knowledge of both

English and French, 33% speak an additional language, and 5% identify as multilinguals

(Statistics Canada, 2017). Thus, the raters may have been aware of, and sensitive to, the ethno-

racial diversity around them, which likely mitigated their bias and made it less likely for them to

attribute negativity to fellow students based on speaker visuals. This interpretation is supported by the findings of recent research about reverse linguistic stereotyping with regional varieties of English (American, British, India), which found that raters in Montreal were less affected by images when rating accentedness and transcribing speech samples than raters in a less linguistically diverse American city (Kutlu et al., 2022).

Nevertheless, the listeners were certainly cognizant of the various linguistic groups in their academic environment because they clearly distinguished among students from European, Chinese, and South Asian backgrounds. The lack of an effect for visual images raises the possibility that in this diverse context, non-white English L1 speakers (such as immigrants, generation 1.5 students, or native-born Canadians) may be less likely to experience reverse linguistic stereotyping. Rather than make assumptions based on appearance, these student raters differentiated among speakers based on their speech characteristics only. However, this possibility should be considered speculative until more research with these populations is carried out.

Implications

The present findings suggest several implications for higher education settings. At a conceptual level, the findings highlight the ongoing, pressing need to address various forms of discrimination faced by international students. Institutions of higher education must engage in systemic change to end any marginalization and exclusion of international students based on their accent, to dispel persistent and damaging misconceptions that international students are paying consumers of education rather than active participants in it, and to reaffirm the right for students to pursue international education (Tran, 2017). With the rising number of international

students, many of whom work as teaching assistants, universities have a responsibility to ensure

equitable workplaces without micro-aggressions linked to accent or ethno-racial background.

Similarly, the faculty, students, and staff at host institutions, including international students

from more privileged home countries, should be made aware of the numerous challenges faced

by international students in learning new language skills, developing critical and divergent

thinking, understanding course expectations, all the while adjusting to a new sociocultural

context (Heng, 2018). Finally, considering that domestic students might be as diverse as

international students in many contexts and that all students, regardless of their visa status, might

face similar challenges, there have been calls to reject the domestic–international dichotomy

altogether, so that student services at university could be organized according to students'

specific needs rather than their visa status (Jones, 2017).

Practically speaking, to reduce discrimination and prejudice toward international

students, academic programs or individual instructors might consider creating new or

augmenting existing informal contact activities (e.g., social events or volunteer opportunities) or

academic assignments involving international students from different linguistic groups, given

that such activities reduce bias and enhance intergroup cohesion (Staples et al., 2014). Instructors

might also engage students in perspective-taking, encouraging them to reflect on various

characteristics of fellow students with whom they might find much in common. For instance,

asking students to write about a day in the life of a visible minority person or an L2 speaker has

been shown to lead to decreased negative stereotyping and increased cross-cultural awareness

(Weyant, 2007). Similarly, university administrators might consider creating integrated housing

options and joint orientations for domestic and international students, developing online

awareness-raising modules about speech-based discrimination, involving international student

alumni in various public events, and including international students in media strategies, such as student recruitment, advertising, and networking (Jean-Francois, 2019).

Assuming that negative attitudes toward international students might be driven by listeners' processing difficulty (i.e., low comprehensibility), instructors and university administrators might select from multiple options. Some of these include targeted interventions for international students to improve comprehensibility (Kennedy & Trofimovich, 2010) or for university staff to develop listening comprehension strategies (Derwing et al., 2002). Reflecting the orientation that communication is a two-way street, universities should emphasize the development of contextual listening skills that are achieved through interaction. Other options might include joint assignments by students from mixed backgrounds, on the assumption that extended interactions across cultural and linguistic divides help improve mutual understanding (Trofimovich et al., 2020), and various pedagogical techniques whose goal is to reduce the processing burden for a listener (Dragojevic, 2020), such as previewing content before a speaker's presentation, scaffolding student contributions to group discussions, or requiring multimodal presentations, with subtitles or visual support reinforcing the spoken discourse.

Limitations and Conclusion

The present study is not without limitations. First, the speaker sample was small, with two speakers per background. A more robust dataset regarding listeners' attitudes toward international students might require a larger sample to minimize speaker-specific effects on listener evaluations. Furthermore, a more robust dataset would allow for separate analyses of male and female speakers to explore whether gender plays a role in the occurrence or severity of reverse linguistic stereotyping. Second, this study presented raters with images and speech that came from international students only. However, in many contexts, domestic students of South

and East Asian heritage report perceived discrimination (Grayson, 2014; Samuel & Burney, 2003), which requires an in-depth look at the dynamics of speech assessment for speaker and listener cohorts with domestic and international students from various ethnolinguistic groups. Due to the need to carefully match the speech samples across the various speaker groups and select images with similar ratings, we crossed regional lines when matching the voices and images, such as pairing images of Northern Indian students with voices of Southern Indian students. Although our raters from South Asian backgrounds did not rate these combinations differently than raters from other backgrounds (see Note), future research is needed to identify any possible regional variation in reverse linguistic stereotyping.

This study was conducted in a multilingual, multicultural urban environment at a university with a large proportion of international students. It would be useful to compare the present findings to those obtained in less diverse contexts given that students often report discrimination outside the university campus by residents of more homogenous neighbourhoods (Hanassab, 2006). Lastly, similar to studies that rely on reports of perceived discrimination, this study relied on perceptions from listeners. To provide a comprehensive picture of student perceptions and behaviours, future research needs to triangulate various data sources, such as speech ratings, interviews, self-reports, and observations of classroom interactions.

Finally, to reflect the linguistic diversity of our urban university context, we recruited raters from both English L1 and L2 backgrounds and L2 English speakers from a variety of linguistic and cultural backgrounds. Because characteristics such as number of English L2 friends and time spent with L2 English speakers have been shown to play a role in reverse linguistic stereotyping (Kang et al., 2019; Kang & Yow, 2021), our future studies aim to identify additional rater attributes that predict its occurrence. Such attributes might include English

proficiency, familiarity with specific English accents, length of residence in linguistically diverse

settings, and number of academic and social interactions with English L2 speakers. By recruiting

a larger sample of raters and administering diverse measures of rater characteristics, future

studies can carry out the statistical comparisons of rater backgrounds that were not possible with

the current dataset. Above all, the field of higher education would benefit from more work

focusing on various initiatives aimed at minimizing or altogether eliminating prejudicial and

discriminatory behaviours as a way of promoting harmonious educational experiences for all.

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Note

1. Because we paired Urdu voices (often from Northern India and Pakistan) with images of Telegu and Kannada speakers (often from Southern India), we checked to see if the 16 raters who identified as South Asian (from India, Pakistan, or Bangladesh) may have been more sensitive to these voice–face pairings than raters from other geographic regions. Independent-samples t tests indicated that the South Asian raters did not rate the South Asian samples differently than the other raters for acccentedness, $t(78) = 1.14$, $p = .257$, $d = .33$, comprehensibility, $t(78) = 1.19$, $p = .238$, $d = .33$, engagement, $t(78) = 0.96$, $p = .338$, $d = .28$, status, $t(78) = 0.03$, $p = .973$, $d = .01$, or solidarity, $t(78) = 0.56$, $p = .577$, $d = .08$.