**The Impact of Perceptual Fluency: An Observational Study on the Relationship between
Accented Speech and Prosocial Behavior**

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Abstract

Accent is one of the major factors that influences the impression of a speech. To see whether there is a meaningful relationship between lectures given in a non-Standard American English (nSAE) accent and applause at the end of each lecture, randomly-assigned 112 lecturers at the University of Toronto were observed. As predicted, lectures given in the nSAE accent did not *in general* receive applause regardless of the class size, class duration, etc. whereas those given in the SAE accent either received or not received applause, suggesting that other independent variables are at work in this case. While this result indirectly supports previous studies that confirmed a positive relationship between accented speech and its negative evaluation, it further illustrates that a speech given in the nSAE accent may subtly influence the social behavior of the perceiver toward the speech in question.

Keywords: perceptual fluency, nSAE accent, SAE accent, prosocial behaviour

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In what way does accented public speech influence the social behavior of the perceiver? Perceptual fluency is the level of ease in processing certain stimuli or information. Low perceptual fluency, for instance, implies that a stimulus in question is relatively difficult to process and thus requires more cognitive resources whereas high perceptual fluency refers to the opposite. A number of social psychological and psychophysical studies have shown that speech with high perceptual fluency is not only judged more positively and truthfully (Reber, Winkielman, & Schwarz, 1998; Reber & Schwarz, 1999), but also judged as more pleasant and familiar (Zajonc, 1968). It thus comes as no surprise that a speech given in the nSAE accent is more difficult to process compared to that given in the SAE accent (Munro & Derwing, 1995), suggesting that a public speech in a foreign accent would likely be judged as less positive and less credible (Lev-Ari & Keysar, 2010). Indeed, as Shuck (2006) points out in his study, people often rationalize their negative evaluations and biased attitudes toward those with the nSAE accent precisely because their foreign accents decrease the perceptual fluency of the message being spoken.

Given that comprehending the nSAE-accented speech demands more cognitive resources and is more likely to receive negative evaluation, my study aimed to explore the relationship between the low perceptual fluency caused by the nSAE accent of lecturers and its influence on the social behaviour (applause) of the perceiver—in this case the undergraduate students at the University of Toronto. Similar to the aforementioned study on the perceptual fluency of accented speech and its affective evaluation, namely that of Lev-Ari and Keysar (2010) in which a series of speeches in the nSAE accent was rated as less credible and more difficult to understand by the

participants, I investigated whether nSAE-accented speech is correlated to its negative evaluation. The crucial difference between my study and this research lies in the fact that I observed *the actual social behavior* of the participants with regard to the speech in question. Thus in this study I am presupposing the preexisting experimental results that nSAE-accented speech is evaluated more negatively most of the time due to its low perceptual fluency and *thereupon* speculating that, because this is so, such negative evaluations of the nSAE-accented speech would also impact upon the likelihood of the prosocial behavior of the perceiver. On the assumption that applause is a prosocial behavior that functions as a sign of approval, I hypothesize that university lectures given in the nSAE accent would be *less likely* to receive applause while those given in the SAE accent would be *more likely* to receive applause.

Method

Design and Participants

One hundred twelve lectures at the University of Toronto were randomly selected from the faculty of Arts and Science by using the official University of Toronto Course Finder which contains all of the available list of undergraduate courses at the University of Toronto. A sample selection was done by first dividing all courses into three subgroups: Humanities (1416), Science (897), and Social science (873). Since I had to attend each lecture to collect data, each class had to be large enough to minimize my interference; yet a cutoff for the minimum class size had to be small enough so that I could collect qualitatively meaningful data. Thus small classes, arbitrarily defined as classes with $n < 80$ students,¹ were excluded and only those with course descriptions

¹ This was the smallest possible courses that can be meaningfully observed without interfering the class, for most of

that contain both specific classroom locations and lecture schedules were considered in the first round of the selection process. Consequently, (1) all 300+ level courses, (2) all Research Opportunity programs, (3) all of The One Programs (small classes designed for freshmen), and (4) Fall classes were excluded, as observation took place on the winter semester. Then every 3rd course from the remaining list, which was alphabetized, was selected and every 4th course from the remaining list was selected in reverse alphabetic order, from which those that overlap with my lecture schedule were additionally excluded. A total of 112 lectures (48 Humanities, 39 Science, 25 Social science class) were selected as a result.

The participants of this study were 112 lecturers at the University of Toronto and the attendees of their lectures that were randomly selected. Although the attendees of each lecture had a distinctive sex ratio and so did the age demographic, there were approximately equivalent number of males and females. The age demographic of the participants ranged from 18 to 24 in the case of the attendees. Lecturers, on the other hand, were mostly males and their age demographic ranged from mid-30s to late-50s. Participants varied greatly in their ethnic backgrounds.

Procedure

Since all lectures had distinctive schedules and many of them overlapped with each other, observation continued for four full weeks: from January 30th to March 3rd, 2017, excluding Reading Week. About 30 lectures were recorded per week, collecting four to five observational

the classes less than this cutoff were either language courses or seminars.

data per day. Some lectures were given in the same classroom but they were mostly given in separate lecture halls. All lectures were given on weekdays and class duration was *at least* 50 minutes and *at most* 3 hours. Class size ranged from 80 to 1500 students and average class size was 240 students. To maximize the efficiency of data collection, I attended each lecture approximately 15~20 minutes before the termination and observed (1) the presence of the nSAE accent of each lecturer which was determined based on *how close his/her accent was to the SAE accent* and (2) whether attendees applauded at the end. To minimize the interruption, either backdoors or side doors were used whenever possible. Observations were recorded via a Pocket Electronic Dictionary (PED) with a word memo function.

The first categorical variable, the presence of the nSAE accent in each lecture, served as a stimulus with either low/high perceptual fluency. Because ‘the SAE accent’ is admittedly a loose concept that refers to the North American accent without explicit pronunciations indicator of speaker’s ethnicity and regional origin, the lecturer’s accent was marked as the nSAE accent *if and only if* it was either ethnically/regionally identifiable *or* it was, at least, not the SAE accent. Using this definition, the SAE accent was operationalized as an accent that is ethnically/regionally unidentifiable *and* that is not the nSAE accent.² Each lecture was therefore categorized as either SAE-accented or nSAE-accented.

The second categorical variable, the presence of applause, was the dependent variable of this observational study which was categorized in terms of number of people applauding. Although *not applauding* does not necessarily mean that the lecture in question is per se being negatively evaluated, given that absence of applause is neither a sign of approval nor disapproval, this is at

² De Morgan’s law is used here to operationalize the SAE accent and the nSAE accent.

least a more negative condition compared to the applauding condition.³ For this reason, the applauding condition was operationalized as the positive condition in which noise is created by one or more people clapping their hands as a sign of approval, and absence of applause was operationalized as a negative condition in which no one applauds at the end.

Accordingly, observations were classified in one of the four categories: (1) SAE-accented lecture and applauding, (2) SAE-accented lecture and no applauding, (3) nSAE-accented lecture and applauding, and finally (4) nSAE-accented lecture and no applauding.

Results

	Applause	No applause
SAE-accented lecture	42	33
nSAE-accented lecture	8	29

Table 1: Accented speech versus the presence of applause (Total=112)

I initially hypothesized that the nSAE-accented lectures would be less likely to receive applause while the SAE-accented lectures would be more likely to receive applause. A chi-square test of independence was performed to examine the relationship between the presence of the nSAE accent and no applause. The relationship between these variables was significant, $\chi^2(1, N=112) = 11.849, p = .001$. As indicated in Table 1, perceivers were less likely to applaud at the end of the nSAE-accented lecture. The data analysis therefore supports the initial hypothesis.

³ Comparative analysis is being used to negatively interpret the no-applauding condition.

Discussion

Approximately 56% of the lecturer (42 out of 75) with the SAE accent received applause while about 22% of the lecturer (8 out of 37) with the nSAE accent received applause. Thus obtained results support my hypothesis since the attendees of each lecture were less likely to applaud at the end of the nSAE-accented lecture compared to those of the SAE-accented lecture. Given that applauding is a prosocial behavior and not applauding is, as previously assumed, not a prosocial behavior, this result is consistent with the previous research in that speech tends to be evaluated more negatively if it is given in the nSAE accent (Winkielman & Cacioppo, 2001; Lev-Ari & Keysar, 2010).

While previous research was mostly focused on perceiver's subjective evaluation of the accented speech (Reber, Winkielman, & Schwarz, 2004; Reber & Schwarz, 1999), the key difference of this observational study from the hitherto accumulated perceptual fluency literature is that my study concerned the impact of the accented speech upon the social behavior of the perceiver. Thus, the obtained results may not only be an additional support for the positive correlation between the accented speech and the perceiver's subjective evaluation, but also for the positive relationship between the accented speech and the perceiver's affective social behaviour.

There are, of course, some limitations in this study that must be addressed. Because applause begins almost always with a few people followed by a large-scale conformity, I could not rule out the possibility that applause, at least in some cases, is merely a consequence of conformity rather than a direct result of the accent of a particular lecturer. Although several attempts were made to solve this problem by recognizing that, in the applauding condition, at least

one person decides to clap anyways while no one decides to clap in the no-applauding condition, I could not completely solve this problem since this approach merely delineates how a few random attendees evaluate the lecture in question, not how the attendees *in general* evaluate the lecture in question.

Other confounding variables that could have contaminated the result include class size, class duration, attractiveness of the lecturer, difficulty of lecture contents, time of day and many more. However, the most serious confounding variable seems to be what the lecturer says at the end of the class. As I attend 112 lectures, I repeatedly encountered the lecturers who continually commented on various topics (ex. homework, assignments, topics for the next class) versus those who simply announced that the class is over. The shorter the ending comment, the more likely it seemed that the attendees clap. While my observational result explicitly demonstrates that there is in fact a positive relationship between accented speech and applause, this potential third variable may explain the fact that there were exceptions in the result, as can be observed from the Table 1—in some cases the attendees decided to applaud even in the nSAE-accented lectures and in other cases the attendees decided not to applaud even in the SAE-accented lectures.

This illustrates that low perceptual fluency of a speech caused by the nSAE accent may not be the only factor that hinders people from applauding. Hence more rigorous correlational research is needed to explicate *exactly to what degree* a speech given in the nSAE accent, that is, a speech with low perceptual fluency, influences the perceiver's social behavior toward the speech in question. Because there were a number of potential confounds in my study, verifying the impact of one variable at a time is crucial, which can only be done through experimental research.

Since nSAE-accented speech is, either consciously noticeable or not, relatively difficult to comprehend, it decreases the overall perceptual fluency which not only can induce the perceiver

to devalue it (Munro & Derwing, 1995; Whittlesea, Jacoby, & Girard, 1990), but can also negatively influence the attitude and social behavior of the perceiver toward it (Shuck, 2006). Considering today's multicultural and polyethnic society, the importance of the implications of such experimental results cannot be overstated, for it can direct our attitude toward foreigners with the nSAE accent from minor impact like our evaluations of a particular communicator all the way to our decisions with regard to the presidential/provincial elections—not to mention that it may also promote rationalization of and even intensification of antisocial attitudes toward speakers with the nSAE accent. With this in mind, future research topics concerning perceptual fluency should not be delimited to affective judgements on accented speech, but also deal with an affective social behavior *as a reaction* to the accented speech in question.

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