

Summer 2011

The Effects of Mere Exposure on Responses to Foreign-Accented Speech

Lea Grossman
San Jose State University

Follow this and additional works at: https://scholarworks.sjsu.edu/etd_theses

Recommended Citation

Grossman, Lea, "The Effects of Mere Exposure on Responses to Foreign-Accented Speech" (2011). *Master's Theses*. 4051.
DOI: <https://doi.org/10.31979/etd.tbq4-xnes>
https://scholarworks.sjsu.edu/etd_theses/4051

This Thesis is brought to you for free and open access by the Master's Theses and Graduate Research at SJSU ScholarWorks. It has been accepted for inclusion in Master's Theses by an authorized administrator of SJSU ScholarWorks. For more information, please contact scholarworks@sjsu.edu.

THE EFFECTS OF MERE EXPOSURE
ON RESPONSES TO FOREIGN-ACCENTED SPEECH

A Thesis

Presented to

The Faculty of the Department of Psychology

San José State University

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

by

Lea A. Grossman

August 2011

© 2011

Lea A. Grossman

ALL RIGHTS RESERVED

The Designated Thesis Committee Approves the Thesis Titled

THE EFFECTS OF MERE EXPOSURE
ON RESPONSES TO FOREIGN-ACCENTED SPEECH

by

Lea A. Grossman

APPROVED FOR THE DEPARTMENT OF PSYCHOLOGY

SAN JOSÉ STATE UNIVERSITY

August 2011

Dr. Megumi Hosoda, Department of Psychology

Dr. Howard Tokunaga, Department of Psychology

Kara Yugoff, Great Place to Work® Institute

ABSTRACT

THE EFFECTS OF MERE EXPOSURE ON RESPONSES TO FOREIGN-ACCENTED SPEECH

by Lea A. Grossman

The present study examined the effects of repeated exposure to the accent (standard American English vs. Asian Indian) of a prospective college professor on participants' cognitive reactions, affective reactions, and passage comprehension. Based on data collected from 115 undergraduate students, results showed that an Asian Indian-accented professor was perceived as being less competent, less likable, but more motivated than a standard American English speaking professor. In addition, the trustworthiness of the Asian Indian-accented professor decreased over time as well as participants' negative opinions of the professor. Finally, the results of the study indicate that when listening to the professor's foreign accent, participants' passage comprehension declined over time. The implications of these findings are discussed.

ACKNOWLEDGEMENTS

First and foremost, I would like to thank Dr. Megumi Hosoda for her tremendous involvement and guidance in this project. After each of our conversations, I would always feel emboldened to tackle the next challenge. Her hard work, dedication, and passion has been a blessing and an inspiration from start to finish, and I could not have done it without her.

Second, I want to thank Dr. Howard Tokunaga for always giving me perspective and encouraging me when I was in doubt. His ideas, wisdom, and guidance will certainly stay with me beyond this project.

I would like to give a special thanks to Kara Yugoff for her enthusiasm and willingness to lend a hand to this task. The help I have received from her in my academic as well as professional career has truly been invaluable.

Thank you also to my friends and cohort. I will always fondly remember our thesis-writing “parties,” in particular our thesis-writing “parties” turned into lunch dates and shopping trips. It has been such an honor (and a necessity to my mental health) to share this extraordinary experience with these individuals.

And thank you, of course, to my family for their unconditional love, support, and encouragement not only in the pursuit of higher education, but throughout my life. They have without a doubt been instrumental in helping me pursue my goals, stay optimistic, and remember to have a little fun along the way. I am here because of them.

Lastly, thank you to Benjamin Schwartz for standing beside me through my triumphs and, more importantly, through my fears and uncertainties.

TABLE OF CONTENTS

LIST OF TABLES	viii
INTRODUCTION	1
The Mere Exposure Effect	6
Cognitive Reactions to Foreign Accents	8
Affective Reactions to Foreign Accents	11
Comprehension of Foreign Accents	14
METHOD	22
Participants	22
Procedure	22
Accent Manipulation	25
Measures	25
Cognitive reactions	25
Affective reactions	29
Comprehension	32
Demographic information	32
Accent Manipulation Check	32
RESULTS	33
Accent Manipulation Check	33
Preliminary Analyses	33
Correlations Among Measured and Manipulated Variables	35
Test of Hypotheses	37

Cognitive reactions	37
Affective reactions	40
Comprehension	44
DISCUSSION	54
Effects of Foreign Accent	55
Strengths of the Present Study	58
Limitations and Future Research	59
Practical Implications	63
Conclusion	64
REFERENCES	65
APPENDIX	70
A. Description of a Prospective Professor	70

LIST OF TABLES

TABLE 1: Demographic Characteristics of Participants	23
TABLE 2: Factor Analysis for Cognitive Reactions Time 1	27
TABLE 3: Factor Analysis for Cognitive Reactions Time 2	28
TABLE 4: Factor Analyses for Affective Reactions	31
TABLE 5: Correlations for Measured and Manipulated Variables	36
TABLE 6: General Impressions as a Function of Speaker Accent and Time	38
TABLE 7: MANOVA for Likability	40
TABLE 8: MANOVA for Motivation	41
TABLE 9: MANOVA for Competence	42
TABLE 10: MANOVA for Teaching Effectiveness	43
TABLE 11: Teaching Effectiveness as a Function of speaker Accent and Time	44
TABLE 12: MANOVA for Trustworthiness	45
TABLE 13: Affect as a Function of Speaker Accent and Time	46
TABLE 14: MANOVA for Positive Affective Reactions	47
TABLE 15: MANOVA for Negative Affective Reactions	48
TABLE 16: Negative Affect as a Function of Speaker Accent, Time, and Order	49
TABLE 17: ANOVA for Passage Difficulty	50
TABLE 18: ANOVA for Comprehension	51
TABLE 19: Comprehension as a Function of Speaker Accent and Time	52
TABLE 20: MANOVA for Comprehension	53

Introduction

In the last three decades, immigration has created a dramatic shift in the population of the United States [Pew Research Center (PRC), 2008]. More than 38 million foreign-born individuals reside in the country, representing 12.6% of the total population (U.S. Census Bureau, 2010). Current trends in immigration forecast that immigrants will make up roughly 20% of the nation's population by 2050, with nearly one in five U.S. residents born in another country at that time. This will account for 82% of the population growth from 296 million in 2005 to 438 million in 2050 (PRC, 2008). This growing entry of immigrants into the U.S. has increased the country's population of non-native English speakers who speak English with an accent and might not speak it very well. As a result, native-born Americans regularly find themselves interacting with these foreign-accented speakers in increasingly diverse social arenas, such as on the job, in the classroom, or in their communities. This growing interaction between native and non-native English speakers has created a contemporary backdrop for communication challenges and ambiguity (Borjas, 2000).

This challenge is particularly salient in educational institutions. The great influx of foreign-born individuals into American colleges and universities in recent years indicates an important change in the landscape of academia. The "Open Doors" project reported that, for the 2008-2009 school year, more than 670,000 international students, including over 270,000 graduate students, attended American colleges and universities. This is an increase of 7.7% over the previous school year [Institute of International Education (IIE), 2009]. Furthermore, in the U.S. over 2 million immigrants completed a

professional, master's, or doctoral degree in 2000 (Grieco, 2004). Taken together, one in 10 foreign-born individuals holds a postbaccalaureate degree (IIE, 2009). Indeed, more foreign-born individuals (43.6%) completed a professional, master's, or doctoral degree than native-born Americans (35.2%) in 2005 (Batalova, 2005). These figures emphasize the increase in foreign-born students, many of them having learned English as a second language, in the academic arena. Accordingly, the avenues in which we communicate with one another, understand each other, and are understood in turn are being reevaluated in our colleges and universities.

The number of foreign-born teaching assistants (TAs) and professors has also grown. The 2008-2009 school year saw an increase of 7% over the previous year in the number of international scholars teaching and conducting research in U.S. universities (IIE, 2009). Many of them teach during their graduate careers and remain in the U.S. after receiving their doctoral degrees to work as professors and conduct research. These individuals constitute a considerably large group in educational institutions. In fact, between 2001 and 2002, foreign-born faculty members in colleges and universities accounted for 24% (135,000) of the total faculty and were projected to increase (Marvasti, 2005). In academic research institutions, more than 65% of employed faculty members are foreign-born, compared to 35% native-born faculty members. Foreign-born faculty members work longer hours than their native-born American counterparts (Marvasti). These statistics indicate that native-born American students are likely, in addition to their interactions with foreign-born students, to be regularly exposed to and taught by foreign-born faculty and TAs in colleges and universities.

While foreign-born individuals are often employed in fields that require strong communication skills (e.g., management, professional, sales) (IIE, 2009), an unusually language-intensive workplace frequently overlooked is the school (Boyd, 2003). In such a setting, an accent may pose a significant challenge for foreign-born faculty members and TAs. Indeed, research shows that 22% of foreign-born faculty members believe that their accents present a hurdle to teaching effectiveness (Marvasti, 2005). Strengthening this unease in communication, complaints from parents and students about instructors being incoherent are commonplace. As tuition payers, parents believe their children are entitled to a fluent English instructor and, as students, undergraduates begrudge the extra effort required to understand an accented instructor (Rao, 1995). This increase in the number of foreign-born professors and TAs, who often teach with foreign accents, has undeniably fueled many questions about the quality of their instruction and interactions in the classroom as well as how they are perceived by students (Kavas & Kavas, 2008).

For example, Kavas and Kavas (2008) found that although a majority of students (82.4%) rated instructors' "knowledge of subject" as well as instructors' "enthusiasm" (71.3%) as very or extremely important, a substantial number of them also rated "accent of the instructor" (42.9%) and "pronunciation of the instructor" (48%) as very or extremely important. In addition, Rubin and Smith (1990) discovered that 40% of undergraduate students tried to avoid classes taught by foreign-accented instructors. In their study, a strongly perceived accent caused unfavorable judgments of teachers' classroom ability. Similarly, Rao (1995) demonstrated that college students experienced anger and frustration with foreign-accented faculty, and were more likely to drop a class

taught by them compared to classes taught by standard American English speaking faculty. Rao labeled this observation the “Oh No! Syndrome.” It describes the first classroom encounter between students and a foreign-born professor, in which students are surprised and upset by the professor’s foreign accent. These findings clearly suggest that while a solid understanding of the subject being taught is important to students, accent and pronunciation indeed play a vital role in students’ attitudes and perceptions of faculty, and could potentially affect their educational outcomes.

However, little is known about the impact of foreign-born instructors’ accents on student learning (Kavas & Kavas, 2008). Limited but available evidence is mixed. For example, Jacobs and Friedman (1988) used final examination scores to determine whether undergraduate students performed better when taught by foreign-accented instructors or by standard American English speaking instructors. Using classes with multiple sections taught by standard American English or foreign-accented TAs, they discovered that undergraduates performed as well under foreign-accented speakers as they did under standard American English speakers. In contrast, Borjas (2000) found that foreign-born TAs did have a negative influence on the academic performance of undergraduate students, evidenced by final grades over the course of two semesters. Furthermore, Fleisher, Hashimoto, and Weinberg (2002) found that although foreign-accented TAs received lower teacher evaluation ratings than standard American English speaking TAs, fewer students dropped classes taught by foreign-accented TAs than those taught by standard American English speaking TAs. Notably, foreign-accented TAs were as effective in their teaching as standard American English speaking TAs, as

demonstrated by final course grades. These studies represent some of the limited research conducted on the effects of instructors' accents on learning in the classroom. The increasing prevalence of foreign-accented instructors, coupled with this scarcity of research on learning outcomes, indicates a need for further investigation.

Although some evidence suggests that students become accustomed to an accent when they hear it often (Boyd, 2003), even fewer studies have explored whether repeated exposure to a foreign accent, in which a student is presented with the accent multiple times, could elicit more positive reactions than the initial exposure. In reality, this is a more accurate representation of the interactions between a foreign-accented professor or TA and a student in the classroom. Students are likely to interact with their instructors on a regular basis rather than in a single, isolated situation. Research on the mere exposure effect shows that repeated unreinforced exposures to a stimulus (e.g., an individual) evoke more positive attitudes towards that stimulus (Bornstein, 1993). The mere exposure effect might also apply to accents.

Given the importance of this topic and the scarcity of research in the area of foreign accents in higher education, the present study examined the effects of repeated exposure to the accent (standard American English vs. Asian Indian) of a prospective college professor on participants' cognitive reactions, affective reactions, and passage comprehension. We attempted to determine if and to what extent repeated exposure to a foreign accent influences affective and cognitive reactions to and comprehension of foreign accented faculty. An Asian Indian accent was selected for the present study in light of the considerable number of Asian Indian immigrants living in the U.S.

India ranked third among the top 25 countries of origin for U.S. immigrants in 2007, and over 1.7 million Asian Indian individuals reside in the country (Center for Immigration Studies, 2007). Furthermore, India is the number one country of origin for international students in the U.S. The number of Asian Indian students in the U.S. increased by 9.2%, from 94,563 students in the 2006-2007 school year to 103,260 in 2008-2009 (IIE, 2009). Yet despite these numbers, little research has been conducted in the area of affective or cognitive reactions to, or comprehension of an Asian Indian accent in the classroom.

In the paragraphs that follow, we provide a brief review of the literature on the mere exposure effect (Bornstein, 1993) and evaluate prior research on the effects of foreign accents on cognitive reactions, affective reactions, and passage comprehension. Lastly, we present the hypotheses that were tested.

The Mere Exposure Effect

Although psychologists (e.g., Fechner, 1876) have long considered that repeated unreinforced exposures to a stimulus cause an increase in positive affect toward that stimulus over time, it was not until Zajonc's (1968) monograph on the mere exposure effect that the phenomenon gained widespread attention in mainstream psychology. Since then, over 200 articles have been published addressing the mere exposure effect (Bornstein, 1989) that span a variety of psychological themes, including media and advertising effects (Fang, Singh, & Ahluwalia, 2007), stereotypes and prejudice (Zebrowitz, White, & Wieneke, 2008), and social identity and categorization (Crisp, Hutter, & Young, 2009). The mere exposure effect is defined as the observation that

“mere repeated exposure of the individual to a stimulus is a sufficient condition for the enhancement of his attitude toward it. By ‘mere exposure’ is meant a condition which just makes the given stimulus accessible to the individual’s perception” (Zajonc, 1968, p. 1).

For example, in Zebrowitz et al.’s (2008) study examining the effects of mere exposure on racial prejudice, Caucasian participants were exposed to one of two conditions in which they were presented with pictures of either Korean (other-race condition) or White (own-race condition) faces. Participants in each condition were exposed to 10 50-millisecond repetitions of 24 different pictures of individuals from the target race. Single pictures were presented in random order, and students were asked to rate each picture on its likability. Results showed that while exposure to Korean other-race faces increased the likability of novel faces from that racial category, likeability remained the same for the White faces in the own-race condition.

In a second experiment examining the subliminal effects of mere exposure, Caucasian participants were assigned to one of three subliminal exposure conditions: White (own-race condition), Black (other-race condition), or a “no exposure” condition. Participants in the own-race and other-race conditions were exposed to 10 17-millisecond repetitions of 24 different pictures of individuals of the target race. Single pictures were again presented in random order. Those in the “no exposure” condition viewed 10 repetitions of 24 different masking stimuli, images consisting of white and gray dots. Results showed that, compared to the subliminal exposure to White faces, subliminal exposure to Black faces increased the likability of those Black faces. These results

suggest clearly that the more exposure we have to an unfamiliar stimulus, the more we come to like it. These and numerous other studies lend strong support to the fact that the mere exposure effect is a robust, consistent phenomenon (Bornstein, 1989). Researchers (e.g. Bornstein & D'Agostino, 1992) believe that unconscious learning processes underlie the mere exposure effect, prompting us to evaluate things that we become familiar with more positively.

Cognitive Reactions to Foreign Accents

Lee and Fiske's (2006) Stereotype Content Model proposes that perception occurs along two universal dimensions: warmth and competence. Positive evaluations of competence increase with status and power. We perceive, for example, those who hold respected jobs as competent and capable individuals. Warmth, on the other hand, is attributed to those who do not pose a threat to the ingroup. This could be in terms of competition in gaining entry into schools, applying for jobs, and accumulating power and resources. In a study assessing various immigrant groups on these two dimensions, Lee and Fiske found that Asian Indian immigrants were perceived to be as competent and warm as Americans. This result suggests that Asian Indian-accented speakers should be evaluated in a positive manner similar to Americans.

Additionally, research on language attitudes demonstrates that a foreign accent or dialect can trigger non-linguistic cues about a speaker. In many countries including Australia, Britain, Canada, and the U.S., language attitudes research consistently finds that those who possess the accent or dialect of the dominant group in a society are evaluated more positively in regards to status (e.g., perceived intelligence, competence,

power) but less positively on solidarity (e.g., perceived kindness, likeability) than those with the accent or dialect of the less dominant group (Cargile & Bradac, 2001; Cargile, Giles, Ryan, & Bradac, 1994; Nesdale & Rooney, 1990). However, a few varieties of foreign-accented English, such as British, French, and “Asian” in the U.S. are an exception. Individuals with these accents are evaluated similarly to native-born Americans on the status dimension but are devalued on the solidarity dimension because they are perceived to be competitive status-equals (Hosoda & Stone-Romero, 2010).

To illustrate, Cargile and Giles (1998) measured participants’ perceptions of standard American English speakers and Japanese-accented speakers (moderately-accented, heavily-accented, and disfluent) on status, attractiveness, and dynamism. They found that after listening to voice recordings in one of the accent conditions, participants rated the moderately Japanese-accented speaker significantly more negatively on attractiveness and dynamism, but not differently in status compared to the standard American English speaker. However, both the heavily Japanese-accented speaker and disfluent Japanese-accented speaker were rated even more negatively than the moderately Japanese-accented speaker on traits related to status, attractiveness, and dynamism.

Furthermore, Hosoda, Stone-Romero, and Walter (2007) had participants listen to a tape-recorded segment of speech by either a standard American English speaker or a Vietnamese-accented speaker and rate the speakers on various personal characteristics. Results showed that participants thought the Vietnamese-accented speaker to be poorer economically, an inferior communicator, and less potent, less threatening, but more concerned for others compared to the standard American English speaker.

In educational settings, existing but limited research shows that foreign-accented speakers are evaluated more negatively than native speakers. For example, in Sweden Boyd (2003) reported negative cognitive judgments of speakers communicating with varying degrees of a Swedish accent. The classroom interactions of five genuinely foreign-accented teachers were filmed and shown to Swedish classrooms and their instructors preceding an open discussion. One common trend that emerged among students in the open discussion was a concern that foreign-born teachers may be negatively evaluated because of their accents. Classroom instructors expressed doubt that a foreign-born teacher might be able to handle challenging situations because of their “limited” language skills. Notably, those students whose second language was Swedish conveyed a greater aversion to being taught by a foreign-born instructor than by those students whose first language was Swedish.

Furthermore, de Oliveira, Carlson, and de Oliveira (2009) found differences in the perceptions of foreign-accented instructors and standard American English speaking instructors by students. Students reported that the communication skills of standard American English speaking instructors greatly exceeded those of foreign-born instructors. In addition, the higher foreign-born instructors were rated on preparedness/organization, communication, and relationship with students, the more likable they were rated by students. These results suggest that foreign-accented instructors must convince their students that they are competent in order to be liked.

Gill (1994) reported that standard American English speaking teachers received more positive teaching evaluations than did foreign-accented teachers. Participants, in

addition, were able to comprehend more information from standard American English speaking teachers than they were from British and Malaysian-accented teachers. In a related study, Gill and Badzinski (1992) found additional support for the finding that native English speakers were evaluated more positively than foreign-accented speakers.

Although Lee and Fiske's (2006) findings suggest that Asian Indian immigrants are likely to be perceived as positively as native-born Americans, research on language attitudes suggests that foreign-accented speakers are evaluated more negatively than native English speakers, especially in educational settings. Thus, the following hypotheses were tested.

Hypothesis 1a: Asian Indian-accented instructors will evoke more negative cognitive reactions than standard American English speaking instructors.

Hypothesis 1b: Over time, participants will experience more positive cognitive reactions to Asian Indian-accented instructors.

Affective Reactions to Foreign Accents

Though researchers have long acknowledged the existence of an affective component to language attitudes (e.g. 'British accents irritate me'), they have focused their attention almost exclusively on listeners' cognitive reactions to accented speakers and have neglected affective reactions (Cargile & Giles, 1997). Because affect plays an integral role in intergroup relations (Hamilton, 1981), the lack of consideration for listeners' affective reactions towards foreign-accented speakers is of great concern. Affect is important in influencing how we perceive others and interpret events. Emotions can be associated with interacting with, thinking about, talking to, and listening to a

speaker belonging to an easily recognizable social group (Cargile & Giles, 1997). Although the literature examining affective reactions towards foreign-accented instructors is limited, the existing evidence supports the notion that listeners experience more negative affect towards foreign-accented speakers than they do towards standard American English speakers. These conclusions also emerge across languages, with British accents (Stewart, Ryan, & Giles, 1985), German accents (Ryan & Bulik, 1982), Japanese accents (Cargile & Giles, 1997), and Spanish accents (Sebastian, Ryan, Keogh, & Schmidt, 1980). Cargile and Giles have asserted that accented speech may trigger unfavorable moods in listeners.

For example, Cargile and Giles (1997) used a Japanese accent in their study of native Anglo-Americans' mood states. After listening to a tape-recorded segment of speech in standard American English, moderately-accented Japanese, heavily-accented Japanese, or disfluent Japanese, participants were asked to report their mood states. Results showed that participants experienced more positive emotion (e.g., pleasure, arousal) when listening to standard American English speech compared to Japanese-accented speech of every fluency. This contrast supports the notion that specific affective reactions may surface in interactions with representative members of salient social outgroups. In this example, more positive affective reactions were associated with the speech of a standard American English speaker than they were with that of a Japanese-accented speaker.

Hosoda et al. (2007) also found that participants reported experiencing more negative affect (e.g., anxiousness, irritation) towards an Asian-accented speaker than they

did for a standard American English speaker. Positive affect (e.g., comfort, happiness), however, was not affected by the accent of the speaker. Overall, this study suggests that affective responses to foreign-accented speaker differ from the affective responses to standard American English speakers.

In a study on affective responses to accented-English, Bresnahan, Ohashi, Nebashi, Liu, and Shearman (2002) found distinctive variations in participants' affective reactions between standard American English, intelligible foreign-accented English, and unintelligible foreign-accented English. After listening to a recorded segment of speech, students reported that standard American English was more pleasant, less arousing, and more dominant than both an intelligible foreign accent, and significantly more so than an unintelligible foreign accent. Furthermore, the intelligible foreign accent was rated more pleasant, less arousing, and more dominant than the unintelligible foreign accent. These results suggest that the intelligibility of a foreign accent has consequences relating to the affective evaluations of a speaker.

The available, though limited, evidence in educational settings suggests that negative affect is also expressed toward foreign-accented instructors. More specifically, de Oliveira et al. (2009) found that college students favored domestic, native-born instructors over foreign-accented instructors, asserting that they were considerably more driven to study under the former. Negative affective responses were only reported for the foreign-accented instructors. Participants in this study also indicated overtly their preference for native-born instructors, despite their equal qualifications. Mere consideration of foreign-born instructors was enough to prompt less favorable affective

reactions to them. Taken together, this and other studies encourage the following hypotheses.

Hypothesis 2a: Asian Indian-accented instructors will evoke more negative affective responses and less positive affective responses than standard American English speaking instructors.

Hypothesis 2b: Over time, participants will experience less negative affective responses and more positive affective responses towards Asian Indian-accented instructors.

Comprehension of Foreign Accents

Floccia, Butler, Goslin, and Ellis (2009) have asserted that “speech is comprehensible as a function of the perceptual and cognitive effort which is necessary to identify the intended word” (p. 380). Comprehension refers to the perceptions of difficulty in which listeners understand speech (Munro & Derwing, 1995). It is usually measured by a listener’s subjective rating of comprehensibility or their reaction times to a set of utterances. The idea that foreign accents affect comprehension in important and influential ways has been explained by two schools of thought. The first is that because people have a specific cognitive capacity that may be assigned to certain tasks, such as grasping the meaning of language (Gill, 1994), accent hinders comprehension. The second argument asserts that accents promote comprehension because of the increased attention required to understand a foreign-accented utterance. Literature on the influence of foreign accents on listener comprehension has produced conflicting results (e.g. Munro & Derwing; Gill & Badzinski, 1992; Adank, Evans, Stuart-Smith, & Scott, 2009). For

example, Gill and Badzinski examined whether the accent of a speaker impacted information recall. After listening to a short recorded message (classes of cartoons or wine-producing regions of the world) by a standard American English speaker or a foreign-accented speaker (Australian or Egyptian), participants were asked explicit recall questions, which carried factual answers that could be found in the message, and implicit recall questions, the answers of which were not directly stated but could be inferred from the message. They were also asked to complete an open recall task and write down everything they could remember from the message. Gill and Badzinski found that accent had no effect on the information recalled from the message about classes of cartoons, but affected recall in the message about wine-producing regions of the world such that participants recalled more information from the foreign-accented speakers than from the standard American English speaker. While accent and the content of the message interacted to affect explicit and implicit information recalled by participants, accent alone had no effect on any type of recall.

Gill (1994), on the other hand, did find that accent influenced students' comprehension of lecture information. Students were asked to listen to three minute segments of a supposed communications class lecture, fill out items pertaining to the understandability of the teacher, and complete a factual information recall and an open recall task. Results showed that participants recalled more information from the hypothetical teacher speaking in standard American English than from the hypothetical teacher speaking with a British or Malaysian accent. Results also showed that participants indicated that they understood the speech of the standard American English

speaking teacher better than the foreign-accented teacher. The results of Gill's study suggest that participants might have "used up" their cognitive resources in comprehending the British and Malaysian accents, and thus they were not able to recall as much information from the foreign-accented teacher as they did for the standard American English speaking teacher.

Similarly, Munro and Derwing (1995) assessed sentence processing times for foreign-accented Mandarin speech and standard American English speech. Results showed that participants made more errors in verifying and transcribing speech with the Mandarin accent than they did with standard American English. In some instances, the foreign accent hindered complete comprehension of an utterance. Furthermore, utterances with Mandarin accents took, on average, 50 milliseconds longer to verify than the standard American English utterances. This study also gives support to the argument that comprehension of a foreign accent requires an increase in cognitive resources and thus leads to greater difficulty in comprehension.

While arguments in the comprehension debate commonly assert that foreign accents exhaust cognitive resources, a smaller number of researchers have posed an alternative explanation for the relationship between accent and comprehension. The other argument in the comprehension debate is that more difficult tasks require more attention (Gill & Badzinski, 1992). Hosoda et al. (2007) demonstrated that after listening to tape recorded segments of speech, participants reported being more attentive during the monologue of Vietnamese-accented speakers compared to standard American English speakers. In other words, if a foreign-accented message requires more attention,

information expressed by foreign-accented speakers may be more easily remembered than that of native-born speakers. In theory, this would facilitate learning. To our knowledge, however, no empirical data exists to support this conclusion. Thus, we propose the following hypothesis.

Hypothesis 3: The speech of standard American English-speaking instructors will be easier to comprehend than that of Asian Indian-accented instructors.

Several current studies in psycholinguistics (e.g., Floccia et al. 2009; Adank et al., 2009) have shown that an initial comprehension delay occurs after listening to a foreign accent for the first time. This occurrence is often followed by an adaptation to the foreign accent. That is, comprehension reaction time returns to a baseline level, or listeners' reaction time to a foreign accent becomes equal to their reaction time to standard American English after the first time they listen to the accent.

Norris, McQueen, and Cutler (2003) explain the linguistic process by which a foreign accent might cause an initial disruption in comprehension, followed by an adaptation.

“Some of the phonemes produced by the [non-native] talker may not map directly onto the [native] listener's existing phonemic categories...[For example] lexical information could help a British English listener adapt to an American English accent. If the listener can be sure that “toDal” really is the word “total,” then this information could be used to direct the perceptual system to categorize [D] as an instance of /t/, and not as an instance of a new phoneme or another existing English phoneme...A training signal could feed back information from the lexicon to earlier levels of processing, to modify prelexical representations. This kind of phonetic adjustment would immediately generalize to other words. In general, whenever lexical information can tell the listener which phonemic category a particular sound maps onto, the listener can use this knowledge to retune those categories. In this way, lexical feedback could have a positive, and entirely beneficial, effect on speech recognition” (p. 209).

In other words, when a foreign accent disrupts a listener's ability to comprehend an utterance, the listener attempts to understand the utterances by, for example, guessing. Because a non-native speaker's speech sounds differ from a native-born speaker's speech sounds speaking the same language, the native-born speaker will attempt to categorize the accented speech sounds in a way that he or she understands in relation to standard speech. Once the utterances are understood and listeners begin to grasp the sound conventions of the accent and how it translates into standard speech, this knowledge helps listeners interpret accent patterns more effectively over time (Norris et al., 2003).

Floccia et al. (2009) conducted a series of experiments in order to determine under what conditions comprehension adaptation to a foreign accent might occur. In the first experiment, participants were presented with four sentence training blocks consisting of 10 sentences each, in which they were asked to press a certain button when they comprehended the last word in the sentence or press a different button when it was a pseudo-word. The speaker and/or the accent (British English, Irish, or French) was changed among blocks. Results showed that switching from a regional British English accent to a foreign accent caused a disruption in reaction time, followed by a delay in word comprehension. In other words, people comprehended the last word in a sentence more slowly when the accent was switched from British English to Irish or French accents, and no consistent adaptation to the foreign accents was observed.

In the second experiment, participants were tested again, with the same participants who had completed Experiment 1 and new participants who had not. Compared to the experienced participants, the inexperienced participants underwent a

strong disruption in reaction time and subsequent delay in word comprehensibility when a regional British accent was changed to a foreign accent. Furthermore, those experienced participants receiving instructions to pay attention to an accent experienced a delay in comprehension, as if they returned to their initial “surprise” by the accent, which was not present in inexperienced participants who received the same instructions to pay attention to an accent, as if the accents fulfilled their expectations. Similarly, inexperienced participants who were instructed to pay attention to the accent experienced decreased reaction and comprehension times compared to their counterparts receiving neutral instructions. Overall, results of the second experiment showed that, depending on whether participants were prepared or unprepared to hear an accent, disruption in reaction times differed.

Consistent with the hypothesis that participants would experience a delay in identifying foreign-accented speech, results of the final experiment by Floccia et al. (2009) demonstrated slower reactions time and ability to comprehend words, and this delay did not decline even after repeated exposure to a foreign accent. Participants were still faster in their comprehension of regional British English speech than they were of French or Irish-accented speech, replicating the results of the first experiment, despite repeated exposure to these accents. These three experiments together suggest that comprehension of foreign-accented speech may not benefit from repeated exposure to the foreign accent. This result conflicts with the findings of Norris et al. (2003) which support the idea of accent adaptability.

Clarke and Garrett (2004) also discovered that participants exposed to a foreign accent for the first time experienced a delay in speech comprehension. In the block experiment, a control group was exposed to 12 sentences produced in participants' native English (no accent condition) and a subsequent four sentences with a Spanish accent (accent condition). Participants in the accent condition listened to 16 Spanish-accented sentences, and those in the no accent condition listened to 16 sentences in standard American English. Participants were instructed to match the last word in each sentence with a visual cue. Results show that the comprehension time associated with the foreign accent was slower compared to native English speech during the first block. In contrast to Floccia et al. (2009), however, Clarke and Garrett found that those in the accent condition adapted completely to the foreign-accented speech by the fourth block. This indicates that the time it took to comprehend the last word in a foreign-accented sentence equaled the time it took to comprehend it in native English. Results of the experiments by Clark and Garrett and Floccia et al. present a stark contrast in the effects of mere exposure on accent comprehension. Thus, in an attempt to gather more empirical evidence on the matter, we proposed the following research question.

Research Question 1: Over time, will a foreign-accented instructor become easier to comprehend?

In summary, an observation common to many of the studies described presently is the lack of research devoted to speakers with Asian accents, and more specifically an Asian Indian accent, despite the fact that Asians continue to be one of the nation's fastest growing racial groups (U.S. Census Bureau, 2010). To our knowledge, no study has

examined the effect of an Asian Indian accent on students' affective and cognitive reactions, or comprehension. In addition, it is reasonable to assume that reactions to Asian-accented speech differ from other forms of nonstandard American English (Cargile, 2000), because compared to other outgroups (e.g., Hispanic), Asian Americans stereotypically represent an educated, competitive, and equal-status minority (Hosoda et al., 2007).

This study seeks to continue the investigation of affective and cognitive reactions to and comprehension of foreign-accented instructors, as well as to extend previous inquiries by considering the implications of the mere exposure effect and the effects of an Asian Indian accent. Inconsistent findings exist throughout these various topics, and we hope to provide more empirical evidence that sheds light onto themes that have immediate and important implications in education and beyond.

Method

Participants

A total of 115 (81 female, 34 male) undergraduate students in Northern California were recruited from an introductory psychology course as part of required research participation. Females made up 70.43% of the sample. Although a majority of participants (87.83%; $n = 101$) occupied the 18-20 age range ($M = 19.35$, $SD = 3.33$), ages spanned from 18 to 48 years old. Various ethnicities were also represented in the sample: 33.04% Asians, 32.17% Whites, 13.19% Latinos/as, 9.57% African Americans, 3.04% Multiracials, and 7.83% “Others.” A majority of the sample reported being 2nd generation (43.48%), with either or both of their parents born in a country outside the U.S. The remaining described themselves, from most frequently to least, as being 5th (26.96%), 4th (12.17%), 1st (11.30%), and 3rd (2.61%) generation. Almost 48% of participants lived in a household that spoke more than one language at home. Demographic information is presented in Table 1.

Procedure

Each experimental session was run with one participant at a time. When participants walked into the experiment room, they were greeted by an experimenter who first ensured that they had not participated in the study previously. The participants were then informed that the study they were about to take part in was about the evaluations, perceptions, and comprehension of a speaker. Participants were led into an adjacent room and asked to sit down, read over a consent form, and complete an informed consent agreement. Written instructions regarding the experiment were then handed to them.

TABLE 1

Demographic Characteristics of Participants

Demographic Variable	<i>n</i>	%
Gender		
Male	34	29.57
Female	81	70.43
Ethnicity		
White	37	32.17
Asian	38	33.04
African American	11	9.57
Latino/a	16	13.91
Other	4	3.04
Multiracial	9	7.83
Home Language(s)		
Multilingual Home	55	47.83
Monolingual Home	6	52.17
Generation		
1 st	13	11.30
2 nd	50	43.48
3 rd	3	2.61
4 th	14	12.17
5 th	31	26.96

The researcher read the instructions aloud as the participants followed on paper. The instructions explained that they were about to hear a passage presented by a female instructor who was about to complete her doctoral degree at a large state university and that she was in the process of applying for a university teaching position (see Appendix A). Participants were also told that they would hear the passage only once and that they would fill out the questionnaire after the recording stopped playback. The experimenter told the participants that if there were no questions about the instructions, the experiment would begin.

A laptop sat across the table from the participants, facing away from them. The researcher notified them that she would now play the passage on the laptop, exit the room, and return after the recording finished to distribute the questionnaire. At Time 1, participants listened to one passage. At Time 2, they heard a different passage. The order of the passages was counterbalanced. Participants listened to both passages presented in either standard American English or accented Asian Indian. After the participants finished listening to the recorded passage, the researcher re-entered the room to distribute the questionnaire and, once again, left the room while the participants completed it. After finishing, participants returned two days later during the same time slot for Time 2, and the same procedure was repeated with a different passage. After they completed the questionnaire at Time 2, they were given a debriefing sheet explaining the purpose of the experiment.

Accent Manipulation

Two accent conditions in this study, standard American English and Asian Indian, were produced by a single, genuinely bilingual Asian Indian-American female. She was a 22-year-old native English speaker, who was able to modify her standard American English speech to include the linguistic characteristics of the Asian Indian languages. This procedure, called the matched-guise technique (Lambert, 1967), has been widely used due to its capacity to control for such factors as voice quality, pitch, tone, and rate because the speaker is held constant (Breshnahan et al., 2002). It does, however, face its own limitations. It is difficult, for example, to draw conclusions about the impact of accent based on a single operational definition of it (Cargile & Giles, 1997). With this in mind, we rehearsed the passage with the speaker, who then made multiple recordings of two different passages in both standard American English and accented Asian Indian. Both passages were recited using correct grammar. They were roughly two minutes each in length, adopted from *Cracking the SAT* (Robinson & Katzman, 2005), an SAT preparatory workbook. Selection of the two passages was based on modest difficulty of topic, language use, and length.

Measures

Cognitive reactions. Cognitive reactions were measured in terms of both general impressions about the speaker and teaching effectiveness. General impressions about the speaker were measured using 22 different items with seven equally spaced segments (adapted from Hosoda & Stone-Romero, 2010). Sample items include

“uneducated/educated” and “likable/unlikable.” These items were factor analyzed with varimax rotation in order to discover the nature of the relationships among the variables.

Results of the factor analysis for general impressions produced six factors with eigenvalues greater than 1 at Time 1. Each factor explained 13.97%, 13.91%, 9.98%, 9.90%, 9.76%, and 9.08% of the total variance at Time 1, respectively. At Time 2, seven factors with eigenvalues greater than 1 explained 13.39%, 11.79%, 11.64%, 10.02%, 8.52%, 8.30%, and 6.41% of the total variance, respectively. Tables 2 and 3 show factor loadings of these items for Time 1 and Time 2. As can be seen from Tables 2 and 3, results revealed many similarities among item loadings produced at Time 1 and Time 2. However, items loadings at Time 1 were determined to provide a greater conceptual explanation for the factor categories because the relationship among the variables was clearer. Therefore, results of the factor analysis at Time 1 were used in subsequent analyses.

A closer look at the items in each factor obtained at Time 1 led to combining items on Factor 5 and Factor 6 to create a competence category. This factor was comprised of five items: illiterate/literate, disadvantaged/advantaged, incompetent/competent, uneducated/educated, and unintelligent/intelligent. These items were summed and averaged ($\alpha = .72$ at Time 1; $\alpha = .70$ at Time 2). It was also determined that the three items (i.e., upper class/lower class, trustworthy/untrustworthy, and weak work ethic/strong work ethic) loaded on Factor 3 could not be conceptually described. Therefore, these items were excluded from subsequent analyses.

TABLE 2

Factor Analysis for Cognitive Reactions Time 1

Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Unfriendly/Friendly	.86	.15	.11	.20	-.01	-.05
Cold/Warm	.82	.06	-.08	.18	.07	.21
Unpleasant/Pleasant	.72	.15	.13	.14	.42	.12
Likable/Unlikable	.66	.16	.19	.13	.47	-.09
Insincere/Sincere	.45	.30	.09	.24	.03	.50
Energetic/Lazy	.14	.84	-.10	-.13	.19	.05
Motivated/Unmotivated	.11	.79	.05	.23	.02	.09
Leader/Follower	.01	.68	.22	.21	.04	.02
High/Low Self-Esteem	.22	.68	.23	.21	.23	.13
Not Confident/Confident	.15	.63	.26	.08	0	.41
Upper Class/Lower Class	-.04	.08	.80	-.03	.18	-.02
Trustworthy/Untrustworthy	.16	.12	.78	.16	.03	.07
Weak/Strong Work Ethic	.10	.26	.44	.22	-.10	.29
Considerate/Inconsiderate	.38	.16	.12	.70	.07	.02
Conscientious/Not Consc.	.25	.12	-.13	.63	.21	-.02
Dishonest/Honest	.19	.11	.28	.63	.06	.33
Good/Bad Natured	-.02	.20	.30	.51	.21	.19
Advantaged/Disadvantaged	.03	.12	-.08	.35	.74	.02
Literate/Illiterate	.21	.11	.12	-.05	.72	.26
Competent/Incompetent	.27	.10	.35	.23	.62	.19
Uneducated/Educated	-.03	.07	-.09	.02	.23	.84
Unintelligent/Intelligent	.12	.17	.39	.21	.14	.66

Note. Factor loadings $\geq .49$ are shown in boldface.

TABLE 3

Factor Analysis for Cognitive Reactions Time 2

Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
Unfriendly/Friendly	.86	.21	.08	-.01	.13	.04	.05
Cold/Warm	.75	-.01	.14	.34	-.09	.03	-.02
Unpleasant/Pleasant	.73	.14	.10	.08	.23	.33	.05
Likable/Unlikable	.69	.14	.26	-.06	.13	.36	.13
Energetic/Lazy	.23	.82	.08	.14	-.04	-.04	.13
High/Low Self-Esteem	.09	.81	.03	.10	.19	.14	.06
Motivated/Unmotivated	.07	.76	.12	.34	.01	.05	-.06
Considerate/Inconsiderate	.35	.06	.72	.06	-.02	.28	-.11
Conscientious/Not Consc.	.12	.24	.69	.09	.09	.24	.26
Trustworthy/Untrustworthy	0	-.20	.68	.21	-.05	.17	.34
Dishonest/Honest	.14	.18	.65	.10	.30	-.17	-.22
Leader/Follower	-.03	.37	-.17	.64	.01	.28	.04
Weak/Strong Work Ethic	.07	.31	.22	.63	.21	.02	.02
Not Confident/Confident	.06	.28	.09	.58	.47	.19	-.08
Good/Bad Natured	.15	-.04	.21	.58	.15	.03	.43
Insincere/Sincere	.31	.15	.41	.56	.04	-.08	-.03
Uneducated/Educated	.11	-.08	-.04	.22	.83	.01	-.01
Unintelligent/Intelligent	.13	.28	.29	.05	.68	.23	.22
Literate/Illiterate	.18	.13	.09	.10	.30	.76	.04
Advantaged/Disadvantaged	.33	-.03	.25	.13	-.15	.68	-.14
Upper Class/Lower Class	.04	.10	.03	.03	.04	-.05	.87
Competent/Incompetent	.33	.15	.33	.07	.30	.38	.33

Note. Factor loadings $\geq .43$ are shown in boldface.

The three remaining factors were labeled as follows: likability, motivation, and trustworthiness. The likability factor consisted of five items: cold/warm, unfriendly/friendly, unpleasant/pleasant, unlikable/likable, and insincere/sincere ($\alpha = .84$ at Time 1; $\alpha = .82$ at Time 2). Although the item insincere/sincere cross-loaded onto the competence factor as well, we determined its relationship was clearer under likability. The motivation factor consisted of five items: not confident/confident, follower/leader, lazy/energetic, not motivated/motivated, low self-esteem/high self-esteem ($\alpha = .82$ at Time 1; $\alpha = .80$ at Time 2). The trustworthiness factor consisted of four items: dishonest/honest, bad-natured/good-natured, not conscientious/conscientious, and inconsiderate/considerate ($\alpha = .69$ at Time 1; $\alpha = .66$ at Time 2). These four factors, likability, motivation, trustworthiness, and competence, were used to analyze general impressions about the speaker. The higher the score on the measures, the more positively the speaker was perceived.

Participants' evaluation of the speaker's teaching effectiveness was measured with a 14-item summated scale ($\alpha = .91$ at Time 1; $\alpha = .93$ at Time 2). Sample items include "She is a qualified teacher" and "She would be liked by students." Participants responded to these items along a 7-point Likert-type scale (1 = *strongly disagree*, 7 = *strongly agree*). The higher the score on the measure, the more effective the speaker was perceived as a professor.

Affective reactions. Affective reactions were measured with the PANAS scale (Watson, Clark, & Tellegen, 1988) which was designed to assess the extent to which individuals were feeling a given emotion at a given moment. The PANAS scale contains

20 different single-word mood descriptors (e.g., enthusiastic, attentive, determined, jittery), 10 of which measure positive affect and another 10 of which measure negative affect. Participants were asked to indicate the extent to which they were feeling a given emotion on a 5-point Likert-type scale (1 = *not at all*, 5 = *extremely*).

Results of a factor analysis with varimax rotation produced five factors with eigenvalues greater than 1 at Time 1. Each factor explained 17.50%, 14.49%, 14.39%, 13.41%, and 7.27% of the total variance at Time 1, respectively. At Time 2, five factors with eigenvalues greater than 1 explained 17.61%, 17.33%, 15.12%, 12.80%, and 8.74% of the total variance at Time 2, respectively.

These results, however, are not consistent with Watson et al.'s (1988) work on the PANAS scales in which they describe only two theoretical factors: positive affectivity and negative affectivity. Thus, we ran a second factor analysis imposing a two-factor solution (see Table 4). This resulted in 48.20% of the total variance accounted for at Time 1, with Factor 1 contributing 24.26% and Factor 2 contributing 23.93%, and at Time 2 accounted for 52.11% of the total variance, with Factor 1 contributing 26.58% and Factor 2 contributing 25.53%. At both Time 1 and Time 2, all 10 of the positive affect items loaded strongly (ranging from $r = .63$ to $r = .81$) onto the positive affect factor ($\alpha = .87$ at Time 1; $\alpha = .88$ at Time 2), and all 10 of the negative affect items loaded strongly (ranging from $r = .39$ to $r = .81$) onto the negative affect factor ($\alpha = .86$ at Time 1; $\alpha = .80$ at Time 2). Higher scores on the positive affect factor indicate a more positive emotional response to the speaker, and higher scores on the negative affect factor indicate a more negative emotional response to the speaker.

TABLE 4

Factor Analyses for Affective Reactions

Items	<u>Time 1</u>		<u>Time 2</u>	
	Positive Affect	Negative Affect	Positive Affect	Negative Affect
Interested	.63	0	.70	-.10
Active	.67	.01	.69	.16
Alert	.65	-.12	.72	-.06
Inspired	.70	.25	.73	.27
Enthusiastic	.81	.06	.81	.12
Attentive	.64	.01	.60	-.17
Excited	.73	.13	.77	.04
Strong	.69	.20	.71	.16
Proud	.66	-.03	.66	.04
Determined	.74	.14	.72	.23
Guilty	.13	.61	.04	.75
Distressed	.01	.74	.09	.72
Afraid	.06	.81	.11	.78
Scared	.02	.78	.17	.79
Jittery	0	.39	.02	.54
Irritable	.12	.57	-.05	.74
Upset	.01	.80	.03	.83
Ashamed	.07	.77	.04	.85
Hostile	.14	.65	.06	.42
Nervous	-.02	.56	.02	.58

Note. Factor loadings $\geq .39$ are shown in boldface.

Comprehension. Participants' comprehension of the recorded passages was measured in terms of the number of correct answers on five multiple choice questions, with four possible answers each. These multiple choice questions included both factual and inferential questions that were modified from the original SAT version as well as developed for the present study. Participants were asked to select the letter choice that corresponded to the best answer for each question asked. Answers were summed and each participant generated a score ranging from 0, or no correct answers, to 5, or all correct answers.

In addition, one item measured participants' perception of difficulty in comprehending each passage on a 5-point Likert-type scale (1 = *not at all difficult*, 5 = *extremely difficult*).

Demographic information. Participants were asked to indicate their sex, age, and ethnicity. In addition, participants were asked if they were born in the U.S. or outside and, accordingly, which generation they belonged to (1st - 5th, or "Don't Know").

Accent Manipulation Check

Four items were used to measure the effectiveness of the speaker accent manipulation at Time 1 ($\alpha = .79$) and Time 2 ($\alpha = .82$). Participants were asked to indicate the strength of the instructor's accent on a 7-point scale (1 = *no accent at all*, 7 = *very strong accent*). The questions addressed, for example, the strength of the speaker's accent, communication skills, and fluency. A high score on this measure indicates a strongly perceived accent. In an open-ended question, participants were also asked to indicate what they believed the ethnicity of the speaker to be.

Results

Accent Manipulation Check

As anticipated, results of a 2 (speaker accent: Asian Indian vs. standard American English) x 2 (time: Time 1 vs. Time 2) mixed factorial multivariate analysis of variance (MANOVA) showed the success of the accent manipulation. Regardless of time, participants rated the Asian Indian-accented speaker as having a heavier accent ($M = 5.95$, $SD = .89$ at Time 1; $M = 5.97$, $SD = .85$ at Time 2) than the standard American English speaker ($M = 3.45$, $SD = .85$ at Time 1; $M = 3.54$, $SD = .94$ at Time 2), $F(1, 108) = 247.06$, $p < .05$. In addition, a majority of participants (83.1%, $n = 42$ at Time 1; 76.6%, $n = 50$ at Time 2) in the Asian-Indian accent condition identified the speaker as Indian, and most of the participants (54.0%, $n = 27$ at Time 1; 52.1%, $n = 26$ at Time 2) in the standard American English accent condition identified the speaker as White.

Preliminary Analyses

Prior to testing the hypotheses, we examined whether several demographic variables of participants (i.e., gender, ethnicity, and generation) influenced the measured variables. We were interested, particularly, in whether these demographic variables interacted with a speaker's accent.

We first conducted 2 (speaker accent: Asian Indian vs. standard American English) x 2 (time: Time 1 vs. Time 2) x 2 (order of passage: cats and dogs vs. air pollution) x 2 (gender: male vs. female) mixed-factorial MANOVAs on the measured variables (i.e., positive affect, negative affect, likeability, motivation, trustworthiness, competence, teaching effectiveness, and comprehension). Because of the number of

analyses, we set the alpha level at .01 in order to control for Type I error. The results of these analyses showed that gender did not interact with speaker accent to influence positive affect, $F(1, 104) = 2.58, p > .01$, negative affect, $F(1, 104) = .11, p > .01$, likability, $F(1, 104) = .41, p > .01$, trustworthiness, $F(1, 102) = .41, p > .01$, competence, $F(1, 104) = .02, p > .01$, teaching effectiveness, $F(1, 103) = 1.43, p > .01$, or passage comprehension, $F(1, 107) = .22, p > .01$. However, there was an interaction between time, accent, order, and gender for motivation, $F(1, 104) = 10.47, p < .01$.

Because the sample was diverse in terms of ethnicity, we also examined whether participants' ethnicity interacted with accent on the measured variables. We classified ethnicity into three groups: White ($n = 37$), Asian ($n = 38$), and "Other" (Native American, African American, Latino/a, "Other," and Multiracial) ($n = 40$). We then conducted 2 (speaker accent: Asian Indian vs. standard American English) x 2 (time: Time 1 vs. Time 2) x 2 (order of passage: cats and dogs vs. air pollution) x 3 (ethnicity: White vs. Asian vs. "Other") mixed-factorial MANOVAs. These analyses did not show any interaction between speaker accent and ethnicity for positive affect, $F(2, 91) = .41, p > .01$, negative affect, $F(2, 91) = .61, p > .01$, likability, $F(2, 91) = 4.40, p > .01$, motivation, $F(2, 91) = 1.78, p > .01$, competence, $F(2, 91) = 1.35, p > .01$, teaching effectiveness, $F(2, 90) = 1.33, p > .01$, or comprehension, $F(2, 94) = .30, p > .01$. There was, however, an interaction between time, accent, order, and ethnicity for trustworthiness, $F(2, 89) = 6.83, p < .01$.

Finally, we looked at possible generational differences in responses, as participants reported belonging to various generational groups. Because a majority of the

participants belonged to the 1st and 2nd generation, we divided generation into two groups: 1st and 2nd generation ($n = 63$) and 3rd, 4th, and 5th generation ($n = 48$). We then conducted 2 (speaker accent: Asian Indian vs. standard American English) x 2 (time: Time 1 vs. Time 2) x 2 (order of passage: cats and dogs vs. air pollution) x 2 (generation: 1st and 2nd vs. 3rd, 4th, and 5th) mixed-factorial MANOVAs. These analyses did not show any interaction between speaker accent and generation for positive affect, $F(1, 100) = 0$, $p > .01$, negative affect, $F(1, 100) = .40$, $p > .01$, likability, $F(1, 100) = .18$, $p > .01$, motivation, $F(1, 100) = .98$, $p > .01$, trustworthiness, $F(1, 98) = .74$, $p > .01$, competence, $F(1, 100) = .04$, $p > .01$, teaching effectiveness, $F(1, 99) = 1.52$, $p > .01$, and comprehension, $F(1, 103) = .12$, $p > .01$.

Because speaker accent did not interact with any of the demographic variables on the majority of the measured variables, all of the hypotheses were tested using a 2 (speaker accent: Asian Indian vs. standard American English) x 2 (time: Time 1 vs. Time 2) x 2 (order of passage: cats and dogs vs. air pollution) mixed-factorial design, with time as a within-subjects variable and speaker accent and order of passage as between-subjects variables.

Correlations among Measured and Manipulated Variables

A correlation matrix of the measured and manipulated variables appears in Table 5 for Time 1 and Time 2. The correlations among the measured variables show that speaker accent was modestly and negatively correlated with motivation at Time 1 ($r = -.27$, $p = 0$), and modestly and positively correlated with competence at Time 1 ($r = .21$, $p = .02$) and Time 2 ($r = .24$, $p = .01$), and likability at Time 2 ($r = .26$, $p = .00$). These

TABLE 5

Correlations for Measured and Manipulated Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Speaker accent	-																
2. Positive affect T1	-.07	-															
3. Negative affect T1	-.03	.17	-														
4. Likability T1	.14	.33**	-.11	-													
5. Motivation T1	-.27**	.37**	-.01	.43**	-												
6. Trustworthiness T1	-.05	.30**	.04	.57**	.46**	-											
7. Competence T1	.21*	.24**	-.19*	.51**	.40**	.50**	-										
8. Teach. effect. T1	.14	.36**	.14	.59**	.46**	.51**	.53**	-									
9. Comprehension T1	.17	.01	-.20*	.16	.14	-.08	.24*	.12	-								
10. Positive affect T2	-.09	.71**	.28**	.28**	.28**	.32**	.17	.30**	-.09	-							
11. Negative affect T2	.09	.19*	.23*	-.13	-.11	-.08	-.22*	-.08	-.11	.17	-						
12. Likability T2	.26**	.19*	.02	.63**	.24*	.39**	.38**	.51**	.25**	.28**	.01	-					
13. Motivation T2	-.13	.09	-.02	.32**	.48**	.37**	.33**	.38**	.19*	.10	-.08	.39**	-				
14. Trustworthiness T2	.16	.30**	.00	.47**	.27**	.69**	.42**	.61**	-.01	.27**	.00	.55**	.40**	-			
15. Competence T2	.24*	.15	-.07	.52**	.25**	.45**	.61**	.57**	.27**	.15	-.06	.60**	.42**	.54**	-		
16. Teach. effect. T2	.14	.32**	.10	.54**	.37**	.44**	.52**	.81**	.28**	.30**	-.17	.61**	.50**	.60**	.62**	-	
17. Comprehension T2	.10	-.05	-.12	.13	.10	.17	.28**	.24**	.14	-.09	-.16	.04	.06	.18	.31**	.19*	-

* . Correlation is significant at the .05 level (2-tailed).

** . Correlation is significant at the .01 level (2-tailed).

results suggest that the Asian Indian-accented speaker was perceived as less competent at Time 1 and Time 2, less likable at Time 2, but more motivated at Time 1 than the standard American English speaker.

Table 5 also demonstrates that at Time 1 positive affect was moderately and positively correlated with the cognitive reaction items (i.e., likability, motivation, trustworthiness, competence, and teaching effectiveness), however, at Time 2, positive affect was only moderately correlated with likability, trustworthiness, and teaching effectiveness. Negative affect was only significantly correlated with competence at Time 1 ($r = -.19, p = .04$). Overall, cognitive reaction items were highly related for Time 1, ranging from $r = .40$ to $r = .59$, as well as Time 2, ranging from $r = .39$ to $r = .62$.

We also examined the intercorrelations of each measured variable between Time 1 and Time 2 (e.g. correlation between motivation Time 1 and motivation Time 2), which yielded strong positive correlations between all variables, ranging from $r = .23$ to $r = .81$, except for comprehension, which was not significant. This signifies that participants' cognitive and affective reactions at Time 1 were strongly related to their reactions at Time 2, but their comprehension at Time 1 was not related to their comprehension at Time 2. The lack of the significant relationship between comprehension at Time 1 and Time 2 is likely due to the fact that participants were exposed to two different passages.

Test of Hypotheses

Cognitive reactions. Cognitive reactions were measured in terms of perceived likability, motivation, trustworthiness, competence, and teaching effectiveness of the speaker. As can be seen in Table 6, participants exposed to the Asian Indian accent

condition on average perceived the Asian Indian speaker as being highly likable, motivated, trustworthy, and competent at Time 1 and Time 2. Participants exposed to the standard American English condition also reported the speaker was highly likable, trustworthy, competent, and moderately motivated at Time 1 and Time 2.

TABLE 6

General Impressions as a Function of Speaker Accent and Time

Accent	<u>Likability</u>				<u>Motivation</u>			
	Time 1		Time 2		Time 1		Time 2	
	M	SD	M	SD	M	SD	M	SD
Asian Indian	4.84	1.03	4.75	.91	4.97	1.07	4.67	.94
Standard American English	5.13	.91	5.23	.83	4.36	.92	4.44	.85
Accent	<u>Trustworthiness</u>				<u>Competence</u>			
	Time 1		Time 2		Time 1		Time 2	
	M	SD	M	SD	M	SD	M	SD
Asian Indian	5.09	.93	4.74	.82	5.33	.93	4.74	.82
Standard American English	4.97	.96	5.06	.84	4.97	.96	5.06	.84

Hypothesis 1a predicted that an Asian Indian-accented speaker would evoke more negative cognitive reactions than a standard American English speaker and that, over time, participants would experience more positive cognitive reactions to the Asian Indian-accented speaker (Hypothesis 1b). To test these hypotheses, 2 (speaker accent: Asian Indian vs. standard American English) x 2 (time: Time 1 vs. Time 2) x 2 (order: cats and dogs vs. air pollution) mixed-factorial MANOVAs were conducted. The results

showed a main effect of speaker accent for likability, $F(1, 108) = 4.90, p < .05$, motivation, $F(1, 108) = 8.37, p < .05$, and competence, $F(1, 108) = 5.14, p < .05$ (see Tables 7, 8, and 9). In other words, a speaker's accent produced a significant difference in cognitive reactions towards the speaker, with the Asian Indian-accented speaker being perceived as less likable ($M = 4.80, SD = .97$ vs. $M = 5.18, SD = .87$), less competent ($M = 5.28, SD = .88$ vs. $M = 5.66, SD = .76$), but more motivated ($M = 4.84, SD = 1.0$ vs. $M = 4.40, SD = .89$) than the standard American English speaker.

Additionally, a main effect of time for teaching effectiveness, $F(1, 107) = 7.75, p < .05$, was found (see Table 10). Time produced a significant difference in cognitive reactions toward the speaker, with participants reporting a decline in teaching effectiveness of both the standard American English ($M = 5.09, SD = .79$ at Time 1; $M = 4.93, SD = .83$ at Time 2) and Asian Indian-accented speakers ($M = 4.86, SD = .86$ at Time 1; $M = 4.68, SD = .91$ at Time 2). This can be seen in Table 11.

Finally, an interaction between speaker accent and time was found for trustworthiness, $F(1, 106) = 9.56, p < .05$ (see Table 12). In order to determine the nature of the two-way interaction, a simple effects analysis was conducted. Results showed that time had a significant effect only for the Asian Indian accent condition, $F(1, 108) = 17.10, p < .05$, but not for the standard American English condition, $F(1, 108) = .84, p > .05$. Specifically, the Asian Indian-accented instructor was perceived as less trustworthy at Time 2 ($M = 4.74, SD = .93$) than Time 1 ($M = 5.10, SD = .82$). Taken together, these results support Hypotheses 1a partially, but do not support Hypothesis 1b.

TABLE 7

MANOVA for Likability

Source	<i>SS</i>	<i>df</i>	<i>F</i>	<i>p</i>
Between subjects				
Accent	7.0	1	4.90	.03
Order	.33	1	.23	.63
Accent * Order	.35	1	.25	.62
Error	152.78	108		
Within subjects				
Time	0	1	0	.95
Time * Accent	.27	1	.81	.37
Time * Order	.34	1	1.01	.32
Time * Accent * Order	.06	1	.17	.68
Error	35.72	108		

Affective reactions. Hypothesis 2a predicted that an Asian Indian-accented speaker would evoke more negative affective responses and less positive affective responses than a standard American English speaker, and that, over time, participants would experience less negative affective responses and more positive affective responses toward the Asian Indian-accented speaker (Hypothesis 2b). As can be seen in Table 13, participants

exposed to the Asian Indian accent condition on average reported that they experienced low to moderate levels of positive affect, and very low levels of negative affect at Time 1 and Time 2. Participants exposed to the standard American English condition also reported that they felt low to moderate levels of positive affect, and very low levels of negative affect at Time 1 and Time 2.

TABLE 8

MANOVA for Motivation

Source	<i>SS</i>	<i>df</i>	<i>F</i>	<i>p</i>
Between subjects				
Accent	11.28	1	8.37	.00
Order	2.55	1	1.89	.17
Accent * Order	.04	1	.03	.86
Error	145.57	108		
Within subjects				
Time	.87	1	1.76	.19
Time * Accent	1.54	1	3.11	.08
Time * Order	.15	1	.31	.58
Time * Accent * Order	.26	1	.52	.47
Error	53.38	108		

TABLE 9

MANOVA for Competence

Source	<i>SS</i>	<i>df</i>	<i>F</i>	<i>p</i>
Between subjects				
Accent	5.72	1	5.14	.03
Order	1.25	1	1.13	.29
Accent * Order	.56	1	.50	.48
Error	120.14	108		
Within subjects				
Time	.24	1	.84	.36
Time * Accent	.06	1	.21	.65
Time * Order	.22	1	.74	.39
Time * Accent * Order	0	1	0	.95
Error	31.33	108		

Hypothesis 2a was tested using 2 (speaker accent: Asian Indian vs. standard American English) x 2 (time: Time 1 vs. Time 2) x 2 (order of passage: cats and dogs vs. air pollution) mixed factorial MANOVAs. Results showed no main effects of speaker accent for positive affective reactions, $F(1, 108) = 1.74, p > .05$, and speaker accent did not interact with any of the other variables (see Table 14).

TABLE 10

MANOVA for Teaching Effectiveness

Source	<i>SS</i>	<i>df</i>	<i>F</i>	<i>p</i>
Between subjects				
Accent	3.62	1	2.72	.10
Order	.07	1	.05	.82
Accent * Order	.141	1	1.06	.31
Error	142.21	107		
Within subjects				
Time	1.11	1	7.75	0
Time * Accent	.03	1	.21	.65
Time * Order	.13	1	.92	.34
Time * Accent * Order	.18	1	1.26	.27
Error	15.34	107		

For negative affect, there was no main effect of speaker accent $F(1, 108) = .23, p > .05$. However, an interaction was found between speaker accent, time, and order, $F(1, 108) = 5.24, p < .05$ (see Table 15). Using a simple effects analysis, we found a significant effect of time on negative affect in the standard American English accent condition, such that negative affect increased over time when the cats and dogs passage was played first ($M = 1.19, SD = .29$ at Time 1; $M = 1.41, SD = .65$ at Time 2) $F(1, 108) = 4.33, p < .05$,

but decreased over time when the air pollution passage was played first ($M = 1.67$, $SD = .64$ at Time 1; $M = 1.19$, $SD = .42$ at Time 2) $F(1, 108) = 1.93$, $p < .05$. In contrast, the significant effect of time on negative affect in the Asian Indian accent condition was found only when the air pollution passage was played first, $F(1, 108) = 6.22$, $p < .05$, with negative affect declining over time ($M = 1.43$, $SD = .58$ at Time 1; $M = 1.19$, $SD = .27$ at Time 2). This can be seen in Table 16. Therefore, Hypothesis 2a was not supported and Hypothesis 2b was partially supported.

TABLE 11

Teaching Effectiveness as a Function of Speaker Accent and Time

Accent	<u>Teaching Effectiveness</u>			
	Time 1		Time 2	
	M	SD	M	SD
Asian Indian	4.86	.86	4.68	.91
Standard American English	5.09	.79	4.93	.83

Comprehension. Hypothesis 3 stated that the speech of a standard American English speaker would be easier to comprehend than that of an Asian Indian-accented speaker, and a research question posited whether or not an Asian Indian-accented speaker becomes easier to comprehend over time. As mentioned earlier, in addition to measuring participants' factual and conceptual comprehension of the passages, we also assessed how difficult they believed each passage to be. Before testing the hypothesis and research question, we conducted a 2 (speaker accent: Asian Indian vs. standard American

English) x 2 (order of passage: cats and dogs vs. air pollution) ANOVA to determine if speaker accent had an effect on participants' perception of passage difficulty.

TABLE 12

MANOVA for Trustworthiness

Source	<i>SS</i>	<i>df</i>	<i>F</i>	<i>p</i>
Between subjects				
Accent	.12	1	.09	.76
Order	2.5	1	1.87	.18
Accent * Order	.27	1	.20	.66
Error	142.03	106		
Within subjects				
Time	1.07	1	4.58	.04
Time * Accent	2.22	1	9.56	0
Time * Order	.04	1	.18	.68
Time * Accent * Order	.13	1	.58	.45
Error	142.03	106		

Results of the ANOVA indeed showed a main effect of speaker accent on passage difficulty at Time 1, $F(1, 109) = 14.68, p < .05$, and Time 2, $F(1, 107) = 19.09, p < .05$, which can be seen in Table 17. Participants believed the passage to be more difficult when read by the Asian Indian-accented speaker than when read by the standard

American English speaker at Time 1 ($M = 2.51, SD = 1.09$ vs. $M = 1.81, SD = .84$) and Time 2 ($M = 2.68, SD = .83$ vs. $M = 1.96, SD = .91$).

TABLE 13

Affect as a Function of Speaker Accent and Time

Accent	<u>Positive Affect</u>				<u>Negative Affect</u>			
	Time 1		Time 2		Time 1		Time 2	
	M	SD	M	SD	M	SD	M	SD
Asian Indian	2.45	.76	2.40	.75	1.41	.53	1.24	.42
Standard American English	2.37	.72	2.25	.83	1.36	.50	1.33	.58

Given these findings, Hypothesis 3 was tested using 2 (speaker accent: Asian Indian vs. standard American English) x 2 (order of passage: cats and dogs vs. air pollution) ANOVAs with difficulty of comprehension as a covariate for Time 1 and Time 2 (see Table 18). Results of the ANOVA for Time 1 showed no main effect of speaker accent on comprehension $F(1, 108) = .47, p > .05$. For Time 2, results showed an interaction between speaker accent and the order of passages, $F(1, 106) = 4.30, p < .05$.

A simple effects analysis showed that the effect of the speaker accent was significant only when participants heard the cats and dogs passage at Time 1 and the air pollution passage at Time 2, $F(1, 107) = 5.41, p < .05$. Participants comprehended the standard American English speaker ($M = 3.25, SD = 1.11$) better than the Asian Indian-accented speaker ($M = 2.54, SD = 1.50$) when they were exposed to the cats and dogs

passage first rather than exposed to the cats and dogs passage second (see Table 19).

Additionally, in order to test the research question, which asked if a foreign- accented instructor becomes easier to comprehend over time, a MANOVA with repeated measures was conducted, showing no main effect of time, $F(1, 111) = .31, p > .05$ (see Table 20).

TABLE 14

MANOVA for Positive Affective Reactions

Source	SS	df	F	p
Between subjects				
Accent	1.67	1	1.74	.19
Order	5.06	1	5.23	.02
Accent * Order	.11	1	.11	.74
Error	104.42	108		
Within subjects				
Time	.30	1	.31	.58
Time * Accent	0	1	.06	.81
Time * Order	.62	1	2.72	.10
Time * Accent * Order	2.87 ⁻⁵	1	.28	.60
Error	142.26	111		

Overall, these results support Hypothesis 3 such that the standard American English speaker was easier to comprehend than the Asian Indian-accented speaker. However, this outcome depended on the nature of the passage participants heard. In addition, the answer to the research question is that an Asian Indian-accented speaker did not become easier to comprehend over time.

TABLE 15

MANOVA for Negative Affective Reactions

Source	<i>SS</i>	<i>df</i>	<i>F</i>	<i>p</i>
Between subjects				
Accent	.08	1	.23	.63
Order	.12	1	.37	.55
Accent * Order	.32	1	1	.32
Error	34.60	108		
Within subjects				
Time	1.05	1	6.12	.02
Time * Accent	.01	1	.06	.80
Time * Order	2.40	1	13.91	0
Time * Accent * Order	.90	1	5.24	.02
Error	18.60	108		

TABLE 16

Negative Affect as a Function of Speaker Accent, Time, and Order

Accent	<u>Negative Affect</u>			
	Cats & Dogs T1		Air Pollution T2	
	M	SD	M	SD
Asian Indian	1.38	.47	1.30	.56
Standard American English	1.19	.29	1.41	.65
	Air Pollution T1		Cats & Dogs T2	
Asian Indian	1.43	.58	1.19	.27
Standard American English	1.67	.64	1.19	.42

TABLE 17

ANOVA for Passage Difficulty

Source	<i>SS</i>	<i>df</i>	<i>F</i>	<i>p</i>
Time 1 between subjects				
Accent	14.23	1	14.68	0
Order	2.06	1	2.12	.15
Accent * Order	1.12	1	1.15	.29
Error	105.70	109		
Time 2 between subjects				
Accent	14.44	1	19.09	0
Order	.47	1	.62	.43
Accent * Order	.01	1	.02	.89
Error	80.95	107		

TABLE 18

ANOVA for Comprehension

Source	<i>SS</i>	<i>df</i>	<i>F</i>	<i>p</i>
Time 1 between subjects				
Passage Difficulty	9.76	1	7.25	.01
Accent	.63	1	.47	.50
Order	6.90	1	5.12	.03
Accent * Order	1.20	1	.89	.35
Error	145.49	108		
Time 2 between subjects				
Passage Difficulty	4.13	1	3.44	.07
Accent	0	1	0	.98
Order	.63	1	.53	.47
Accent * Order	5.16	1	4.30	.04
Error	127.08	106		

TABLE 19

Comprehension as a Function of Speaker Accent and Time

Accent	<u>Comprehension</u>			
	Time 1		Time 2	
	M	SD	M	SD
Asian Indian	2.66	1.30	2.83	1.27
Standard American English	3.08	1.14	3.08	1.10

TABLE 20

MANOVA for Comprehension

Source	<i>SS</i>	<i>df</i>	<i>F</i>	<i>p</i>
Between subjects				
Accent	3.51	1	2.19	.14
Order	2.88	1	1.80	.18
Accent * Order	9.15	1	5.71	.02
Error	177.82	111		
Within subjects				
Time	.39	1	.31	.58
Time * Accent	.07	1	.06	.81
Time * Order	3.49	1	2.72	.10
Time * Accent * Order	.36	1	.28	.60
Error	142.26	111		

Discussion

The increasingly diverse population of the U.S. is powerfully exemplified in the country's college and university campuses (IIE, 2009). Inside these institutions, native-born American students interact with foreign-accented professors, TAs, and peers more than ever before (Marvasti, 2005). The presence of foreign-accented professors and TAs has given rise to concerns about teaching quality, classroom interactions, perceptions by students, and student learning outcomes (Kavas & Kavas, 2008). At the same time, little research has been dedicated to the study of foreign accents in the classroom.

Although some empirical evidence suggests that students become familiarized with an accent when they hear it often (Boyd, 2003), few studies to date have investigated whether repeated exposure to a foreign accent, in which a student is presented with the accent multiple times, could elicit more positive reactions than the initial exposure. This phenomenon is labeled the mere exposure effect and proposes that repeated unreinforced exposure to a stimulus causes an increase in positive affect toward that stimulus over time (Zajonc, 1968). In the present study, we thus considered if and to what extent mere exposure to a foreign accent may influence affective and cognitive reactions to and comprehension of foreign-accented faculty. This study is unique in that foreign-accent research was linked with the tenets of the mere exposure effect, a combination few studies to our knowledge have explored. This study also examined the effects of accent and mere exposure on three distinct variables: cognitive reactions, affective reactions, and comprehension.

Effects of Foreign Accent

Overall, results of the present study partially support the conclusion that a foreign-accent in the classroom has consequences for students' cognitive reactions, affective reactions, and comprehension. In addition, partial support was found for these responses changing with repeated exposure.

We hypothesized that an Asian Indian-accented professor would evoke more negative cognitive reactions than a standard American English speaking professor and, over time, participants would experience more positive cognitive reactions to the Asian Indian-accented professor. Results of the present study were that the Asian Indian-accented speaker was judged to be less likable and less competent than the standard American English speaker. Although the devaluation of Asian American immigrants on the solidarity dimension, including likability, has strong support in the literature (Cargile & Bradac, 2001; Cargile, 1997; Hosoda & Stone-Romero, 2010), this has not been the case for status or competence. In fact, Lee and Fiske (2006) reported that Indian immigrants score equally well as native-born Americans on perceived status and solidarity. Present results, therefore, might be a manifestation of the "Oh No! Syndrome" (Rao, 1985), which illustrates students' response to their first classroom encounter with a foreign-accented professor where they are surprised and upset by the professor's foreign accent. It might reflect some of the frustration students reportedly experience not towards Asian Indian immigrants per se but towards foreign-accented professors in general whom they must understand and interact with for the duration of their class. In

addition, these results pertaining to cognitive reactions did not change with repeated exposure to the foreign accent.

For the trustworthiness dimension, however, we did indeed find that repeated exposure to the foreign-accent decreased participants' trust in the instructor. Because participants were never alerted to the fact that the speaker carried a foreign accent, their first exposure to the Asian Indian-accented speaker might have come as a surprise and demanded greater attention to the accent. At the second exposure, as participants became more familiar with the accent, they were able to focus on the message. Participants in past research have strongly indicated foreign-accented instructors to be inferior communicators compared to standard American English speakers (Hosoda et al., 2007; de Oliveira et al., 2009) and perhaps did not trust the content of the messages, leading to a greater devaluation of the accented speaker on trust at Time 2. However, given the low reliability of the trustworthiness dimension, this interpretation is merely speculative.

The Asian Indian-accented speaker was also thought to be more motivated than the standard American English speaker at Time 1. This result is surprising in light of strong support in the literature that foreign-accented speakers are evaluated more negatively on cognitive dimensions than native English speakers (Cargile & Bradac, 2001; Cargile, 1997; Hosoda & Stone-Romero, 2010). Perhaps participants recognized that a foreign accent would be a potential obstacle in academia and create additional challenges for foreign-accented individuals that standard American English speakers do not necessarily face. Because they need to overcome these obstacles, foreign-accented speakers may be perceived as being more motivated than native-born English speakers.

In the context of the present study, the Asian Indian-accented speaker was presented as being in the process of completing her doctoral degree and looking to be employed as a professor. The perception that she is willing to tackle cultural and language barriers (and is reportedly not as likable or competent) may be a testament to the fact that in order to achieve her desired position she may be more motivated compared to a native-born English speaker. This result remained constant despite repeated exposure.

We expected that the Asian Indian-accented professor would evoke more negative affective responses and less positive affective responses than the standard American English speaking professor and that, over time, participants would experience less negative affective responses and more positive affective responses towards the Asian Indian-accented professor. However, a foreign accent did not seem to affect participants' positive affect despite repeated exposure. On the other hand, when the air pollution passage was played first and the cats and dogs passage played second, the present study showed that participants did report a decline in negative affect over time. This was true for both accent conditions and seems to be a result of the content of the passages heard rather than speaker accent. If participants heard the air pollution passage at Time 1, a message chronicling an unfortunate period in English history, a more optimistic message about the disposition of cats and dogs may have subdued some negative affect for both conditions, regardless of accent.

In terms of comprehension, it is interesting to note that participants believed the passage to be more difficult to comprehend when read by the Asian Indian-accented speaker than when read by the standard American English speaker. When testing the

hypotheses, which stated that the speech of a standard American English speaking professor would be easier to comprehend than that of an Asian Indian-accented professor, we found that when participants listened to the cats and dogs passage at Time 1 and the air pollution passage at Time 2, comprehension was poorer for students having heard the Asian Indian-accent versus standard American English. This was due to the fact that the air pollution passage may have been unexpected after having heard initially about cats and dogs, a relatively positive and accessible topic. Perhaps when information is presented suddenly and without expectation, a foreign accent may impede comprehension.

Lastly, a research question asked whether a foreign-accented professor would become easier to comprehend over time. Our results indicated that he or she does not. This result is a reflection of Floccia et al's (2009) study, in which participants comprehended regional speech faster than foreign-accented speech despite repeated exposures, suggesting that comprehension of foreign-accented speech does not benefit from the mere exposure effect.

Strengths of the Present Study

Despite the statistics indicating that Asian Indian immigrants have become a considerable presence in the U.S. and particularly in its colleges and universities (IIE, 2009), little research has been conducted in the area of affective or cognitive reactions to, or comprehension of an Asian Indian-accented instructor. Consequently, an important strength of this study is its contribution to the foreign-accent literature on Asian Indian accents in the classroom.

Another strength of the present study was its use of the matched-guise technique (Lambert, 1967), in which a single individual produces multiple language conditions. Because the speaker is held constant, this technique has the capacity to control for such factors as voice quality, pitch, tone, and rate. This is an advantage when presenting the language conditions because we know participants are not reacting to idiosyncratic differences in individual speech patterns, but to the variables we are attempting to measure.

The fact that the present study was conducted on a diverse university campus was also a strength in our research. Despite this heterogeneity, we found no major effects of gender, generation, or ethnicity on the measured variables. It is also interesting to note that, despite the diversity of cultures, opinions, and experiences, participants reacted to the foreign-accented speaker in a very similar way.

Limitations and Future Research

The present study, however, is not without its weaknesses. Despite the strength of the matched-guise technique in controlling for the characteristics of different speakers' vocalization, the accent condition was produced by a bilingual, though standard American English speaking individual, and thus the accent may not represent a true Asian Indian accent. In fact, when asked to identify the accent in the Asian Indian accent condition, one participant answered "White pretending to be Indian." Though this was the only instance of such a response, it does indicate a critical shortcoming in the use of a feigned accent that may have been apparent to other participants as well. In future experiments, the conspicuousness of such unnatural accents may be remedied in part,

perhaps, with a greater amount of vocal training for the individual producing the accent. In addition, the verbal-guise technique could be used. As noted by Hosoda and Stone-Romero (2010), the use of different individuals to produce each different language condition provides the important benefit of applying genuine foreign accents to the study.

The second limitation was that the present study used only one type of accent. We are thus unable to conclude that the results of the present study are generalizable to other foreign-accented instructors, particularly those with Asian accents (e.g., Chinese, Japanese, Korean). More than three-quarters of the participants in this study correctly identified the speaker's ethnicity in the accent condition (83.1% at Time 1; 76.6% at Time 2), suggesting that stereotypes about Asian Indians may have been triggered in their responses. However, there is evidence to suggest that Asian accents as well as several other varieties of foreign-accented speech (e.g., British, French; Cargile & Giles, 1998; Hosoda & Stone-Romero, 2010) are evaluated similarly because of their perceived position in U.S. society as being competitive and of equal status. In other words, it is reasonable to assume that reactions based on Asian Indian stereotypes might be similar to the reactions based on, for example, Chinese stereotypes. Therefore, it is possible that the results of the current study might be generalizable to other accents perceived as similarly competitive to Asian Indians. Further research might explore this possibility by examining other varieties of non-standard English in educational settings as well as the context of the mere exposure effect.

Similarly, only one strength of accent (moderately heavy) was measured. Past research (e.g., Cargile & Giles, 1998; Bresnahan et al., 2002) has reported that a

speaker's moderately heavily, or disfluent accented speech has prompted varying reactions to the speaker. In addition to the different varieties of foreign-accented speech, different intensities of foreign-accented speech could also be included in any future inquiries about the effects of foreign-accented speech on cognitive and affective reactions as well as student learning outcomes.

Additionally, passage topic may have been a limitation to our experiment. Selection of the two passages (cats and dogs and air pollution) used in the present study considered ease of understanding, language use, and length. But as Gill and Badzinski (1992) noted, a foreign accent had no effect on the information recalled from a message about classes of cartoons, but affected recall in a message about wine-producing regions of the world such that participants recalled more information from the foreign-accented speakers than the standard American English-accented speakers. It is possible that our chosen topics may have encouraged or discouraged a certain response. Given that Asian Americans stereotypically excel in math and the sciences (Tran & Birman, 2009), an individual of this group may be perceived as being particularly knowledgeable about these topics and may command greater respect and attention when speaking about them. A passage about calculus, for example, might have produced greater comprehension and more positive cognitive evaluations than the passage about cats and dogs or air pollution in the foreign-accent condition. However, this interpretation is speculative. Thus, additional investigation into the areas of passage topic and content is needed in foreign-accent research.

Another potential shortcoming of the study involves the numbers of times students were exposed to the speakers. It is possible that the two separate exposures were not sufficient enough to familiarize participants with the Asian Indian accent to evoke more positive reactions than the initial exposure did. In fact, it is common to include three or more exposures (e.g., Zebrowitz et al., 2008), and even upwards of 10 exposures to foreign accents (e.g., Clark & Garret, 2004; Floccia et al., 2008). Future research may want to increase the number of exposures to ensure that participants have become accustomed to the accent. In addition, while the mere exposure effect is said to occur on the cusp of an individual's perceptions, it may nevertheless be interesting to increase the length of time of each exposure to aid in accent familiarity.

Finally, many comparable studies are conducted on mostly ethnically homogenous college campuses, and their results might reflect the fact that a foreign instructor was uncommon to and might have been a cause for uncertainty and discomfort for many of their respondents. The present study, however, was conducted in Northern California, an area where substantial populations of Asian and various other immigrant groups live, and the participating university is uncommonly diverse in terms of foreign students. In the 2009-2010 academic year, the university reported its largest group of enrolled students was of Asian descent (30.2%), followed by Whites (28.5%), Hispanics (17.5%), and Blacks (4.2%). The IIE (2009) reports that the university has the highest enrollment of foreign students among the universities that award master's degrees in the U.S. Thus, given the racially and ethnically diverse composition of the student body, it is reasonable to assume that many of our participants speak another language among each

other, speak language(s) other than English at home, or even speak accented English themselves. Indeed, roughly 48% of participants reported living in a multilingual home. Therefore, it is likely that students at this university are exposed to foreign accents regularly. Our results, therefore, may reveal an uncommonly increased acceptance of foreign-accented faculty that is not representative of the student population as a whole. On the other hand, diversity may not necessarily reflect an increased tolerance of foreign-accented faculty. Research shows that perhaps because of a desire to have a native-born speaker as a language model, foreign-accented students do not want to be taught by foreign-accented professors (Boyd, 2003). Further research is needed to shed light upon this matter.

Practical Implications

Foreign-born faculty and TA's have no doubt altered the composition of academicians in American colleges and universities. Students may evaluate and react to a foreign-accented instructor differently than they would to a standard American English instructor. The existence of this disparity in student reactions creates real and immediate consequences for educational success, which not only have implications for the student, but for workplaces, the media, international relations, and beyond.

Several steps can be taken in order to promote a more productive learning environment in the international classroom. Fitch and Morgan (2003) recommend training not only for foreign-accented instructors, but for students in their classes in order for both groups to better acquaint themselves with the other's teaching and learning experiences. Similarly, colleges and universities should become more proactive in

supporting and encouraging academicians, such as by recognizing their extraordinary accomplishments (Fitch & Morgan, 2003). Learning is, indeed, a collaborative process and as such the commitment to aid professors and students obtain the most from their educational experience should be echoed throughout every level of the institution.

Conclusion

In our investigation into the effects of mere exposure on responses to foreign-accented speech, we examined how affective reactions, cognitive reactions, and comprehension of a foreign-accented instructor were influenced by time. Overall, the present study provides evidence that a foreign-accented instructor was devalued on likability and competence by students in the classroom and is comprehended less than a standard American English speaker. On the other hand, a foreign-accented speaker was judged to be more motivated than a standard American English speaker. While many of these reactions did not change over time, this was not the case for all of them. Negative affect towards the foreign-accented instructor decreased between the first exposure and the second exposure. This finding illuminates the possibility that negative perceptions of foreign-accented instructors may be amended with time. In aiding this process, we recommend training for students and professors and urging educational institutions to take more initiative in supporting them (Fitch & Morgan, 2003). Additional examination of the effects of mere exposure in foreign-accent research is greatly needed. In our increasingly multi-ethnic and multi-lingual classrooms, the consideration we offer to the study of foreign-accented instructors is more critical than ever.

References

- Adank, P., Evans, B. G., Stuart-Smith, J., & Scott, S. K. (2009). Comprehension of familiar and unfamiliar native accents under adverse listening conditions. *Journal of Experimental Psychology: Human Perception and Performance*, 35(2), 520-529.
- Batalova, J. (2005). College-educated foreign born in the US labor force. Retrieved October 1, 2010 from: <http://www.migrationinformation.org/feature/display.cfm?ID=285#4>
- Borjas, G. J. (2000). FTBA and academic performance of undergraduates. *Academic Economic Review: Paper and Proceedings*, 90(2), 355-339.
- Bornstein, R. F. (1989). Exposure and affect: Overview and meta-analysis of research, 1968-1987. *Psychological Bulletin*, 106(2), 265-289.
- Bornstein, R. F. (1993). Mere exposure effects with outgroup stimuli. In Mackie, Diane M. & Hamilton, David Lewis (Eds.), *Affect, cognition, and stereotyping: Interactive processes in group perception* (pp. 195-211). San Diego, CA, US: Academic Press.
- Bornstein, R. F. & D'Agostino, P. R. (1992). Stimulus recognition and the mere exposure effect. *Journal of Personality and Social Psychology*, 63(4), 545-552.
- Boyd, S. (2003). Foreign-born teachers in the multilingual classroom in Sweden: The role of attitudes to foreign accent. *International Journal of Bilingual Education and Bilingualism*, 6, 283-295.
- Bresnahan, M. J., Ohashi, R., Nebashi, R., Liu, W. Y., Shearman, S. M. (2002). Attitudinal and affective response toward accented English. *Language & Communication*, 22, 171-185.
- Cargile, A. C. (1997). Attitudes toward Chinese-accented speech: An investigation in two contexts. *Journal of Language and Social Psychology*, 16, 434-443.
- Cargile, A. C. (2000). Evaluations of employment suitability: Does accent always matter? *Journal of Employment Counseling*, 37, 165-177.
- Cargile, A. C. & Bradac, J. J (2001). Attitudes towards language: A review of speaker-evaluation research and a general process model. In Gudykunst, William B. (Ed.), *Communication Yearbook 25* (pp. 347-382). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.

- Cargile, A. C. & Giles, H. (1997). Understanding language attitudes: Exploring listener affect and identity. *Language and Communication*, 17(3), 195-217.
- Cargile, A. C. & Giles, H. (1998). Language attitudes toward varieties of English: An American-Japanese context. *Journal of Applied Communication Research*, 26, 338-356.
- Cargile, A. C., Giles, H., Ryan, E. B., & Bradac, J. J. (1994). Language attitudes as a social process: A conceptual model and new directions. *Language and Communication*, 14, 211-236.
- Center For Immigration Studies (2007). Immigrants in the United States, 2007: A profile of America's foreign-born population. Retrieved June 17, 2010 from: http://www.cis.org/immigrants_profile_2007
- Clarke, C. M. & Garrett, M. F. (2004). Rapid adaptation to foreign-accented speech. *Journal of Acoustical Society of America*, 96, 2108-2120.
- Crisp, R. J., Hutter, R. R. C., & Young, B. (2009). When mere exposure leads to less liking: The incremental threat effect in intergroup contexts. *British Journal of Psychology*, 100, 133-149.
- de Oliveira, E. A., Carlson, T. L., & de Oliveira, S. G. (2009). Students' attitudes toward foreign-born and domestic instructors. *Journal of Diversity in Higher Education*, 2, 113-125.
- Fang, X., Singh, S., & Ahluwalia, R. (2007). An examination of different explanations for the mere exposure effect. *Journal of Consumer Research, Inc.*, 34, 97-103.
- Fechner, G. T. (1876). *Vorschule der Aesthetik*. Leipzig, Germany: Breitkoff & Hartel.
- Fitch, F. & Morgan, S. E. (2003). "Not a lick of English": Constructing the ITA identity through student narratives. *Communication Education*, 52(3/4), 297-310.
- Flesher, B., Hashimoto, H., & Weinberg, B. A. (2002). Foreign GTAs can be effective teachers of economics. *Journal of Economic Education*, 33(4), 299-325.
- Floccia, C., Butler, J., Goslin, J., & Ellis, L. (2009). Regional and foreign accent processing in English: Can listeners adapt? *Journal of Psycholinguistic Research*, 38, 379-412.
- Gill, M. M. (1994). Accent and stereotypes: Their effect on perceptions of teachers and lecture comprehension. *Journal of Applied Communication Research*, 22, 348-361.

- Gill, M. M., & Badzinski, D. M. (1992). The impact of accent and status on information recall and perception formation. *Communication Reports*, 5, 99-106.
- Grieco, E. (2004). Educational attainment of the foreign born in the United States. Retrieved October 1, 2010 from: <http://www.migrationinformation.org/Feature/display.cfm?ID=234#5>
- Hamilton, D. L. (1981). *Cognitive processes in stereotyping and intergroup behavior*. Hillsdale, NJ, USA: Erlbaum.
- Hosoda, M. & Stone-Romero, E. F. (2010). The effects of foreign accents on employment-related decisions. *Journal of Managerial Psychology*, 25(2), 113-132.
- Hosoda, M., Stone-Romero, E. F., & Walter, J. N. (2007). Listeners' cognitive and affective reactions to English speakers with standard American English and Asian accents. *Perceptual and Motor Skills*, 104, 307-326.
- Institute of International Education (2009). Open doors fast facts: International students in the U.S. Retrieved June 17, 2010 from: <http://opendoors.iienetwork.org/>
- Jacobs, L. J., & Friedman, C. B. (1988). Student achievement under foreign teaching associates compared with native teaching associates. *Journal of Higher Education*, 59, 551-563.
- Kavas, A., & Kavas, A. (2008). An exploratory study of undergraduate college students' perceptions and attitudes toward foreign accented faculty. *College Student Journal*, 42, 879-890.
- Lambert, W. E. (1967). A social psychology of bilingualism. *Journal of Social Issues*, 23(2), 91-108.
- Lee, T. L. & Fiske, S. T. (2006). Not an outgroup, not yet an ingroup: Immigrants in the stereotype content model. *International Journal of Cultural Relations*, 30, 751-768.
- Marvasti, A. (2005). U.S academic institutions and perceived effectiveness of foreign born faculty. *Journal of Economic Issues*, 39(1), 151-176.
- Munro, M. J. & Derwing, T. M. (1995). Foreign accent, comprehensibility, and the intelligibility in the speech of second language learners. *Language Learning*, 45(1), 73-97.

- Munro, M. J. & Derwing, T. M. (1995). Processing time, accent, and comprehensibility in the perception of native and foreign-accented speech. *Language and Speech*, 38(3), 289-306.
- Nesdale, A. R., & Rooney, R. (1990). Effect of children's ethnic accents on adults' evaluations and stereotyping. *Australian Journal of Psychology*, 42, 309-319.
- Norris, D., McQueen, J. M., & Cutler, A. (2003). Perceptual learning in speech. *Cognitive Psychology*, 47, 204-238.
- Pew Research Center (2008). U.S. Population Projections: 2005-2050. Retrieved June 17, 2010, from: <http://pewhispanic.org/reports/report.php?ReportID=85>
- Rao, N. (1995, May). The "oh no!" syndrome: A language expectation model of undergraduate negative reactions toward foreign teaching assistants. Paper presented at the 79th Annual Meeting of the International Communication Association, Albuquerque, NM.
- Robinson, A. & Katzman, J. (2005). *Cracking the SAT*. New York, NY, USA: Random House, Inc.
- Rubin, D. L. & Smith, K. A. (1990). Effects of accent, ethnicity, and lecture topic on undergraduates' perceptions of nonnative English-speaking teaching assistants. *International Journal of Intercultural Relations*, 14, 337-353.
- Ryan, E. B. & Bulik, C. (1982). Evaluations of middle class speakers of standard American and German-accented English. *Journal of Language and Social Psychology*, 1, 51-61.
- Sebastian, R., Ryan, E., Keogh, T. and Schmidt, A. (1980). The effects of negative affect arousal on reactions to speakers. In H. Giles, W. Robinson, and P. Smith (Eds.), *Language: Social Psychological Perspectives* (pp. 195-213). Oxford: Pergamon Press.
- Stewart, M. A., Ryan, E. B., & Giles, H. (1985). Accent and social class effects on status and solidarity evaluations. *Personality and Social Psychology Bulletin*, 11(1), 98-195.
- Tran, B. & Birman, D. (2009). Questioning the model minority: Studies of Asian American academic performance. *Asian American Journal of Psychology*, 1(2), 106-118.

U.S. Census Bureau (2010). Race and Hispanic origin of the foreign-born population in the United States: 2007. Retrieved June 17, 2010 from:
<http://www.census.gov/prod/2010pubs/acs-11.pdf>

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, *54*(6), 1063-1070.

Zajonc, R. B. (1968). Attitudinal effects of mere exposure. *Journal of Personality and Social Psychology Monographs*, *9*(2, 2), 1-27.

Zebrowitz, L. A., White, B., & Wieneke, K. (2008). Mere exposure and racial prejudice: Exposure to other-race faces increases liking for strangers of that race. *Social Cognition*, *26*(3), 259-275.

Appendix A

Description of a Prospective Professor

You are about to hear a passage presented by a female student who is about to complete her doctoral degree (Ph.D.) at a large state university. She intends to pursue a career in teaching upon graduation. She has experience working as a teaching assistant. She is in the process of applying for a teaching position at a university.