Perceptions of College Instructors Toward Accented English Measured by the Auditory Multifactor Implicit Association Test

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Perceptions of College Instructors Toward Accented English Measured by the Auditory Multifactor Implicit Association Test

by

Eunkyung Na

A dissertation submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy in Curriculum and Instruction with an emphasis in Adult Education Department of Leadership, Counseling, Adult, Career, and Higher Education College of Education University of South Florida

Major Professor: Waynne B. James, Ed.D.
Jeffrey D. Kromrey, Ph.D.
Tony X. Tan, Ed.D.
William H. Young III, Ed.D.

Date of Approval: March 22, 2016

Keywords: Implicit language attitudes, accent bias, nonnative English speakers

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Dedication

I dedicate this to three men who have had profound influence on me:

Drs. Wonwha Na, Charles W. Voris, and Michael K. Voris
Acknowledgments

I would like to thank my committee members with all my heart for helping me with this process. Dr. William Young has been a positive force. Dr. Tony Tan set the sky as my limit early on. Without his patient guidance, this research would not have been possible. Dr. Jeffrey Kromrey provided me with a solid statistical foundation through earlier coursework. His keen observation and timely advice made significant improvements to this research study. And my major professor, Dr. Waynne James… she was there for me every step of this journey. Words cannot describe my gratitude to Dr. James.

I would also like to thank Drs. Phil Smith, Sarah Kiefer, Vonzell Agosto, and Deidre Cobb-Roberts for their continued care and support for many years.

I would like to thank my fellow doctoral students and friends, Gianina Hayes, Kelly McCarthy, Arthur “Ray” McCrory, Robert Miller, Diep Nguyen, and Thanh Pham for sharing many stressful and joyful moments with me.

Special thanks to Travis Marn and Rica Ramirez, my IAT research mates. They have tirelessly collected the data for me during the training years, tested new instruments numerous times, and lent me sympathetic ears when things got tough.

I also want to thank the faculty and teaching assistants who participated in this study.

Finally, my husband, Michael Voris. I could not have accomplished this without his loving support and encouragement. Thank you!!
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Abstract

The purpose of this study was to examine the implicit language attitudes of college-level instructors toward accented English and the effect of gender, teaching experience, and home language background on those attitudes. The auditory multifactor Implicit Association Test (IAT) was used to measure the implicit attitudes toward Standard, Chinese, Hispanic, and Korean accented English. For the current study, audio stimuli were embedded into the multifactor IAT, which became available for the first time in 2014. The auditory multifactor IAT generated implicit preference scores of six pairs of accented English: Standard vs. Chinese, Standard vs. Hispanic, Standard vs. Korean, Chinese vs. Hispanic, Chinese vs. Korean, and Hispanic vs. Korean accented English.

Participants (N = 93) included college instructors at an urban university in Florida. Statistical analysis results suggested that college instructors in this study exhibited some bias towards speakers of Hispanic-accented English, but no bias toward the other five. However, analysis of the frequency distributions of the responses showed bi-polar accent biases did exist. It was possible that the similar numbers for the polar opposites balanced each other in the statistical results of no bias. Gender and home language background had no effect on implicit preference scores. The years of teaching experience had significant effect in Hispanic vs. Korean-accented English, but not in the other five accented language pairs. However, close examination of the beta coefficient per year indicated that the relationship was weak even though the effect was significant.
Faculty, administrators, and students could use test results as a topic of
discussion in faculty development, teaching assistant training, student services, and
diversity training in higher education institutions. The discussions might help awareness
of hidden-yet-present accent bias and prevent potential prejudice toward other accented
English speakers.

The administrators need to be aware that preferences do exist toward accented
English speakers. These preferences--or biases--toward an accent may be important in
selecting instructors.
Chapter 1

Introduction

Language is more than just a tool to convey messages among humans. It instantly establishes a speaker’s social identity just as with gender or race (Lippi-Green, 2012). A person’s spoken language identifies the speaker’s national and cultural group memberships (Lambert, Hodgson, Gardner, & Fillenbaum, 1960). In a similar fashion, accented language can reveal an even more important part of speaker’s social identity and other information about them such as national origins, homelands, ethnicities, or social classes (Edwards, 1999; Giles & Johnson, 1987; Gluszek & Dovidio, 2010a; Lippi-Green, 2012; Neuliep & Speten-Hansen, 2013).

A listener’s evaluative reactions (i.e., attitudes) to language varieties whether it be accent types associated with standard accent, regional accent, or nonnative accent reflect the listener’s language attitudes. Previous research (Fuertes, Gottdiener, Martin, Gilbert, & Giles, 2012; Lambert et al., 1960; Nesdale & Rooney, 1996) has supported this notion by showing that listeners tended to make value judgments and formed linguistic prejudices based on the speaker’s spoken language. The listeners even attributed certain group traits to an individual speaker based on the perception of what group the listeners thought the speaker belonged to, based on their speech alone (Lambert et al., 1960; Tajfel & Turner, 1986).

Lambert et al. (1960), pioneers of contemporary language attitudes study in the social psychology field, conducted seminal research about attitudes toward Canadian
English and French speakers among subjects in Montreal, Canada. Montreal is a city where English-speaking Canadians have the dominant position. Their findings showed that speakers of both non-stigmatized language (a language spoken by a socially dominant group or a language perceived to be more prestigious, i.e., English in Montreal) and stigmatized language (a language spoken by a socially less dominant group or a language perceived to be less prestigious, i.e., French in Montreal) held prejudiced attitudes toward the stigmatized language. Language attitudes research since then has shown that individuals who spoke a language with a nonnative accent were perceived more negatively than were those with a native accent (Bradac, 1990; Brown, 1992; Edwards, 1999; Fuertes et al., 2012; Lindemann, 2003, 2005). The data collected in both English-speaking countries and non-English speaking countries showed the same results (Fuertes et al., 2012; Gluszek & Dovidio, 2010b). Particular native regional accents and dialects have also been associated with a range of negative stereotypic trait perceptions and viewed as less intelligent, less loyal, and less competent (Derwing & Munro, 2009; Lippi-Green, 2012).

Language attitudes permeate everyday lives. For example, an American may think a stranger is cultured and refined simply because his or her accent is deemed British (Cargile & Giles, 1997). One study found a speaker with a standard British accent was judged as more competent than a speaker of nonstandard British accent (Giles, Henwood, Coupland, Harriman, & Coupland, 1992). Non-black Americans tend to judge African American Vernacular English (AAVE) as coming from ignorance or stupidity because of a lack of education (Lippi-Green, 2012). Soukup (2001) found that language attitudes toward southern American English were rather negative in
comparison to a more *neutral* accent in America. Even American presidents could not evade language prejudice. Former president Jimmy Carter took a beating and hazing from upperclassmen for his soft southern accent while he was attending the U.S. Naval Academy (Nelson, 2015). Another former president, Bill Clinton, was ridiculed by some for talking like a hillbilly during his 1992 presidential campaign (Kumaravadivelu, 2004).

In the higher education setting, students have complained about nonnative accents of faculty, while on the other hand, they may consider the European accents of an instructor as showing prestige (Wyld, 1996-97). The issues of nonnative accents of graduate teaching assistants who speak English as a second language have become one of the most contentious ones on large college campuses (Lippi-Green, 2012).

As this past research and these examples show, language attitudes clearly impact the cultural, economic, educational, political, and psychological aspects of an individual and society. When it is associated with critical decisions such as those involving jobs, promotions, probations, witness testimonies, tenure, or academic achievement, such prejudiced language attitudes can bias social interactions. However, decision makers (listeners) may not be aware of their negative language attitudes as being a form of discrimination as clearly as they might for the more high-profile issues of gender and race.

Understanding prejudiced linguistic attitudes, particularly toward those speaking nonnative accented English in the United States, has become more important as many highly-educated adults have been coming to America to live, work, and study. The number of foreign born in the United States was nearly 40 million, which was about 13% of the total population (U.S. Census Bureau, 2010a). About 62 million U.S. residents
spoke a language other than English at home (Center for Immigration Studies, 2014) although this did not mean all of them spoke nonnative accented English. The U.S. Census Bureau (2010b) also reported that during 1980-2007 time period, the percentage of speakers of non-English languages increased by 140% while the nation’s overall population grew by 34%. The number of international students has been increased steadily over the years. In 2014-2015 academic year, 974,926 international students studied at U.S. colleges and universities (Institute of International Education, 2016). The number of international scholars working at colleges and universities in the United States as researchers, instructors, and professors also rose to 115,000 in 2010 from 86,000 in 2001 (Foderaro, 2011).

In essence, language is a powerful social force that does more than convey intended referential information (Cargile & Giles, 1997, 1998; Cargile, Giles, Ryan, & Bradac, 1994). Prejudiced language attitudes can negatively impact many people in personal and professional interactions. Therefore, it is important to research language attitudes to highlight and bring more clarity to this issue.

**Statement of the Problem**

There has been a rich body of literature since language attitudes study began in and around 1931. The majority of these studies have focused on listener’s evaluative reactions to a host of accents and languages (Cargile & Giles, 1997). However, researchers have been raising questions about data gathering methods while acknowledging that measuring language attitudes is not an easy task (Agheyisi & Fishman, 1970; Zahn & Hopper, 1985). Language attitudes research has traditionally measured only explicit attitudes through self-reported measures, interviews, and scaled
and weighted measures. However, measuring prejudiced language attitudes with explicit measures might be more difficult due to participants’ concern about social desirability. Listeners may self-report inaccurately to avoid revealing their socially unacceptable attitudes (Hendren & Blank, 2009). In 1960, Lambert and his colleagues developed the Matched Guise Technique (MGT) to capture socially stereotyped impressions on language varieties and it has been widely used since then. In the MGT procedure, one speaker who had equal fluency in chosen language varieties read the same neutral-content passage of prose. Listeners evaluated the tape-recorded speech not knowing that the same person was using realistic guises (external presentations) of the particular accents, dialects, and languages under study. Care was taken to ensure that the listeners perceived those guises as authentic.

In 1998, Greenwald, McGhee, and Schwartz introduced a more advanced instrument called the Implicit Association Test (IAT). The implicit attitudes are the attitudes people do not express openly or even realize they hold while explicit attitudes are the ones people are consciously revealing. Greenwald and Banaji (1995), in introducing the IAT for the first time, defined the implicit attitudes as introspectively unidentified or inaccurately identified traces of past experiences that mediate favorable or unfavorable feeling, thought, or action toward social object. Banaji and Greenwald (2013) claimed that the effectiveness of the IAT lies in the premise that individuals hold stereotypes or biases as a result of the accumulated past experiences stored in the human brain. They further explained that the participants cannot set aside these established stereotypes while they perform the IAT tasks.
The IAT has been used as a tool to measure implicit attitudes of people toward race (Baron & Banaji, 2006), age (Levy & Banaji, 2002), sexuality (Steffens, 2005), and other social concepts. The audio stimuli have been used in the IAT to assess listener’s implicit attitudes toward accented speakers in several studies. This approach might uncover discrepancies in language attitudes that are not easily captured with other types of measures.

In addition, there has been a lack of research on accent-based implicit language attitudes of instructors in the higher education environment. This may pose a problem for nonnative-accented English speakers as there may be consequences of hidden prejudice that can negatively impact teacher-student interactions.

**Statement of Purpose**

The purpose of this study was to examine the implicit language attitudes of college-level instructors toward accented English. This study used a computer-based auditory multifactor Implicit Association Test (IAT). This study was the first auditory multifactor IAT used in the research of attitudes toward accented English in the higher education environment.

**Research Questions**

The main purpose of this study was to examine implicit attitudes toward accented English among instructors in higher educational settings. Four types of accented English (Standard, Chinese, Hispanic, and Korean) were used for the purpose of this study. The following specific research questions guided this study to achieve these purposes:
1. What are the implicit preferences of college instructors toward accented English as measured by the auditory multifactor Implicit Association Test (IAT)?
2. Do these implicit preferences differ by gender of the college instructors?
3. Do these implicit preferences differ by years of teaching experience of the college instructors?
4. Do these implicit preferences differ by language background of the college instructors?

Theoretical Framework

The Social Identity Theory (SIT) served as the theoretical framework of this study. The SIT assumes individuals tend to categorize the social world and perceive their social identities as group members (Tajfel & Turner, 1986). Various group memberships may include gender, race, age, nationality, ethnic group, religion, occupation, and socioeconomic status. According to Tajfel (1982), social identity is a part of the individuals’ self-concept which derives from their knowledge of their memberships in a social group or groups together with the value and emotional importance of that membership. The SIT involves intergroup relations between in-groups (our own groups) and out-groups (other groups). Tajfel (1982) argued that individuals vied for positive social identity by striving to achieve favorable comparison with out-groups. Language is one of the categories in which individuals acquire positive social identities.

In this study, the SIT was relevant as more language attitude research has been based on an intergroup (relationship between an in-group and out-groups) perspective (Ryan, 1983). In addition, language influences the perceptions of others (Giles &
Johnson, 1981) and the language varieties speakers use, particularly accents and
dialects, influences the perceptions of listeners (Eisenstein, 1983; Fishman, 1977;
studies have indicated nonnative accented speech signaled in-group and out-group
membership status (Bresnahan, Ohashi, Nebashi, Liu, & Shearman, 2002; Reid &
Giles, 2005). Listeners quickly make judgments or evaluations of what they had
perceived. According to Fuertes et al. (2012), it has been an accepted fact that
evaluative judgments are formed by listening to an utterance of one word such as
“hello.” Most studies of language attitudes in the SIT framework, then, would be about
the social perceptions of the speakers of the language variety and/or accent or the
group the speakers belonged to rather than the language variety itself (Edwards, 1999;
Giles & Billings, 2004; Giles & Ryan, 1982).

Significance of the Study

The higher education environment in America has become multicultural, diverse,
and multilingual as many adults from different parts of the world have been coming to
colleges and universities in America to work and to study. Understanding language
attitudes of college instructors toward accented English has become important and
necessary. However, language attitude studies in college levels are mostly perceptions
of students about instructors (Garrett, 2010). There was a lack of research about
language attitudes of college instructors toward accented English.

This study attempted to access hidden language attitudes of college instructors
using an indirect measuring instrument and bring this knowledge to the educational
arena. This would provide an opportunity to improve teacher-student interactions, teaching practices, and teacher education.

**Limitations of the Study**

For the audio clips of the instrument, auditory multifactor IAT, attempts were made to control voice tone, accent strength, and speech rate of four accented English speakers.

**Delimitations of the Study**

Participation was limited to the full-time and part-time faculty members and paid graduate teaching assistants in a public university in an urban area in the Southeastern United States. This study was delimited to four types of accented English (Chinese-, Hispanic-, Korean-, and Standard-accented English) by male speakers. The findings may neither be generalizable to other types of accents nor any accented English spoken by female speakers.

**Definition of Terms**

The following terms used in this research were operationally defined as:

**Accent:** Distinctive way of speaking that involves elements of prosodic features (intonation, pitch, stress patterns, and rates of speaking) and segmental features (vowels and consonants).

**Attitude:** A learned disposition to respond favorably or unfavorably to a stimulus or class of stimuli. It is relatively stable, long-lasting. Attitude is not easily observable and expresses itself through more explicit forms such as beliefs, stereotypes, and value judgments.
Explicit attitudes: Conscious awareness of a particular attitude and how the attitude is expressed.

Implicit attitudes: Introspectively unidentified traces of past experience that mediate favorable or unfavorable feeling, thought, or action toward a social object (Greenwald & Banaji, 1995).

Implicit preferences: Automatically activated judgments of favoring or liking to a stimulus or a class of stimuli without the participant’s voluntary control of responses.

Instructors: Full-time and part-time (including adjunct) faculty members and paid graduate teaching assistants.

L1: Acronym for language one referring to a first or native language. The language a person learned as a child at home usually from their parents.

L2: Acronym for language two referring to a second or nonnative language.

Language attitudes: People’s views, reactions, and value judgments to different language varieties or their speakers.

Nonnative accent: Distinctive way of speaking salient in people who learned a language as a second language or foreign language. It involves elements of prosodic features such as intonation, pitch, stress patterns, and rates of speaking, and segmental features such as vowels and consonants. These specific language traits may be the result of the L1 (native language) interference to L2 (second language), not from pathological origin.

Prejudice: Any preconceived negative attitudes, feelings, or opinions formed without knowledge, thought, or reason.
Regional accent: Language variations that are usually marked over geographic area (i.e., dialect). Examples include an Appalachian accent, a Southern accent, or a New York accent. Also included in regional accent are social features accent such as Black accents and Native American Indian accents, and other social identities accents marked by race, ethnicity, income, religion, and gender.

Response latencies: In the Implicit Association Test (IAT), response latencies refer to the time it takes for a participant to categorize the stimuli.

Standard accent: The way the majority of the population speak. It is often associated with high socioeconomic status, power, and is used in the media (Giles & Billings, 2004).

Stereotype: A cognitive representation or impression of a social group that stems from the association of particular characteristics with that group (Garrett, 2010).

Organization of Study

Chapter 1 describes the statements of the problem and purpose, research questions, theoretical framework, significance of the study, limitations, delimitations, and operational definitions of terms used in this study. Chapter 2 reviews the pertinent literature related to the study. The literature review includes these major strands: (a) structure of attitudes, (b) importance of language attitudes, (c) attitudes toward nonnative-accented English, (d) evaluative dimensions of accented speech, (e) language attitudes and accent research, and (f) measuring language attitudes. The last section is a summary of the chapter. Chapter 3 presents a rationale for the research methods used in this study. This includes the research design, population and sample, instrumentation, data collection process, and data analysis procedures. The last
section is a summary of the chapter. Chapter 4 presents the findings of this study. It includes the research design, demographic characteristics, of the study participants, findings of the research questions, observations, and summary. Chapter 5 includes the summary, conclusions, implications, and recommendations for further research.
Chapter 2  
Review of Related Literature

The purpose of this study was to examine the implicit language attitudes of college instructors toward accented English. This chapter provides a review of literature relevant to this study in six major strands. The first section is a summary of literature about the structure of attitudes. The second section provides an overview of importance of language attitudes. The third section provides a summary of attitudes toward nonnative-accented English. The fourth section provides an overview of evaluative dimensions of accented speech. The fifth section provides a summary of literature about language attitudes and accent research. The sixth section includes literature about measuring language attitudes. The final section is a summary of the chapter.

Structure of Attitudes

The term attitudes is a key construct in social psychology (Baker, 1992; Jaspars, 1978; Oppenheim, 1982). According to Garrett (2010), there is a rich body of literature about attitudes.

Baker (1992) posited three reasons for the importance of attitudes. First, the word attitude is widely used by the general public, as well as being a term used by scholars of social psychology. Although the meaning of the word to the general public may not have the rigor and narrowness of the one used by scholars, the definitions are
close enough to allow a strong point of connection between scholarly theory, research, practice, and public policy. Second, because of the wide usage and common understanding of the concept of attitudes, surveys of attitudes have become indicators of the current views and beliefs held by individuals, a community, and the public in general. Surveyed attitudes provide signs of changing beliefs that may affect important societal issues and public policies. Third, the concept of attitudes has proven itself to be useful and has been developed into valuable tools in scholarly theory building and research. In other words, it has withstood the test of time. These three reasons provide support for the importance and use of attitudes in understanding the beliefs of people about language.

**Nature of an attitude.** Attitude is a psychological and hypothetical construct that indicates human behavior. According to Garrett (2010), many have attempted to define attitude, but it has been challenging to explain the concept clearly. Among the many attempted definitions, the one by Allport has been the most frequently cited one (Garrett, 2010, p.19): “Attitude is a learned disposition to think, feel and behave toward a person or object in a particular way.” Agheyisi and Fishman (1970) claimed that practically everybody believed attitude was a learned disposition. Other researchers agreed that an attitude was a favorable or unfavorable predisposition to a stimulus or a class of stimuli (Ito & Cacioppo, 2007; Sarnoff, 1970). Oppenheim (1982) viewed an attitude as a psychological construct and offered a more elaborate definition:

> An attitude is a construct, an abstraction which cannot be directly apprehended. It is an inner component of mental life which expresses itself, directly or indirectly, through much more obvious processes as stereotypes, beliefs, verbal statements or reactions, ideas and opinions, selective recall, anger or satisfaction or some other emotion and in various other aspects of behavior. (p. 39)
To summarize the characteristics of an attitude from the above definitions, an attitude is a learned disposition, is relatively stable and long-lasting, and is an evaluative orientation to a stimulus or class of stimuli. An underlying attitude is not easily accessible and expresses itself through more explicit forms such as beliefs, stereotypes, and value judgments.

**Attitude formation.** Numerous researchers seem to agree that attitude is a psychological construct that had three components: cognition (knowledge, thoughts, and beliefs), affect (feelings and evaluations), and behavior (action) (Agheyisi & Fishman, 1970; Baker, 1992; Bradac, Cargile, & Hallett, 2001; Cargile et al., 1994; Garrett, 2010). Ajzen and Fishbein (1980) proposed a three-component model of attitude. This model shows a hierarchical form with the three components of cognition, affect, and behavior at the foundation and they merge into one construct of attitude at the top level.

Regarding how attitudes are formed, the explanation by Bradac et al. (2001) is relevant to the current study of language attitude. They delineated three sources of attitudes: cultural, functional, and biological factors. For cultural factors, they claimed certain views and beliefs were more valued in certain cultures and children learned these types of preferences at an early age. According to Bradac et al. (2001), attitudes also arose from functional factors such as people using attitudes to manage their complex social world in an orderly and predictable way. Attitudes which are more functional in a person’s life, even if they are biased ones, will endure longer. Lastly, for the biological source of attitudes, Bradac et al. (2001), argued that humans were born with tendencies to judge objects and situations.
Knowing the elements of how people view attitudes that hold importance may help explain and predict their behavior in different contexts at different times. Boninger, Krosnick, and Berent (1995) conducted studies and established three sources of attitude importance: social identity, value reference, and self-interest. First, attitudes that affected social identity with social groups were deemed important. Second, attitudes related to values such as equality, democracy, and capitalism held importance. Third, attitudes relevant to self-interest such as lifestyles, material benefit, and cost-cutting were viewed as important. Boninger et al. (1995) explained attitudes that held importance were the ones that resulted in more stability and were more resistant to change.

**Attitude and behavior.** The relationship between attitudes and behavior, specifically regarding predictive validity of behavior, is a very important issue in attitudes research (Garrett, 2010). Numerous researchers have frequently investigated the congruence between attitudes and behavior, but many concluded that there was little or sporadic research evidence of a link between the two (Festinger, 1964; Kim & Hunter, 1993; Wicker, 1969). Baker (1992) presented the most famous example of a weak link between attitudes and behavior using the research conducted by LaPiere in 1934 when there was considerable prejudice against Asians in the USA. According to Baker (1992), LaPiere traveled with a Chinese couple and stayed at 66 hotels and dined at 184 restaurants. They were refused service only once. A letter sent to these same establishments six months later revealed that 92% said they would refuse to serve a Chinese couple.
Some later attitudes research showed stronger relationship between attitudes and behavior than previous research claimed. Garrett (2010) posited there were many situational constraints on attitudes along the path leading up to behavior. Ajzen and Fishbein (1980) asserted attitudes and behavior were likely to be more strongly linked when they were both defined and investigated at a similar level of specificity. Ajzen and Fishbein (1977) found strong association between attitudes and behavior where target and action measurement were highly correlated. Kim and Hunter (1993) conducted a meta-analysis of attitudes and behavior studies leading up to 1993 and concluded there was a strong relationship between attitudes and behavior when attitudinal relevance existed. Kim and Hunter also suggested methodological problems of sampling and measurement errors as the reason why many investigators found no relationship between attitudes and behavior.

**Importance of Language Attitudes**

Language attitudes, positive or negative, refer to people’s views, reactions, and value judgments to different language varieties and speech styles or to their speakers. According to Ryan, Giles, and Sebastian (1982, p. 7), language attitudes are defined as “any affective, cognitive, or behavioral index of evaluative reactions toward different language varieties or their speakers.” Language attitudes are not stable entities, but they are dynamic and fluctuate depending upon social situations (Garret, 2010). Bradac (1990) explained the process of how listeners perceived salient and influential language attitudes during their initial interactions with speakers. He also detailed the various linguistic features that trigger beliefs (i.e., her way of talking leads me to think she is a professor) and evaluations (i.e., she is intelligent) in listeners regarding speakers and
that these beliefs and evaluations are most likely to affect behaviors of listeners toward
speakers in context of low mutual familiarity. In this sense, the study of language
attitudes is an attempt to understand the processing and dispositions of people toward
various language varieties and subsequent reactions toward users of such forms
(Cargile et al., 1994).

At the macro sociological level, the perceptions of language telecast on media
have a large role in shaping the culture and society, and at the micro level, language
varieties and styles of speech influence interpersonal relationships and communicative
behaviors (Giles & Billings, 2004). Language attitudes and their impact on social
decision making are directly related to everyday life and social interactions. In
educational settings, at the K-12 level, children’s poor speech may lead teachers to
make negative inferences about their personalities, social backgrounds, and academic
achievement are well-researched (Giles & Billings, 2004). In recent years, the research
on the effect of language attitudes and nonnative accent in the healthcare (Rubin,
Healy, Gardiner, Zath, & Moore, 1997), employment (Giles, Wilson, & Conway, 1981;
Purkiss, Perrewé, Gillespie, Mayes, & Ferris, 2006), criminal justice (Dixon, Mahoney,
& Cocks, 2002; Frumkin, 2007) and housing (Massey & Lundy, 2001; Rice, 2006) areas
has been emerging.

**Process in language attitudes.** In the current study, the process of triggering
beliefs about linguistic varieties in listeners is explained using the Social Identity Theory
(SIT) (Tajfel & Turner, 1986). According to the SIT, individuals tend to categorize the
social world to maintain order and perceive their social identity as group members.
Group memberships may include, but are not limited to, educational attainment, gender,
language varieties, professional groups, race, and social class. This social
categorization makes it easier to predict, navigate, and negotiate within the complex
and unfamiliar social milieu. The SIT involves intergroup relations between an in-group
and other out-groups. Tajfel (1982) asserted that, at the intergroup level, individuals
vied for positive social identity by striving to achieve favorable comparison with out-
groups. Tajfel and Turner (1986) collected evidence from the findings of numerous
researchers including themselves about intergroup relationships and concluded,

> the mere perception of belonging to two distinct groups--that is, social
categorization per-se, is sufficient to trigger intergroup discrimination favoring
the in-group. In other words, the mere awareness of the presence of an out-
group is sufficient to provoke intergroup competitive or discriminatory
responses on the part of the in-group. (p. 13)

In linking the above statement to this study, perceptions of nonnative-accented
speech could trigger beliefs about a speaker and group membership by a listener and
provoke intergroup competitiveness and desire for in-group favor and out-group
discrimination. Stereotypes, a cognitive representation of a social group that stems
from the association of particular characteristics with that group (Garrett, 2010), may be
used to enhance this discrimination.

**Attitudes Toward Nonnative-accented English**

Everyone, native or nonnative speaker, has an accent (Derwing & Munro, 2009;
Gluszek & Dovidio, 2010b; Lippi-Green, 2012; Matsuda, 1991). However, even the
linguists have had difficulty in defining the word accent accurately. Pennington (1996)
expressed her frustration and declared it was impossible to define the construct called
accent clearly. Lippi-Green (2012) attempted to define an accent as a loose reference
to a specific *way of speaking*. According to Lippi-Green, an accent involves two widely
recognized elements: prosodic features (intonation, pitch, stress patterns, and rates of speaking) and segmental features (vowels and consonants).

Lippi-Green emphasized the importance of distinguishing between the two types of accents: First Language (L1) accent and Second Language (L2) accent. In case of America, L1 accent is the native variety of spoken American English. According to Lippi-Green, every native speaker of American English has an L1 accent. L1 accent is usually marked by geographic area with examples such as Appalachian accent, Southern accent, and New York accent. L1 accent is also marked by social features such as Black accents and Native American Indian accents and further by other social identity accents such as race, ethnicity, income, religion, and gender.

L2 accent, which is the focus of this study, includes prosodic features (intonation, pitch, stress patterns, and rates of speaking) and segmental features (vowels and consonants) distinctive in people who learned English as a second language or a foreign language. L2 accent is usually the result of the L1 interference, which means prosodic and segmental features of the native language transfer into the second language (Lippi-Green, 2012; Parker & Riley, 2010). It is worth repeating that language attitudes are closely related to the listeners’ evaluative judgment of speakers (Bradac et al., 2001). Therefore, in language attitude studies including this one, how listeners perceive L2 accent is more meaningful than how an individual speaks with the L2 accent.

L2 accent, referred to as nonnative accent in this study, is an extremely salient feature among speech varieties (Major, 2007; Scovel, 1988). Many studies have shown people could accurately detect nonnative accent (Derwing & Munro, 2009). Flege
(1984) found American listeners were able to detect French-accented English speakers reliably on the basis of 30-millisecond speech. Major (2007) conducted a research on accent detection in languages people did not speak. The result of that study showed people could distinguish nonnative from native accent in languages they did not even speak. The meta-analysis of 20 published accent studies indicated that the effect of accents in social evaluations was very strong with the effect size of $d = 0.82$ (Fuertes et al., 2012). Fuertes et al. (2012) claimed listeners made evaluative judgments as soon as they heard a single word such as “hello.”

**Accent acquisition of adults.** Researchers generally agree that the majority of adults who learn a second language will speak with an accent with very few exceptions (Derwin & Munro, 2009; Scovel, 1988). Many researchers explained the importance of the start age of L2 acquisition for an accent-free L2, but the critical age varied slightly according to researchers (Tahta, Wood, & Loewenthal, 1981). Scovel (1988) suggested that nearly all individuals who started learning L2 after the age of 12 had a detectable accent. Tahta et al. (1981) presented the following accent study results and claimed their results matched well with those of other studies: accent-free L2 if L2 is acquired by age 6, slight accent if acquired by the ages 7-11, and usually very marked accent if acquired after the ages 12-13. Their study showed the chances to speak accent-free L2 were minimal if L2 was acquired past the language acquisition period. In addition, levels of nonnative accent, from light to heavy, correlated with number of factors such as age of L2 acquisition, formal L2 instruction, gender, length of residence in L2 country, L2 use at home, and experience (Major, 2007; Tahta et al., 1981).
The above studies implied that adults who started to learn English after the ages of 12-13 had to speak with their nonnative accents all their adult lives. Considering the strong effect of accents in social evaluations (Fuertes et al., 2012), this could be a huge disadvantage to these adult speakers as they would be evaluated initially based on nonnative accent. The disadvantage would be greater with the impact of accent by context. The study result by Fuertes et al. (2012) indicated standard accent was favored with much stronger effect in formal and high stakes contexts such as job interviews and sales positions.

**Evaluative Dimensions of Accented Speech**

Evaluative dimensions and speaker traits have had central roles in understanding language attitudes toward different language varieties (Giles & Ryan, 1982; Ryan, 1983). Past research showed that listeners often evaluated nonnative-accented speakers more negatively than those who were perceived to speak standard-accented American English (Brown, 1992; Gluszek & Dovidio, 2010a; Gluszek & Dovidio, 2010b; Lev-Ari & Keysar, 2010; Lippi-Green, 2012; Neuliep & Speten-Hansen, 2013; Pantos, 2010). However, the evaluative reactions of listeners were not uniformly negative across all the traits. They were different based on the type of speaker trait (Cargile & Giles, 1997; Ryan, 1983).

In order to categorize speaker traits, Ryan (1983) proposed dichotomous evaluative dimensions of *solidarity* and *status*. Zahn and Hopper (1985) suggested the third dimension of *dynamism* after reviewing speaker traits in previous language attitude research. Later, Fuertes et al. (2012) examined 20 accent studies and collected 116 speaker traits. They claimed that speaker traits could be placed under one of three
evaluative dimensions: *solidarity, status, and dynamism*. Ryan (1983) explained that solidarity referred to the evaluations of language variants as a symbol of in-group identification and interpersonal attraction. Solidarity dimension included the speaker traits such as friendliness, kindness, warmth, likeability, attractiveness, and trustworthiness. Status referred to the standardness of language variants and the socioeconomic status of speakers. Status dimension included speaker traits such as competence, intelligence, ambition, knowledge, social class, education, success, and wealth. The dynamism dimension referred to how active, confident, aggressive, and energetic the speaker sounded (Fuertes et al., 2012; Zahn & Hopper, 1985). However, dynamism is a relatively new dimension in language attitude study and has mostly been a neglected dimension (Cargile & Giles, 1998). Many studies have focused on measuring status and solidarity dimensions.

Language attitudes study results related to evaluative dimensions have shown a consistent pattern of standard-accented language variety being rated high with status dimension across the world (Cargile & Giles, 1998; Dixon et al., 2002; Giles & Coupland, 1991; Ryan, Hewstone, & Giles, 1984). Speakers of non-standard accent were not evaluated favorably on the status dimension even by listeners who were themselves speakers of a non-standard accent. However, the study results revealed speakers of non-standard accent were rated high on traits that belonged to solidarity dimension such as kindness, likeability, and attractiveness.

**Reasons for negative reactions toward nonnative accent.** What are the reasons for the negative reactions of listeners toward nonnative-accented speakers? Previous research suggested a few possible reasons. First, researchers seemed to
agree that nonnative accents signaled intergroup relations in listeners (Fuertes et al., 2012; Giles & Ryan, 1982; Lambert, 1967; Lev-Ari & Keysar, 2010). Listeners identified the out-group status of the speakers, interpreted the situation with the speakers’ social identities, and associated them with stereotyped impressions of the out-group (Tajfel & Turner, 1986). However, Lindemann (2003) cautiously pointed out that her respondents \((N = 39)\) seemed to react immediately to speakers’ foreignness before categorizing different ethnic groups. Lindemann said listeners could misidentify nationalities and suggested the most salient social categories were native versus foreign regardless of different nationalities.

Second, the perceived existence of standard language had a role in evaluating nonnative accented English negatively (Garrett, 2010; Lippi-Green, 2012). The emphasis of standardization in language was on correctness, uniformity, and invariance (Milroy, 2007), and any variety that was different from it was considered deviations. Garrett (2010) argued that accent and language could not be fixed to standard as they were a social phenomenon characterized by changes and varieties. Matsuda (1991) and Lippi-Green (2012) claimed further that the standard in standard language was a label created by the powerful and dominant group in society for the language the group was speaking.

Third, Munro, Derwing, and Morton (2006) proposed that difficulty to understand and longer time to process nonnative accents could cause the listeners to rate them negatively. Listeners had to take more cognitive resources to understand nonnative accents. Several studies showed listeners who understood the nonnative-accented
speech still displayed irritation and downgrading attitudes toward speakers because of the accent (Munro & Derwing, 1995).

Some research results suggested nonnative-accented speakers were perceived as less credible than standard-accented speakers (Lev-Ari, 2010). Even as a messenger of native speaker, when delivered with accented speech, listeners misattributed the difficulty of understanding the speech to the truthfulness of the statement (Lev-Ari, 2010).

**Language Attitudes and Accent Research**

Empirical research in modern language attitudes has begun with Pear’s 1927 voice experiment inviting audiences of the British Broadcasting Company to participate (Garrett, 2010; Giles & Billings, 2004). According to Giles and Billings (2004), Pear had nine people, who used different regional accents in Britain, read a passage from the *Pickwick Papers* on air and requested the listeners to describe the impressions on the speakers. He got almost 5,000 responses. Pear’s findings showed that, based only on voice, people made strong impressions ranging from personality to physical bearings. Since then, researchers in social psychology and sociolinguistic disciplines have investigated the different issues in language attitudes.

Ryan, Giles, and Hewstone (1988) grouped previous language attitude research into three categories; interviews or questionnaires, speaker evaluation paradigm, and analysis of public treatment of language varieties. According to Ryan et al. (1988), direct measures such as interviews or questionnaires were used to find out attitudes toward speaking two languages, dialects, and accented speeches. These measures were also frequently used to examine motivations to learn language. The second
category, speaker evaluation paradigm, referred to a method of assessing language attitudes indirectly. The research by Lambert et al. (1960) was the classic example. Lambert (1967) named two elements involved in his speaker evaluation model: identification of the speaker’s group on the basis of language and eliciting of stereotypes associated with that group. He claimed these were the strengths of his model that helped elicit spontaneous attitudes that might be difficult to capture by direct measures. A lot of speaker evaluation studies have been conducted since the study of Lambert et al. (1960) was published (Ryan et al., 1982). Profiling people’s evaluative reactions to accent and language varieties has been the focus of the majority of language attitude research (Cargile & Giles, 1997). The third category includes studies about how society treats language varieties in terms of status, worth, and function. Language attitude research in this category includes the analyses of educational language policies, literature, government documents, broadcasting, and print media.

**Nonnative accent research.** Past research on language attitudes showed that listeners evaluated nonnative-accented speakers more negatively than those who were perceived to speak native-accented American English simply based on accent of the nonnative speakers (Brown, 1992; Fuertes et al., 2012; Lippi-Green, 2012; Williams, Hewett, Miller, Naremore, & Whitehead, 1976). Numerous studies have examined attitudes toward accented English (Giles & Johnson, 1987; Lindemann, 2005; Pantos, 2010; Rubin & Smith, 1990; Rubin, 1992; Côté & Clément, 1994).

**Attitudes toward nonnative accent in higher education.** Most accent research in higher education (Brown, 1982; Kavas & Kavas, 2008; Rubin, 1992; Rubin & Smith, 1990) seemed to have focused on the perceptions and attitudes of
undergraduate students toward foreign-accented faculty and international graduate assistants.

Brown (1992) investigated language attitudes of 438 American college students toward nonnative instructors. The researcher used a 15-item semantic differential and measured the perception of students on nonnative instructors' personal aesthetic qualities, language competence, and teaching competency. The nonnative instructors' country of origin (Iran, Italy, Sudan), status (professor, teaching assistant), and native speakerness (bilingual, English in high school or college) were varied but this information was not given to the control group. The results suggested that the country of origin was a statistically significant factor on judgment of language competence and educational status was a significant factor on personal aesthetic quality. The researcher stated that the country of origin, status, and native speakerness did not have main effects on teaching competence.

Kavas and Kavas (2008) surveyed 91 undergraduate students’ attitudes toward foreign-accented faculty. The researchers reported 29.7% of students agreed with the statement that foreign accent of a faculty did not affect their ability to learn. However, Lippi-Green (2012) claimed that this result did not reveal the true nature of the relationship between nonnative-accented faculty and the students. The data were collected through a self-administered questionnaire. The students knew what they were supposed to believe and responded accordingly.

Rubin and Smith (1990) studied the perceptions of American undergraduate students' toward nonnative English-speaking teaching assistants (NNSTA) using the MGT. The more foreign accentedness (Chinese in this case) that American
undergraduates perceived in speakers, the poorer they evaluated them as teachers. The result contradicted common notions that the problem of nonnative English speaking teaching assistants was lack of English language proficiency. Although 40% of students revealed they avoided the courses NNSTA taught, the measured outcome revealed that the accents of NNSTA did not have direct effects on their findings. When students perceived NNSTA had strong accents, they stereotypically judged the NNSTA as poor teachers. Rubin and Smith (1990) indicated these perceptions of students might be either right or wrong.

Subsequent study by Rubin (1992) showed that student listeners even imagined non-existent nonnative accents and their false beliefs lead them to poor comprehension. Rubin showed pictures of an Asian and a Caucasian individual to two groups of American college students while they listened to the same taped lecture by the identical speaker who spoke standard-accented American English. Participants who were shown the picture of the Asian perceived more foreign accent and they scored less than the other group on a cloze test recalling the lecture. Fought (2006) called this phenomenon accent hallucination in which the mind of the listener created accents where none existed.

Hundreds of studies have been conducted throughout the world exploring peoples’ reactions to a host of accents and languages (Bradac, 1990; Lindemann, 2003). Negative reaction results toward nonnative accent were abundant. A number of study results regarding the attitudes of native speakers of American English toward nonnative-accented speakers of Mexico, Malaysia, China, Italy, Norway, and Eastern Europe showed negative reactions (Lindemann, 2005; Pantos, 2010). Meanwhile, the
research on the attitudes of standard American English speakers toward varieties of Asian-accented English seemed to be rare (Cargile, 1997). The following section discusses previous nonnative accent research relevant to this study.

**Chinese-accented English.** Cargile (1997) conducted two studies on the attitudes toward Chinese-accented speech employing the MGT in which one speaker spoke with both Chinese and English guises. Cargile used the same speech content in both studies, but in study 1, it was as a job interview extract, and in study 2, it was as a professor’s classroom presentation. In the context of a job interview, a Chinese-accented English speaker was evaluated similarly to a standard-accented English speaker in attractiveness, status, or dynamism. However, in the context of a college classroom, the same Chinese-accented speaker was evaluated as unattractive, less status, and less dynamism. Cargile asserted that the result suggested context had some role in shaping attitudes toward Chinese-accented English.

Rubin and Smith (1990) investigated the perceptions of American undergraduate students toward nonnative Chinese-accented English speaking teaching assistants using the MGT. Rubin and Smith found that perceived accent, not actual accent, was negatively related to poor teacher effectiveness ratings. In a subsequent study, Rubin (1992) examined the factors in undergraduate student attitudes that could contribute to the ratings in the above study. Rubin added new stimulus audio tapes to the Chinese and English guise tapes he used in 1990 study. The result showed the more foreign the accent was perceived, the lower the ratings of teacher effectiveness of the Chinese-accented teaching assistants. Meanwhile, the ratings were positively correlated to the students’ belief that the nonnative accented teaching assistants were in the same major.
Korean-accented English. Several language attitudes studies conducted by Lindemann focused on Korean-accented English. Lindemann (2000, 2002, 2003) investigated the relationship between native listeners’ attitudes toward nonnative accent (Korean) and their comprehension of the accented English speakers. The researcher used the same data collected from undergraduate students in Michigan (N = 39) who were native English speakers. A Verbal Guise Technique (VGT) along with open questions and a language background questionnaire were used. The VGT procedure is similar to the MGT. In the VGT, different accents are produced by different speakers unlike the MGT in which different accents are spoken by the same person. The study participants rated six traits each in status (e.g., intelligent, ambitious) and solidarity (e.g., friendly, likeable) dimensions. The study findings suggested their evaluation of the Korean-accented speakers was more negative than American English speakers in the status dimension. There were no significant differences in the solidarity dimension. Lindemann (2005) also examined the perception and belief system of American undergraduate students (N = 195) toward nonnative-accented English speakers from 58 countries including Korea. The respondents evaluated East Asian-accented English, particularly Chinese accent, and Latin American-accented English negatively. These two groups happened to include the largest number of recent immigrants to America (Lindemann, 2005; Lippi-Green, 2012).

Pantos (2010) described his 2008 Study investigating the effect of Korean-accented English on attitudes toward expert witnesses and their testimony in a context of a fictional medical malpractice trial. Participants (N = 128) listened to two recorded audio testimonies of two physicians, one in Korean-accented English and the other in
American-accented English spoken by two male actors respectively. The researcher assessed six factors that were known to influence juror decision. Those factors (e.g., competence, likeability) also fit the language attitude traits in the two-factor model of status and solidarity dimensions. The seventh criterion was about case outcome. The result suggested no significant difference for the participants' preference of U.S. and Korean-accented English in status dimension. However, the participants did favor a US-accented physician as an expert witness in solidarity dimension.

Pantos (2010) investigated language attitudes of undergraduate students \( (N = 165) \) toward Korean- and English-accented speech in a context of a hypothetical medical malpractice trial. The participants were instructed to imagine themselves as jurors who were listening to expert witness testimony. Pantos used two male actors, one for native English speaker and the other for Korean-accented English speaker. The IAT measured the participants’ reactions to the short audio stimuli. The IAT results indicated that participants had more positive implicit attitudes toward the native American English speaker in relation to the Korean-accented speaker.

**Hispanic-accented English.** In previous research, Hispanic-accented English speakers were frequently downgraded compared to native English speakers (Fuertes & Gelso, 2000; Giles, Williams, Mackie, & Rosselli, 1995). Regarding speech evaluation dimension, the speakers of Hispanic varieties were perceived to be lower in status dimension (e.g., competence) than speakers of native English varieties in the United States (Bradac & Wisegarver, 1984; Carranza, 1982; Fuertes & Gelso, 2000) and worldwide (Giles et al., 1995). Ryan and Sebastian (1980) also found Hispanic-accented English speakers were judged to be of lower status and socio-economical
class compared to standard-accented speakers. A few Hispanic accent studies are described below.

Frumkin (2007) examined the effect of foreign accent (Mexican, German, and Lebanese) and ethnic background in eyewitness testimony in a criminal trial setting. The researcher prepared three-minute videotaped speeches with six accent variations (Mexican, German, and Lebanese compared to both accented and accent free English). The text of the testimony was identical. Participants were undergraduate students ($N = 174$). The researcher measured the perception of mock jurors on four favorability variables (i.e., credibility, accuracy, deceptiveness, and prestige) in eyewitness testimony using a self-report measure. Results indicated there was a significant main effect of accent for the four favorability variables. That meant the participants perceived the eyewitness who delivered the testimony with an accent as less favorable even when the text of the testimony was identical and the witness was the same person. In regard to the accent condition, the German-accented eyewitness was rated as the most favorable followed by the Mexican-accented one. The Lebanese-accented eyewitness was the least favored.

Fuertes and Gelso (2000) conducted a study on the perception of European American college students ($N = 212$) toward Hispanic counselors’ accent and race. For accent condition, they used a Hispanic actor to create two one-minute recordings; Hispanic accent and no accent. The content was identical. The researchers employed the Counselor Rating Form-Short, Working Alliance Inventory-Short, Willingness Scale, and the Universality-Diversity Orientation (UDO) Scale (tolerance to diverse cultures and people) as outcome measures. The result showed that the respondents preferred
to work with nonaccented counselors rather than with the accented counselors in long-term therapy. The result also suggested that the respondents with low UDO scores rated the nonaccented counselors higher in attractiveness, trustworthiness, and expertness than the accented counselors.

Giles et al. (1995) examined the affective reactions and national identity of undergraduate students \((N = 83)\) in southern California toward Anglo- and Hispanic-accented English. The researchers used Zahn and Hopper's (1985) Speech Evaluation Instrument (SEI) and the researcher-devised (Giles et al., 1995) National Identity Measure which attempted to assess the strength of the identification with their own country. The content of the recorded speech used in the study discussed the English-only controversy. The SEI adopted a three-factor model of language evaluation: superiority, attractiveness, and dynamism dimensions. The result showed Hispanic-accented speakers were rated low in superiority, but high in attractiveness. It also revealed that when an ethnically similar sounding speaker argued against the English only recorded speech, Anglo-accented respondents' affective reactions and national identity scales were rated high. The authors claimed this was the first research to investigate affective reactions and national identity in language attitude domain.

Ryan and Carranza (1975) evaluated reactions toward speakers of standard-accented English and Mexican-accented English. Participants were 21 European American and 21 African American high school students and 21 Mexican Americans. Participants listened to the Mexican-accented English and rated the speaker on 15 pairs of traits such as educated-uneducated and kind-cruel. The results showed standard-accented English speakers received higher ratings in both status and solidarity.
dimensions. With regard to the effect of accent on initial impressions, Niestas (2005) reported European American college students ($N = 107$) evaluated standard-accented English speakers more positively than Hispanic-accented English speakers.

According to Lindemann (2005), American undergraduate students rated nonnative English speakers from Mexico and China as the most incorrect English speakers among many countries and evaluated most negatively. Lindemann asserted sociopolitical factors and familiarity of the countries may contribute to positive and negative evaluation of the nonnative speakers of those countries.

**Measuring Language Attitudes**

In this section, measurement methods used in previous language attitude research are presented and organized by direct and indirect measures.

**Direct measures.** The direct measures of language attitudes employed interviews or questionnaires to investigate explicit attitudes about the specific aspects of language. The specific aspects may include attitudes toward speaking two languages (e.g., English vs. Spanish), contrasting regional accents (standard American accent vs. the Southern accent), and contrasting accented speech (e.g., standard American-accented English vs. Chinese-accented English). The direct measures were also used to measure attitudes toward second language learning and bilingual education. According to Ryan et al. (1988), direct measures have been valuable in predicting second language learning and language use and in examining language policy issues and language learning motivation. The above researchers argued that the most frequently used direct measure instrument in this category has been the questionnaire developed by Gardner and Lambert (1972) examining language learning motivation.
The instrumental orientation to language learning motivation dealt with the students’ interest in that culture and its members at the same time their interest in a practical reason of getting a job in the future.

The researchers also employed direct measures to investigate how speakers’ choice of language varieties effect the listeners’ impressions and evaluations on the speakers. Zahn and Hopper (1985) pointed out an issue in language evaluation measurement in general. They argued that researchers often designed their own instruments to meet the specific purpose of each study. For this reason, the types of instruments have varied widely and, often, the number of items have partially overlapped. In spite of the problem raised, a couple of direct measure instruments were frequently used: the Speech Dialect Attitudinal Scale (SDAS) and the Speech Evaluation Instrument (SEI).

The SDAS has been the most frequently used instrument in language attitude research according to Zahn and Hopper. The SDAS was developed by Mulac, Hanley, and Prigge (1974) to measure attitudes and perceptions towards speech variations including accents. It was based on a three-factor model of socio-intellectual status, aesthetic quality, and dynamism dimensions. The SDAS has 21 items that use a 7-point Likert scale. Seven items assessing socio-intellectual status dimension included educated-uneducated, rich-poor, and high social status-low social status. Eight items for aesthetic quality dimension included pleasing-displeasing, beautiful-ugly, and nice-awful. Six items for dynamism dimension included strong-weak, aggressive-unaggressive, and soft-loud.
The SEI was developed by Zahn and Hopper (1985) who believed the variety of past speech evaluation measures designed for a single use was an impediment to integration of language attitude research findings. They devised the SEI as a comprehensive measure of evaluative reactions to linguistic diversity. According to Zahn and Hopper, the SEI was aimed to be a standardized instrument that would make speech evaluation research results comparable with each other. Zahn and Hopper initially identified and pooled 152 semantic differential items from previous language attitude studies. They deleted the items that were either repetitive or not applicable to language attitudes and came up with 30 semantic differential items (e.g., educated-uneducated, likeable-unlikeable). The researchers loaded the items into a three-factor model of language evaluation: superiority, attractiveness, and dynamism dimensions.

The advantage of using direct measures has been to obtain valuable information about the attitudes, beliefs, trends, and preferences of different groups in society. However, the direct measures have one caveat of social desirability bias. Participants may want to present themselves as more desirable than real life in responding to the survey. Consequently, people tend to give socially acceptable answers (Baker, 1992).

**Indirect measures.** Indirect measures have been used to access more deeply held beliefs or implicit attitudes. According to Kristiansen, Garrett, and Coupland (2005), indirect measures had more explanatory value in language attitudes research. The Matched Guise Technique (MGT) and Implicit Attitudes Test (IAT) represent indirect measures.

**Matched Guise Technique (MGT).** Lambert et al. (1960) devised the MGT to capture listeners’ privately held views toward different language varieties. In the MGT
procedure, one speaker who had equal fluency in the chosen language varieties read the same neutral-content passage of prose. Listeners evaluated the tape-recorded speech not knowing that the same person was using realistic guises (external presentations) of the particular accents, dialects, and languages under study. Care was taken to ensure that the listeners perceived those guises as authentic. In this way, confounding variables such as voice quality, pitch, and speech rate were supposedly controlled and the reactions of listeners would be solely based on language cues (Giles & Billings, 2004). Since its introduction, the MGT has been widely used to conduct speaker evaluation studies (Ryan et al., 1988). Giles and Billings argued that employing MGT was the origin of the speaker evaluation paradigm in language attitude research.

In their seminal investigation of language attitude, Lambert et al. (1960) employed the MGT to evaluate reactions of listeners toward English and French in Montreal, Canada where the schism between the two languages was significant. Lambert et al. (1960) stated that spoken language was a marker for identifying the speakers as members of a national and cultural group. The MGT assumed that language varieties aroused social categorizations to group-related trait inferences. Accordingly, the listeners would show generalized or stereotyped attitudes towards an individual speaker as if that person were a member of the particular group that spoke the language. In the study, the researchers compared the evaluative reactions of 64 English-speaking and 66 French-speaking university students. The students listened to English and French versions of the same prose passage which were tape-recorded. The student respondents did not know one speaker read both English and French. The
respondents rated eight recordings on scales reflecting 14 speaker traits desired in friends: height, good looks, leadership, sense of humor, intelligence, religiousness, self-confidence, dependability, kindness, ambition, entertainingness, sociability, character, and likability.

The findings showed English speakers evaluated the English guises more favorably on most traits. The results also suggested French speakers had favorable attitudes to the English guises as having more desirable personality traits than French guises except in kindness and religiousness traits. A few years later, Lambert (1967) reflected upon this unexpected finding of the evaluative reactions of French speakers who downgraded their own language group. He interpreted it as an indication of a community-wide stereotype of French Canadians seeing themselves as inferior to English speakers in Montreal.

The advantage of the MGT was that it eliminated potential confounding variables such as voice quality, tone, pitch, and speech rate as single speaker produced different language varieties (Bresnahan et al., 2002; Giles & Bourhis, 1976). Accordingly, researchers could analyze evaluative reactions of listeners that were only attributable to language itself. Regarding the limitations of the MGT, Giles and Bourhis (1976) suggested the repeated message from speakers may influence listeners to focus on vocal variations and cause evaluative bias against certain language variations. They also challenged the use of tape-recorded passages as a potentially artificial method to obtain meaningful evaluative reactions.

**Implicit Association Test (IAT).** In 1998, Greenwald and his colleagues introduced the Implicit Association Test (IAT), an instrument to measure implicit
attitudes of people. According to Greenwald and Banaji (1995), perceivers often make two different evaluations of a social actor: one based on automatic information processes and the other based on controlled processes. Some researchers explained this type of information processing as dual processing (Devine, 1989; Devos & Heng, 2009; Gawronski & Bodenhausen, 2006; Kunda & Thagard, 1996). The purpose of the IAT was to focus on automatic associative processes and to provide a tool to access it. Another aim was to develop a method to overcome the limitations of explicit self-report measures. The IAT has been widely used to measure people’s attitudes and beliefs that were not revealed in a self-report questionnaire (Rudman, 2004). Research has shown that it was hard to fake during the IAT (Steffens, 2004). The IAT has been used to measure implicit attitudes of people toward race (Baron & Banaji, 2006), age (Levy & Banaji, 2002), sexuality (Steffens, 2005), and other social concepts. In a couple of studies, audio stimuli were used in the IAT to assess implicit language attitudes of listeners (Pantos, 2010; Vande Kemp, 2002).

Summary

This chapter detailed the literature relevant to this study including the structure of attitudes, the importance of language attitudes, and attitudes toward nonnative-accented speech. Then, a description of evaluative dimensions of accented speech was presented, followed by examination of previous accent research. This chapter concluded with information related to measuring language attitudes with strengths and weaknesses of different approaches.
Chapter 3
Methods

The purpose of this study was to examine the implicit attitudes of college instructors toward accented English. This chapter presents the research methods and procedures to accomplish this goal. This chapter has five sections: research design, population and sample, instrumentation, data collection, and data analysis. The last section is a summary of the chapter.

Research Design

The research design of this study was quantitative and causal-comparative. The researcher collected numerical data of the implicit preference scores of college instructors toward accented speech using a computer-based auditory multifactor Implicit Association Test (IAT). The dependent variable was implicit preference score. The independent variables were gender, teaching experience, and language background.

Population and Sample

The target population for this study was college instructors at a large public university in the southeastern region in the United States. According to the National Center for Educational Statistics (2015), there were 1,544,060 full-time and part-time instructional faculty in degree-granting institutions in 2013. Of these, 48.8% were women and 51.2% were men. The estimated number of paid graduate teaching assistants in 2014 was 126,030 (Bureau of Labor Statistics, 2015).
A-priori sample size for this multiple regression study was computed with a desired statistical power level of .80, acceptable p value of .05, expected effect size of .15, and three predictor variables. The minimum number of participants required for this study as computed by the Statistics Calculators was 76. The sample was obtained through a combination approach using convenience and chain sampling strategies. In this study, the researcher initially invited 10 college instructors personally known to her. After they completed the auditory multifactor IAT, each was asked to recommend an additional three participants. The advantage of a chain sampling strategy is that well-situated individuals recommend other well-situated people to participate and to help increase the number of credible samples (Gall, Gall, & Borg, 2007).

**Instrumentation**

Two instruments were used to collect the data: a demographic questionnaire and the computer-based auditory multifactor IAT. See Appendix A for the demographic questionnaire and Appendix B for the verbal task instructions for the auditory multifactor IAT. The auditory multifactor IAT was created for this study for two reasons. Implicit attitudes are difficult to assess through self-report measure and there was no instrument available at the time to measure implicit preferences toward accented English.

**Method of the IAT.** The auditory multifactor IAT created for this study was based on the method of standard and visual IAT, simply known as the IAT. The IAT measures reaction time, called latencies in the IAT studies, of participants to assess implicit attitudes. Greenwald and Banaji (1995) described implicit attitudes as actions or judgments that were under the control of automatically activated evaluation without the performer’s awareness of that causation.
In the IAT, the participants are asked to perform tasks of sorting the categories and attributes presented to them in both lexical and graphic format. The IAT measures implicit attitudes by associative strength between the given pair of target categories and the associated pair of attributes. These categories and attributes are presented in an association-compatible and association-incompatible pairing. Greenwald, McGhee, and Schwartz (1998) presented three experiments in their seminal paper: (a) implicit attitudes toward flowers versus insects, (b) implicit attitudes of Korean Americans and Japanese Americans toward Korean and Japanese ethnic groups, and (c) implicit racial attitudes of white college students toward whites and blacks.

The experiment about flowers versus insects is used as a model to describe the method of IAT. Greenwald et al. (1998) measured the participants’ implicit attitudes toward flowers versus insects by associative strength between the given pair of target categories (i.e., flowers and insects) and associated pair of attributes (i.e., pleasant and unpleasant). The categories and attributes were presented in an association-compatible (flower-pleasant and insect-unpleasant) and association-incompatible (flower-unpleasant and insect-pleasant) pairings. The association-compatible (flower-pleasant and insect-unpleasant) pairings produced the faster response latencies than the association-incompatible (flower-unpleasant and insect-pleasant) pairings. Greenwald, Poehlman, Uhlmann, and Banaji (2009) used the Implicit Social Cognition Theory to explain that the association-compatible requires less time to recognize it as it has been established in the mind called automatic association. Greenwald et al. (1998) noticed the difference of the mean response latencies and concluded that the associative strength between flower-pleasant and insect-unpleasant is greater than that
of between flower-unpleasant and insect-pleasant. Lane, Banaji, Nosek, and Greenwald (2007) interpreted that the result reflected a relative implicit preference for flowers over insects.

Many researchers agreed that the advantage of the IAT measures was their presumed reliance on associative processes that could operate automatically (Conrey, Sherman, Gawronsky, Hugenburg, & Groom, 2005; Devine, Plant, Amodio, Harmon-Jones, & Vance, 2002). Greenwald et al. (1998) claimed that one useful quality of the IAT was its resistance to self-presentation strategies. To verify that claim, Kim (2003) conducted two experiments (flowers versus insects and white versus black) to test whether participants could fake the IAT. Kim reported that his participants could not voluntarily control their responses unless they were instructed to respond slowly to stimuli. The IAT seemed to have the strength of minimizing the desire of participants to be politically correct in responding to questions about their attitudes on sensitive issues (Nosek, Hawkins, & Frazier, 2011).

**Validity and reliability of the IAT.** Since the IAT was first introduced in 1998, numerous journal articles were written on its validity (Greenwald website, n.d.). A meta-analysis of 122 research reports showed the prediction of behavioral, judgmental, and physiological measures by the IAT with an average predictive validity effect size, $r = .274$ (Greenwald et al., 2009), small but positive. Greenwald and Sriram (2010) reported that the IAT has been shown to have high validity in predicting prejudice and stereotyping and proposed that the IAT might be a useful tool to measure hidden bias of socially undesirable attitudes such as racial preferences. The test-retest reliabilities of the IAT showed the correlation greater than .6 (Bosson, Swann, & Pennbaker, 2000;
Dasgupta & Greenwald, 2001; Greenwald & Farnham, 2000; Greenwald & Nosek, 2001). Internal consistency of the IAT was estimated between .70 and .90 (Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005; Nosek, Greenwald, & Banaji, 2006). According to Schnabel, Asendorpf, and Greenwald (2008), the scores were higher than the ones found in other latency-based measures.

Numerous journal articles and dissertations were written about the aspects of the IAT over the last 20 years (Greenwald website, n.d.). Many dissertations have incorporated the IAT, but only two of them focused on audio stimuli (Pantos, 2010; Vande Kamp, 2002). Pantos used audio stimuli which consisted of recorded foreign (Korean) and US-accented speeches. This was the first study that the audio IAT was used in language attitude research. Pantos investigated the effects of foreign-accented speech on attitudes toward expert witnesses and their testimonies in the context of a fictional civil medical trial. Participants listened to a Korean-accented speaker and a mid-Atlantic region English speaker through headphones. The results revealed that implicit attitudes of participants towards the US-accented speaker were more favorable than towards the Korean-accented speaker. However, self-report measures indicated preference for the Korean-accented speaker.

Vande Kamp conducted three studies using auditory IATs to measure implicit attitudes toward songbirds and insects, gender power relations, and African Americans and European American. The auditory stimuli used were the sounds of songbird and insect, computer-generated speech, and recorded voices. The result showed participants favored songbirds over insects and European Americans over African Americans. Also revealed was that auditory IAT could measure implicit gender
stereotypes. Vande Kamp (2002) showed the potential of the IAT beyond the boundaries of visual and text stimuli. Vande Kamp viewed the auditory IAT as an extension of the IAT and claimed the only difference between the two was the type of stimuli, auditory instead of visual. He posited that the auditory IAT could measure implicit associations in situations where visual or text stimuli would not suffice. He also believed the auditory IAT would be as useful as the visual IAT.

Creating the auditory multifactor IAT. A computer-based auditory multifactor IAT was created for this study. It was based on the method of standard two-factor visual IAT described in the previous section. The auditory multifactor IAT measured the automatic evaluative and stereotypic associations of four accent conditions (four-factor) and two attributes (i.e., Good and Bad) in one session. All the tasks were created using Inquisit v.4.0 software (Draine, 2014) released by the Millisecond, Inc. The auditory multifactor IAT consisted of a series of 14 testing blocks with 295 trial screens. There was one general task instruction screen in the very beginning. Each of 14 testing blocks started with a task instruction screen followed by 20 trial screens. The first two blocks were practice sessions in which participants got familiar with stimuli used in the study and IAT task formats.

Audio stimuli. The audio stimuli in this study was in the form of speech in four accented English conditions: Standard-, Chinese-, Hispanic-, and Korean-accented English. Four accented English speakers were selected from the Speech Accent Archives website (accent.gmu.edu) maintained by Weinberger (2014) at the George Mason University. They were adult males in their 20s and 30s. The majority of examples were males for consistency purposes and all samples used a speaker of the
same gender, in this case, male. In addition, the selection criteria for nonnative-accented English speakers were that they started to learn English as a foreign language at around 12 years old and they lived in the US less than two years. These criteria narrowed the pool of eligible nonnative-accented speakers. The standard-accented English speaker was from the mid-Atlantic region in the U.S.

The Standard-, Chinese-, Hispanic-, and Korean-accented speakers read a short passage with neutral content. The words were downloaded. The initial length of four accented English samples was approximately 40 seconds. The sound files were converted to .wav format. Four five-second .wav files with silent lead time in the beginning were created from each accented speech sound file using AVS Audio Editor Software. In this way, 16 digital sound files were created.

**Text stimuli.** Text stimuli were based on a two-factor model (i.e., status and solidarity dimensions) of language attitude evaluation. The text stimuli consisted of four bipolar pairs of traits (i.e., intelligent-ignorant, competent-helpless, friendly-aloof, pleasant-rude) describing evaluative judgment of language attitudes. The traits of status and solidarity dimensions were selected as they were established in language attitude research (Pantos, 2010). Intelligent-ignorant and competent-helpless traits represent status dimension. Friendly-aloof and pleasant-rude traits represent solidarity dimension. Dynamism dimension was not included in this study. The dynamism dimension was added to language attitude research later than the status and solidarity dimensions. For this reason, dynamism has not been included in as many studies as the other two dimensions (Cargile & Giles, 1998; Zahn & Hopper, 1985).
**Task description.** Participants were asked to sort text stimuli into two target attribute categories designated in the IAT as good and bad. The labels Good and Bad have been well-established in the IAT literature as generally indicating the opposite poles of semantic valence (Pantos, 2010). Participants also sorted audio stimuli into target categories labeled as Standard-accented English, Chinese-accented English, Hispanic-accented English, and Korean-accented English. Before they started the audio multifactor IAT, the participants listened to four accented English speech samples used in this study.

The auditory multifactor IAT in this study measured different association of four target concepts (i.e., Standard-, Hispanic-, Chinese-, and Korean-accented English) with an attribute (i.e., Good or Bad). They appeared in a two-choice task in six combinations: Standard vs. Chinese accent, Standard vs. Hispanic accent, Standard vs. Korean accent, Chinese vs. Hispanic accent, Chinese vs. Korean accent, and Hispanic vs. Korean accent). The attribute (i.e., Good vs. Bad) appeared in the second task as an evaluation attribute. The participants responded to association-compatible pairing (e.g., Standard accent-Good and Chinese accent-Bad) and association-incompatible pairing (e.g., Standard accent-Bad and Chinese accent-Good) using two response keys, E or I key, on the computer keyboard. Target categories appeared in fixed positions in the upper right and left corners of the computer screen. As audio or text stimuli appeared, participants responded to them by pressing the E key (positioned on the left side of the keyboard) if the stimulus belonged to the category on the upper left side or the I key (positioned on the right side of the keyboard) if the stimulus belonged to the category on upper right side. Participants were instructed to place their index or middle
fingers on E and I keys on the computer keyboard before they started the test.

Performance was supposed to be faster on association-compatible pairing for highly associated categories (e.g., Standard accent-Good) than less associated categories (e.g., Chinese accent-Good). The auditory multifactor IAT measured the latencies between highly associated and less associated categories.

**Reliability.** To determine the reliability of the instrument used in this study, the test-retest method was employed. Six participants took the auditory multifactor IAT two weeks after the initial administration. See Table 1 for the correlation coefficients for the test-retest administrations. The value of r indicated there was a moderate positive relationship between pretest and posttest.

Table 1

<table>
<thead>
<tr>
<th>Accent category</th>
<th>r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard vs. Chinese-accented English</td>
<td>0.5241</td>
</tr>
<tr>
<td>Standard vs. Hispanic-accented English</td>
<td>0.5713</td>
</tr>
<tr>
<td>Standard vs. Korean-accented English</td>
<td>0.4299</td>
</tr>
<tr>
<td>Chinese vs. Hispanic-accented English</td>
<td>0.7081</td>
</tr>
<tr>
<td>Chinese vs. Korean-accented English</td>
<td>0.4642</td>
</tr>
<tr>
<td>Hispanic vs. Korean-accented English</td>
<td>0.5912</td>
</tr>
</tbody>
</table>

**Note.** N = 6. r = correlation coefficient.

**Field tests.** Three field tests were conducted from February to June of 2015 to improve the auditory multifactor IAT. The researcher administered and observed task performances of participants and modified the instrument and/or verbal instructions after each field test. Details are described below.
**Test 1.** A college professor and two graduate students who had an extensive experience with other versions of the IAT took the auditory multifactor IAT. Overall, the task ran smoothly. One issue the participants pointed out was that they had to listen to the entire sound examples each time they appeared. The testers suggested that shorter ones would work better for the purpose of the IAT, although all the audio clips were already less than six seconds. The design of the instrument was modified so participants would not need to listen to the second full sound example, and they could respond as soon they recognized the accent. In the instruction screen of each testing block, participants were able to skip examples of the accented audio clips if they remembered the accent from a previous test block.

**Test 2.** A college professor who had some experience with other versions of the IAT took the auditory multifactor IAT. The professor was not sure what he was evaluating as he had to use both E key (left side) and I key (right side), but he saw only one caption, for example, Chinese Accent or Good, in the center of the screen. The screen was then altered so that Other accent or Bad was placed on the top left to better correspond with the E key on the left side of a keyboard and then an accent type (i.e., Chinese Accent) or Good was placed on the top right of the screen to correspond better with the I key on the right side of a keyboard. See Appendix C for a copy of the screen images of the Auditory Multifactor IAT. This alteration made the auditory multifactor IAT more intuitive. Participants got clearer ideas about the tasks.

Another small change was implemented after this field test. A sound icon would appear in the center of the screen while a participant was listening to an accented English (Appendix C). During the field test 2, the center of the screen was left blank.
Test 3. A week before the data collection started, two college professors who were not familiar with the IAT took the auditory IAT test. They expressed their initial confusions of sorting accents and attributes. They asked if they had to select Good if an accented English was easy to understand as they pointed to trial screens that showed both accent types (i.e., Chinese accent or Other) and attributes (e.g., Good or Bad). The participants were expected to select an accent type when they heard accented English and to select an attribute when they saw a word. Although the researcher used different colors for accent types and attributes to differentiate the categories, that was clearly not adequate for those unfamiliar with the overall IAT procedure. Both accent types and attributes appeared on the IAT trial screens as a default. The researcher had to add two sentences at the end of the Verbal Task Instructions for the Auditory Multifactor IAT (Appendix B) to clarify the tasks. “Important. When you hear a speech, focus on the accent, and select from blue-coded category. For a word, focus on the meaning, and select from yellow-coded category.”

Data Collection

The demographic questionnaire and auditory multifactor IAT were administered in one session. The demographic questionnaire was in a paper-and-pencil format. The auditory multifactor IAT was administered on a laptop computer with the Windows Operating System to run Inquisit v.4.0 software. The researcher’s computer with built-in microphones was used to collect data. The researcher, who was experienced in the IAT, administered the auditory multifactor IAT one person at a time in a quiet place. Data were collected during seven-week period in Fall, 2015.
After the participants completed the questionnaires and tests, the auditory multifactor IAT data were immediately transferred to the researcher's password-protected computer. The demographic questionnaire forms were placed in a locked file cabinet. They will be stored for five years after study completion, then, destroyed.

Data Analysis

Research questions. The research questions examined for this study were as follows:

1. What are the implicit preferences of college instructors toward accented English as measured by the auditory multifactor Implicit Association Test (IAT)?
2. Do these implicit preferences differ by gender of the college instructors?
3. Do these implicit preferences differ by years of teaching experience of the college instructors?
4. Do these implicit preferences differ by language background of the college instructors?

For research question one, the auditory multifactor IAT produced six \( d \) scores which determined the implicit preferences. The auditory multifactor IAT measured latency (i.e., response time) of participants in milliseconds. It calculated the \( d \) scores by dividing the difference between two test block means by the standard deviation of all the latencies in both test blocks. The \( d \) scores vary from -2 to +2 and indicates the direction and magnitude of association, in this study, preference. A score of zero indicates no preference. The \( d \) score is quite similar to Cohen's \( d \) measure of effect size. The difference between the two is the calculation of standard deviation. The \( d \) score uses standard deviation computed from the scores in two conditions, ignoring the condition
membership of each score while Cohen’s $d$ measure uses pooled within-treatment standard deviation (Greenwald et al., 2003) used D measure to differentiate their $d$ measure from Cohen’s $d$ measure. The six $d$ scores obtained were those of Standard-vs. Chinese-, Standard-vs. Hispanic-, Standard-vs. Korean-, Chinese-vs. Hispanic-, Chinese-vs. Korean-, and Hispanic-vs. Korean-accented English trials which could be interpreted as implicit preferences. Descriptive statistics including the measures of central tendency (e.g., the mean) and variability (e.g., range, standard deviation, and variance) were calculated using SAS software. In addition, the 95% confidence interval around the difference between the means was calculated.

For research question two, three, and four, six regression equations analyses were conducted using SAS software. Three predictor variables were gender (nominal variable), teaching experience (continuous variable), and language background (nominal variable). To provide additional information, the prediction equation with race/ethnicity and rank was also calculated.

**Summary**

This chapter outlines the research methods and procedures for this study. The research questions were investigated using a demographic questionnaire and the auditory multifactor IAT, which measured the implicit language attitudes of college instructors. Convenience and chain sampling strategies to obtain the participants were explained. Then, the various steps to develop the instrument were elaborated. Finally, data collection and analyses were detailed.
Chapter 4
Findings

The purpose of this study was to examine the implicit language attitudes of college instructors toward accented English speakers. The auditory multifactor Implicit Association Test (IAT) was used to measure the implicit preferences toward four different accented English which generated six pairs of implicit preference scores. This chapter presents the research design, demographic characteristics of study participants, findings of the four research questions, and a summary.

Research Design

The research design of this study was quantitative and causal-comparative. The following research questions guided this study:

1. What are the implicit preferences of college instructors toward accented English as measured by the auditory multifactor Implicit Association Test (IAT)?
2. Do these implicit preferences differ by gender of the college instructors?
3. Do these implicit preferences differ by years of teaching experience of the college instructors?
4. Do these implicit preferences differ by language background of the college instructors?

To accomplish the goals of this study, a computer-based instrument, the auditory multifactor IAT, was developed to measure implicit accent preferences. The researcher
used a chain sampling strategy to recruit college instructors who were either full-time or part-time faculty members or paid graduate teaching assistants at a major university in southwestern Florida. The researcher invited 10 professors personally known to her to participate in the study. These professors then recommended up to three potential participants. The recommended individuals were then contacted by the researcher. These participants in turn provided additional names to contact.

The researcher administered the auditory multifactor IAT to one person at a time in a quiet place. Before the test was administered, each participant read an Informed Consent Form. See Appendix D for a copy of the Informed Consent Form. Each also signed a Consent to Take Part in the Research Study. See Appendix E for a copy of the Consent to Take Part in the Research Study. Then, each received the same identical Verbal Task Instructions for the Auditory Multifactor IAT (Appendix B).

The auditory multifactor IAT consisted of a series of 14 testing blocks with 295 screens with audio clips and visual prompts. The participants had a chance to practice two blocks of screens to become familiar with the four auditory stimuli (Standard-, Chinese-, Hispanic-, and Korean-accented English) that were used in the study and IAT task formats. With the consent of participants, the administrator stayed with the individuals during the test to answer any questions about the formats during the brief breaks between the testing blocks.

**Demographic Characteristics of Study Participants**

Between October 14 and December 7, 2015, 95 college instructors participated in this study. Task-irrelevant errors can occur more easily in response latency studies like this one, potentially biasing the results (Lane et al., 2007). For this reason, the data
sets from any participant who responded with less than 80% of the correct responses were eliminated. This resulted in only two participants being deleted, 93 sets of data were used in the statistical analyses.

Demographic characteristics of the study participants \((N = 93)\) are presented in Table 2. Among the 93 participants, 53 (57%) were teaching assistants and 40 (43%) were faculty. There were 53 females (57%) and 40 males (43%). The age of participants ranged from 23 to 73 years old \((M = 38.8, SD = 11.5)\). The range of teaching experience in years was from 0.5 years to 45 years \((M = 10.7, SD = 9.5)\). There were nine bachelor’s degree holders (9.7%). About half \((n = 46, 49.4\%)\) of the participants were holders of a Master’s degree followed by 38 doctorates (40.9%). The number of non-white \((n = 47)\) and white \((n = 46)\) was almost the same with 50.5% and 49.5% respectively. Among non-white \((n = 47)\), the Asians \((n = 20)\) represented the highest portion followed by Blacks \((n = 13)\), Latinos \((n = 6)\), Bi-racials \((n = 6)\), and Middle Easterners \((n = 2)\).

The participants were born in 20 different countries. See Table 3 for the place of birth of the participants. More than half \((n = 57, 61.5\%)\) of participants were born in the US while the rest \((n = 36, 38.7\%)\) were born in Vietnam \((n = 7)\), China \((n = 5)\), Korea \((n = 4)\), Venezuela \((n = 3)\), Turkey \((n = 2)\), and Taiwan \((n = 2)\). One participant each was born in 13 different countries.

Language background of study participants \((N = 93)\) is presented in Table 4. English was the first language \((L1)\) of 59 participants \((63.5\%)\). The rest of the participants \((n = 34)\) described 13 different languages as \(L1\). All of the participants
Table 2

Demographic Characteristics of Study Participants

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n</th>
<th>%</th>
</tr>
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<td>Gender</td>
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<td></td>
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<tr>
<td>Female</td>
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</tr>
<tr>
<td>Male</td>
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<td>43.0</td>
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<tr>
<td>Age</td>
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<td></td>
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<tr>
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<tr>
<td>Race/Ethnicity</td>
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<tr>
<td>White</td>
<td>46</td>
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</tr>
<tr>
<td>Non-white</td>
<td>47</td>
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<tr>
<td>Asian</td>
<td>20</td>
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<td>13</td>
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<tr>
<td>Rank</td>
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<td>Teaching assistants</td>
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<tr>
<td>Faculty</td>
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<td>43.0</td>
</tr>
<tr>
<td>Teaching Experience (years)</td>
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<td></td>
</tr>
<tr>
<td>0.5 - under 5</td>
<td>31</td>
<td>33.4</td>
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<tr>
<td>5 - under 10</td>
<td>19</td>
<td>20.4</td>
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<tr>
<td>10 - under 20</td>
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<td>20 - under 30</td>
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<td>10.8</td>
</tr>
<tr>
<td>30 - under 40</td>
<td>3</td>
<td>3.2</td>
</tr>
<tr>
<td>Over 40</td>
<td>2</td>
<td>2.2</td>
</tr>
</tbody>
</table>

Note. N = 93. *May not = 100% due to rounding.
attempted to learn foreign languages at certain points in their lives. However, 34 participants (36.6%) did not speak any foreign language good enough to carry on daily conversation while 46 (49.5%) spoke at least one foreign language, nine spoke two, and two spoke three foreign languages. There were two participants who spoke four to five foreign languages.

Table 3

Place of Birth of Study Participants

<table>
<thead>
<tr>
<th>Place of Birth</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>57</td>
<td>61.3</td>
</tr>
<tr>
<td>Non-US</td>
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</tr>
<tr>
<td>Vietnam</td>
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<td>7.5</td>
</tr>
<tr>
<td>China</td>
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<td>Korea</td>
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</tr>
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<td>Venezuela</td>
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<td>Turkey</td>
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<td>2.2</td>
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<tr>
<td>Taiwan</td>
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<td>Guyana</td>
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<td>Mexico</td>
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</tr>
<tr>
<td>Puerto Rico</td>
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</tr>
</tbody>
</table>

Note. N = 93. * May not = 100% due to rounding.
Table 4

*Language Background of Study Participants*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Language (L1)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L1 = English</td>
<td>59</td>
<td>63.4</td>
</tr>
<tr>
<td>L1 = Non-English</td>
<td>34</td>
<td>36.6</td>
</tr>
<tr>
<td>Vietnamese</td>
<td>7</td>
<td>7.5</td>
</tr>
<tr>
<td>Spanish</td>
<td>6</td>
<td>6.5</td>
</tr>
<tr>
<td>Chinese</td>
<td>5</td>
<td>5.4</td>
</tr>
<tr>
<td>Korean</td>
<td>4</td>
<td>4.3</td>
</tr>
<tr>
<td>Arabic</td>
<td>2</td>
<td>2.2</td>
</tr>
<tr>
<td>Taiwanese</td>
<td>2</td>
<td>2.2</td>
</tr>
<tr>
<td>Turkish</td>
<td>2</td>
<td>2.2</td>
</tr>
<tr>
<td>Farsi</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>French</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>German</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>Hindi</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>Indonesian</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>Serbian</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td><strong>Foreign Languages Spoken</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>34</td>
<td>36.6</td>
</tr>
<tr>
<td>1</td>
<td>46</td>
<td>49.5</td>
</tr>
<tr>
<td>2</td>
<td>9</td>
<td>9.7</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>2.2</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>1.1</td>
</tr>
</tbody>
</table>

*Note. N = 93. *May not = 100% due to rounding.*

**Findings of Research Questions**

The following section describes the findings of the research related to the research questions that guided this study.

1. What are the implicit preferences of college instructors toward accented English as measured by the auditory multifactor Implicit Association Test (IAT)?

2. Do these implicit preferences differ by gender of the college instructors?
3. Do these implicit preferences differ by years of teaching experience of the college instructors?

4. Do these implicit preferences differ by language background of the college instructors?

**Research question 1 findings.** Research question 1 was “What are the implicit preferences of college instructors toward accented English as measured by the auditory multifactor Implicit Association Test (IAT)?” Inquisit 4.0 program calculates d scores using the improved scoring algorithm recommended by Greenwald, Nosek, and Banaji (2003). The collected data were analyzed to obtain the means, standard deviations, and 95% confidence intervals of auditory multifactor IAT d scores of six pairs of accents. See Table 5 for the means, standard deviations, and 95% confidence intervals of the auditory multifactor IAT d scores.

<table>
<thead>
<tr>
<th>Accent category</th>
<th>M</th>
<th>SD</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard vs. Chinese</td>
<td>-0.024</td>
<td>0.446</td>
<td>[0.850, -0.898]</td>
</tr>
<tr>
<td>Standard vs. Hispanic</td>
<td>0.185</td>
<td>0.426</td>
<td>[1.020, -0.650]</td>
</tr>
<tr>
<td>Standard vs. Korean</td>
<td>0.120</td>
<td>0.485</td>
<td>[1.070, -0.830]</td>
</tr>
<tr>
<td>Chinese vs. Hispanic</td>
<td>-0.079</td>
<td>0.398</td>
<td>[0.701, -0.859]</td>
</tr>
<tr>
<td>Chinese vs. Korean</td>
<td>-0.014</td>
<td>0.480</td>
<td>[0.927, -0.955]</td>
</tr>
<tr>
<td>Hispanic vs. Korean</td>
<td>0.088</td>
<td>0.401</td>
<td>[0.874, -0.698]</td>
</tr>
</tbody>
</table>

*Note.* N = 93; M = mean; SD = standard deviation; CI = confidence interval.

The means of the d scores for the Standard- vs. Hispanic- (M = 0.185), Standard- vs. Korean- (M = 0.120), and Hispanic- vs. Korean-accented English (M = 0.088) were
positive. The means of the $d$ scores for the Standard- vs. Chinese- ($M = -0.024$), Chinese- vs. Hispanic- ($M = -0.079$), and Chinese- vs. Korean-accented English ($M = -0.014$) were negative. According to the scoring algorithm description in Inquisit 4.0 program (Draine, 2014), a positive mean of the $d$ score indicates a preference for the left side category and a negative mean of $d$ score indicates a preference for the right side category. For example, in the first row of Table 5, Standard is the left side category and Chinese is the right side category. The positive $d$ scores ($M = 0.185$) for the Standard vs. Hispanic indicated the participants had a preference for the Standard-accented English and the negative $d$ score ($M = -0.024$) for the Standard vs. Chinese indicated the participants had a preference for the Chinese-accented English (Table 5).

The scoring algorithm section also describes the interpretations of $d$ scores of the IAT regarding the strength of a preference. The $d$ score between -0.15 and 0.15 indicates no preference. The positive and negative $d$ scores of 0.15, 0.35, and 0.65 are thresholds to indicate slight, moderate, and strong preferences respectively. See Table 6 for the interpretations of $d$ scores of the IAT.

### Table 6

**Interpretations of $d$ Scores of the IAT**

<table>
<thead>
<tr>
<th>$d$ scores</th>
<th>Interpretations</th>
</tr>
</thead>
<tbody>
<tr>
<td>$d$ score $\leq -0.65$</td>
<td>A strong preference for the right category</td>
</tr>
<tr>
<td>-0.65 &lt; $d$ score &lt; -0.35</td>
<td>A moderate preference for the right category</td>
</tr>
<tr>
<td>-0.35 $\leq d$ score &lt; -0.15</td>
<td>A slight preference for the right category</td>
</tr>
<tr>
<td>-0.15 $\leq d$ score $\leq$ 0.15</td>
<td>No preference</td>
</tr>
<tr>
<td>0.15 $&lt; d$ score $\leq$ 0.35</td>
<td>A slight preference for the left category</td>
</tr>
<tr>
<td>0.35 $&lt; d$ score $&lt; 0.65$</td>
<td>A moderate preference for the left category</td>
</tr>
<tr>
<td>$d$ score $\geq 0.65$</td>
<td>A strong preference for the left category</td>
</tr>
</tbody>
</table>
Based on the interpretations of $d$ scores of the IAT, the college instructors who participated in this study indicated a slight preference for the Standard-accented English over Hispanic-accented English ($M = 0.185$, $SD = 0.426$). However, they showed no preference for the other accent pairs: Standard- vs. Chinese- ($M = -0.024$, $SD = 0.446$), Standard- vs. Korean- ($M = 0.120$, $SD = 0.485$), Chinese- vs. Hispanic- ($M = -0.079$, $SD = 0.398$), Chinese- vs. Korean- ($M = -0.014$, $SD = 0.480$), and Hispanic- vs. Korean-accented English ($M = 0.088$, $SD = 0.401$).

Despite the fact that the mean score tended to indicate no bias between the five of six accented language pairs, the wide confidence interval and the relatively high standard deviations potentially indicated that the scores of many of the participants varied widely from the mean $d$ scores (Table 5). To investigate this issue, further analysis was made by observing the frequency distributions of the mean $d$ scores of the six accented English pairs. See the Figures 1 to 6 for a visual representation of the frequency distribution of each pair. The titles of the frequency distribution charts have been labeled to indicate the left side preference versus the right side preference regardless of the initial category assignment of the auditory multifactor IAT.

In Figure 1, although the mode of 26 responses fell under no preference ($-0.15 \leq d\text{ score} \leq 0.15$), the Chinese vs. Standard preferences indicated an almost equal spread of responses, which most likely balanced the statistical results to indicate no significance between the responses. However, the histogram in Figure 1 shows a moderate preference ($-0.65 < d\text{ score} < -0.35$) for Chinese- over Standard-accented English. The reasons for this are not totally clear, since this was an unexpected finding.
Figure 1. Chinese vs. Standard frequency distribution of preferences to paired samples of accented speech.

Note. *N* = 93.

The histogram in Figure 2 indicates a mode (*n* = 25) of slight preference (0.15 < *d* score <= 0.35) for Standard-accented English. This is the only histogram that the mode was NOT “no preference.” The statistical test was significant for this pairing as was verified by the spread of responses in the histogram.

The Figure 3 depicts a mode of 19 with no preference. The statistical results suggested no significant difference in this pairing. However, the histogram indicated preferences for both sides with moderate (0.35 < *d* score < 0.65) to strong (*d* score >= 0.65) preferences for Standard-accented English. There is the possibility that the responses on the IAT were similarly balanced on both sides of the distribution, creating a non-significant difference. In actuality, the responses on the right (the Standard English side) were visually more pronounced.
**Figure 2.** Hispanic vs. Standard frequency distribution of preference to paired samples of accented speech. 
*Note.* *N* = 93.

**Figure 3.** Korean vs. Standard frequency distribution of preferences to paired samples of accented speech. 
*Note.* *N* = 93.
In Figure 4, the mode was 34 with no preference (-0.15 <= d score <= 0.15). However, there was a larger number of responses indicating a moderate preference (-0.35 < d score < -0.65) for Hispanic-accented English. In terms of statistical significance, it is possible the numbers on both extremes balanced out each other in calculating significance.

![Hispanic vs. Chinese Frequency Distribution](image)

*Figure 4.* Hispanic vs. Chinese frequency distribution of preferences to paired samples of accented speech.

*Note.* N = 93.

The Figure 5 depicts a mode of 25 with no preference (-0.15 <= d score <= 0.15). However, the histogram illustrated potential bi-polar biases that might indicate the existence of both Korean and Chinese accent biases. The similar numbers for the polar opposites most likely balanced each other in the statistical result of no bias. It was obvious from the histogram that the biases did exist, with Korean being preferred slightly more than Chinese.
Figure 5. Korean vs. Chinese frequency distribution of preferences to paired samples of accented speech.

Note. $N = 93$.

The Figure 6 depicts a mode of 27 with no preference ($-0.15 \leq d\text{ score} \leq 0.15$). However, a large number of responses illustrated a slight preference ($0.15 < d\text{ score} \leq 0.35$) for Hispanic accent over Korean accent. The statistical result indicated no significant difference, yet, biases did exist.

Research questions 2, 3, and 4 dealt with the relationship between three predictor variables and implicit preference scores. The research questions attempted to answer if gender, teaching experience, and language background of the college instructors have any effect or significance on the implicit preference scores. Six regression equations analyses were used to answer these questions.

Prior to conducting the regression analysis, the researcher checked the assumptions of normality and homogeneity of variance. To evaluate the normality, the skewness and kurtosis of the residuals from the regression models were calculated.
Figure 6. Korean vs. Hispanic frequency distribution of preferences to paired samples of accented speech.
Note. N = 93.

See Table 7 for skewness and kurtosis of the residuals from the regression models.

The absolute values for skewness and kurtosis were within “1” indicating that the normality assumption was not violated.

Table 7

Skewness and Kurtosis of the Residuals from the Regression Models

<table>
<thead>
<tr>
<th>Regression model</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard- vs. Chinese-accented English</td>
<td>0.3766</td>
<td>-0.2869</td>
</tr>
<tr>
<td>Standard- vs. Hispanic-accented English</td>
<td>0.1177</td>
<td>-0.1410</td>
</tr>
<tr>
<td>Standard- vs. Korean-accented English</td>
<td>-0.0480</td>
<td>-0.2860</td>
</tr>
<tr>
<td>Chinese- vs. Hispanic-accented English</td>
<td>0.0853</td>
<td>0.3665</td>
</tr>
<tr>
<td>Chinese- vs. Korean-accented English</td>
<td>-0.2656</td>
<td>-0.2927</td>
</tr>
<tr>
<td>Hispanic- vs. Korean-accented English</td>
<td>0.0829</td>
<td>-0.1980</td>
</tr>
</tbody>
</table>

Note. N = 93.

To assess the homogeneity of variance, the researcher checked the residuals.
against the predicted values. They scattered equally around “0” line indicating that the assumption of homogeneity was not violated.

**Research question 2 findings.** Research question 2 was “Do these implicit preferences differ by gender of the college instructors?” Six regression equations analyses were conducted to answer the question. See tables below for the regression analyses for the outcomes of six regression models. Regarding research question 2, the effects of gender on implicit preference scores are presented by the beta coefficients of the gender variable in each regression model.

For the Standard- vs. Chinese-accented English model, given other variables being constant, the difference between male and female participants was -0.0746 in the implicit preference score. In other words, male participants had an average 0.0746 point higher score than females. However, the results suggested no significant effect of gender on implicit preference score, since the *p* value of variable gender was 0.4475 which was greater than .05 alpha level. See Table 8 for the regression analyses for the Standard- vs. Chinese-accented English model.

Table 8

*Regression Analyses for Outcome of Standard- vs. Chinese-accented English Model*

<table>
<thead>
<tr>
<th>Predictor variable</th>
<th>b</th>
<th>SE</th>
<th><em>p</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.1081</td>
<td>0.1657</td>
<td>0.5158</td>
</tr>
<tr>
<td>Gender</td>
<td>-0.0746</td>
<td>0.0977</td>
<td>0.4475</td>
</tr>
<tr>
<td>Teaching experience (years)</td>
<td>-0.0011</td>
<td>0.0066</td>
<td>0.8691</td>
</tr>
<tr>
<td>Language background (L1)</td>
<td>-0.0754</td>
<td>0.1222</td>
<td>0.5385</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td>0.0030</td>
<td>0.1175</td>
<td>0.9798</td>
</tr>
<tr>
<td>Rank</td>
<td>-0.0561</td>
<td>0.1257</td>
<td>0.6565</td>
</tr>
</tbody>
</table>

\[ r = 0.1237 \] \[ R^2 = 0.0153 \]

*Note. N = 93; b = β coefficient, SE = standard error; * .05 α level.*
For the Standard- vs. Hispanic-accented English model, given other variables being constant, the difference between male and female participants was -0.0557 in the implicit preference score. In other words, male participants had 0.0557 point higher score than females on average. However, the results suggested no significant effect of gender on the implicit preference score, since the $p$ value of gender variable was 0.5478, which was greater than .05 alpha level. See Table 9 for the regression analyses for the Standard- vs. Hispanic-accented English model.

Table 9

<table>
<thead>
<tr>
<th>Predictor variable</th>
<th>$b$</th>
<th>$SE$</th>
<th>$p^*$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.1576</td>
<td>0.1564</td>
<td>0.3162</td>
</tr>
<tr>
<td>Gender</td>
<td>-0.0557</td>
<td>0.0922</td>
<td>0.5478</td>
</tr>
<tr>
<td>Teaching experience (years)</td>
<td>-0.0049</td>
<td>0.0062</td>
<td>0.4368</td>
</tr>
<tr>
<td>Language background (L1)</td>
<td>0.0830</td>
<td>0.1153</td>
<td>0.4737</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td>0.0287</td>
<td>0.1109</td>
<td>0.7963</td>
</tr>
<tr>
<td>Rank</td>
<td>0.0779</td>
<td>0.1187</td>
<td>0.5133</td>
</tr>
</tbody>
</table>

$r = 0.1944$  
$R^2 = 0.0378$

Note. $N = 93$; $b = \beta$ coefficient, $SE = $ standard error; *.05 $\alpha$ level.

For the Standard- vs. Korean-accented English model, given other variables being constant, the difference between male and female participants was -0.1217 in the implicit preference score. In other words, male participants had 0.1217 point higher score than females on average. However, the results suggested no significant effect of gender on the implicit preference score, since the $p$ value of gender variable was 0.2521, which was greater than .05 alpha level. See Table 10 for the regression analyses for the Standard- vs. Korean-accented English model.
Table 10

Regression Analyses for Outcome of Standard- vs. Korean-accented English Model

<table>
<thead>
<tr>
<th>Predictor variable</th>
<th>b</th>
<th>SE</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.3388</td>
<td>0.1790</td>
<td>0.0616</td>
</tr>
<tr>
<td>Gender</td>
<td>-0.1217</td>
<td>0.1056</td>
<td>0.2521</td>
</tr>
<tr>
<td>Teaching experience (years)</td>
<td>-0.0079</td>
<td>0.0071</td>
<td>0.2706</td>
</tr>
<tr>
<td>Language background (L1)</td>
<td>-0.0611</td>
<td>0.1319</td>
<td>0.6444</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td>0.0730</td>
<td>0.1269</td>
<td>0.5667</td>
</tr>
<tr>
<td>Rank</td>
<td>-0.1070</td>
<td>0.1358</td>
<td>0.4327</td>
</tr>
</tbody>
</table>

\[ r = 0.1673 \quad R^2 = 0.0280 \]

*Note.* \( N = 93; \) \( b = \beta \) coefficient, \( SE = \) standard error; \({ }^{*} .05 \) \( \alpha \) level.

For the Chinese- vs. Hispanic-accented English model, given other variables being constant, the difference between male and female participants was 0.0555 in the implicit preference score. In other words, male participants had an average 0.0555 point lower score than females. However, the results suggested no significant effect of gender on the implicit preference score, since the \( p \) value of gender variable was 0.5238, which was greater than .05 alpha level. See Table 11 for the regression analyses for the Chinese vs. Hispanic-accented English model.

For the Chinese- vs. Korean-accented English model, given other variables being constant, the difference between male and female participants was -0.0492 in the implicit preference score. In other words, male participants had an average 0.0492 point higher score than females. However, the results suggested no significant effect of gender on the implicit preference score, since the \( p \) value of gender variable was 0.6419, which was greater than .05 alpha level. See Table 12 for the regression analyses for the Chinese- vs. Korean-accented English model.
Table 11

Regression Analyses for Outcome of Chinese- vs. Hispanic-accented English Model

<table>
<thead>
<tr>
<th>Predictor variable</th>
<th>$b$</th>
<th>$SE$</th>
<th>$p^*$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-0.0919</td>
<td>0.1471</td>
<td>0.5339</td>
</tr>
<tr>
<td>Gender</td>
<td>0.0555</td>
<td>0.0868</td>
<td>0.5238</td>
</tr>
<tr>
<td>Teaching experience (years)</td>
<td>0.0014</td>
<td>0.0059</td>
<td>0.8151</td>
</tr>
<tr>
<td>Language background (L1)</td>
<td>0.0464</td>
<td>0.1084</td>
<td>0.6701</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td>-0.1405</td>
<td>0.1043</td>
<td>0.1818</td>
</tr>
<tr>
<td>Rank</td>
<td>0.0067</td>
<td>0.1116</td>
<td>0.9522</td>
</tr>
</tbody>
</table>

$r = 0.1572 \quad R^2 = 0.0247$

Note. $N = 93; b = \beta$ coefficient, $SE$ = standard error; *.$05 \alpha$ level.

Table 12

Regression Analyses for Outcome of Chinese- vs. Korean-accented English Model

<table>
<thead>
<tr>
<th>Predictor variable</th>
<th>$b$</th>
<th>$SE$</th>
<th>$p^*$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-0.1044</td>
<td>0.1786</td>
<td>0.5604</td>
</tr>
<tr>
<td>Gender</td>
<td>-0.0492</td>
<td>0.1053</td>
<td>0.6419</td>
</tr>
<tr>
<td>Teaching experience (years)</td>
<td>0.0048</td>
<td>0.0071</td>
<td>0.5048</td>
</tr>
<tr>
<td>Language background (L1)</td>
<td>0.0700</td>
<td>0.1317</td>
<td>0.5962</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td>-0.0399</td>
<td>0.1267</td>
<td>0.7538</td>
</tr>
<tr>
<td>Rank</td>
<td>0.0744</td>
<td>0.1355</td>
<td>0.5845</td>
</tr>
</tbody>
</table>

$r = 0.1109 \quad R^2 = 0.0123$

Note. $N = 93; b = \beta$ coefficient; $SE$ = standard error; *.$05 \alpha$ level.

For the Hispanic- vs. Korean-accented English model, given other variables being constant, the difference of years of teaching experience among participants was 0.0726 in the implicit preference score. In other words, male participants had an average 0.0726 point lower score than females. However, the results suggested no significant effect of gender on the implicit preference score, since the $p$ value of gender
variable was 0.3826, which was greater than .05 alpha level. See Table 13 for the regression analyses for the Hispanic- vs. Korean-accented English model.

Table 13

Regression Analyses for Outcome of Hispanic- vs. Korean-accented English Model

<table>
<thead>
<tr>
<th>Predictor variable</th>
<th>b</th>
<th>SE</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-0.2839</td>
<td>0.1403</td>
<td>0.0461</td>
</tr>
<tr>
<td>Gender</td>
<td>0.0726</td>
<td>0.0827</td>
<td>0.3826</td>
</tr>
<tr>
<td>Teaching experience (years)</td>
<td>0.0113</td>
<td>0.0056</td>
<td>0.0458</td>
</tr>
<tr>
<td>Language background (L1)</td>
<td>0.0244</td>
<td>0.1034</td>
<td>0.8143</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td>-0.0319</td>
<td>0.0995</td>
<td>0.7497</td>
</tr>
<tr>
<td>Rank</td>
<td>0.3675</td>
<td>0.1065</td>
<td>0.0009</td>
</tr>
</tbody>
</table>

\[ r = 0.3547 \hspace{1cm} R^2 = 0.1258 \]

Note. \( N = 93; \ b = \beta \) coefficient; \( SE = \) standard error; \( *0.05 \) \( \alpha \) level.

**Research question 3 findings.** Research question 3 was “Do these implicit preferences differ by years of teaching experience of the college instructors? The effects of teaching experience on the implicit preference scores are presented by the beta coefficients of the teaching experience (years) variable in each regression model.

For the Standard- vs. Chinese-accented English model, given other variables being constant, the difference of years of teaching experience among participants was -0.0011. In other words, the more years of experience the college instructors had, the average implicit preference score was 0.0011 point lower. However, the result suggested no significant effect of teaching experience, since the \( p \) value of teaching experience variable was 0.4475, which was greater than .05 alpha level (see Table 8).

For the Standard- vs. Hispanic-accented English model, given other variables being constant, the difference of years of teaching experience among participants was
-0.0049. In other words, the more years of experience the college instructors had, the average implicit preference score was 0.0049 point lower. However, the result suggested no significant effect of teaching experience, since the $p$ value of teaching experience variable was 0.4368, which was greater than .05 alpha level (see Table 9).

For the Standard- vs. Korean-accented English model, given other variables being constant, the difference of years of teaching experience among participants was -0.0079. In other words, the more years of experience the college instructors had, the average implicit preference score was 0.0079 point lower. However, the result suggested no significant effect of teaching experience, since the $p$ value of teaching experience variable was 0.2706 which was greater than .05 alpha level (see Table 10).

For the Chinese- vs. Hispanic-accented English model, given other variables being constant, the difference of years of teaching experience among participants was 0.0014. In other words, the more years of experience the college instructors had, the average implicit preference score was 0.0014 point higher. However, the result suggested no significant effect of teaching experience, since the $p$ value of teaching experience variable was 0.8151 which was greater than .05 alpha level (see Table 11).

For the Chinese- vs. Korean-accented English model, given other variables being constant, the difference of years of teaching experience among participants was 0.0048. In other words, the more years of experience the college instructors had, the average implicit preference score was 0.0048 point higher. However, the result suggested no significant effect of teaching experience, since the $p$ value of teaching experience variable was 0.5048 which was greater than .05 alpha level (see Table 12).
For the Hispanic- vs. Korean-accented English model, given other variables being constant, the difference of years of teaching experience among participants was 0.0113. In other words, the more years of experience the college instructors had, the average implicit preference score was 0.0113 point higher. The result suggested a significant effect of teaching experience, since the \( p \) value of teaching experience variable was 0.0458 which was less than .05 alpha level. However, a difference of 0.0113 per year meant that it would take 35 years for someone to shift from no preference to moderate preference. Therefore, the relationship, though significant, was weak (see Table 13).

**Research question 4 findings.** Research question 4 was “Do these implicit preferences differ by language background of the college instructors?” The effect of language background, whether home language was English or non-English, on the implicit preference scores are presented by the beta coefficients of language background (L1) variable in each regression model.

For the Standard- vs. Chinese-accented English model, given other variables being constant, the difference between the home language of participants was -0.0754 in the implicit preference score. In other words, participants whose home language was not English had an average 0.0754 point higher score than the ones whose home language was English. However, the results suggested no significant effect of language background on the implicit preference score since the \( p \) value of language background (L1) variable was 0.5385, which was greater than .05 alpha level (see Table 8).

For the Standard- vs. Hispanic-accented English model, given other variables being constant, the difference between the home language of participants was
0.0830 in the implicit preference score. In other words, participants whose home language was not English had an average 0.0830 point lower score than the ones whose home language was English. However, the results suggested no significant effect of language background on the implicit preference score since the $p$ value of language background (L1) variable was 0.4737, which was greater than .05 alpha level (see Table 9).

For the Standard- vs. Korean-accented English model, given other variables being constant, the difference between the home language of participants was -0.0611 in the implicit preference score. In other words, participants whose home language was not English had an average 0.0611 point higher score than the ones whose home language was English. However, the results suggested no significant effect of language background on the implicit preference score since the $p$ value of language background (L1) variable was 0.6444, which was greater than .05 alpha level (see Table 10).

For the Chinese- vs. Hispanic-accented English model, given other variables being constant, the difference between the home language of participants was 0.0464 in the implicit preference score. In other words, participants whose home language was not English had an average 0.0464 point lower score than the ones whose home language was English. However, the results suggested no significant effect of language background on the implicit preference score since the $p$ value of language background (L1) variable was 0.6701, which was greater than .05 alpha level (see Table 11).

For the Chinese- vs. Korean-accented English model, given other variables being constant, the difference between the home language of participants was 0.0700 in the implicit preference score. In other words, participants whose home language was not
English had an average 0.0700 point lower score than the ones whose home language was English. However, the results suggested no significant effect of language background on the implicit preference score since the $p$ value of language background (L1) variable was 0.5962, which was greater than .05 alpha level (see Table 12).

For the Hispanic- vs. Korean-accented English model, given other variables being constant, the difference between the home language of participants was 0.0244 in the implicit preference score. In other words, participants whose home language was not English had an average 0.0244 point lower score than the ones whose home language was English. However, the results suggested no significant effect of language background on the implicit preference score since the $p$ value of language background (L1) variable was 0.8143, which was greater than .05 alpha level (see Table 13).

**Findings for secondary variables.** The secondary predictor variables, which included race/ethnicity and rank, were also examined to provide additional information.

**Race/ethnicity.** The effects of race/ethnicity on the implicit preference scores are presented by the beta coefficients of race/ethnicity variable in each regression model. Again, see Tables 8-13 for the regression analyses outcome of the six regression models.

For the Standard- vs. Chinese-accented English model, given other variables being constant, the difference between non-white and white participants was 0.0030 on the implicit preference score. In other words, non-white participants had an average 0.0030 point lower than white on the implicit preference score. However, the results suggested no significant effect of race/ethnicity on the implicit preference score, since
the $p$ value of race/ethnicity variable was 0.9798, which was greater than .05 alpha level (Table 8).

For the Standard- vs. Hispanic-accented English model, given other variables being constant, the difference between non-white and white participants was 0.0287 on the implicit preference score. In other words, non-white participants had an average 0.0287 point lower than white on the implicit preference score. However, the results suggested no significant effect of race/ethnicity on the implicit preference score, since the $p$ value of race/ethnicity variable was 0.7963, which was greater than .05 alpha level (Table 9).

For the Standard- vs. Korean-accented English model, given other variables being constant, the difference between non-white and white participants was 0.0730 on the implicit preference score. In other words, non-white participants had an average 0.0730 point lower than white on the implicit preference score. However, the results suggested no significant effect of race/ethnicity on the implicit preference score, since the $p$ value of race/ethnicity variable was 0.5667, which was greater than .05 alpha level (Table 10).

For the Chinese- vs. Hispanic-accented English model, given other variables being constant, the difference between non-white and white participants was -0.1405 on the implicit preference score. In other words, non-white participants had an average 0.1405 point higher than white on the implicit preference score. However, the results suggested no significant effect of race/ethnicity on the implicit preference score, since the $p$ value of race/ethnicity variable was 0.1818, which was greater than .05 alpha level (Table 11).
For the Chinese- vs. Korean-accented English model, given other variables being constant, the difference between non-white and white participants was -0.0399 on the implicit preference score. In other words, non-white participants had an average 0.0399 point higher than white on the implicit preference score. However, the results suggested no significant effect of race/ethnicity on the implicit preference score, since the \( p \) value of race/ethnicity variable was 0.7538, which was greater than .05 alpha level (Table 12).

For the Hispanic- vs. Korean-accented English model, given other variables being constant, the difference between non-white and white participants was -0.0319 on the implicit preference score. In other words, non-white participants had an average 0.0319 point higher than white on the implicit preference score. However, the results suggested no significant effect of race/ethnicity on the implicit preference score, since the \( p \) value of race/ethnicity variable was 0.7497, which was greater than .05 alpha level (Table 13).

**Rank.** The effects of rank on the implicit preference scores are presented by the beta coefficients of rank variable in each regression model. Again, see Tables 8-13 for the regression analyses outcome of the six regression models.

For the Standard- vs. Chinese-accented English model, given other variables being constant, the difference between teaching assistants and faculty was -0.0561 on the implicit preference score. In other words, teaching assistants had an average 0.0561 point higher than faculty on the implicit preference score. However, the results suggested no significant effect of rank on the implicit preference score, since the \( p \) value of rank variable was 0.6565, which was greater than .05 alpha level (Table 8).
For the Standard- vs. Hispanic-accented English model, given other variables being constant, the difference between teaching assistants and faculty was 0.0779 on the implicit preference score. In other words, teaching assistants had an average 0.0779 point lower than faculty on the implicit preference score. However, the results suggested no significant effect of rank on the implicit preference score, since the p value of rank variable was 0.5133, which was greater than .05 alpha level (Table 9).

For the Standard- vs. Korean-accented English model, given other variables being constant, the difference between teaching assistants and faculty was -0.1070 on the implicit preference score. In other words, teaching assistants had an average 0.1070 point higher than faculty on the implicit preference score. However, the results suggested no significant effect of rank on the implicit preference score, since the p value of rank variable was 0.4327, which was greater than .05 alpha level (Table 10).

For the Chinese- vs. Hispanic-accented English model, given other variables being constant, the difference between teaching assistants and faculty was 0.0067 on the implicit preference score. In other words, teaching assistants had an average 0.0067 point lower than faculty on the implicit preference score. However, the results suggested no significant effect of rank on the implicit preference score, since the p value of rank variable was 0.9522, which was greater than .05 alpha level (Table 11).

For the Chinese- vs. Korean-accented English model, given other variables being constant, the difference between teaching assistants and faculty was 0.0744 on the implicit preference score. In other words, teaching assistants had an average 0.0744 point lower than faculty on the implicit preference score. However, the results...
suggested no significant effect of rank on the implicit preference score, since the \( p \) value of rank variable was 0.5845, which was greater than .05 alpha level (Table 12).

For the Hispanic- vs. Korean-accented English model, given other variables being constant, the difference between teaching assistants and faculty was 0.3675 on the implicit preference score. In other words, teaching assistants had an average 0.3675 point lower than faculty on the implicit preference score. The results suggested significant effect of rank on the implicit preference score, since the \( p \) value of rank variable was 0.0009, which was less than .05 alpha level (Table 13).

**Observations**

Several participants commented about the quality of the Chinese-accented speaker. These comments identified a possible “weaker” accent for this speaker since one comment was that this accent was less strong than the other speakers. Two female participants felt that this individual sounded more nasal and had sympathy for him as they felt that he had a cold. No other speaker accents were mentioned by the participants.

During the approximately 15-minute test administration, a couple of older participants complained about getting tired and having sore shoulders and hands.

**Summary**

This chapter described the demographic characteristics of the study participants and presented the results of the research study examining the implicit preferences of 93 college instructors toward Standard-, Hispanic-, Chinese-, and Korean-accented English using the auditory multifactor IAT. Six regression equations were used for data analysis. The findings indicated that the college instructors in this study preferred
Standard-accented English slightly more than Hispanic-accented English. On the other hand, the results suggested they had no preferences in Standard- vs. Chinese-, Standard- vs. Korean-, Chinese- vs. Hispanic-, Chinese- vs. Korean-, and Hispanic- vs. Korean-accented English. However, further analysis of the frequency distributions of the mean $d$ scores of the six accented English pairs indicated bi-polar accent biases did exist. It is possible that the similar numbers for the polar opposites balanced each other in the statistical result of no bias.

Among three predictor variables, the effect of teaching experience was statistically significant ($p$ value = 0.0458) in Hispanic- vs. Korean-accented English, but the relationship was weak. The effect of teaching experience was statistically not significant in the rest of the five accented language pairs. Gender and home language had no effect on implicit preference scores. Two secondary predictor variables included race/ethnicity and rank. The rank of participants was statistically significant ($p$ value = 0.0009) in Hispanic- vs. Korean-accented English, but not in the rest of five accented language pairs. Race/ethnicity had no effect on the implicit preference scores.
Chapter 5
Summary, Conclusions, Implications, and Recommendations

The purpose of this study was to examine the implicit language attitudes of college instructors toward accented English using the auditory multifactor Implicit Association Test (IAT). This chapter presents a summary of the study, conclusions, implications, and recommendations for further research based on this study.

Summary

The researcher customized a widely used psychometric instrument, commonly known as the IAT, to assess the implicit attitudes toward Standard-, Chinese-, Hispanic-, and Korean-accented English. The effectiveness of the IAT lies in the premise that individuals hold stereotypes or bias as a result of accumulated past experiences stored in the human brain (Banaji & Greenwald, 2013). The participants cannot set aside these established stereotypes while they perform the IAT tasks. Thousands of journal articles have been published about how the IAT could measure implicit attitudes toward race and sexuality, the biases people are often reluctant to reveal in self-report measures due to the socially undesirable nature. These previous studies have been mostly visual and have used a two-factor IAT. For this study, the researcher used the multifactor IAT which was available for the first time by the release of Inquisit 4.0 software in 2014. Then, she imbedded audio stimuli in it. The result of this manipulation, the auditory multifactor IAT, opened a new way to measure implicit accent bias.
The researcher administered the computer-based auditory multifactor IAT to one person at a time. The sample was obtained through a combination approach using convenience and chain sampling strategies. A total of 95 college instructors at an urban university in Florida volunteered to participate. Four types of accented English were used: Standard-accented English, Chinese-accented English, Hispanic-accented English, and Korean-accented English. These accented English variations were selected because the speakers of these accented English represented the majority of students in higher education settings in the U.S.

As part of the auditory multifactor IAT protocol, participants listened to audio clips of six pairs of accented English (i.e., Standard vs. Chinese, Standard vs. Hispanic, Standard vs. Korean, Chinese v. Hispanic, Chinese vs. Korean, and Hispanic vs. Korean) and viewed texts of eight words with good and bad attributes (i.e., friendly/aloof, pleasant/rude, intelligent/ignorant, and competent/helpless). The four words, friendly/aloof and pleasant/rude, fall under the solidarity dimension. Solidarity refers to the evaluations of language variants as a symbol of in-group identification and interpersonal attraction. Intelligent/ignorant and competent/helpless could be placed under status which referred to the standardness of language variants and the socioeconomic status of speakers. The solidarity and status dimensions have been widely used in language attitude studies to categorize various speaker traits. The researcher selected the eight traits, which were deemed to be relevant in an academic environment, among 116 speaker traits collected in previous accent studies.

The audio clips and visual texts were presented in a series of 14 testing blocks, consisted of a total of 295 screens viewed during one session. Participants responded
to the researcher-assigned association-compatible pairings (e.g., Standard accent/Good) or association-incompatible pairings (e.g., Standard accent/Bad) using two response keys, E or I key, on the computer keyboard. The auditory multifactor IAT measured the automatic evaluative associations of participants in milliseconds.

The basic concept of this version of the IAT protocol was as follows. If test participants exhibited the briefest of hesitations when they were hearing an accented audio clip and saw it associated with the keyboard key that they were instructed to associate with "good attributes," then a potential bias was indicated when compared to their responses of a standard-accented English and other accents. In the protocol, the participants were asked to repeat these associations numerous times building a body of responses that generated the final IAT scoring at the end of the test.

In this case, the result indicated college instructors who participated in this study preferred Standard-accented English slightly more than Hispanic-accented English. However, these college instructors did not indicate implicit preferences among the remaining five pairs of the accented English.

However, analysis of the frequency distributions of the mean d scores of the six accented English pairs indicated bi-polar accent biases did exist. It is possible that the similar numbers for the polar opposites balanced each other in the statistical result of no bias.

Conclusions

The conclusions drawn from this study are presented below.

College instructors exhibited almost no bias against the accented English speakers in this study. However, there was a slight preference for Standard-accented
English over Hispanic-accented English. Although there were no significant differences based on the statistical tests, histograms showed that there appeared to be preferences on both sides of the spectrum indicating that preferences, or biases, did exist for all six pairs. In these cases, the preferences, or biases, existed both ways and probably balanced out the results for the significance tests.

Gender had no effect on the implicit preferences towards accented English.

Similarly, home language background had no effect on the implicit preferences towards accented English.

The years of teaching experience had almost no effect on the implicit preferences. However, the more years of teaching experience the college instructors had, the higher an average implicit preference score for the Hispanic- vs. Korean-accented English although the relationship was weak.

Race/ethnicity and rank were two other secondary variables. There were no implicit preferences towards accented English when factoring in the race/ethnicity of the college instructors.

Rank had almost no effect on the implicit preferences. However, teaching assistants had a lower implicit preference score than faculty for the Hispanic- vs. Korean-accented English.

Based on the results of this research, there were slight biases toward Hispanic-accented English in favor of Standard-accented English. There appeared to be no preferences between the remaining five pairs of accented English. However, histograms showed that bi-polar preferences, or biases, did exist in all six pairs of accented English.
Implications

College instructors in this study seemed to have almost no bias toward accented English except a slight preference toward Standard-accented English over Hispanic accented English. However, histograms of the study results indicated that the college instructors appeared to have preferences on both sides of the spectrum. Preferences—or biases—did exist on both sides of the comparisons.

Faculty, educational administrators, and students could use the taking of this test as a topic of discussion in faculty development, teaching assistant training, student services, and diversity training in higher education institutions. It potentially would aid in raising the awareness about hidden-yet-present accent bias and prevention of potential prejudice toward Hispanic-accented English speakers.

The educational administrators should be cautious in drawing conclusions about accent bias in this study, which seems to be more complex than it appears to be on the surface. The study initially indicated almost no accent bias among college instructors, based solely on the statistical tests. However, further observations of the histograms suggested potential bi-polar biases since the figures indicated that preferences existed for both sides of the spectrum. Administrators need to be aware that preferences do exist toward accented English speakers. These preferences—or the opposite response, biases toward an accent—may be important in selecting instructors.

Recommendations

The recommendations for future research based on the result of this study relate to two areas: instrumentation and further research.
For instrumentation. There are two recommendations to improve the auditory multifactor IAT and one recommendation for the demographic questionnaire.

Controlling confounding variables. For the audio stimuli of this test, attempts were made to control for voice tone, accent strength (understandability), and speech rate of the accented English speakers so that they were as similar as possible. However, feedback from participants and the researcher’s experience with administering the test indicated that more emphasis was needed on controlling these attributes of the audio clips. Controlling these confounding variables would strengthen the validity of the instrument. Increased control of environmental confounding factors, such as background noises, is also suggested. It would help minimize task-irrelevant errors that could occur more easily in response latency studies like this one, where the participant’s response time and focus are critical.

Adding alternative comparison methods. Adding an explicit measurement (e.g., such as a language bias scale) might provide better explanation of language attitudes of an individual and offer a richer set of data for analysis that could allow researchers the opportunity to better explore the nature of these potential biases. This could involve in-depth interviews to explore the participants’ emotions such as positive and negative experiences with an individual or group who speak with the accent being tested.

Using female accented speakers. The current study used only male accented speakers. As this research about the potential bias of college instructors and considering the fact that the majority of college students in the United States are female, conducting future research using female voices is recommended for the purpose of
gender balance. It also may be worthwhile to investigate if potential accent bias has a
gender component in terms of the speaker, not just the listener.

**Selecting stronger accents.** Feedback from participants during and after the
current study tended to indicate that some of the speakers used in the audio samples
did not really have what they would consider strong foreign accents, which might have
negated potential bias toward the speakers. Preparing the audio stimuli (i.e., speech
samples) with more distinctive and stronger accents might yield more significant results.

**Adding socioeconomic status (SES).** Adding the SES variable in the
demographic questionnaire is recommended to ensure research integrity. The SES and
education levels are known as the two most important predictors of an individual’s
language attitudes. These two variables were assumed to be controlled in current study
due to the status of the participants.

**For further research.** Despite the initial results indicating general lack of accent
bias in this study, further analysis revealed preferences--or biases--existed in all six
accent pairs. The researcher would be hesitant to conclude that biases do not exist in
this or other settings. With future refinement of this instrument, there are numerous
future research possibilities to use the auditory multifactor IAT with alternative accented
languages, locations, and populations. Further investigation may be required regarding
the source of some biases involved with Hispanic-accented English speakers in this
study. Also it might be worthwhile to examine the impact of frequent contact by the
listener with different accents. Different sectors in society can be a fertile ground for
similar research since a diversity of language is hardly limited to college campuses or to
the four accents in this study.
**Other accented languages.** Further research can be conducted with other accented languages. Regional accents, such as a Southern accent, African American accent, Appalachian accent, and New York accent, are possible accents to explore.

Other foreign languages may also be worthwhile to research. In 2013, one fifth of the U.S. population spoke languages other than English at home. This study examined only three foreign-accented English (Chinese, Hispanic, and Korean), because the speakers of these accents represented the majority of students in higher educational institutions in the U.S. Therefore, future research possibilities with other accented languages could be endless.

**Alternative locations.** This research study could be expanded and conducted in other locations. Investigating implicit language attitudes in other colleges and universities in Florida could help understanding the nature of hidden accent bias. Other colleges and universities in other states are also possible alternative locations.

**Alternative populations.** Although this study included paid teaching assistants in the definition of instructors, implicit language attitudes of full-time faculty members might be valuable to determine whether they have more or less bias. Full-time faculty members have more power and authority to impact self-confidence and academic achievement of students. Investigating the responses of students toward accented-English speaking faculty is also recommended.

**Hispanic-accented speakers.** Further research can be conducted to examine the source of some biases toward Hispanic-accented speakers in the current study. In addition, why and how the years of teaching experience were related to some biases, although the relationship was weak, involved with Hispanic-accented English speakers
can be investigated. Similarly, why and how rank had an effect on some preference scores involved with Hispanic-accented speakers can be investigated.

**Impact of exposure.** Does exposure to and interacting with diverse accented speakers in academic environment make a difference? The relationship of the level of diversity and bias toward different accents can be explored.

**Different sectors in society.** This research study was limited to a higher education environment. Future studies could examine the hidden accent bias in different sectors in society. It might help shed light on understanding how this type of bias impacts different relationships in society. Potential sectors for research include criminal justice, healthcare, housing, customer services, and job interviews.
References


Appendices
Appendix A: Demographic Questionnaire

Please take a few moments and tell us about your language and you. For purposes of confidentiality, NO names will be requested.

About your language
1. What is your country of birth? ____________________________
2. What is your mother’s country of birth? __________________________
3. What is your father’s country of birth? __________________________
4. What is your first or native language?
   ___ American English
   ___ Other English. Please specify: __________________________
   ___ Other language. Please specify: __________________________
5. What language do you speak at home? __________________________
6. What foreign language(s) do you speak? Speak in a sense of being able to carry out daily conversation comfortably with a native speaker. Please list all. ______________________________________________
7. Have you attempted to learn foreign language(s)? __________________________
8. How many nonnative English speaker friends do you have outside your workplace? __________________________

About you
9. What year were you born? __________________________
10. What is your gender? ___Female ___Male ___Other
11. What is your ethnic background?
   ___ White
   ___ African American
   ___ American Indian and Alaska Native
   ___ Asian
   ___ Native Hawaiian & Other Pacific Islander
   ___ Some Other Race
   ___ Two or More Races
   ___ Latino
   ___ Other. Please specify. __________________________
12. What is the highest level of education you have completed?
   ___ Master’s degree
   ___ Doctor’s degree
13. How many years have you taught? Please include teaching experience of being a part-time, full-time, and paid graduate assistant. __________________________

Thank you so much for your time!!
Appendix B: Verbal Task Instructions for the Auditory Multifactor IAT

Hi, my name is Eunkyung. This project is to determine your implicit attitude toward accented English. It is very important that you go AS QUICKLY and ACCURATELY as you can.

[Show the screen.] On the screen, there are four categories of accented English, Standard-, Chinese-, Hispanic-, and Korean-accented English, and two categories of words. You will have a chance to listen to the four accented speech at the beginning of each trial block.

Once the test starts, you will either hear an accented speech or see a written word in the center of the screen. You will use E or I key to indicate which category the word or speech belongs to. Press the E key if the speech or word belongs to the category shown on the upper left side of the screen, and press the I key if it belongs to the category shown on upper right side of the screen. If a “x” mark appears, quickly press the other key, E or I, and continue. It helps proceeding to next screen. There will be parts of the experiment that will appear twice. That is normal and you should keep going. This test starts with a few practice trials. The test will take about 15 minutes.

Important. When you hear a speech, focus on accent, select from blue-coded category. For a word, focus on meaning, and select from yellow-coded category.

Please put your middle or index fingers on the E and I keys of your keyboard now. The test will start when you click “I am ready to begin the task.”
Appendix C: Screen Images of the Auditory Multifactor IAT

Target Categories

Chinese Accent
Korean Accent
Hispanic Accent
Standard Accent

GOOD
BAD

In the following screens, an accented speech or a written word will be presented to you. When you believe the speech or word belongs to the category on the upper left, press the E key. When you believe it belongs to the category on the upper right, press the I key. If an x mark appears, quickly press the other key to continue. This will help proceed to the next screen. There are no right or wrong answers.

Place your index or middle finger from both hands on the E and I key at this time. Go as fast as you can.  

I am ready to begin the task

Image 1: General task instruction screen

Chinese Accent

Press <ENTER> to hear the sound examples that will be used

or

GOOD
Pleasant  Friendly  Competent  Intelligent

In the following screens, press the I key if a speech or word belongs to a Chinese Accent or Good, positioned on the upper right. Press the E key for Other Accent or Bad, positioned on the upper left.

Go as fast as you can

Press the space bar to begin

Image 2: A task instruction screen for a testing block
Appendix C (continued)

Other Accent or BAD

Chinese Accent or GOOD

Image 3: A trial screen with an audio stimulus

Other Accent or BAD

Chinese Accent or GOOD

Competent

Image 4: A trial screen with a text stimulus
You are being asked to take part in a research study. Research studies include only people who choose to take part. This document is called an informed consent form. Please read this information carefully and take your time making your decision. Ask the researcher or study staff to discuss this consent form with you, please ask him/her to explain any words or information you do not clearly understand. The nature of the study, risks, inconveniences, discomforts, and other important information about the study are listed below.

We are asking you to take part in a research study called: **College Instructors’ Implicit Attitudes Toward Accented English.** The person who is in charge of this research study is Eunkyung Na. This person is called the Principal Investigator. However, other research staff may be involved and can act on behalf of the person in charge. She is being guided in this research by Dr. Waynne B. James.

The research will be conducted at the University of South Florida.

**Purpose of the study**

The purpose of this study is to examine implicit attitudes toward accented English among instructors in higher educational settings using the auditory multifactor Implicit Association Test.

**Why are you being asked to take part?**

We are asking you to take part in this research study because your implicit language attitudes as a college instructor are important tools to improve teacher-student interactions, student’s academic achievement and self-concept, and teacher education.
Appendix D (continued)

**Study Procedures:**

If you take part in this study, you will be asked to:

- respond to a demographic questionnaire with 12 questions about your demographic background, foreign language experiences, and education. This will help the researcher to understand the background of participants and their language. The questionnaire will be administered only once.

- participate in a computer-based auditory multifactor Implicit Association Test (IAT). Participants will view 14 test blocks of 295 screens that appear very briefly and sort audio and text stimuli as quickly as they can by pressing “E” or “I” key on the key board. This instrument will measure your implicit preference of accented speech in milliseconds. You will receive verbal instructions and brief demonstration on how to take the test. You will have a chance to practice to familiarize yourself with the test format. After the practice, the audio multifactor IAT will be administered only once.

- spend about 15 minutes at a quiet place at the University of South Florida to complete the demographic questionnaire and auditory multifactor IAT.

**Total Number of Participants**

About 200 individuals will take part in this study at USF.

**Alternatives / Voluntary Participation / Withdrawal**

You do not have to participate in this research study.

You should only take part in this study if you want to volunteer. You should not feel that there is any pressure to take part in the study. You are free to participate in this research or withdraw at any time. There will be no penalty or loss of benefits you are entitled to receive if you stop taking part in this study. Deciding not to participate will not affect your student status or job status.

**Benefits**

You will receive no benefit(s) by participating in this research study. The potential benefits of participating in this research study include:

Participants may find it interesting to reflect upon his/her own thoughts and feelings toward accented English and its speakers. Participants may anticipate the potential benefits to future educators after this study is completed.
Appendix D (continued)

Risks or Discomfort

This research is considered to be minimal risk. That means that the risks associated with this study are the same as what you face every day. There are no known additional risks to those who take part in this study.

Compensation

There will be no monetary compensation.

Costs

It will not cost you anything to take part in the study.

Privacy and Confidentiality

We will keep your study records private and confidential. Certain people may need to see your study records. Anyone who looks at your records must keep them confidential. These individuals include:

- The research team, including the Principal Investigator and supervising professor.
- Certain government and university people who need to know more about the study, and individuals who provide oversight to ensure that we are doing the study in the right way.
- Any agency of the federal, state, or local government that regulates this research.
- The USF Institutional Review Board (IRB) and related staff who have oversight responsibilities for this study, including staff in USF Research Integrity and Compliance.
- We may publish what we learn from this study. If we do, we will not include your name. We will not publish anything that would let people know who you are.

You can get the answers to your questions, concerns, or complaints

If you have any questions, concerns or complaints about this study, or experience an unanticipated problem, call EunKyung Na at (xxx) xxx-xxxx.
If you have questions about your rights as a participant in this study, or have complaints, concerns or issues you want to discuss with someone outside the research, call the USF IRB at (813) 974-5638.
Appendix E: Consent to Take Part in the Research Study

I freely give my consent to take part in this study. I understand that by signing this form I am agreeing to take part in research. I have received a copy of this form to take with me.

_____________________________  ________________________
Signature of Person Taking Part in Study          Date

_____________________________
Printed Name of Person Taking Part in Study

Statement of Person Obtaining Informed Consent

I have carefully explained to the person taking part in the study what he or she can expect from their participation. I confirm that this research subject speaks the language that was used to explain this research and is receiving an informed consent form in their primary language. This research subject has provided legally effective informed consent.

_____________________________  ________________________
Signature of Person obtaining Informed Consent          Date

_____________________________
Printed Name of Person Obtaining Informed Consent
Appendix F: Institutional Review Board Research Approval Letter

September 29, 2015

Eunkyung Na
L-CACHE - Leadership, Counseling, Adult, Career & Higher Education
Tampa, FL 33612

RE: Expedited Approval for Initial Review
IRB#: Pro00023802
Title: College Instructors’ Implicit Attitudes Toward Accented English


Dear Ms. Na:

On 9/29/2015, the Institutional Review Board (IRB) reviewed and APPROVED the above application and all documents contained within, including those outlined below.

Approved Item(s):
Protocol Document(s):
Study Protocol of Implicit Language Attitudes

Consent/Assent Document(s)*:
Na Informed Consent V#1 9.24.15.pdf

*Please use only the official IRB stamped informed consent/assent document(s) found under the "Attachments" tab. Please note, these consent/assent document(s) are only valid during the approval period indicated at the top of the form(s).

It was the determination of the IRB that your study qualified for expedited review which includes activities that (1) present no more than minimal risk to human subjects, and (2) involve only procedures listed in one or more of the categories outlined below. The IRB may review research through the expedited review procedure authorized by 45CFR46.110 and 21 CFR
Appendix F (continued)

56.110. The research proposed in this study is categorized under the following expedited review category:
(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

As the principal investigator of this study, it is your responsibility to conduct this study in accordance with IRB policies and procedures and as approved by the IRB. Any changes to the approved research must be submitted to the IRB for review and approval via an amendment. Additionally, all unanticipated problems must be reported to the USF IRB within five (5) calendar days.

We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-5638.

Sincerely,

John Schinka, Ph.D., Chairperson
USF Institutional Review Board
About the Author

Eunkyung Na received her Ph.D. in Curriculum and Instruction with an emphasis in Adult Education. She earned an M.Ed. in Secondary Education with specialization in Teaching English for the Speakers of Other Languages (TESOL) at the University of South Florida and B.A. in English Language and Literature from Ewha Womans University in Seoul, Korea.

Before her doctoral studies, she taught Korean and Japanese at U.S. colleges for their Continuing Education programs. She also participated in multi-language software development and testing projects for a Global Network and Technology Division at a major financial institution in New York City.

Eunkyung’s research interests include language attitudes, implicit social cognition, diversity issues at workplaces and schools, and self-directed learning including study circles of adults in different countries.