Assessing Accent Anxiety: A measure of Non-native English Speakers' concerns about their Accents

by

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Abstract

Non-native speakers (NNS) often experience anxiety due to challenges posed by their accented speech. Building on these insights, this paper introduces an instrument, the Accent Anxiety Scale (AAS), specifically designed to assess three sources of NNSs' accent anxiety, including: (1) NNS's apprehension about negative evaluations about themselves, personally, tied to their non-standard pronunciation (Fear of Negative Evaluation), (2) concerns about rejection from the native speaker community because of their "foreign" pronunciation (Fear of Intergroup Rejection), and (3) anxieties over potential communication hurdles attributed to their pronunciation (Intelligibility Concerns). We evaluated the psychometric robustness of the AAS by analyzing data from a total of 474 immigrant and international student NNSs at a western Canadian university. Study 1 (N = 203) employed exploratory factor analysis and correlational analysis, Study 2 (N = 153) employed confirmatory factor analysis and replicated validation in study 1, and Study 3 (N = 118) tested temporal consistency and provided further evidence validating the scale. Robust evidence emerges supporting the factor structure, reliability, and validity of the AAS. The findings not only support the use of the AAS in research, they also offer implications for pedagogical strategies aimed at alleviating NNSs' accent anxiety.

Keywords: accent anxiety; foreign language anxiety (FLA); non-native speakers (NNS); pronunciation; measurement

Preface

This thesis is an original work by Qingyao Xue. The research project, of which this thesis is a part, received research ethics approval from the University of Alberta Research Ethics Board, Project Name “Accent Anxiety Study”, Pro00125445, Mar. 13, 2023.

Table of Contents

List of Tables

List of Figures

Introduction

The quest to master standard pronunciation often presents a formidable challenge to second language learners, a fact that has propelled scholarly interest and research within the domain of foreign language acquisition to new heights. As Lippi-Green (1997) articulates, an accent is a collection of "loose bundles of prosodic and segmental features" that varies across speakers from geographic or social boundaries. This difference is especially pronounced in non-native speakers (NNS), who often retain a distinct accent from their native tongue, regardless of their proficiency in their new language(s). This retention, termed the "Joseph Conrad phenomenon" or the "Henry Kissinger effect" by Scovel (1978), underscores the fact that accents are not mere linguistic markers but hold profound sociocultural and symbolic significance (Cai et al., 2022; Chakraborty, 2017; Diao, 2017; Duff, 2007; Gatbonton et al., 2011; Jones, 2001). Within native speaker communities, biases based on accents are evident, influencing perceptions of prestige, competence, and social attractiveness (Bishop et al., 2005; Honey, 2017). If native speakers suffer from potentially negative evaluations of their pronunciation, one must question the anxieties NNS might feel about their own accents. While a substantial amount of research has dissected the attitudes of native speakers towards NNS accents, there is a noticeable void in exploring how NNS view their own accents. The prevailing focus on native speakers' (NS) attitudes risks neglecting the self-perceptions, concerns, and potential anxieties NNS might hold about their own speech patterns. This paper seeks to fill this gap, endeavoring to gain a comprehensive understanding of "accent anxiety" from the NNS viewpoint. By emphasizing its relevance as a subset of English speaking anxiety, we hope to offer a more holistic view of the complexities surrounding accents in language acquisition and communication.

Measuring English speaking and pronunciation anxiety

Research has consistently emphasized the existence of anxiety experienced by individuals learning English as a foreign language, and its negative effect to NNS's language practice. This specific anxiety, termed Foreign Language Anxiety (FLA), encompasses the feelings of tension and apprehension that arise during language acquisition and practice. Earlier investigations sometimes grouped FLA with other forms of anxiety, such as test and state-trait anxieties. However, Scovel (1978) argued that language anxiety stands as a distinct concern. Throughout scholarly discourse, the definition of FLA has evolved. MacIntyre and Gardner (1994b) have framed it as an emotion directly linked to the process of learning another language. Yet, a definition by Horwitz et al. (1986) has gained broad acceptance, positing FLA as a unique type of anxiety rooted in the language learning process, encompassing individuals' self-perceptions, beliefs, and behaviours. This perspective highlights FLA's distinct nature and is widely referenced in contemporary discussions.

Within the scope of assessing anxiety related to speaking a foreign language, we can categorize tools into those designed for classroom contexts and those for external environments. Predominantly, classroom-focused tools have been influenced by the Foreign Language Classroom Anxiety Scale (FLCAS) introduced by Horwitz et al. (1986). Instruments like the Foreign Language Speaking Anxiety Questionnaire (FLSAQ) and the English Speaking Anxiety Scale (ESAS) were developed to assess speaking anxiety while using the language in the classroom (Öztürk & Gürbüz, 2013; Liu, 2018b). In contrast, for environments outside the classroom, Clément and Baker's (2001) English Use Anxiety Scale aims to measure English usage anxiety in everyday scenarios outside the classroom. Furthermore, Woodrow's (2006) Second Language Speaking Anxiety Scale (SLSAS) merges insights from both classroom and

daily life contexts. Despite these contributions, there still remains a need to broaden our understanding beyond general English speaking anxieties.

Zooming into a more specialized area of speaking anxiety, Baran-Łucarz (2014, 2016) developed the Pronunciation Anxiety Scale (PAS) to assess learners' anxieties related to English pronunciation within academic environments. This tool has been instrumental in exploring the interplay between learners' pronunciation anxieties and their motivations to learn and willingness to communicate in classroom settings. In their work, pronunciation anxiety is conceptualized as a complex emotion encompassing apprehensions stemming from negative self-perceptions and specific beliefs and fears of pronunciation-related concerns. While these studies have significantly advanced our understanding, there remains a pressing need for a validated tool that gauges accent-related anxieties in real-world contexts beyond classrooms.

Accent Anxiety

Extant research has closely studied the challenges faced by NNSs when they speak English with their native language accents in day-to-day life (Baquiran & Nicoladis, 2020; Bresnahan et al., 2002; Chakraborty, 2017; Kristiansen, 2001; Park et al., 2022; Romero-Rivas et al., 2022; Spence et al., 2022). One consistent, noteworthy observation from these studies is the phenomenon of accent-induced anxiety. This anxiety often stems from deeply held beliefs about the accepted standards of language and societal views on different accents. When NNSs communicate with individuals possessing native-like accents, this anxiety can intensify, potentially impacting their speech clarity and overall understanding (Wilang & Singhasiri, 2017). Kim et al. (2019) identified various negative experiences that NNSs go through when conversing with native speakers (NS), ranging from feeling typecast based on stereotypes to actively avoiding such interactions. While many past studies have spotlighted the presence of accent

anxiety in NNSs' English practice, they've also pointed out its various correlates. In the sections that follow, we aim to delve deeper into the existing literature to explore the nature of NNSs' accent anxiety and its psychological and sociocultural correlates.

Fear of Negative Evaluation

A predominant concern among NNSs is the apprehension of negative evaluations due to their accented speech, stemming from their deviation from perceived language norms. Without targeted instruction, NNS often struggle to discern and assimilate pronunciation features intrinsic to native speakers (Foote & Trofimovich, 2016). The deep-seated pursuit of linguistic "standardness" has often become a barrier to NNSs' acceptance of their own unique accents, thereby heightening anxiety. In a significant study, Scales et al. (2006) examined the perspectives of international students in the U.S. Their results showed that most students aspired for a native-like accent, often overlooking the importance of being simply understood. A gap was noticeable between their accent goals and their actual language abilities. There was a clear trend of idealizing NS English, underlined by certain misconceptions about speech. This gap between what they wish to achieve and their actual understanding of accent nuances suggests that many are aiming for an "ideal" accent, an aspiration not necessarily tempered even after long stays in English-speaking countries. With age played a key role in retaining an accent (Flege et al., 1995), striving for a complete NS-like pronunciation may further amplify their anxieties.

Kimura (2021) studied Japanese learners of English and the sources of their accent-related anxieties. These feelings were often linked to how they presented themselves. A recurring theme was the deep-seated fear of being negatively judged. Authority figures in the English world, such as NS or experienced educators, were found to amplify these anxieties. Some learners, even after extensive practice, felt overwhelmed when their pronunciation

mistakes were highlighted. The learners reported that these concerns affected both one-on-one conversations and interactions with larger groups.

Consistent with Kimura's findings, Baran-Łucarz (2017) found that NNS with elevated anxiety levels were more worried about external feedback and were especially sensitive to criticism, leading to reduced confidence and a declining drive to improve. Coppinger and Sheridan (2022) likewise found that fear of negative feedback is central to accent anxiety. Interestingly, they believed this fear is more internal, rather than based on actual external feedback (Baran-Lucarz, 2017), or perceived expectations from others (Kimura, 2021). In essence, the anxiety is self-imposed, stemming from one's own pressures rather than fears of external criticism. Their study suggested that real-world positive English interactions might help alleviate this anxiety. Some participants, despite their fears of embarrassing scenarios, lacked substantial real-world English interactions, rooting their anxieties in imagination. Interestingly, the study found that French NNSs were more anxious when speaking with fellow NNSs than with NS. This stronger anxiety, driven more by perceived rather than actual negative experiences, further indicates that accent anxiety might be more about internal fears.

Fear of Intergroup Rejection

Accent anxiety is rooted not just in the fear of communication barriers but is deeply influenced by concerns about ethnic prejudice and the navigation of one's identity. While often seen primarily as linguistic markers, accents hold significant socio-cultural implications, closely linked with an individual's identity and cultural background (Gordon, 2000; Jones, 2001; Marx, 2002; McCrocklin & Link, 2016; Szyszka, 2022). For NNSs, their accent becomes more than a linguistic trait; it symbolizes their cultural and ethnic heritage. In various English-speaking contexts, this accent can also become a reason for bias. As sarcastically noted by Cook (1999, p.

195), NNSs with discernible accents are often derogatorily perceived as “failures.” Such viewpoints, beyond mere linguistic criticisms, reflect deeper biases rooted in racial and ethnic discrimination. Such perceived biases amplify anxiety, especially when NNSs struggle with the potential for being discriminated against based on ethnicity. These negative perceptions of accented English are evident across several spheres of life, marking it as a widespread issue globally (e.g., Baquiran & Nicoladis, 2020; Bresnahan et al., 2002; Chakraborty, 2017). In multicultural settings, where accents are diverse, native speakers might, even unintentionally, associate foreign accents with racial or ethnic stereotypes (Piller, 2002). This association heightens accent anxiety, making NNSs wary not only of their speech but also of the unintended ethnic connotations it might project.

Highlighting the challenges faced by immigrants and international students in English-speaking countries, Derwing’s (2003) research captured widespread sentiments. The immigrant ESL learners in Canada expressed their worry and a desire for better pronunciation, mainly driven by a quest for societal acceptance. Derwing (2003) noted that not all accents face biases; specific ones linked with certain ethnic backgrounds are more prone to prejudice. While some acknowledged occasional understanding and patience, the predominant feelings were clouded by encounters of indifference, outright impoliteness, and deliberate misunderstandings. Echoing this finding, Veliz et al. (2021) described the alienated experiences of international students in Australian institutions due to their accents.

Dovchin and Dryden’s (2022) insightful interviews with Australian migrants further illuminated these concerns. One participant expressed fears that her foreign accent might inadvertently tarnish the reputation of her entire ethnic group, resonating with broader issues of maintaining collective pride and avoiding societal shaming. Her interactions in English were

laden with embarrassment, distress, and significant anxiety. Such feelings might be indicative of subtle accent biases where some native speakers, perhaps even unknowingly, modify their attitudes towards NNSs, placing most of the communication burden on them. For newcomers like immigrants or international students, navigating these anxieties can be especially daunting.

Intelligibility Concerns

For some NNSs, achieving clear communication in English is more urgently required and paramount. They see the language chiefly as a communication medium, and their concerns about accents predominantly stem from its potential hindrance to effective discourse. Many NNSs stress the significance of having clear pronunciation as a means to facilitate smooth communication.

Derwing and Rossiter (2002) conducted an in-depth study, evaluating the communication challenges of NNS immigrants in Canada. They pinpointed pronunciation as a major factor impacting their communicative interactions. Interestingly, a significant portion of their subjects identified their own accent as the primary communication barrier. A majority struggled to specify their exact pronunciation issues, felt unsure about improvement strategies, and struggled with mastering certain English sounds. The researchers hypothesized that these participants might have either missed out on effective training or did not benefit much from the language instruction they did receive. For example, a lot of learners focused more on specific sounds like “th” or “l/r” than on the overall flow or tone of speech. Building on this, Derwing (2003) observed that while many learners acknowledged the challenges posed by their accents, they often lacked clarity on the particular problems and the ways of improvement.

Broadening the research horizon, Boonsuk and Fang (2022) surveyed international students in a Thai university. Their findings indicated that communication barriers largely

shaped participants' discontent with their accents. A key insight was the students' focus on ensuring effective communication. This emphasis on clarity over perfect native-like pronunciation was further corroborated in a study with Iranian English teachers conducted by Barzegar Rahatlou et al. (2018). These educators, deeply engaged with the English language, appeared to have a more practical perspective on accents, prioritizing their own intelligibility for better communicative competence.

The Operationalization of Accent Anxiety

In summary, these existing studies shed light on the complex nature of NNS's accent anxiety, providing a nuanced understanding of factors in both individual and societal dynamics. However, many studies employed qualitative approaches to investigate the interplay of NNSs' concern about their own accent and their psychological sources of fear, establishing a foundation for a clear operationalization of this construct, which is necessary in order to study its antecedents and outcomes in difference domains in larger samples of NNS.

While some studies have explored classroom settings with a pedagogical lens (e.g. Baran-Lucarz, 2011, 2014, 2017), others have delved into general beliefs, motivations, and willingness towards accent modification (e.g. Derwing, 2003). However, a comprehensive investigation into a wider multicultural context outside the classroom remains to be done to gain a structural understanding of accent anxiety. Nonetheless, prior research provides valuable insights into the multifaceted nature of NNS's accent anxiety.

Drawing from this collective knowledge, we conceptualize NNS's accent anxiety as an emotional response stemming from actual, perceived, or imagined challenges in linguistic interactions. Horwitz et al.'s (1986) FLCAS and its shortened version by Botes et al. (2022) identified three dimensions of foreign language anxiety: (1) communication apprehension, (2)

fear of negative evaluation, and (3) test anxiety. Inspired by this foundational work, our conceptualization of accent anxiety leans on the FLCAS framework. We chose to omit the test anxiety dimension, and introduced an additional dimension centered around concerns of intergroup rejection, in light of the nuances of intercultural communication. Furthermore, we broadened the "fear of negative evaluation" dimension to encompass avoidance of feelings of inferiority connected to linguistic practice, self-perception, and proficiency in real-world scenarios as opposed to a classroom environment.

As a result, according to previous research findings, our conceptualization of accent anxiety encompasses three areas: (1) NNS's apprehension about negative evaluations about themselves, personally, tied to their non-standard pronunciation (Fear of Negative Evaluation), (2) concerns about rejection from the native speaker community because of their "foreign" pronunciation (Fear of Intergroup Rejection), and (3) anxieties over potential communication hurdles attributed to their pronunciation (Intelligibility Concerns). Contrary to Baran-Łucarz's (2017) model on pronunciation anxiety (PA) which includes dimensions of pronunciation self-efficacy, self-image, fear of negative evaluation, and learner-related pronunciation beliefs, our model underscores real-world interactions outside the English classroom. In a multicultural setting, most NNSs are not just learners but active users of English (Cook, 1999, 2017). As many are no longer in formal English classes, and their interactions are largely in real-life contexts, our framework integrates more sociolinguistic elements, transcending purely linguistic and pedagogical viewpoints.

Research objectives and analytic plan

To date, no instruments exist to gauge the reasons that NNSs might be anxious about their accent outside of classroom settings. To address this gap, our model draws on the concerns

identified in previous studies, including concerns about ineffective communication, fear of negative evaluations, and stigmatization due to ethnolinguistic group membership. The primary goal of this research is to devise an instrument for evaluating these dimensions of NNS's anxiety concerning their accent. Items derived from established instruments, coupled with novel items inspired by prior qualitative research, will undergo exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) scrutiny. Subsequently, we will evaluate the scale's psychometric properties, encompassing its reliability and validity. In particular, the study will assess the scale's consistency, the interrelationships between its dimensions, and its correlations with both presumed relevant and irrelevant variables. The descriptive and reliability analyses, correlational tests, and the EFA will be executed using Jamovi 2.3 (The Jamovi Project, 2023), whereas the CFA will be conducted utilizing Mplus 8.6 (Muthén & Muthén 2017).

Study 1

Method

Participants and Procedure

Immigrant students who were native speakers of languages other than English (LOTE) (N = 203; 44.3% males, 55.2% females, 0.5% did not wish to disclose) were recruited from introductory psychology courses at a western Canadian university. The top five native languages reported were Tagalog (7.88%), Punjabi (6.40%), Hindi (5.42%), Urdu (4.93%), and Spanish (3.94%). The age of participants ranged from 17 to 32 years old (M = 19.44, SD = 1.84). The average length of residence (LOR) in Canada was 11.29 years (SD = 5.18). Missing data only accounted for 0.47% of the responses for all variables measured, which is not likely to affect the validity of the analysis (Dong & Peng, 2013).

The data was collected online using the Qualtrics survey platform during a group testing session. Prior to the start of the survey, participants filled out consent forms and were provided with study procedures. All participants completed a questionnaire which took them an average of 30 minutes. For their collaboration, these students receive partial course credit. This research project has been approved by the institutional ethics review committee at the university.

Materials

Accent Anxiety. The Accent Anxiety Scale (AAS) encompasses three distinct subscales that assess NNS's concerns about their accent: Fear of Negative Evaluation (FNE), which delves into anxiety derived from apprehensions of potential adverse judgments due to their foreign accent (e.g., "I fear people making fun of my English accent"); Fear of Intergroup Rejection (FIR), underscoring anxiety arising from worries about being rejected by interlocutors from other ethnic groups (e.g., "It bothers me that my English accent identifies me as an outsider"); and Intelligibility Concerns (IC), gauging anxiety related to concerns that others may struggle to understand their speech (e.g., "I worry people don't understand me because of my accent").

For the initial version of the scale, each subscale featured between six to eight items, culminating in a total of 20 items. Participants responded on a 6-point Likert scale, spanning from "strongly disagree" to "strongly agree." The item pool pertaining to English-speaking anxiety was drawn and adapted from established works on foreign language anxiety, including the Foreign Language Classroom Anxiety Scale (FLCAS; Horwitz et al., 1986), the Short-form Foreign Language Classroom Anxiety Scale (SFLCAS; Botes et al., 2022), the Pronunciation Anxiety Scale (PAS; Baran-Łucarz, 2016), and the English Use Anxiety Scale (see Clement & Baker, 2001). Additionally, other scales, not directly addressing English anxiety but touching on

foreign accent nuances, were referenced for crafting items within the AAS, utilizing studies by Derwing (2003), Leary (1983), McCrocklin & Link (2016), and Szyszka (2022).

English Use Anxiety. English use anxiety was evaluated using an eight-item English Use Anxiety scale (Clément & Baker, 2001). Participants rated the extent to which they felt anxious while using English (1 = strongly disagree, 6 = strongly agree). Questions covered English using experience when interacting with different interlocutors and under various situations (e.g., "I get nervous every time I have to speak in English to a salesclerk."). The average score was computed to represent the overall level of anxiety using English ($\alpha = .87$).

English Listening/Reading/Writing Anxiety. Anxiety associated with the three other English language skills, including listening, reading and writing, was measured using three 9-item scales (Cheng, 2017; e.g., "When listening to English, I often worry that I will miss information"; "When reading English, I often worry that I will misunderstand something"; "As soon as I start writing English, I begin to worry about not being able to express myself"). Participants rated the extent to which they felt anxious (1 = strongly disagree, 6 = strongly agree). The reliability coefficients were .91, .92, .91, respectively.

Math Anxiety. The 9-item Abbreviated Math Anxiety Scale (AMAS) was used to evaluate math anxiety (Hopko et al., 2003). Participants rated each item in terms of how anxious they would feel during the event specified (e.g., "Listening to a lecture in math class"; 1 = low anxiety, 6 = high anxiety). The average score was computed to represent the overall level of math anxiety ($\alpha = .91$).

Willingness to Communicate in English. A 10-item list of English oral communication tasks was adapted from a 20-item list consisting of speaking and writing domains to assess participants' willingness to engage in English communication (MacIntyre et al., 1999).

Participants were asked to indicate how willing/unwilling they would be if asked to do each task in English (e.g., "Speak about your favourite relative and explain why this person is your favourite"; 1 = definitely no, 5 = definitely yes). The average score was computed to represent the overall level of willingness to communicate in English (α = .94).

Sociocultural Adaptation. The 11-item Revised Sociocultural Adaptation Scale (SCAS-R) was used to assess participants' adaptation to Canadian society (Wilson et al., 2017). Participants rated their competence at each activity regarding sociocultural life (e.g., "Attending or participating in community activities"; 1 = Not at all competent, 5 = Extremely competent). The average score was computed to represent the overall level of sociocultural adaptation (α = .90).

Other English-related Experiences. Participants' daily English communication difficulties were measured by a 6-item list containing six situations of English conversation with different interlocutors (e.g., seeing the doctor, talking to salesclerks, ordering at the restaurant). Participants were asked how frequently they experience difficulties within these situations (1 = almost never, 6 = very frequently). A good internal consistency was shown by a Cronbach's alpha of .909. In addition, participants' familiarity of accent varieties was assessed by the question, "How familiar are you with the different English accents other than native English accents (e.g., British accent, American accent)?" (1 = not at all familiar, 6 = very familiar).

Results and Discussion

Exploratory factor analysis (EFA)

An initial exploratory factor analysis (EFA) was used to refine the AAS items from the immigrant sample. The Kaiser-Meyer-Olkin (KMO) measure was notably robust, with every item's KMO index exceeding .9, signifying excellent sampling adequacy (Kaiser, 1974).

Bartlett's test of Sphericity was also significant ($p < .001$), showing the correlations in the data are strong enough to use a dimension-reduction approach (e.g. factor analysis). The extracted factors accounted for 78.2% of the total variance, indicating substantial explanatory power (Hinkin, 1998). This also demonstrated the data's appropriateness for factor analysis. Table 1 displays the 12 items retained from the initial 20-item scale based on EFA results using minimum residuals (MINRES) extraction and Oblimin rotation, as well as checking face validity and avoiding redundancy of item phrasing. Each subscale contained four items that presented clear and strong loadings on their respective latent variables.

Reliability Analyses

The total scale exhibited high internal reliability with a Cronbach's alpha of .964, indicating strong internal consistency. Similarly, the subscales showed good internal consistency with Cronbach's alpha values of .922, .915, and .950, respectively.

Validity Analyses

Correlations between the total and subscale scores of the AAS and variables chosen to test for convergent, discriminant and concurrent validity are presented in Table 2. Moderate correlations were identified between accent anxiety and other English-related anxiety variables, specifically those associated with speaking, listening, reading, and writing. These correlations fortify the convergent validity of the AAS. Secondly, the absence of a relationship between accent anxiety and math anxiety provides evidence for the discriminant validity of the instrument. This lack of correlation is consistent with the findings of Coppinger and Sheridan (2022), suggesting that the length of English learning is not related to accent anxiety. Lastly, significant associations between accent anxiety and theoretically related variables, such as willingness to communicate in English and sociocultural adaptation, attest to the concurrent

validity of the AAS. It was observed that participants with higher accent anxiety reported a reduced willingness to communicate in English and demonstrated lower levels of sociocultural adaptation.

We further tested other criterion-related validity of the AAS by investigating its associations with demographic variables and English-related experience variables, including sex, LOR in Canada, difficulties in daily English communication, as well as the familiarity of accent varieties. No sex difference was found in all subscales, which is consistent with previous research suggesting gender-related differences are not significant in foreign language anxiety (Piniel & Zólyomi, 2022). While the LOR was negatively correlated with FNE, IC, and the total score ($r = -.190$, $-.222$, and $-.166$; $p < .01$, $.01$, and $.05$, respectively), the relationship with FIR was not found. The absence and weaker presence of these relationships were in line with the findings in Scales et al.'s (2006) study suggesting some NNS struggle for an ideal accent regardless of their long length of residence in the host society. The difficulties in daily English communication were positively associated with all dimensions of accent anxiety. In addition, correlational analyses yielded a significant bivariate correlation between familiarity of accent varieties and accent anxiety. Participants who are more familiar with different kinds of English accents reported a lower level of accent anxiety. This finding is in line with prior work suggesting that exposure to accent varieties reduces NNS's negative attitude toward non-standard English accents (Cai et al., 2022).

Study 2

After exploring and refining items of AAS on the immigrant sample, we then proceeded to further assess the factor structure by cross-validating the results on another sample using confirmative factor analysis (CFA), as well as testing the scales' validity and reliability again.

We chose to recruit international students to evaluate the scales' generalizability, recognizing that they constitute a substantial segment of NNS and represent a group that encounters challenges in language learning within English-speaking contexts.

Method

Participants and Procedure

International students who were native speakers of languages other than English (LOTE) (N = 153; 57.8% males, 42.2% females) were recruited from introductory psychology courses at a Western Canadian university. The top five native languages reported were Chinese (20.26%), Hindi (15.03%), Bangla (5.88%), Bengali (5.23%), and Gujarati (1.96%). The age of participants ranged from 17 to 26 years old (M = 20.1, SD = 1.80). The average length of residence in Canada was 3.11 years (SD = 1.97). Missing data only accounted for 0.46% of the responses for all variables measured, which is not likely to affect the validity of the analysis (Dong & Peng, 2013).

The data was collected online using the Qualtrics survey platform during a group testing session. Prior to the start of the survey, participants filled out consent forms and were provided with study procedures. All participants completed a questionnaire which took them an average of 30 minutes. For their collaboration, these students receive partial course credit. This research project has been approved by the institutional ethics review committee at the university.

Materials

Please refer to Study 1. The measurements included in Study 2 are the same as the ones used in Study 1.

Results and discussion

Confirmatory factor analysis (CFA)

A confirmatory factor analysis (CFA) was conducted on the refined 12-item AAS using the validation sample, as informed by the EFA results. Model fit was assessed using several global fit indices: the $\chi 2$ test, RMSEA, SRMR, CFI, and TLI. As depicted in Figure 1, we began by examining the AAS's internal structure, comparing a 1-factor model and a first-order 3-factor model. The 1-factor model demonstrated inadequate fit, $\chi 2(54) = 336$, $p < .001$, RMSEA = .184, 90% CI [0.165, 0.203], SRMR = .077, CFI = .818, TLI = .777. In contrast, the first-order 3-factor model exhibited a better but marginal acceptable fit, $\chi 2(51) = 133$, $p < .001$, RMSEA = .102, 90% CI [0.081, 0.124], SRMR = .035, CFI = .947, TLI = .931. Thus, we revised the model by allowing item residual covariances according to the modification indices: FNE1 with FNE2 and FNE4 with FNE5. The revised 3-factor model showed good fit to the data, $\chi 2(49) = 83.1$, $p = .002$, RMSEA = .067, 90% CI [0.041, 0.092], SRMR = .030, CFI = .978, TLI = .970. Yet, we noticed that factor intercorrelations between the three factors ranged from .70 to .90, indicating possible issues with discriminant validity with a cutoff of .7 (Dormann et al., 2013). Thus, a 2-factor model of integrating FNE and IC dimensions was also tested to compare model fit. However, the 2-factor model displayed poorer model fit, $\chi 2(53) = 188$, $p < .001$, RMSEA = .129, 90% CI [0.109, 0.149], SRMR = .046, CFI = .913, TLI = .891. The fit indices were still worse than the 3-factor model after allowing residual covariances, $\chi 2(51) = 113$, $p < .001$, RMSEA = .089, 90% CI [0.067, 0.111], SRMR = .047, CFI = .960, TLI = .948. Therefore, based on comparisons between the model fit, the 2-factor model solution was rejected. Then, the observation of strong intercorrelations between factors prompted consideration of a higher-order factor to account for the shared variance among first-order factors. Consequently, the hierarchical 3-factor model, incorporating three first-order factors and a higher-order factor representing accent anxiety, was selected as the optimal model. The fit indices for this final

model demonstrated a favorable fit to the data: $\chi 2(49) = 83.1$, $p = .002$, RMSEA = .067, 90% CI [0.041, 0.092], SRMR = .030, CFI = .978, TLI = .970.

Reliability Analyses

The total scale exhibited high internal consistency among the items with a Cronbach's alpha of .948. Similarly, the subscales showed strong internal consistency with Cronbach's alpha values of .909, .894, and .917, respectively.

Validity Analyses

As presented in Table 3, the validity results mainly replicated those of Study 1. First of all, the results still revealed correlations between accent anxiety and other English-related anxiety variables, including speaking, listening, reading, and writing, which further supported the convergent validity of the scale. Then, the findings of the discriminant validity test replicated those of study 1, showing that both math anxiety and length of learning English were not significantly associated with accent anxiety. Furthermore, significant associations between accent anxiety and willingness to communicate in English, difficulties in daily English communication, and sociocultural adaptation, also attest to the concurrent validity of the AAS.

However, several nuances were detected. Firstly, the sex difference was marginally significant for FNE ($t = 2.127$, $df = 150$, $p = 0.035$) and FIR ($t = 2.038$, $df = 148$, $p = 0.043$), while IC and the total score were not significantly different for males and females. Participants' LOR was not significantly correlated with their accent anxiety for all dimensions. For familiarity of accent varieties, while FNE, IC, and the total score were still correlated, the relationships were less significant. The FIR dimension was not found to be related to familiarity of accent varieties.

Study 3

In Studies 1 and 2, the predominant focus of validation was on variables associated with

English-related experience and anxiety constructs. Study 3 extends these investigations by examining additional correlations with a broader range of sociocultural and psychological variables, as well as English competence variables, thereby enhancing the empirical support for the AAS's validity. Additionally, this study will evaluate the temporal stability of the AAS by examining its test-retest reliability.

Method

Participants and Procedure

International students (N = 118; 52.5% males, 46.7% females, 0.85% others) at an English-language university participated in an online questionnaire survey. The participants typically started to learn English at 5.77 years of age (SD = 2.98), and their average length of time spent in formal English courses was 11.45 years (SD = 3.53). The average age at which the participants moved to Canada was 17.86 years old (SD = 1.54). None of the participants spoke English as a first language; forty different native languages were reported, of which the top three were Chinese (includes Mandarin and Cantonese; 17.50%), Hindi (14.17%), and Tamil (5.83%). The most frequently indicated educational resources for learning English were media and social media (61.7%) and formal language courses (55.8%), as well as learning at home (45.8%), traveling abroad (41.7%), private tutoring (25.0%), and language learning apps (24.2%), etc.

The data were collected online using the Qualtrics survey platform during a group testing session. Prior to the start of the survey, participants filled out consent forms and were provided with study procedures. All participants completed the questionnaire which took them an average of 30 minutes. For their collaboration, these students receive partial course credit. This research project was approved by the institutional ethics review committee at the university.

Materials

Accent anxiety. Accent anxiety was assessed with the same instrument described in Study 2. The Cronbach alpha indices of internal consistency were excellent (Total: .946; FNE: .917; FIR: .883; IC: .906).

Language aptitude. Language aptitude was assessed by Meara's (2005; Meara & Rogers, 2020) measurement of the ability to learn novel vocabulary (LLAMA B), which is a subtest of their language aptitude battery. This test requires participants to learn novel words that are native-language-neutral. Due to time constraints, the full LLAMA inventory could not be included, and so the LLAMA B was selected because it demonstrates the strongest convergence with other LLAMA measures (Bokander & Bylund, 2020).

Perceived personal discrimination. Four items, adapted from Taylor et al.'s (1990) measure of personal discrimination, assessed participants' experience of discrimination across four domains, including language skills, racial characteristics, religious faith, and gender (e.g. "To what extent have you experienced discrimination by Canadians due to racial characteristics?"). For each of these domains, participants rated the frequency of discrimination they perceived that was directed to themselves (1 = never experienced, 6 = always experience; α = .909).

English contact frequency. English contact frequency was measured by asking "During the past year, how much contact have you had with English Canadians in the following situations?" under 3 different situations: "at school," "in public (e.g. with salesclerks)," and "while traveling." The questions were answered on an 8-point Likert scale ranging from "no contact" to "very frequent contact," representing participants' daily life English contact frequency.

Can-do list. Participants rated their self-perceived English competence on 26 items from Clark's (1981) can-do list. The four subcategories include listening (α = .888), speaking (α = .815), reading (α = .759), and writing (α = .859) (e.g. "understand movies without subtitles", "count to 10," "read popular novels without using a dictionary", "fill out a job application form requiring information about your interests and qualifications"). Each item was measured using a 5-point scale ranging from 1 (couldn't do it at all) to 4 (very easily).

Self-esteem. Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) was used for assessing participants' self-esteem. The RSES is an extensively validated measure of self-esteem (Schmitt & Allik, 2005), comprising 10 items that evaluate global self-worth by measuring both positive and negative feelings about the self. Each item is answered on a 4-point Likert scale ranging from "strongly agree" to "strongly disagree", facilitating the quantification of self-esteem levels (α = .825).

Results and Discussion

Validity Analyses

As shown in Table 5, correlational analysis provided additional evidence of the AAS's criterion-related validity. First, there was no relation between the AAS total and subscale scores with regards to participants' language identity or aptitude, providing support for its discriminant validity. Second, scores on the AAS were positively correlated with participants' perceived discrimination. The AAS total and subscale scores were negatively correlated with the frequency of contact with English speakers in public situations and while traveling, but not in the school setting. The participants' accent anxiety was negatively correlated with their self-perceptions of English reading and speaking competence but not with their self-perceptions of listening or writing competence. All AAS subscales were related to sociocultural adaptation and with self-

esteem. Contrary to expectation and inconsistent with Studies 1 and 2, the AAS was not associated with WTC. Furthermore, we tested the relationship between self-esteem and accent anxiety, and found accent anxiety was associated with low self-esteem, consistent with previous research suggesting that NNS' negative life experience in the host society along with their English accent (e.g. Derwing & Munro, 2009; Gluszek & Dovidio, 2010).

Consistent with Studies 1 and 2, no relations were found between accent anxiety and the age at which participants' start learning English, the length of time they had spent learning English or their gender.

Test-retest Reliability

A subsample of the participants (N = 73; 37.14% males, 58.57% females,4.29% others) were invited to complete the AAS a second time, 21 days after the first testing session. No significant demographic differences (e.g. age started learning English, length of learning English) were found between the returning sample and the original sample, except that a larger proportion of females took part in the second testing session, $\chi 2(2) = 13.23$, $p < 0.01$. Similar to the first testing session, the Cronbach alpha indices of internal consistency were excellent (Total: .961; FNE: .931; FIR: .921; IC: .922).

Correlational analyses showed that the test-retest reliability of the total scale is .665 over the 21 days period, which demonstrated moderate temporal consistency. The three subscales yielded test-retest reliability indices of a similar magnitude: FNE (r = .618), FIR (r = .625), IC (r = .663). As shown in Table 4, paired sample t-tests indicated that FIR is the only subscale for which the group mean level significantly differed across the two time points, such that one's fear of intergroup rejection because of one's accent slightly increased over time. This difference might suggest that FIR could be influenced by individuals' daily social interaction experience,

thus has more flexibility compared with the other two factors of accent anxiety. In contrast, FNE and IC may be influenced by more stable personal traits or skills.

In addition, we employed the Intraclass Correlation Coefficient (ICC) as another measure of the temporal stability across the two time points. Given the self-reported nature of our measures, we selected the ICC (2,1) model, which is appropriate for single measures with fixed raters. The results indicated a high degree of reliability for the total score and all subscales (Total: .792; FNE: .739; FIR: .717; IC: .801). In particular, the ICC for the total score and IC demonstrated a substantial degree of consistency (cutoff > .75; Koo & Li, 2016).

General Discussion

Within the domain of accent-focused research on foreign language pronunciation, it is critical to understand well NNSs' affective responses to their own accents because they may render individuals vulnerable to uncomfortable communication experiences, impact their well-being, and threaten intercultural communication. The current study sought to draw on the concerns identified in previous studies and gauge the apprehension NNSs have about their accent, to fill the gap that no validated instruments exist to assess NNSs' accent anxiety outside of classroom settings. As a first step to this goal, we developed the Accent Anxiety Scale (AAS), which is conceptualized as a negative affective response stemming from actual, perceived, or imagined challenges in linguistic interactions, comprising three dimensions, including fear of negative evaluation, fear of intergroup rejection, and intelligibility concerns. While our findings underscore the robust factorial validity and internal consistency of the AAS, the employment of a cross-validation on different NNS samples further bolsters the scale's generalizability across diverse NNS populations.

The AAS's strong convergence with established measures of English-related anxiety and its discernible differentiation from variables that are theoretically unrelated (e.g., math anxiety, length of English learning) validate the scale's capacity to assess a distinct construct of accent anxiety. The AAS's concurrent correlations with variables such as sociocultural adaptation and willingness to communicate in English provide evidence of its criterion-related validity. These correlations suggest that accent anxiety might impede NNS's communicative efficacy and compromise their psychosocial well-being, which is further supported by the findings in Study 3. Similarly, perceived discrimination was found to be another correlate, which also implies the sociolinguistic feature of accent anxiety. Another noteworthy observation was the lack of association between accent anxiety and gender, which aligns with extant literature meta-analytic findings that gender is not related to foreign language anxiety in the classroom (Piniel & Zólyomi, 2022). Furthermore, the lack of the relationships between the length of residence or learning English, age start learning English, and accent anxiety were in line with the findings in Scales et al.'s (2006) study, suggesting some NNS struggle for an ideal accent regardless of their long length of using English in the host society. We identified distinct correlations between various daily life English contact scenarios and accent anxiety. Specifically, we observed a link between the frequency of English use in personal life situations and heightened accent anxiety. This trend was notably absent in academic settings, likely because our participant cohort, comprised of university students, engages in compulsory English communication in these contexts. This absence of correlation in educational environments suggests that the mandatory nature of English use in such settings may not significantly impact accent anxiety. Future investigations could benefit from examining a broader NNS population and exploring different English contact situations.

Additionally, our findings indicated that while participants' self-perceived receptive skills in English were not significantly associated with accent anxiety, their productive skills exhibited a notable correlation. This pattern underscores the potential impact of accent anxiety on the communicative proficiency of NNS, particularly in aspects of English production. The implication here is profound: reducing accent anxiety could play a crucial role in mitigating the challenges NNS face in English communication, especially in productive capacities. Moreover, challenges in daily English communication correlate positively with all facets of accent anxiety, which underscores the influence of prior adverse experiences in molding NNSs' accent anxiety. These observations contrast with Coppinger and Sheridan's (2022) perspective, which posits that accent anxiety primarily originates from imagined negative feedback among classroom English learners. Such a discrepancy might underscore the nuanced differences in analyzing accent anxiety within classroom contexts versus outside-of-classroom contexts. Finally, a negative correlation between familiarity with the variety of accents and accent anxiety may suggest that more awareness of accent variations could reduce NNS's apprehensions about being salient and non-standard. This observation aligns with previous research, which posits that exposure to varied accents mitigates NNS' adverse perceptions of non-standard English accents (Cai et al., 2022). Such insights underscore questions about the sole representation of English legitimacy via the NS standard accent. Collectively, these correlations support the internal validity of the AAS.

The AAS unveils the multi-dimensional nature of NNS's accent anxiety, which may originate from previous linguistic practice and intergroup interactions. From a pedagogical perspective, these findings offer directions to lessen accent anxiety, suggesting refined approaches in language instruction for NNS. Prior research has called for a shift in pronunciation teaching for NNS in terms of focus and desired outcomes. For example, it might be practical to

discourage unnecessary accent changes for intelligible speakers (Derwing, 2003), and to prioritize the specific needs of NNS learners in terms of accent improvement (McCrockllin & Link, 2016). Also, the concern about negative evaluation suggests that NNS might overly worry about non-standard pronunciation. This possibility aligns with past studies that suggest NNS concerns might arise from striving for "perfect" English speech (Scales et al., 2006). Therefore, incorporating various English accents in language courses, rather than a sole emphasis on NS standard forms, might alleviate some concerns. On a sociocultural level, our findings highlight the close connection between accent anxiety and perceptions of ethnic or group membership. In multicultural contexts, promoting inclusivity may help reduce NNS's concerns related to group identification and potential exclusion. Beyond pedagogical strategies, fostering a less discriminatory cultural environment may benefit NNS's communicative experiences.

Limitations and Future Directions

This study has several limitations. First, the predictive validity of the AAS warrants further exploration. Future longitudinal studies could delve into both the predictors and outcomes of accent anxiety. To enhance NNS's English linguistic practice and intercultural communication, it is crucial to determine the specific factors and their influence on accent anxiety. Broadening the research lens, future investigations might consider individual determinants, such as the impact of personality traits. Exploring potential outcomes, especially those related to linguistic confidence and intercultural competence, could provide strategies to overcome accent-related challenges faced by NNS. While the current study offers insights into NNS's accent anxiety outside the classroom, diverse contexts, such as non-English speaking countries, should be considered in subsequent research. Such comparisons could offer a deeper understanding of the AAS's generalizability.

Conclusion

Accent anxiety can be a formidable obstacle in NNSs' acquisition and utilization of a new language. The current research investigated the intrinsic framework of NNS's accent anxiety, culminating in the creation of the Accent Anxiety Scale (AAS). The analyses demonstrate robust support for its psychometric properties, which lays the groundwork for an initial understanding of accent anxiety. It could contribute to the ongoing discourse in linguistic research, and enhance language pedagogy and foster more inclusive language learning environments.

Table 1. Factor loadings of the final items for the three-factor Accent Anxiety Scale.

Items	Loadings		
	FNE	FIR	IC
FNE1: I am worried what others might think of my English proficiency when they hear my accent.	**.677**	.128	.130
FNE2: I am worried whether others see me as a competent person when they hear my English accent.	**.604**	.071	.107
FNE3: I fear people making fun of my English accent.	**.918**	.002	-.022
FNE4: I fear that people may find my English accent weird or funny.	**.834**	.039	.057
FIR1: I worry that others might identify my ethnic background when they hear my English accent.	.046	**.854**	.013
FIR2: I am concerned that people will think I am a foreigner when they hear my accented English.	.203	**.585**	.093
FIR3: It bothers me that my English accent identifies me as an outsider.	.326	**.515**	.075
FIR4: It bothers me that my ethnicity is indicated by my accent.	-.079	**.951**	-.012
IC1: I worry people don't understand me because of my accent.	.022	-.030	**.918**
IC2: I feel stressed that my accent makes my spoken English confusing.	.282	.068	**.599**
IC3: I fear that people misunderstand my spoken English due to my accent.	.236	.011	**.698**
IC4: I worry that my accent causes misunderstandings.	-.105	.051	**.977**

Note. FNE = fear of negative evaluation, FIR = fear of intergroup rejection, IC = intelligibility concerns.

Table 2. Correlations between accent anxiety and variables to assess validity for NNS immigrants sample.

Variable	FNE	FIR	IC	Total
Convergent Validity				
English Speaking Anxiety	.616***	.558***	.613***	.639***
English Listening Anxiety	.539***	.554***	.569***	.593***
English Reading Anxiety	.544***	.532***	.554***	.581***
English Writing Anxiety	.586***	.559***	.580***	.615***
Discriminant Validity				
Math Anxiety	.123	.147*	.054	.114
Length of Learning English	-.097	-.096	-.122	-.112
Concurrent Validity				
Willingness to Communicate in English	-.273***	-.291***	-.298***	-.308***
Difficulties in English Communication	.400***	.422***	.442***	.452***
Familiarity of Accent Varieties	-.344***	-.340***	-.338***	-.365***
Sociocultural Adaptation	-.417***	-.392***	-.453***	-.452***

Note. FNE = fear of negative evaluation, FIR = fear of intergroup rejection, IC = intelligibility concerns. * indicates $p < .05$. ** indicates $p < .01$. ***indicates $p < .001$.

Table 3. Correlations between accent anxiety and variables to assess validity for NNS international students sample.

Variable	FNE	FIR	IC	Total
Convergent Validity				
English Speaking Anxiety	.501***	.441***	.502***	.539***
English Listening Anxiety	.394***	.323***	.458***	.440***
English Reading Anxiety	.360***	.352***	.492***	.450***
English Writing Anxiety	.358***	.306***	.450***	.416***
Discriminant Validity				
Math Anxiety	.140	.189*	.119	.161
Length of Learning English	-.077	-.077	-.140	-.115
Concurrent Validity				
Willingness to Communicate in English	-.275***	-.194***	-.291***	-.286***
Difficulties in English Communication	.299***	.233***	.314***	.321***
Familiarity of Accent Varieties	-.181*	-.137	-.215**	-.203*
Sociocultural Adaptation	-.264**	-.235**	-.261**	-.281***

Note. FNE = fear of negative evaluation, FIR = fear of intergroup rejection, IC = intelligibility concerns. * indicates $p < .05$. ** indicates $p < .01$. ***indicates $p < .001$.

Table 4. Test-retest means, standard deviations and coefficients and Intraclass Correlation Coefficients for the subscale and total scale scores of the Accent Anxiety Scale.

	Time 1		Time 2		T-score	Cohen's d	Test-Retest Reliability r	ICC (2, 1)
	M	SD	M	SD				
Fear of Negative Evaluation	4.03	.96	4.11	.89	.258	-.026	.618	.739
Fear of Intergroup Rejection	3.91	1.09	4.19	.87	-2.648*	-.281	.625	.717
Intelligibility Concerns	3.72	1.15	3.86	1.06	-1.209	-.119	.663	.801
Total	4.13	1.92	4.08	.87	-1.636	-.101	.665	.792

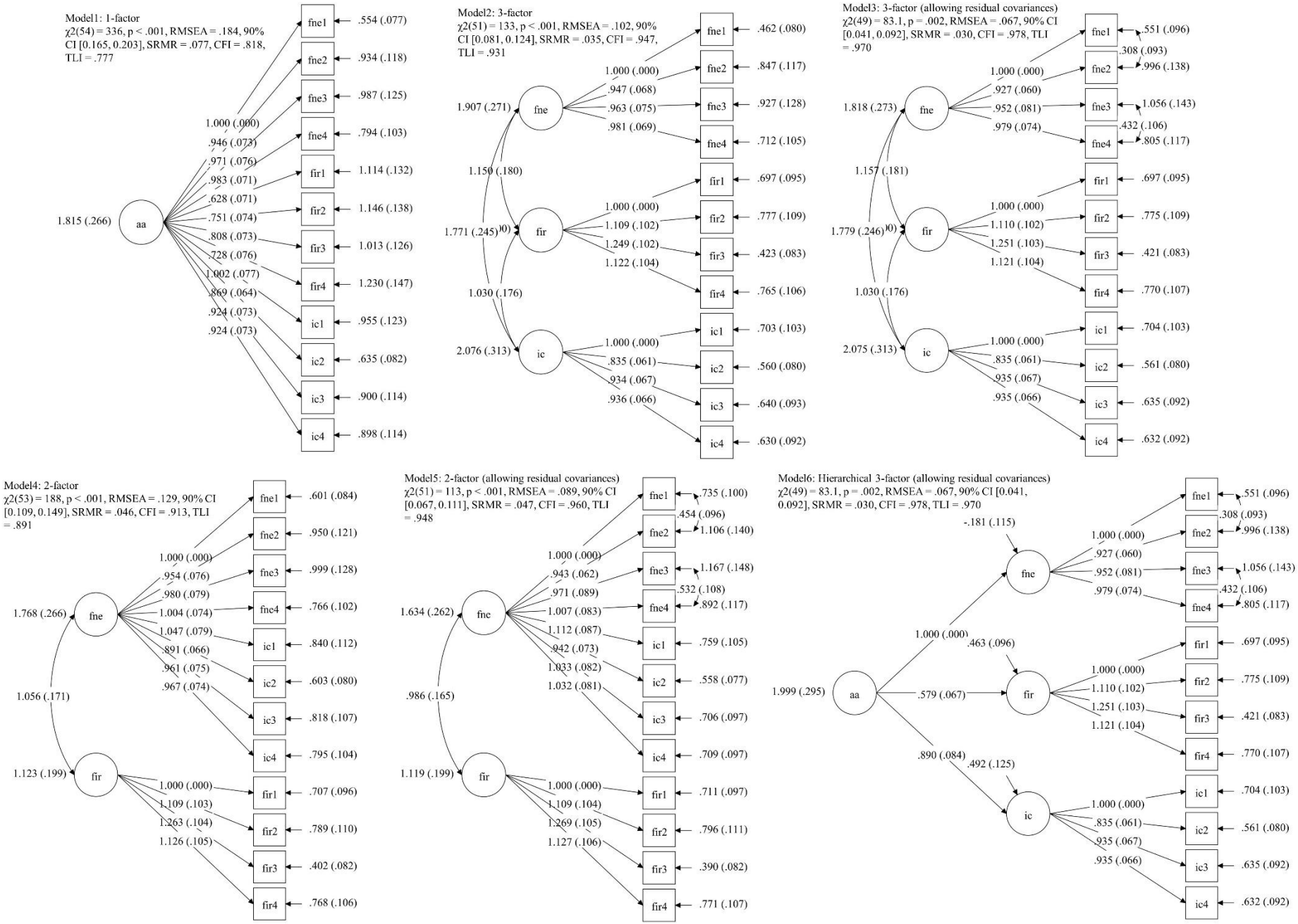
Note. * indicates $p < .05$. ** indicates $p < .01$. ***indicates $p < .001$.

Table 5. Correlations between accent anxiety and variables to assess validity for NNS international students sample 2.

Variable	FNE	FIR	IC	Total
Discriminant Validity				
Language Aptitude	-.021	-.038	-.133	-.090
Concurrent Validity				
Personal Discrimination				
Language	.412***	.445***	.377***	.458***
Race	.357***	.317***	.274***	.371***
Religion	.243**	.314***	.270**	.304***
Gender	.334***	.323***	.234*	.328***
English Contact Frequency				
In Public (e.g. with salesclerk)	-.182*	-.150	-.192*	-.193*
While Travelling	-.207*	-.047	-.263**	-.199*
At School	-.100	-.085	-.060	-.089
Perceived English Competence				
Listening	-.091	-.083	-.166	-.134
Reading	-.134	-.181*	-.187*	-.189*
Writing	-.048	-.103	-.137	-.111
Speaking	-.149	-.178	-.246**	-.221*
Willingness to Communicate in English	-.121	-.128	-.100	-.129
Sociocultural Adaptation	-.229*	-.114	-.358***	-.263**
Self-esteem	-.321***	-.298***	-.281***	-.329***

Note. FNE = fear of negative evaluation, FIR = fear of intergroup rejection, IC = intelligibility concerns. * indicates $p < .05$. ** indicates $p < .01$. ***indicates $p < .001$.

Figure 1. CFA model comparisons.



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