A Development and Validation of the Perceived Language Discrimination Scale

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This study was conducted to develop the Perceived Language Discrimination (PLD) scale across three samples of international students. In Sample 1 (N = 224), the seven items of the PLD were selected (α = .94) through an exploratory factor analysis. In Sample 2, a confirmatory factor analysis (N = 222) provided a cross-validation of the one-factor model. Validity was supported by moderate positive associations of perceived language discrimination with depression (r = .35) and anxiety (r = .36), as well as small negative associations of perceived language discrimination with self-esteem (r = −.24) and life satisfaction (r = −.26). Moreover, perceived language discrimination had a large positive association with perceived racial discrimination (r = .62), a moderate negative association with perceived English proficiency (r = −.49), and a relatively weak association with social desirability (r = .14). Finally, perceived language discrimination added significant incremental variance in predicting depression and anxiety over and above perceived racial discrimination and perceived English proficiency, respectively. The results indicated measurement invariance and validity equivalency for the PLD between males and females as well as between the English and Non-English groups. In Sample 3, the estimated 2-week test–retest reliability (N = 31) was .83.

Keywords: perceived language discrimination, international students, immigrants, scale development, reliability and validity

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There is substantial evidence that perceived discrimination affects not only one’s mental health (e.g., depression, anxiety, and well-being), but is also related to physical health problems such as hypertension, breast cancer, and substance use (see Williams & Mohammed, 2009 for a review). The current research literature on discrimination has mainly focused on racial/ethnic discrimination (i.e., unfair treatment based on race or ethnicity) due to the diversifying racial/ethnic composition of the United States and the multicultural movement within the past 25 years (see Ponterotto, 2008). Diversity in the United States has grown partly because of the increasing numbers of immigrants and international students entering the country. These incoming populations face additional forms of discrimination compared to racial minorities born and raised in the United States. In particular, language discrimination (i.e., being discriminated against because English is one’s second language or one speaks English with an accent) is highly relevant to these emerging groups and has not received much attention in the current literature. This type of discrimination deserves more attention because 12.5% of the total U.S. population consists of individuals born outside of the country (U.S. Census Bureau, 2009a) and this number is projected to increase to 17.4% by the year 2050 (U.S. Census Bureau, 2009b). In addition, the number of international students studying in the United States has grown approximately 73.2% in the past two decades; thus, these international students are becoming a significant force of diversification on U.S. college campuses (Institute of International Education, 2010).

Discrimination based on language and accent can occur on a daily basis in locations such as the shopping center, at school, or in the workplace (Lippi–Green, 1997). Despite the significant decrease in blatant discrimination during the past few decades, subtle forms of discrimination continue to impact minority groups in the United States (Pascoe & Richman, 2009). Language discrimination, although subtle, has an impact on international students (Kim & Kim, 2010; Lee & Rice, 2007; Swagler & Ellis, 2003) and Asian immigrants (Yoo, Gee, & Takeuchi, 2009). Below are some examples that illustrate instances of language discrimination:

“I tried to order chicken wings and I did not speak clearly . . . the waitress was not patient . . . rude . . . and I felt like I don’t belong and now I just want to get back (to my country)” (Swagler & Ellis, 2003, p. 423).
“I’m shopping . . . . I’m not sure whether it’s . . . . because [of] my accent or because my English is not fluent . . . . there is nobody who came over [to] take care of me. And, at that time, a White man came in and they just treat[ed] him totally different” (Lee & Rice, 2007, pp. 403–404).

“One professor didn’t like me because my English was bad. He was impatient” or “I know the first time he can’t understand [because] my English is not too good. But if I ask questions the professor will say, ‘I don’t understand’ and so that make me very embarrassed. I don’t ask questions anymore” (Lee & Rice, 2007, p. 397).

These examples illustrate that perceived language discrimination may lead individuals to feel disrespected, ignored, put down, and perceived as inferior (Lee & Rice, 2007; Swagler & Ellis, 2003). Moreover, the impact of language discrimination can be cumulative and longstanding. In one quantitative study, Yoo et al. (2009) indicated that the relationship between language discrimination and chronic conditions1 was stronger for Asian immigrants who had lived in the United States for more than 10 years than for those who had lived in the United States less than 10 years. However, to date, research on language discrimination is scarce, which can perhaps be attributed to a lack of a psychometrically sound scale to measure language discrimination. Among the few studies on language discrimination, scholars either relied on a single item to measure discrimination based on language (Spencer & Chen, 2004; Yoo et al., 2009) or conducted a qualitative study to describe the experiences of language discrimination and its impacts (Lee & Rice, 2007; Swagler & Ellis, 2003). The majority of these research studies imply that language proficiency is a primary source of perceived discrimination (e.g., Constantine, Kindaichi, Okazaki, Gainor, & Baden, 2005; Lindemann, 2005; Poyrazli & Lopez, 2007). Therefore, the potential pervasiveness and longstanding impacts of language discrimination can be better understood by developing a psychometrically sound scale to measure perceived language discrimination.

When we examined the existing scales on discrimination, most of them focused on race. Bastos, Celeste, Faerstein, and Barros (2010) recently conducted a systematic review of racial discrimination scales. They found that the majority of instruments assessing experiences of racial discrimination were published in the last 12 years. In addition, most of these instruments emphasized African Americans’ experience with discrimination; only a few emphasized other stigmatized groups. From this review, Bastos et al. (2010) highlighted the need to develop more specific discrimination scales to capture other domains of discrimination beyond race. Take, for example, a female, middle-aged, Asian immigrant who is rejected from a job opportunity because English is her second language. Would her self-report about her experience with discrimination be limited if only a racial discrimination scale was available? Would she have the opportunity to report that she was discriminated against specifically due to her sex, age, and/or language? From a scale development perspective, this is another reason for the need to develop a language discrimination scale in order to distinguish this aspect of discrimination from general perceived racial discrimination.

Scholars argued that language discrimination is conceptually related to but distinct from racial discrimination (e.g., Yoo et al., 2009). For example, Spencer and Chen (2004) found that racial discrimination was not significantly associated with the use of informal services (e.g., seeking help from a priest or fortune-teller), however, this was not the case for language discrimination. They found that being discriminated against because one speaks a different language or has an accent was an important stressor that can influence whether individuals decide to use certain types of services. Specifically, those who reported experiencing language discrimination were 2.2 times more likely to use informal services (e.g., seeking help from a priest or fortune-teller), as compared with those who did not report language discrimination. In addition, Yoo et al. (2009) found that, among Asian immigrants, both racial and language discrimination were significantly associated with increased chronic health conditions after controlling for age, sex, education, family income, health insurance, primary language, native status (i.e., U.S.-born or foreign-born), and ethnicity. When both racial and language discrimination were analyzed together, language discrimination was still associated with increased chronic health conditions; however, racial discrimination was no longer significant with the inclusion of language discrimination. This implies that language discrimination may be more strongly related to physical or mental health outcomes for immigrants than racial discrimination. However, only a few studies have examined language discrimination and its negative impact on physical or mental health outcomes. Clearly, this is one more reason to develop a psychometrically sound perceived language discrimination scale.

**Purpose of This Study**

The present study sought to establish the factor structure, reliability, and validity of a measure for perceived language discrimination across three samples. Sample 1 was used to explore the factor structure and its reliability. Sample 2 was used to validate the factor structure and assess the reliability and validity of the scale. Sample 3 was used to assess the test–retest reliability. We planned to include all international students from various countries for the following reasons. First, the qualitative studies involving language discrimination have studied international students from a variety of countries (e.g., Kim & Kim, 2010; Lee & Rice, 2007; Swagler & Ellis, 2003). In this line of literature, these international students reported varied degrees of discrimination experiences (e.g., impatience with less than fluent English speakers or foreign accents and unwillingness to accommodate nonstandard English speakers; see Lee & Rice, 2007). Second, in order to enhance its applicability for the future use, we decided to develop and examine this scale using a broader sample (i.e., all international students as opposed to those from a specific country/region). Third, English proficiency and the primary language used at home or at school (while in their home countries) varies for international students. The primary language used could be their native language, only English, a combination of their native language and English, or other languages. Not limiting our sample to international students from specific countries/regions would allow us to examine whether language discrimination applies to different subgroups of international students (e.g., those whose primary language used in their home countries either included some English or

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1 Chronic health conditions refer to whether participants had any of the following diagnoses from a doctor in the last 5 years: high blood pressure, heart attack, or any other heart disease, cancer, diabetes or sugar diabetes, anxiety or depression, obesity, and asthma.
none at all) and whether language discrimination relates to English proficiency.

With regards to the validity of the scale, we attempted to provide evidence for the validity of the perceived language discrimination scale by investigating its relationships with other theoretically related and unrelated constructs. Theoretically, discrimination (e.g., racial discrimination) can lead to poor mental health outcomes (Clark, Anderson, Clark, & Williams, 1999; Harrell, 2000). We examined the closely related literature on racial discrimination among international students and immigrants because of the limited number of studies on perceived language discrimination. Klineberg and Hull (1979) reported that approximately 70.0% of international students either experienced or knew someone who experienced discrimination. In a meta-analysis of 23 studies on racial discrimination and mental health among Asian samples, Lee and Ahn (2011) concluded that racial discrimination was positively related to depression ($r = .26$) and anxiety ($r = .28$). Conversely, perceived racial discrimination was negatively associated with self-esteem among East Asian immigrants (Barr & Grillo, 2003) and life satisfaction among international students (Sam, 2001). Therefore, we anticipated that perceived language discrimination would be positively related to depression and anxiety but negatively related to self-esteem and life satisfaction.

Language discrimination is conceptually related to but different from racial discrimination (e.g., Yoo et al., 2009). Therefore, we first anticipated that perceived language discrimination would be moderately and positively correlated with perceived racial discrimination. As mentioned earlier, the existing literature seems to imply that perceived language discrimination may be more closely associated with negative mental health outcomes than perceived racial discrimination (Spencer & Chen, 2004; Yoo et al., 2009). For this reason, we also anticipated that there would be significant incremental validity of perceived language discrimination in predicting depression and anxiety. That is, we hypothesized that perceived language discrimination would still significantly predict depression and anxiety after controlling for perceived racial discrimination.

Moreover, qualitative studies in the literature seem to imply an association between English proficiency and perceived language discrimination (e.g., Constantine et al., 2005; Lee & Rice, 2007; Swagler & Ellis, 2003). In other words, when international students are not proficient in English, they are more likely to experience language discrimination. Therefore, we expected perceived language discrimination to be moderately and negatively associated with English proficiency. Even though these two variables are related to each other, perceived language discrimination is not simply a reflection of individuals’ feelings of frustration from being socially rejected as a result of low English proficiency. Thus, to rule out this possibility, we expected that the negative impacts of perceived language discrimination on depression and anxiety would be beyond lower English proficiency. If the result supports this hypothesis, then it provides evidence for the incremental validity of perceived language discrimination.

Finally, the impact of perceived language discrimination was predicted to be minimally related to social desirability, based on the racial discrimination literature (Williams et al., 2008). Specifically, we followed suggestions from Hoyt, Warbasse, and Chu (2006) to use a statistical-control strategy to examine the impact of social desirability. If perceived language discrimination accounts for a significant incremental $R^2$ over and above social desirability, then it provides evidence that the relationships between perceived discrimination and other variables (e.g., depression, anxiety) are independent of social desirability. We expected that perceived language discrimination would still significantly predict depression, anxiety, self-esteem, and life satisfaction after controlling for the impact of social desirability on these variables.

**Method**

**Participants**

**Sample 1.** The first sample was used to explore the factor structure. Participants were 224 international students (45.5% males, 54.0% females, one did not report their sex). Of these, 62.5% were graduate students, 4.9% were freshman, 7.1% were sophomores, 10.7% were juniors, 10.7% were seniors, 2.2% were students in English as a second language programs, and 0.9% were exchange students (two reported other). Most of their universities (97.3%) were in the Midwest. They were from 46 countries, with 72.8% from Asia, 8.9% from Latin America, 7.6% from Africa, 4.0% from Europe, 3.6% from the Middle East, and 0.4% from Oceania (six did not report their country). Participants ranged in age from 18 to 41 years (mean $M = 25.92$ and standard deviation $SD = 5.40$) and had been in the United States for an average of 36.35 months ($SD = 28.70$ and range $= 1–156$ months). When asked what their primary language at home in their home country had been, 72.8% of participants said their native language, 1.8% said English, 16.4% said a combination of their native language and English, and 7.6% said other languages (four did not answer this question). Moreover, when asked what their primary language at home in the school they attended in their home country, 56.3% of participants said their native language, 18.3% said English, 22.3% said a combination of their native language and English, and 2.2% said other languages (two did not answer this question).

**Sample 2.** The second sample was collected to validate the factor structure and examine the new scale’s validity. Participants consisted of 222 international students (51.4% males, 48.2% females, and one did not report their sex). About 58.1% were graduate students, 5.9% were freshman, 11.3% were sophomores, 13.1% were juniors, 7.2% were seniors, 1.8% were students in English as a second language programs, and 1.8% were exchange students (one did not answer this item). Most of their universities (97.3%) were located in the Midwest. They were from 54 countries, with 70.1% from Asia, 8.9% from Europe, 8.0% from Latin America, 4.5% from Africa, 4.0% from the Middle East, 0.9% from North America, and 0.4% from Oceania (seven did not report their country). Participants ranged in age from 18 to 48 years ($M = 26.00$ and $SD = 5.96$) and had been in the United States for an average of 33.31 months ($SD = 31.60$ and range $= 1–192$ months). When asked what their primary language at home in their home country had been, 70.7% of participants said their native language, 5.4% said English, 11.3% said a combination of their native language and English, and 12.6% said other languages. Moreover, when asked what their primary language had been in the school they attended in their home country, 53.6% of participants said their native language, 17.6% said English, 18.9% said a
combination of their native language and English, and 10.0% said other languages.

**Sample 3.** The third sample was collected from a large Midwest university to estimate test–retest reliability for the final version of the Perceived Language Discrimination scale. Participants consisted of 31 international students (45.2% males and 54.8% females). About 77.4% were graduate students, 3.2% were sophomores, 9.7% were juniors, and 9.7% were seniors. They were from China (61.3%), South Korea (16.1%), Malaysia (12.9%), Taiwan (6.5%), and Thailand (3.2%). Their ages ranged from 20 to 37 (M = 26.67 and SD = 4.42) years old and they had been in the United States for an average of 35.52 months (SD = 22.78, range = 6–93 months).

**Procedure**

Samples 1 and 2 were randomly split among a dataset of 446 participants who were recruited through the snowball approach for data collection. Participants at a Midwest public university were recruited by sending an invitation email to international students and asking them to either participate in this study and/or to forward this study to other international students in the United States. Participants were informed that they must be at least 18 years old and an international student in the United States. In addition, participants were told that this study was related to language discrimination and it would take about 5–10 min to complete the survey. All surveys were conducted in English. For their time and effort, they were invited to enter a drawing to win one of four $25 gift certificates for their participation.

The third sample included Asian international students at a large Midwestern public university. In an e-mail invitation they received, participants were informed that they must be at least 18 years old and an international student in the United States. They were told that this study was to examine the reliability of the Language Discrimination Scale and that the online survey would take less than 5 min to complete. They were asked to take the second assessment 2 weeks after the first assessment. At the end of the assessments, they were invited to join a drawing to win one $25 gift certificate for their participation at each time point of data collection.

**Item Development**

After reviewing the literature (e.g., Constantine et al., 2005; Kim & Kim, 2010; Lee & Rice, 2007; Sandhu & Asrabadi, 1994; Swagler & Ellis, 2003), items of the perceived language discrimination scale were created to capture perceived disparity in opportunities or disrespectful or unfair treatment because English is not one’s first language. Nineteen items were created through the following steps. First, the two senior authors reviewed the literature on discrimination (e.g., racism) and developed an initial 15 items by integrating related research literature with clinical experiences. These two senior authors have conducted research on international students for 5 to 10 years and are also licensed counseling psychologists who have worked with clients with language discrimination concerns. Items were intended to measure a unidimensional construct of perceived language discrimination rather than multiple subconstructs. However, these items covered three aspects of how individuals may experience language discrimination. These three aspects of language discrimination were: (a) avoided, ignored, or rejected; (b) disrespected; and (c) perceived as inferior (e.g., Constantine et al., 2005; Kim & Kim, 2010; Lee & Rice, 2007; Sandhu & Asrabadi, 1994; Swagler & Ellis, 2003).

Second, three licensed counseling psychologists who have worked with international students or immigrants for more than 10 years were invited to review the appropriateness of the items, judge whether these items reflected the construct’s definition, provide suggestions for additional items, and give other feedback. Third, four additional items were included after the feedback, which resulted in 19 items. Fourth, the 19 items were further examined by two international graduate students to confirm the correspondence between the items and the three main aspects of language discrimination. The agreement between these two raters was calculated by Cohen’s kappa. The result indicated the kappa coefficient was .75 which indicated a good agreement between these two raters. Among the pool of 19 items, seven were categorized as “avoided, ignored, or rejected,” five as “disrespected,” and seven as “perceived as inferior.”

Participants complete the measure with a 5-point Likert scale indicating their degree of agreement or disagreement with each of the items (1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, and 5 = strongly agree). The instructions stated, “International students often encounter discrimination based on English as a second language. Below are some statements that may describe international students’ experiences. For each of the following statements, please click the number that BEST describes your experience. There are no right or wrong answers.”

**Other Measures Used to Examine Validity**

**Depression and anxiety.** Depression and anxiety were assessed by the Depression (seven items) and Anxiety (seven items) subscales of the Depression, Anxiety and Stress Scales–Short Form (DASS; Lovibond & Lovibond, 1995). Participants rated the extent to which each statement applied to them over the past week on a scale ranging from 0 (did not apply to me at all) to 3 (applied to me very much or most of the time). Higher scores indicate greater levels of depression and anxiety. Coefficient alphas were .88 for depression and .81 for anxiety among international students (Russell, Thomson, & Rosenthal, 2008). In the present study, coefficient alphas were .87 [95% confidence interval, CI: .85, .90] for depression and .81 [95% CI: .77, .85] for anxiety. Depression was a predictor of decision to seek mental health services among international students (Russell et al., 2008). The DASS has also been translated into 27 languages and used with a wide variety of international populations (Lovibond, 2010).

**Self-esteem.** Self-esteem was assessed by the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965). The RSES (10 items) measures global self-esteem. Each item is rated using a 4-point response format ranging from 1 (strongly disagree) to 4 (strongly agree). Higher scores indicate greater self-esteem. The coefficient alpha for the RSES was .78 among Asian international students (Wei, Ku, Russell, Mallinckrodt, & Liao, 2008) and .87 [95% CI: .85, .90] in this study. Construct validity has been supported by a negative association with depressive symptoms among Asian international students (Wei et al., 2008). The RSES has also been translated into 28 languages and administered to participants across 53 countries.
with the factor structure largely invariant across nations (Schmitt & Allik, 2005).

**Life satisfaction.** Life satisfaction was measured by the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985). The SWLS (five items) assesses general life satisfaction. Each item is rated on a 7-point scale, ranging from 1 (strongly disagree) to 7 (strongly agree). Higher scores reflect greater life satisfaction. The coefficient alpha was .86 [95% CI: 82.88]. The construct validity of the SWLS was supported by negative associations with adjustment (Yoo et al., 2006) and perceived discrimination (Sam, 2001) among international students. The SWLS has also been translated into many languages and widely used with adequate psychometric properties across nations (e.g., Hultell & Gustavsson, 2008; Wu & Yee, 2005).

**Perceived racial discrimination.** Perceived racial discrimination was measured by the Perceived Discrimination (PD) subscale of the Acculturative Stress Scale for International Students (ASSIS; Sandhu & Asrabadi, 1994). One sample item is “I am treated differently because of my race.” The PD (eight items) measures the degree to which one perceives they are being treated differently because of their race. Participants were asked to rate on a 5-point scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Higher scores indicate greater perceived racial discrimination. The coefficient alpha for PD was .92 among Asian international students (Wei et al., 2008) and .92 [95% CI: .90, .94] in our study. An estimate of construct validity was supported by a positive association with depression among Asian international students (Wei et al., 2008).

**English proficiency.** We created the English proficiency scale for this study to assess participants’ self-perception of their English proficiency in the following areas: listening, speaking, reading, writing, accent, pronunciation, and overall English. This scale includes seven items. Sample items are “How would you rate your English listening ability?” and “How would you rate your English speaking ability?” Participants were asked to rate their English proficiency on a 6-point scale ranging from 1 (not at all competent) to 6 (extremely competent). The total scores can range from 6 to 42 with higher scores indicating a higher level of perceived English proficiency. The coefficient alpha was .93 [95% CI: .92, .94] in the present study. Validity evidence was supported by negative associations with depression and anxiety and positive associations with self-esteem and life satisfaction.

**Social desirability.** Social desirability was assessed by the Marlowe–Crowne Social Desirability Scale – Short Form (MCSDS-10 items; Strahan & Gerbasi, 1972). The MCSDS-10 measures individuals’ desire for social approval. It was selected for use in this study because it is roughly parallel to the original longer version (Strahan & Gerbasi, 1972). Participants were asked to answer true/false questions. The coefficient alpha was .62 to .75 (Strahan & Gerbasi, 1972) and .48 [95% CI: .37, .58] in the present study. The MCSDS has demonstrated convergent and discriminant validity (Crowne, 1979) and is positively associated with scores on another social desirability scales (Paulhus, 1991). The MCSDS has also been translated into various languages to be used with international populations and has demonstrated adequate psychometric properties (e.g., Collazo, 2005; Hwang & Yang, 1972).

**Results**

**A Preliminary Analysis**

Before reporting the main analyses, we conducted a chi-square analysis to first examine whether the proportion of each of six regions in our sample (N = 446) is comparable to or representative of the proportion of these regions from the national population in the United States. Based on data from the Open Doors, 2010 Report (Institute of International Education, 2010), international students in the United States (i.e., national data) are from the following regions: Asia (66.0%), Europe (12.8%), Latin America (9.9%), Africa (5.6%), Middle East (5.1%), and Oceania (0.8%). The result from the chi-square test indicated that there was an overall difference in the proportions from different regions, x² (5, N = 433) = 18.76, p < .001. When each region was examined, the results indicated that Asian students (74.0%) were overrepresented but European students (6.7%) were underrepresented in our sample relative to the proportion of students from Asia (66.0%) and Europe (12.8%) in the national data (see above). However, the representation of students in other regions did not vary significantly from the expected proportion of students.

**Sample 1: Scale Development**

The initial factor structure of the items was explored by using a principal axis factor (PAF) analysis in Sample 1. A parallel analysis was first used to determine the number of factors to extract (Brown, 2006; Horn, 1965; Kahn, 2006; Russell, 2002). In essence, the factors underlying the measures should account for more variance than is expected by chance based on factor extractions using multiple sets of random data (e.g., 1,000 datasets) [Brown, 2006]. The first eigenvalue was higher in the actual dataset (i.e., 11.99) than the random data in the parallel analysis (i.e., 1.55). However, the second eigenvalue was lower in the actual dataset (i.e., 1.03) than the random data in the parallel analysis (i.e., 1.44). This resulted in the selection of a one-factor model that accounted for 63.1% of the variance. All 19 items had factor loadings of .61 or above on the factor (α = .97 [95% CI: .96, .97] for the 19 items). Although a 19-item scale has good internal consistency, a longer measure is less practical for either researchers or clinicians to use. In addition, Steiner and Norman (1989) indicated that “if alpha is too high, then it may suggest a high level of item redundancy; that is, a number of items asking the same question in slightly different ways” (pp.64–65). For these reasons, we decided to select only seven items for a brief version. Because items 10 (Others avoid talking to me because of my English) and 3 (Others do not want to talk to me because of my English) highly overlapped in content, we retained only item 10, which had a higher factor loading. Therefore, items 8, 10, 6, 9, 4, 7, and 15 were selected because these were the items with the highest factor loadings and

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2 Data from Sample 1 was used to provide validity information because this scale was newly developed for this study. For the full psychometric information from Samples 1 and 2 for the English Proficiency Scale, please contact the first author.
this set of items included at least one item from each aspect of language discrimination.

Among these seven items, three items captured the aspect of being "perceived as inferior," three of being "avoided/ignored/rejected," and one of being "disrespected." In Sample 1, the internal consistency was .94 [95% CI: .93, .95] for these seven items. We conducted a second exploratory factor analysis using PAF extraction on this set of only seven items. This one-factor model accounted for 70.4% of the total variance in the items before rotation, and the factor loadings were .76 or above (see Table 1 for factor loadings). Thus, the brief version (i.e., 7-item) still has a good internal consistency. We named this scale Perceived Language Discrimination (PLD) and this brief 7-item version was used in the subsequent samples.

Sample 2: Confirmatory Factor Analysis and Validity

To further examine the factor structure, we conducted a confirmatory factor analysis on Sample 2 by using the maximum likelihood estimation method available in LISREL 8.54 (Jöreskog & Sörbom, 1999). Three fit indices were used to evaluate the fit of the model to the data: the comparative fit index (CFI), the standardized root-mean-square residual (SRMR), and the root mean square error of approximation (RMSEA). Hu and Bentler (1999) indicated acceptable values for the fit indices as CFI ≥.95, SRMR ≤ .08, and RMSEA ≤ .06 (for a good fit) or .06 ≤ RMSEA ≤ .08 (for a fair fit). Since the maximum likelihood (ML) procedure assumes normality, we examined the multivariate normality of the data (Tabachnick & Fidell, 2007). A multivariate normality test, developed by Mardia (see Bollen, 1989), was used. Results revealed that the data were not normally distributed, χ²(2, N = 222) = 433.24, p < .001, with skewness and kurtosis of 15.62 (Z = 15.59, p < .001) and 101.01 (Z = 11.14, p < .001), respectively. When the normality assumption is not met, the chi-square difference test based on ML estimates for the nested models can be misleading (Satorra & Bentler, 1988). To address this problem, researchers compute a chi-square difference test by using Satorra–Bentler scaled chi-square to adjust for the impact of the non-normality on the data (Satorra & Bentler, 1988). The results indicated that the data fit fairly well for the one-factor model found in Sample 1, scaled χ²(14, N = 222) = 25.83, p = .03, CFI = .99, SRMR = .02, and RMSEA = .06 (90% confidence interval [CI]: .02, .10). This result thus supported the validation of the one-factor model found in Sample 1. All the standardized factor loadings were .76 or above (in Table 2).

We then examined the measurement invariance of the one-factor model between males and females. Measurement invariance refers to invariant factor loadings, invariant intercepts, and invariant residual variances across groups. In general, there are three levels of measurement invariance: weak, strong, and strict measurement invariance (see Dimitrov, 2010 for a discussion). If factor loadings are invariant across groups, weak measurement invariance can be concluded. If factor loadings and intercepts are both invariant across groups, strong measurement invariance can be concluded. Similarly, if factor loadings, intercepts, and residual variances are all invariant across groups, strict measurement invariance can be concluded.

Multiple group analyses were used to compare a series of two nested models. The starting model (i.e., Model 0) is the baseline model with all parameters freely estimated. Model 1 is based on Model 0 but constrains all factor loadings to be equal across the two groups (i.e., the invariant factor loadings model). Model 2 constrains all factor loadings and intercepts to be equal across the two groups (i.e., the invariant factor loadings and intercepts model). Model 3 constrains all factor loadings, intercepts, and residual variances to be equal across the two groups (i.e., the invariant factor loadings, intercepts, and residual variances model).

The corrected scaled chi-square difference test was used to determine whether these two models were equivalent or not. For example, as Model 1 is nested within Model 0, a nonsignificant chi-square difference test for these two models indicates invariance of the factor loadings (i.e., weak measurement invariance). Similarly, a nonsignificant chi-square difference test between Model 1 and Model 2 indicates invariance of the factor loadings and intercepts (i.e., strong measurement invariance). A nonsignificant chi-square difference test between Model 2 and Model 3 indicates invariance of the factor loadings, intercepts, and residual variances (i.e., strict measurement invariance). As we can see on the top section in Table 3, the nonsignificant chi-square difference test between Model 2 and Model 3 implied that the factor loadings, intercepts, and residual variances were invariant for males and females. Therefore, strict measurement invariance can be concluded for males and females. Similar to the findings found in

<table>
<thead>
<tr>
<th>Items</th>
<th>Factor loading</th>
<th>h²</th>
<th>Item-total r</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Others ignore me because of my English.</td>
<td>.88</td>
<td>.77</td>
<td>.89</td>
<td>2.02</td>
<td>0.96</td>
</tr>
<tr>
<td>10. Others avoid talking to me because of my English.</td>
<td>.87</td>
<td>.76</td>
<td>.88</td>
<td>2.02</td>
<td>0.92</td>
</tr>
<tr>
<td>8. My opinions or ideas are not taken seriously because of my English.</td>
<td>.86</td>
<td>.74</td>
<td>.88</td>
<td>2.18</td>
<td>1.07</td>
</tr>
<tr>
<td>9. Others treat me as if I don’t know anything because of my English.</td>
<td>.85</td>
<td>.73</td>
<td>.88</td>
<td>2.05</td>
<td>1.02</td>
</tr>
<tr>
<td>7. Others look down on me because of my English.</td>
<td>.83</td>
<td>.70</td>
<td>.86</td>
<td>2.02</td>
<td>0.99</td>
</tr>
<tr>
<td>4. I feel rejected by others because of my English.</td>
<td>.81</td>
<td>.65</td>
<td>.84</td>
<td>2.01</td>
<td>0.94</td>
</tr>
<tr>
<td>15. Others are annoyed by my English.</td>
<td>.76</td>
<td>.58</td>
<td>.80</td>
<td>1.96</td>
<td>0.84</td>
</tr>
</tbody>
</table>

Note. N = 224. Participants respond to these items using six response options (1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, and 5 = strongly agree). The instructions to participants are as follows: "International students often encounter discrimination based on English as a second language. Below are some statements that may describe the experiences of international students. For each of the following statements, please click the number that BEST describes your experience. There are no right or wrong answers."
Sample 1, the internal consistency for the PLD for the total sample and for males and females was similar (.95 [95% CI: .94, .96] for the entire sample, .95 [95% CI: .94, .97] for males, and .94 [95% CI: .92, .95] for females).

Likewise, a multiple group analysis was used to examine the measurement invariance between those whose primary language used at home or at school in their home country included some English (called the “English group”) and those whose primary language used at home and at school in their home country did not include English (called the “non-English group”). As we can see on the bottom section in Table 3, a nonsignificant chi-square difference test for Model 1 and Model 2 indicates invariance of the factor loadings and intercepts. However, the significant chi-square test for Model 2 and Model 3 indicates that the residual variances are not invariant. Therefore, strong measurement invariance can be concluded across these two groups. The internal consistency of the PLD was similar for these two groups, .96 [95% CI: .94, .97] for the English group and .94 [95% CI: .92, .95] for the non-English group.

Validity

According to Cohen (1988), a correlation coefficient of .10 is thought to represent a weak or small association; a correlation coefficient of .30 is considered a moderate correlation; and a correlation coefficient of .50 or larger is thought to represent a strong or large correlation. As can be seen in Table 4, perceived language discrimination had moderate positive associations with depression (r = .35) and anxiety (r = .36) and had small negative associations with self-esteem (r = −.24) and life satisfaction (r = −.26). Those who reported greater perceived language discrimination were more likely to report higher depression, higher anxiety, lower self-esteem, and lower life satisfaction. In addition, perceived racial discrimination had a large positive association with perceived language discrimination (r = .62) and a moderate negative association with perceived English proficiency (r = −.49). However, perceived language discrimination had a weak association with social desirability (r = .14). All of these results support the construct validity for the PLD.

In addition, previous literature has shown that perceived racial discrimination is positively associated with negative mental health outcomes (e.g., depression) among Asian international students (Wei et al., 2008). Therefore, if we developed a distinct construct of perceived language discrimination, we would expect the PLD to predict depression and anxiety over and above perceived racial discrimination. We conducted a hierarchical multivariate regression analysis. Perceived racial discrimination was entered as a covariate in Step 1 and perceived language discrimination was entered in Step 2. The results were significant in Step 1 (Wilks’ λ = .88, F(2, 205) = 13.8, p < .001) and Step 2 (Wilks’ λ = .92, F(2, 204) = 9.05, p < .001). In the follow-up univariate hierarchical regression analyses (see Table 5), results showed that the PLD accounted for an additional 3% and 8%, respectively, of the variance in predicting depression and anxiety over and above perceived racial discrimination. These results provide support for the incremental validity of the PLD over and above perceived racial discrimination. In other words, the newly developed PLD is a construct distinct from perceived racial discrimination.

Similarly, we expected that perceived language discrimination would still predict depression and anxiety after controlling for one’s levels of perceived English proficiency. To test this hypothesis, we also conducted a hierarchical multivariate regression analysis. Perceived English proficiency was entered as a covariate in Step 1 and perceived language discrimination was entered in Step 2. The results were significant in Step 1 (Wilks’ λ = .86, F(2, 205) = 16.52, p < .001) and Step 2 (Wilks’ λ = .92, F(2, 204) = 8.61, p < .001). In the follow-up univariate hierarchical regression analyses (see Table 6), results supported this expectation that the PLD accounted for an additional 7% and 4%, respectively, of the variance in predicting depression and anxiety over and above perceived English proficiency. Therefore, the PLD is not just a construct that simply reflects frustration one feels due to one’s lack of perceived English proficiency.

As addressed earlier, we followed Hoyt, Warbasse, and Chu’s (2006) suggestion to use statistical-control strategies to partial out the impact of social desirability to see whether PLD still accounts for a significant incremental $R^2$ on the above four outcome variables over and above social desirability. In a hierarchical multivariate regression analysis, social desirability was entered as a covariate in Step 1 and perceived language discrimination was entered in Step 2. The results were significant in Step 1 (Wilks’ 

---

Table 2

<table>
<thead>
<tr>
<th>Items</th>
<th>Unstandardized factor loading</th>
<th>SE</th>
<th>Standardized factor loading</th>
<th>Uniqueness</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Others ignore me because of my English.</td>
<td>.91</td>
<td>.05</td>
<td>.90</td>
<td>.19</td>
</tr>
<tr>
<td>10. Others avoid talking to me because of my English.</td>
<td>.89</td>
<td>.06</td>
<td>.90</td>
<td>.19</td>
</tr>
<tr>
<td>9. Others treat me as if I don’t know anything because of my English.</td>
<td>.98</td>
<td>.05</td>
<td>.88</td>
<td>.23</td>
</tr>
<tr>
<td>7. Others look down on me because of my English.</td>
<td>.86</td>
<td>.05</td>
<td>.88</td>
<td>.23</td>
</tr>
<tr>
<td>4. I feel rejected by others because of my English.</td>
<td>.95</td>
<td>.06</td>
<td>.87</td>
<td>.24</td>
</tr>
<tr>
<td>8. My opinions or ideas are not taken seriously because of my English.</td>
<td>.85</td>
<td>.05</td>
<td>.81</td>
<td>.35</td>
</tr>
<tr>
<td>15. Others are annoyed by my English.</td>
<td>.63</td>
<td>.06</td>
<td>.70</td>
<td>.52</td>
</tr>
</tbody>
</table>

Note. N = 222. SE = standard error. Scaled $\chi^2(14, N = 222) = 25.83, p = .03$. The comparative fit index = .99; the standardized root mean square residual = .02; and the root mean square error of approximation = .06 (90% confidence interval: .02, .10).

---

3 If participants reported either only English or a combination of their native language and English as their primary language used at either home or school in their home country, these participants were in the “English group.” Conversely, if participants reported only native language or language other than English as their primary language used at home and school, they were in the “Non-English group.”
λ = .80, \( F(4, 200) = 12.5, p < .001 \) and Step 2 (Wilks’ \( \lambda = .92, F(4, 199) = 4.43, p < .001 \)). Results from the follow-up univariate hierarchical regression analyses indicated that the PLD accounted for an additional 4% to 11% of variance in predicting depression, anxiety, self-esteem, and life satisfaction over and above social desirability (see Table 7). These results imply that perceived language discrimination still predicted the above four outcomes variables after controlling for social desirability.

Finally, one multiple group analysis was used to examine whether the magnitude of the correlations between the PLD and the seven variables measured for validity (i.e., depression, anxiety, self-esteem, life satisfaction, perceived racial discrimination, perceived English proficiency, and social desirability) would be equivalent for males and females. We compared two models, the unconstrained model (i.e., the correlations of PLD with the seven variables measured for validity were set to be identical between males and females). The results were scaled \( \chi^2(36, N = 222) = 45.92, p = .12 \) for the constrained model and scaled \( \chi^2(29, N = 222) = 36.19, p = .17 \) for the unconstrained model. The nonsignificant result from the corrected scaled chi-square difference test between these two models, \( \Delta \chi^2(7, N = 222) = 9.65, p = .21 \), indicated the validity for PLD was similar (i.e., equivalent) for males and females.

Similarly, another multiple group analysis was used to examine whether validity was equivalent between the English and Non-English groups. The unconstrained model (i.e., the correlations of PLD with the seven variables measured for validity were freely estimated) and constrained model (i.e., the correlations of PLD with the seven variables measured for validity were set to be identical) were compared. The results were scaled \( \chi^2(36, N = 222) = 49.06, p = .07 \) for the constrained model and scaled \( \chi^2(29, N = 222) = 33.97, p = .24 \) for the unconstrained model. The nonsignificant result from the corrected scaled chi-square difference test between these two models, \( \Delta \chi^2(7, N = 222) = 11.78, p = .11 \), implied the validity for PLD was similar (i.e., equivalent) for the English and Non-English groups.

### Additional Analyses for Demographic Information

We explored possible analyses for demographic information (i.e., age, the length of time in the United States, sex and the primary language used in their home country included some English or not [the English vs. non-English group]). The results indicated that age (\( r = .14, p = .06 \)) and the length of time in the

<table>
<thead>
<tr>
<th>Models</th>
<th>Scaled ( \chi^2 )</th>
<th>df</th>
<th>Model comparison</th>
<th>( \Delta \chi^2 )</th>
<th>( \Delta df )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>M0: The baseline model</td>
<td>43.30</td>
<td>28</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M1: The invariant factor loadings model</td>
<td>50.10</td>
<td>35</td>
<td>M1-M0</td>
<td>5.30</td>
<td>7</td>
<td>.62</td>
</tr>
<tr>
<td>M2: The invariant factor loadings and intercepts model</td>
<td>55.35</td>
<td>41</td>
<td>M2-M1</td>
<td>3.62</td>
<td>6</td>
<td>.73</td>
</tr>
<tr>
<td>M3: The invariant factor loadings, intercepts, and residual variances model</td>
<td>59.15</td>
<td>48</td>
<td>M3-M2</td>
<td>4.99</td>
<td>7</td>
<td>.66</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Models</th>
<th>Scaled ( \chi^2 )</th>
<th>df</th>
<th>Model comparison</th>
<th>( \Delta \chi^2 )</th>
<th>( \Delta df )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>M0: The baseline model</td>
<td>33.42</td>
<td>28</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M1: The invariant factor loadings model</td>
<td>36.70</td>
<td>35</td>
<td>M1-M0</td>
<td>1.87</td>
<td>7</td>
<td>.97</td>
</tr>
<tr>
<td>M2: The invariant factor loadings and intercepts model</td>
<td>42.10</td>
<td>41</td>
<td>M2-M1</td>
<td>5.24</td>
<td>6</td>
<td>.51</td>
</tr>
<tr>
<td>M3: The invariant factor loadings, intercepts and residual variances model</td>
<td>84.73</td>
<td>48</td>
<td>M3-M2</td>
<td>41.89</td>
<td>7</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

Note. N = 222. M0: the baseline model (i.e., all parameters freely estimated). M1: the invariant factor loadings model (i.e., constraining all factor loadings to be equal across the two groups). M2: the invariant factor loadings and intercepts model (i.e., constraining all factor loadings and intercepts to be equal across the two groups). M3: the invariant factor loadings, intercepts and residual variances model (i.e., constraining all factor loadings, intercepts, and residual variances to be equal across the two groups).

### Table 4

**Intercorrelations Among Measured Variables**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Perceived language discrimination</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Depression</td>
<td>.35***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Anxiety</td>
<td></td>
<td>.74***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Self-esteem</td>
<td>−.24***</td>
<td>−.56***</td>
<td>−.48***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Life satisfaction</td>
<td>−.26***</td>
<td>−.42***</td>
<td>−.34***</td>
<td>.57***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Perceived racial discrimination</td>
<td>.62***</td>
<td>.34***</td>
<td>.23**</td>
<td>−.24***</td>
<td>−.31***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Perceived English proficiency</td>
<td>−.49***</td>
<td>−.25***</td>
<td>−.37***</td>
<td>.35***</td>
<td>.27***</td>
<td>−.22**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Social desirability</td>
<td>.14*</td>
<td>.22**</td>
<td>.19**</td>
<td>−.28**</td>
<td>−.24**</td>
<td>.17*</td>
<td>−.21**</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>2.04</td>
<td>.53</td>
<td>.51</td>
<td>3.05</td>
<td>4.62</td>
<td>2.56</td>
<td>4.47</td>
<td>1.35</td>
</tr>
<tr>
<td>SD</td>
<td>0.89</td>
<td>.54</td>
<td>0.51</td>
<td>0.50</td>
<td>1.22</td>
<td>0.88</td>
<td>0.84</td>
<td>0.19</td>
</tr>
</tbody>
</table>

Note. N = 222. M = mean; SD = standard deviation.

*p < .05. **p < .01. ***p < .001.
Table 5
Hierarchical Multivariate Regressions for Incremental Validity
After Controlling for Perceived Racial Discrimination

<table>
<thead>
<tr>
<th>Predictor variables</th>
<th>Depression</th>
<th></th>
<th>Anxiety</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\Delta R^2$</td>
<td>$B$</td>
<td>$\beta$</td>
<td>$\Delta R^2$</td>
</tr>
<tr>
<td>Step 1 (covariate) Perceived racial discrimination</td>
<td>.12***</td>
<td>.05**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2 Perceived language discrimination</td>
<td>.03**</td>
<td>.21</td>
<td>.34***</td>
<td>.08***</td>
</tr>
<tr>
<td>Total $R^2$</td>
<td>.15***</td>
<td></td>
<td>.13***</td>
<td></td>
</tr>
</tbody>
</table>

*Note. N = 222.*
**p < .01. ***p < .001.

United States ($r = .06, p = .40$) were not significantly associated with perceived language discrimination. The result from a $t$ test indicated no PLD mean differences, $t(219) = 0.75, p = .46$ between males ($M = 2.09, SD = 0.93$) and females ($M = 2.00, SD = 0.84$). However, the result from a $t$ test indicated a significant PLD mean difference, $t(220) = 3.65, p < .001$ between the English group ($M = 1.77, SD = 0.82$) and the non-English group ($M = 2.21, SD = 0.90$). Based on Cohen’s (1992) analysis of effect size, the magnitude of this difference (i.e., a Cohen’s $D$ of .51) reflects a medium effect size.

Sample 3: Test-Retest Reliability

The purpose of Sample 3 was to provide test–retest reliability for the PLD over a 2-week period. We hypothesized that the PLD would reveal a high level of test–retest reliability. Similar to Samples 1 and 2, the internal consistency for the PLD in Sample 3 was high at Time 1 ($\alpha = .89$ [95% CI: .84, .93]) and Time 2 ($\alpha = .90$ [95% CI: .84, .95]). The 2-week test–retest reliability estimate for the PLD was .83. A paired-samples $t$-test was also conducted to test whether there was a change in the mean score for the PLD at Time 1 ($M = 2.69, SD = 0.73$) and Time 2 ($M = 2.77, SD = 0.73$). There was no statistically significant mean difference, $t(30) = -1.02, p = .32$, which implies the stability of the mean score at Time 1 and Time 2.

Discussion

The purpose of the present study was to develop a reliable and valid measure of PLD across three samples. Results from an exploratory factor analysis supported the unidimensional construct of perceived language discrimination. The fit indices of the confirmatory factor analysis confirmed that the one-factor model fit well with the data. The results from the measurement invariance analyses indicated strict measurement invariance (i.e., invariant factor loadings, intercepts, and residual variances) between males and females. The results also indicated strong measurement invariance (i.e., invariant factor loadings and intercepts) between the English (i.e., whose primary language used at home and at school in their home country included some English) and Non-English groups (i.e., whose primary language used at home and at school in their home country did not include English). Moreover, the results from the multiple-group analyses indicated that the validity for PLD was equivalent for males and females as well as for the English and Non-English groups. Finally, the coefficient alphas (i.e., internal consistency) for the PLD were strong and similar for the total sample, males and females, and the English and Non-English groups. A test–retest reliability of .83 indicated that this scale was relatively stable over a 2-week period.

In terms of validity, scholars have argued that, theoretically, discrimination is associated with poor mental health outcomes (Clark et al., 1999; Harrell, 2000). The current results support this theoretical prediction by the moderate positive associations of perceived language discrimination with depression and anxiety, but small negative associations of perceived language discrimination with self-esteem and life satisfaction. These results provide support for the construct validity. Furthermore, we found additional evidence to support the construct validity of the PLD through its association with other closely related constructs (i.e., perceived racial discrimination and perceived English proficiency) and its minimal association with an unrelated construct (i.e., social desirability). In addition, the PLD accounted for an additional 3% and 8% of the variance in predicting depression and anxiety, respectively, over and above perceived racial discrimination. These results support the incremental validity of the PLD and indicate that perceived language discrimination is a construct that is unique from perceived racial discrimination. The PLD also accounted for an additional 7% and 4% of the variance in predicting depression and anxiety, respectively, over and above perceived English proficiency. These results support the incremental validity of the PLD and indicate that perceived language discrimination is not simply a reflection of individuals’ feelings of frustration from being socially rejected as a result of low English proficiency.

In addition, the PLD accounted for an additional 4% to 11% of the variance in predicting depression, anxiety, self-esteem, and life satisfaction over and above social desirability. This is evidence that the associations between perceived language discrimination and the other four outcome variables are independent of social desirability.

Finally, for males and females, our results indicated that there was no significant difference in the mean and validity of the PLD. However, for the English and Non-English groups, there was a mean difference, but the validity of the PLD was invariant for

Table 6
Hierarchical Multivariate Multiple Regressions for Incremental Validity After Controlling for Perceived English Proficiency

<table>
<thead>
<tr>
<th>Predictor variables</th>
<th>Depression</th>
<th></th>
<th>Anxiety</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\Delta R^2$</td>
<td>$B$</td>
<td>$\beta$</td>
<td>$\Delta R^2$</td>
</tr>
<tr>
<td>Step 1 (covariate) Perceived English proficiency</td>
<td>.06***</td>
<td>.14**</td>
<td></td>
<td>.04**</td>
</tr>
<tr>
<td>Step 2 Perceived language discrimination</td>
<td>.07***</td>
<td>-.16</td>
<td>-.25***</td>
<td>.04**</td>
</tr>
<tr>
<td>Total $R^2$</td>
<td>.13***</td>
<td>.19</td>
<td>.31***</td>
<td>.14</td>
</tr>
</tbody>
</table>

*Note. N = 222.*
**p < .01. ***p < .001.
those whose primary language used in their country included some English (i.e., the English group) and did not include English (i.e., the non-English group). The mean difference on the PLD between these two groups is reasonable. However, the invariance on the validity of the PLD may imply that the associations of perceived language discrimination and mental health outcomes are similar regardless of whether the primary languages used at their home country included some English or did not include English. Therefore, as we addressed earlier, collecting data from all international students allowed us to examine whether language discrimination applies to different subgroups of international students. The measurement invariance and validity equivalency for PLD and the fairly representative sample compared to the national population provides support for the generalizability of the PLD to all international students. In short, our results indicated that the PLD is a promising measure with strong psychometric properties.

Clinical Implications, Limitations, and Future Research Directions

The development of this scale has several clinical implications. First, mental health providers can use this scale as a helpful tool to assess the perception of language discrimination for international students who speak English as their second language. It may serve to normalize and validate their language discrimination experience and facilitate their willingness to explore this concern and how it might relate to the level of stress or psychological symptoms they experience. Second, mental health providers can provide a safe and trusting environment for international students who speak English as a second language to process their experience of language discrimination and its impacts on mental health outcomes. In particular, it would be helpful to increase clients’ awareness of being discriminated against because of language. Mental health providers can also explore possible internalized language discrimination that may affect their clients’ self-esteem. Third, this scale can also be used as a means to educate others about the behaviors (e.g., looking down on those whose English is their second language or ignoring them) that can be perceived as language discrimination. Then, others can avoid these behaviors and show respect to those who speak English as a second language. Fourth, an increase in awareness of language discrimination and its impacts can help counseling professionals understand the need to advocate for those being discriminated against. Advocating for reasonable accommodations (e.g., evaluation based on quality of work, not grammar errors or accent) could relieve clients’ stress.

Even though the PLD appears to be an adequate measure regarding factor structure, reliability, and validity among international students, several limitations pertaining to the development of this scale should be noted. First, while the sample in this study is fairly representative of all international students in the national data, this sample is limited to only international students. Therefore, the generalizability of this scale to immigrants is unknown at this point. Future studies are needed to assess the utility of the scale on immigrant populations. Second, this study has not only examined PLD’s associations with negative mental health outcomes (i.e., depression and anxiety) but also its associations with self-worth (i.e., self-esteem) and well-being (i.e., life satisfaction). However, more studies are still needed to examine the associations of perceived language discrimination with other outcomes such as work adjustment, interpersonal adjustment, substance use (e.g., tobacco, alcohol, and other substance use), academic performance, or suicidal ideation. Third, the lower internal consistency for social desirability in the present study is a limitation. Future studies may need to use the longer version of the MCSDS or other social desirability scales. Finally, participants were informed that this study was related to language discrimination. It is possible that there was a selection bias in which only those who were interested in or concerned about this topic participated in this study.

Regarding research directions, one of the most important contributions of this study is to expand the research on discrimination to specifically focus on language-based discrimination. The development of the PLD has the potential to advance the literature by providing researchers with a psychometrically sound instrument to measure perceived language discrimination. This newly developed scale provides a good start for future research studies. For example, Gee and Ponce (2010) found that racial discrimination and limited English proficiency were two major barriers for the well-being of Asian immigrants. Future studies can explore the association between perceived language discrimination and mental health outcomes and whether this association is still significant over and above perceived racial discrimination among Asian immigrants or other immigrant populations. Moreover, as perceived language discrimination is associated with depression and anxiety, it is important for future research to explore the moderation and/or mediation effects of this association. Wei et al. (2008) found that lower use of reactive coping moderated the association between...
perceived racial discrimination and depressive symptoms, but only for Asian international students with relatively high self-esteem (the other moderator). Therefore, future studies may empirically explore the moderators (e.g., coping strategies, self-esteem, or ethnic identity pride) or mediators of the association between perceived language discrimination and negative mental health outcomes.

Another important research direction for this topic area is to use longitudinal designs to answer questions such as whether language discrimination causes depression or depression causes sensitivity to language discrimination. This causal relationship should be examined through longitudinal designs. Finally, this scale has the potential to be modified and used with populations outside of the United States by replacing the term “English” with different languages. As the world is becoming more globalized, there are trends of increasing numbers of study abroad students and international business people. These sojourners traveling or residing in foreign countries may also experience language discrimination, which may impact their mental and physical health. Therefore, the PLD can also be used to study the emerging populations of sojourners who immerse themselves in the language and culture of different countries for short or long periods of time. However, researchers pursuing this direction may need to conduct future studies examining the psychometric properties of the PLD in other countries with other languages first to confirm or disconfirm the possibility.

References


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