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Foreign Language Communication Anxiety Outside of a Classroom: Scale Validation and Curvilinear Relationship With Foreign Language Use

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Abstract

Three studies examined foreign language communication anxiety (FLCA) in adults who use a non-native language in non-classroom settings. Study 1 (N = 102) validated the unidimensionality and the functionality of a proposed FLCA scale and a seven-item version. Study 2 included 224 participants living in the United States, and Study 3 included 216 participants living in India. The FLCA instrument was also psychometrically valid in Studies 2 and 3. The proposed two models (growing anxiety and growing confidence) that described the relationship between foreign language use and FLCA were both supported. Study 2 supported a concave curvilinear relationship (i.e., growing anxiety then growing confidence), and Study 3 supported a convex curvilinear relationship (i.e., growing confidence then growing anxiety). These results suggest that FLCA is an important construct to consider in intercultural communication, and that the function it plays in everyday life may differ based on cultural or linguistic setting.

Keywords

foreign language communication anxiety, second language use, measurement validation, communication anxiety, India, communication apprehension

As the demographics of the world—and specifically the United States—shift, attention to intercultural communication and the process of communicating across a language divide continues to increase. In the United States alone, 20.8% of the population speaks a language other than English at home (U.S. Census Bureau, 2011). Individuals encounter a variety of situations in which they must communicate in a non-native language, such as Spanish speakers receiving healthcare in the United States, children acting as interpreters for their immigrant parents, travelers, individuals who work with linguistically diverse populations, and multilingual families and friends. Furthermore, the United States is relatively monolingual compared with many other countries;

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for example, India has two official languages and 20 recognized regional languages, increasing the likelihood and necessity of multilingual communication (Mohanty, 2006). The ability to navigate situations in a non-native language is becoming more essential for intercultural communication and between individuals living in the same society.

As the ability to successfully navigate a multilingual situation is an increasingly important skill, factors that severely help or hinder one's ability to communicate are important to understand. One such aspect is foreign language communication anxiety (FLCA) or anxiety about interacting in a non-native language. FLCA has primarily been studied through learning a second language in high school or college. This instructional research suggests that FLCA is crucial in determining an individual's ability to learn a foreign language, willingness to communicate in the language, and success in achieving desired situational outcomes when communicating in the language (Ganschow & Sparks, 1996; MacIntyre & Gardner, 1994). However, little research has examined FLCA outside of a classroom context or with non-student populations (Dewaele, 2007; Horwitz, 2010). In addition, no measures are currently available for FLCA that do not pertain to a specific setting (e.g., classroom, medical setting). Validated measures are essential to the advancement and empirical testing of theory (Chaffee, 1991; DeVellis, 2003). Thus, while previous classroom research indicates that FLCA is an important construct to consider in intercultural communication research, the validity and generalizability of how the construct functions and affects communication outside of the classroom are unknown.

FLCA has received a great deal of attention as a major detriment to students' language learning (Horwitz, 2010), but the relationship between FLCA and foreign language use outside of the classroom remains unclear. Two contrasting models of how FLCA may relate to foreign language use in non-classroom contexts are posited in the current study, and the two curvilinear relationships based on the combined models are explored. The growing confidence model draws from intercultural communication competence theory (Spitzberg, 2000) and posits that as participants use the foreign language more, they may become more confident and less anxious about language use. Alternatively, the growing anxiety model—drawn from a theoretical model of FLCA in the classroom (MacIntyre & Gardner, 1989, 1991)—states that the more the foreign language is used, the more the FLCA is reinforced. However, both models could be supported through a curvilinear relationship, with FLCA and foreign language use represented as a convex parabola (i.e., a "U" shape; supporting growing confidence then growing anxiety) or a concave parabola (i.e., an upside down "U" shape; supporting growing anxiety then growing confidence). Given the variability between a more monolingual society (such as the United States) and a multilingual society (such as India), the context in which one lives may alter how FLCA affects foreign language use. Thus, we propose a measure of FLCA appropriate for non-classroom settings in Study 1. Studies 2 and 3 validate the construct validity of the measure and test the growing confidence, growing anxiety, and curvilinear models of FLCA and foreign language use in two linguistically different, non-college-student populations (adults living in the United States and in India) who use a foreign language in non-classroom contexts.

Study 1

FLCA is "the feeling of tension and apprehension specifically associated with second language [or third, or fourth language, etc.] contexts, including speaking, listening, and learning" (MacIntyre & Gardner, 1994, p. 284). Horwitz, Horwitz, and Cope (1986) proposed a theoretical framework for FLCA—although specific to the classroom—in which they posited a number of reasons why FLCA manifests. FLCA arises from the lack of vocabulary and ability to express oneself fully in a foreign language, leading to frustration and anxiety. In addition, individuals may be anxious or frustrated with their ability (or lack of ability) to understand someone speaking in the foreign language. FLCA may also stem from a lack of linguistic resources to present

oneself in the desired social light. Individuals may fear making mistakes in the language, may feel incompetent about their communication abilities, and thus fear being laughed at or judged for their lack of native-speaker fluency. FLCA is a complex construct and has been classified as trait anxiety (enduring for a long time across all situations), situation-specific anxiety (defined over time within a specific context), and state anxiety (within a particular moment, disregarding past and future emotions; MacIntyre, 2007). Dewaele, Petrides, and Furnham (2008) noted that examining this construct purely as a personality characteristic (i.e., trait anxiety) reduces its complexity, as its levels "fluctuate both in the very short term (minutes) and in the long term (years) and seem to be associated with various situational, social, biographical, cultural, and psychological variables" (p. 918). Thus, the current study examines FLCA as a situation-specific anxiety, in line with previous classroom-based FLCA research (Horwitz et al., 1986; MacIntyre & Gardner, 1991; see Dewaele et al., 2008, for a more in-depth discussion of FLCA classifications).

To examine FLCA in a non-classroom context, a psychometrically robust measure of FLCA is needed to facilitate this research (MacIntyre & Gardner, 1991). Previous measures of FLCA have been specific to a classroom context (e.g., Horwitz et al., 1986) or a medical setting (Guntzviller, Jensen, King, & Davis, 2011) and have included items that are not relevant to day-to-day situations (e.g., "During language class, I find myself thinking about things that have nothing to do with the course"; Horwitz et al., 1986, p. 129). Other measures have focused on general communication apprehension (CA) in another language (e.g., Jung & McCroskey, 2004), but without accounting for the theoretical aspects of anxiety that are specific to speaking in a non-native language (Horwitz et al., 1986; MacIntyre & Gardner, 1989, 1994). Finally, FLCA research conducted in an adult population about language use outside of the classroom has relied on a one-item measure of FLCA (Dewaele, 2007; Dewaele et al., 2008), which cannot be psychometrically evaluated.

The current study developed a measure of FLCA that is applicable to a variety of situations in which a non-native language might be spoken. Validation of this FLCA scale requires consideration of construct dimensionality and scale length. Although this measure is proposed for the current study as a "new" measure, this measure draws heavily on the concepts and wording proposed from two previous measures. Horwitz and colleagues' (1986) measure of classroom FLCA posited that FLCA is comprised of five dimensions: physical anxiety, anxiety about understanding, fear of making mistakes, feelings of incompetence, and distinction from general CA. Guntzviller and colleagues' (2011) measure of FLCA in a medical setting was also based on these five dimensions, although an exploratory factor analysis indicated that the scale was unidimensional. The current study seeks to psychometrically examine whether non-context specific FLCA is unidimensional or if the five subdimensions are psychometrically unique and mutually exclusive. Thus, 10 items from Guntzviller and colleagues were modified to describe FLCA in any setting (we excluded the two reverse-worded items that did not load on Guntzviller et al.'s final scale), and 12 additional items were created (see the appendix), so that each of the five dimensions (physical anxiety, anxiety about understanding, fear of making mistakes, feelings of incompetence, and distinction from general CA) were represented by at least four items. All items were written to pertain to non-context-specific interactions: For example, the item "I fear that the doctors or nurses will laugh at me when I speak the foreign language" from Guntzviller and colleagues' scale was modified for the current study to read "I fear that people will laugh at me when I speak the foreign language." Study 1 was designed to examine the uni- or multidimensionality of FLCA, and, if the former, to propose a short version of the scale. In addition, measures on foreign language use were pilot tested for Studies 2 and 3.

Method

Participants. One hundred two participants (46 females, 56 males) who were 18 years or older and spoke more than one language completed this study. On average, participants were 34.92

years old (*SD* = 11.50, range = 22-72), had a household income between US$25,000 and US$34,999 (range = less than US$10,000-US$150,000), had a bachelor's degree or higher, and spoke 2.94 languages (*SD* = 0.94, range = 2-6). Participants lived in India (*n* = 73), the United States (*n* = 23), Germany (*n* = 2), and Moldova, Russia, Sri Lanka, and the United Arab Emirates (*n* = 1 each). Participants' first language included English (*n* = 51), Tamil (*n* = 7), Hindi (*n* = 4), Marathi (*n* = 2), German (*n* = 2), and Assamese, Balochi, Konkani, Romanian, Russian, Spanish, and Tulu (*n* = 1 each). Participants reported their foreign language was English (*n* = 44), Tamil (*n* = 11), Spanish (*n* = 7), Hindi (*n* = 5), Malayalam (*n* = 5), German (*n* = 4), Kannada (*n* = 4), French (*n* = 3), Telugu (*n* = 3), Arabic (*n* = 2), Japanese (*n* = 2), and Cantonese, Gujarati, Mandarin, Shona, and Tagalog (*n* = 1 each).

Procedures. Participants were recruited through Amazon Mechanical Turk over a period of 10 days. As this study required workers who were a subset of the entire population of workers (i.e., who spoke more than one language), we used the method suggested by Kapelner and Chandler (2010) of posting the survey multiple times throughout the recruitment period to attract workers who were not specifically looking for survey tasks but might be browsing through the most recently posted tasks. Participants were prevented from completing the survey more than once by using the method specified by Pe'er, Paolacci, Chandler, and Mueller (2012). Participants were compensated 20 cents for filling out the survey.

First, participants filled out the Dyadic subscale of McCroskey, Beatty, Kearney, and Plax's (1985) Personal Report of Communication Apprehension (PRCA-24), which is a trait-based measure of dyadic CA. The five items were measured on a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*) and were internally reliable (Cronbach's α = .89). A higher score indicates greater anxiety. Second, participants were asked to report all languages they spoke, and then were asked which language they spoke second most (i.e., apart from their primary language). Participants were instructed to respond to the remaining items (language ability, FLCA, foreign language use) when thinking about that language (henceforth labeled their "foreign" language). Participants self-ranked their foreign language ability (e.g., "Please rate your language ability in this language—Speaking") on a 4-point scale (1 = *not at all or a little*, 2 = *somewhat*, 3 = *well*, 4 = *very well*; Tse, 1996).

Demographics. Of the 102 participants, individuals reported that their foreign language was learned, on average, between 8 and 9 years old (*M* = 8.29, *SD* = 6.55) and ranging from birth to 44 years old. Seventy-one participants reported that they were bilingual in the language (the definition of bilingual was left to participant interpretation), and 63 reported that it was their heritage language (defined in the survey as their native language, but not the language they currently use most frequently). Participants learned the language through formal education only (*n* = 26), in a naturalistic setting only (*n* = 24), or with a combination of both (*n* = 51). Only 13 participants were taking classes related to language learning at the time of the study. Participants reported that they spoke the language every day (*n* = 46), several hours a day (*n* = 36), every week (*n* = 46), every month (*n* = 5), or never or every year (*n* = 2). Participants rated themselves on a 4-point scale on their ability to speak (*M* = 3.43, *SD* = 0.71), listen (*M* = 3.51, *SD* = 0.71), read (*M* = 3.47, *SD* = 0.83), and write (*M* = 3.30, *SD* = 0.91) the foreign language.

FLCA. Twenty-two items were created to represent FLCA: 10 items from Guntzviller et al.'s (2011) scale on FLCA in a medical setting were slightly modified to pertain to FLCA in any context, and additional items were created to determine if the five aspects of foreign language anxiety (physical anxiety, understanding, fear of making mistakes, feelings of competence, and distinction from general CA) formed subdimensions or if the scale was unidimensional (see the appendix for all items). Four pilot interviews were conducted with individuals who spoke

multiple languages to verify clarity of item wording and check understanding. Items were assessed on a 5-point scale (1 = *strong disagree*, 5 = *strongly agree*) and were averaged to form the scale. Higher scores indicate higher anxiety. Psychometrics of the scale are discussed in the "Results" section.

Foreign language use. Two scales were examined as pilot data for participant foreign language use. Participant's willingness to communicate in the foreign language was assessed by 20 items about group, meeting, interpersonal, and public speaking settings with friends, acquaintances, and strangers (McCroskey, 1992). Participants used a slider to indicate the percentage of times they would choose to communicate in the foreign language in each type of situation (0 = *never* to 100 = *always*). In addition, participants completed a foreign language use index that was created by the authors. Participants were asked whether they use the foreign language (1 = *yes*, 0 = *no*) in nine places (work, with friends, with native speakers, volunteering, at a store or restaurant, with family, when I travel, at home, and other). These answers were then summed to calculate the index score.

Results and Discussion

Confirmatory factor analysis (CFA). To determine whether the 22 FLCA items represented a unidimensional latent variable or multiple latent variables, two robust maximum-likelihood CFAs were conducted in Mplus 7.3. The first CFA model included the 22 items represented by one latent variable and displayed borderline adequate fit, $\chi^2(209, N = 102) = 359.61$, $p < .001$, χ^2 / df ratio = 1.72, comparative fit index (CFI) = .89, Tucker–Lewis index (TLI) = .88, root mean square error of approximation (RMSEA) = .08 (90% confidence interval [90% CI] = [.069, .099]), Akaike information criterion (AIC) = 5,773.37. All items loaded onto the one latent variable above .66, and the items were internally reliable (Cronbach's $\alpha = .97$). Examination of modification indices showed that correlating error terms for Items 7 and 14 produced superior fit, $\chi^2(208, N = 102) = 346.31$, $p < .001$, χ^2 / df ratio = 1.66, CFI = .90, TLI = .89, RMSEA = .08 (90% CI = [.065, .096]), AIC = 5,755.74. Interview participants mentioned the two correlated items (Item 7: "I get nervous when I do not understand every word in the language" and Item 14: "I get embarrassed when I do not understand what a native speaker is saying in the language") brought to mind scenarios that could be potentially embarrassing for the native speaker along with participant, if the participant had to ask for clarification multiple times. Thus, we deemed these items conceptually appropriate to correlate, as they shared distinct variance not accounted for by the other items.

The second CFA model included the 22 items represented by five latent variables (anxiety, understanding, mistakes, competence, and general CA distinction). Using the same error term correlations (errors for Items 7 and 14), the model bordered on adequate fit, $\chi^2(198, N = 102) = 346.05$, $p < .001$, χ^2 / df ratio = 1.75, CFI = .90, TLI = .88, RMSEA = .09 (90% CI = [.070, .100]), AIC = 5,752.67. All items loaded onto the appropriate latent variables at or above .65, and the subscales had acceptable internal reliability: degree of anxiety ($\alpha = .89$), extent of understanding ($\alpha = .90$), feelings of competence ($\alpha = .88$), fear of making mistakes ($\alpha = .85$), and divergence from general CA ($\alpha = .88$). The five subscales were very strongly correlated with each other (all scales were significantly correlated above $r = .90$).

The AIC statistic (a statistic used to indicate which model is a better representation of data) indicates that the two models were not distinctly different in fit, as the AIC statistics need to differ by at least 10 to provide substantial support for a superior model (Burnham & Anderson, 2004). However, the high factor correlations (i.e., above $r = .90$) of the five-factor model indicate a lack of discriminant validity between factors (Brown, 2015) and evidence that the factors are equivalent (DeVellis, 2003). Brown (2015) noted that when model fit between a multidimensional

Table 1. Confirmatory Factor Analysis Item Loadings of the Foreign Language Communication Apprehension Short Scale.

	Study 1	Study 2	Study 3
1. I start to panic when I have to speak in the language without preparation.	1.00 (.69)	1.00 (.83)	1.00 (.75)
2. When speaking to a native speaker, I can get so nervous I forget things I know.	1.16 (.80)	1.06 (.84)	1.11 (.82)
3. I worry about speaking in the language, even if I'm well prepared for it.	1.19 (.90)	1.09 (.88)	1.00 (.79)
4. I get nervous and confused when I speak in the language	1.22 (.88)	1.03 (.90)	1.17 (.87)
5. I get nervous when I do not understand every word in the language	1.04 (.76)	0.99 (.81)	0.96 (.75)
6. I fear that people will laugh at me when I speak the language	1.19 (.90)	1.00 (.82)	1.07 (.80)
7. I get nervous when I am asked questions in the language that I have not prepared in advance	1.01 (.71)	1.09 (.87)	1.03 (.77)

Note. Both unstandardized and standardized coefficients reported; standardized coefficients in parentheses.

model and more parsimonious solution is approximately equal, the latter can be preferable as factor correlations above .85 often indicate problematic discriminant validity. Given the a priori premise that the scale could be unidimensional, the approximate equivalence of model fit, and the poor discriminant validity between the subscales, the unidimensional scale was deemed to be superior to a multifactor model.

Short and long scale. Given the unidimensionality of the construct, a shorter scale may be more appropriate and useful than the 22-item measure. Seven items modified from Guntzviller et al. (2011) were selected as a short scale based on factor loadings, internal reliability contribution, and interviewee responses to the items (items reported in Table 1). Both the short and full scales had similar descriptive statistics (seven item: $M = 2.54$, $SD = 1.07$, range = 1-5, Skew = 0.24, Kurt = −0.69; 22 item: $M = 2.66$, $SD = 1.01$, range = 1-5, Skew = 0.12, Kurt = −0.66). The seven-item scale and the 22-item scale were very strongly correlated ($r = .97$, $p < .001$), and both scales demonstrated good internal reliability (Cronbach's $\alpha = .92$ for the seven-item scale and .97 for the 22-item scale). Given that internal reliability is influenced by item covariation and number of items (DeVellis, 2003), the shorter scale provides an adequate balance between brevity and sufficient reliability.

In addition, the seven-item scale demonstrated criterion validity, by correlating (or not correlating) with variables to the same magnitude and statistical significance as the 22-item scale (DeVellis, 2003). Specifically, the seven-item and 22-item scales were similar in their correlations with participant age; sex; education; number of languages spoken; foreign language ability to speak, listen, read, and write; dyadic CA; willingness to communicate; and foreign language use index (see Table 2 for correlations). As shorter scales reduce participant burden (DeVellis, 2003), the shorter scale was deemed preferable.

Participants who reported the foreign language was a heritage language did not differ from those who reported on a non-heritage language in FLCA for either the seven-item ($t = .51$, $p = .61$) or 22-item scale ($t = 1.02$, $p = .31$). Participants also did not statistically differ in their FLCA score based on whether they learned the language formally, naturalistically, or both (seven item $F = 1.76$, $p = .18$; 22 item $F = 1.89$, $p = .16$). Because FLCA was not related to where participants learned the language or its heritage language status, these variables were not included in the

Table 2. Bivariate Correlations of the Short and Long Versions of the FLCA Scale.

	Seven item	22 item
Age	−.16	−.18
Sex	.13	.14
NumLangSpk	−.19†	−.19†
Education	−.16	−.17†
FL—Speak	−.31**	−.32**
FL—Listen	−.26*	−.29**
FL—Read	−.28*	−.28**
FL—Write	−.18†	−.20*
PRCA—Dyad	.57***	.58***
Willingness to communicate	−.16	−.17
FL index	−.19†	−.17†

Note. FLCA = foreign language communication anxiety; NumLangSpk = number of languages spoken by the participant; FL = foreign language (e.g., FL—Speak = ability to speak in the foreign language); PRCA = Personal Report of Communication Apprehension; FL index = foreign language use index.
†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

subsequent studies. These variables may have a complex relationship with FLCA, which future research could explore.

Foreign language use. The willingness to communicate scale and the foreign language use index were strongly correlated ($r = .45$, $p < .001$). The index not only correlated with willingness to communicate but provided a behavior-based report of communication (rather than just intention to communicate) and was superior in terms of participant fatigue (i.e., shorter length and requires less cognitive effort). Furthermore, people may not desire to communicate but may need to do so in certain situations. The foreign language use index was thus used in the subsequent studies, although future research should examine other measures of language use.

Studies 2 and 3

FLCA classroom research demonstrates that FLCA often correlates with certain variables, providing a basis for convergent and divergent validity testing of a FLCA measure. FLCA should demonstrate convergent validity by correlating with measures of related dimensions (e.g., CA) but should demonstrate divergent validity by measuring aspects of FLCA not captured by the convergent measures (DeVellis, 2003). The few studies that examined FLCA in non-classroom contexts with adults showed that FLCA was associated with age, general CA, number of languages spoken, and linguistic ability in the language (Dewaele, 2007; Dewaele et al., 2008; Guntzviller et al., 2011). In addition, FLCA in a classroom context has related to general CA, number of languages spoken, and linguistic abilities in the foreign language (Horwitz, 2010). These variables can be used in a non-classroom setting to demonstrate convergent and divergent validity to FLCA; a valid measure of FLCA should correlate with the aforementioned measures but should be statistically distinct.

FLCA is related to general CA, in that both are anxieties pertaining primarily to verbal interactions. However, the two concepts differ as CA pertains to speaking in a native language, where FLCA arises only when speaking a non-native language, and thus includes elements that general CA does not (e.g., being nervous about making grammatical mistakes; MacIntyre, 2007). Individuals with higher general CA may also experience higher CA in the context of a foreign language (Guntzviller et al., 2011; Jung & McCroskey, 2004), although individuals with high

FLCA do not always have high CA (Horwitz et al., 1986). General CA has been measured with the PRCA-24, which measures CA for public speaking, in groups, in meetings, and during dyadic interactions (McCroskey et al., 1985). Thus, FLCA should demonstrate convergent validity by correlating with the four dimensions of general CA and specifically with dyadic CA.

FLCA should also demonstrate convergent and divergent validity with the number of languages spoken and language ability in the foreign language. Individuals who know more languages tend to have lower FLCA, possibly because they are more confident navigating multilingual situations and have more experience (Dewaele et al., 2008). In terms of language abilities, Spanish-speaking individuals who reported having greater speaking and reading ability in English were less likely to report FLCA for communicating in English in a medical setting (Guntzviller et al., 2011). In addition, FLCA and language ability are intrinsically linked in research examining FLCA in the classroom. Students with higher FLCA translate less accurately and comprehend less (Ganschow & Sparks, 1996; MacIntyre & Gardner, 1994), have lower quality language performance (MacIntyre & Gardner, 1989), and have increased difficulty with vocabulary and describing themselves (MacIntyre & Gardner, 1994). Thus, FLCA and self-ratings of number of languages spoken, along with the ability to speak, listen, read, and write in the foreign language, should be correlated, although distinct.

FLCA and Foreign Language Use

The connection between FLCA and actual foreign language use is important to understand when conceptualizing how FLCA may play a role in intercultural communication. Classroom research demonstrates a link between FLCA and foreign language use (MacIntyre, 2007), although study results conflict as to whether the association is negative (e.g., Liu & Jackson, 2008) or positive (e.g., MacIntyre & Gardner, 1994). Furthermore, little research has been conducted on this topic in non-classroom settings or with non-student populations (for exceptions, see Dewaele, 2007; Dewaele et al., 2008; Guntzviller et al., 2011), and the relationship between FLCA and language use may diverge from classroom research in the aforementioned situations. One student noted, "When you are out of the classroom I feel like people are analyzing me. I don't mind when a teacher does it, but not an acquaintance" (MacIntyre, 2007, p. 571). Alternatively, using a foreign language outside of the classroom may be less stressful in some cases (e.g., socializing may be less stressful than taking an exam). Individuals who use a foreign language for work, volunteering, or socializing may not have similar associations between FLCA and language use as high school or college students. Furthermore, the motivation to speak to better learn the language may not always be salient in non-classroom contexts, which is a premise of FLCA classroom theoretical models (MacIntyre, 2007). Studies 2 and 3 examined this relationship by testing whether the relationship between FLCA and language use is positive or negative, and whether it may be linear or curvilinear. These two relationships are proposed as the growing confidence model and the growing anxiety model.

Growing confidence model. The growing confidence model is defined as a negative relationship between foreign language use and FLCA. The growing confidence model draws from the intercultural communication competence model (Spitzberg, 2000), which posits that social anxiety will be negatively associated with willingness to communicate in intercultural situations. Dewaele et al. (2008) posited that as individuals use a foreign language in a greater number of situations, their anxiety about communicating in that language will lessen. These authors found support for the growing confidence model in a non-college student, multilingual sample from around the world. General CA research has also shown that the more individuals interact in a particular situation, the less CA they have for that situation (Pederson, Tkachuk, & Allen, 2008). In addition,

those who have a higher level of FLCA may be unwilling to communicate, and thus may use the language in fewer settings (Liu & Jackson, 2008).

Growing anxiety model. The growing anxiety model represents a positive relationship between language use and FLCA, such that use of the foreign language in a greater number of situations will be associated with higher FLCA. MacIntyre and Gardner (1989, 1994) provided a theoretical model of FLCA, in which they stated that the more anxious a person feels about communicating in a foreign language, the worse that person will perform in the language. Furthermore, performing poorly can lead to increased FLCA (MacIntyre, 1995). Thus, the more a language is used, the more the FLCA may be reinforced. Some classroom research has supported this perspective: Horwitz (2001) found that more successful and advanced students also reported FLCA, and Onwuegbuzie, Bailey, and Daley (1999) reported that FLCA increased as students advanced in their studies of a foreign language.

Curvilinear models. Two final options are also present when considering the growing confidence and anxiety models in tandem; both models may be supported if the relationship between language use and FLCA is curvilinear in either a convex or concave fashion. A convex relationship (i.e., "U" shape) would support a growing confidence model for individuals starting to use a foreign language until they reach a point at which FLCA starts to rise again (i.e., growing anxiety) because of perceived pressure when speaking in a wider variety of situations that require greater skill, a wider vocabulary, and more opportunities for error. Alternatively, a concave relationship (i.e., upside down "U" shape) would support a growing anxiety model until an individual reaches a point in his or her language use (e.g., he or she has spoken in a wide enough range of settings) where the relationship between language use and FLCA may peak, in that the more the person uses the language after this point, the less anxious he or she becomes (i.e., growing confidence).

Studies 2 and 3 examined the construct validity of the seven-item FLCA measure and examined the growing confidence, growing anxiety, and curvilinear models of FLCA and foreign language use in two linguistically different, non-college-student populations (Study 2 in the United States and Study 3 in India).

Study 2

Method

Participants. All participants in this study were participants living in the United States; 224 people completed the survey (113 females, 111 males). On average, participants were 30.29 years old (SD = 9.40, range = 18-68), had a household income between US$35,000 and US$49,999 (range = less than US$10,000-more than US$200,000), had an associate's degree, and spoke 2.25 languages (SD = 0.58, range = 2-5). Participants predominantly spoke English as their first language (n = 175); although some participants spoke Spanish (n = 11), Russian (n = 7), Tamil (n = 4), Tagalog (n = 3), Korean (n = 3), German (n = 3), Mandarin (n = 2), and Vietnamese (n = 2); and one participant each spoke Cantonese, Croatian, Hungarian, Indonesian, Japanese, Kannada, Khmer, Moroccan, Polish, Romanian, Sema, Turkish, Urdu, and Uzbek. Participants also reported on their second-most frequently used foreign language: 80 reported on Spanish; 46 on English; 23 on French; 12 on German; 11 on Mandarin; eight on Japanese; four on Hindi, Italian, and Vietnamese; three on Cantonese, Creole, and Portuguese; two on Armenian, Farsi, Hebrew, and Tagalog; and one on Arabic, Bangla, Danish, Dutch, Finnish, Indonesian, Nagamese, Norwegian, Punjabi, Russian, Swedish, Tamil, Telugu, Thai, and Yiddish.

Procedure. Procedures to recruit participants were identical to those in Study 1. Participants were compensated 20 cents for filling out the survey and were entered into a US$50 raffle. Participants first completed the PRCA-24. Participants were asked to report their primary or native language, and then were asked to report the language they spoke second most (i.e., foreign language). Participants were instructed to respond to the remaining items (language ability, FLCA, contexts where second language is used) when thinking about that language. Participants reported whether they had spoken their second language in a classroom ($n = 47$) or not ($n = 170$), which was used as a control variable.

PRCA-24. McCroskey and colleagues (1985) developed the PRCA-24 as a trait-based scale to measure CA in four general communication situations: public speaking, group interactions, meetings, and dyadic interactions. The 24 items were measured on a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*). The four subscales were used (group, meeting, dyadic, and public) and were internally reliable (Cronbach's $\alpha = .89$, .90, .86, and .89, respectively). Higher scores indicate greater anxiety.

Language ability. Language ability in speaking, listening, reading, and writing in the foreign language was measured with four single-item measures (Tse, 1996). Participants self-ranked their language ability (e.g., "Please rate your language ability in this language—Speaking") on a 4-point scale (1 = *not at all or a little*, 2 = *somewhat*, 3 = *well*, 4 = *very well*).

FLCA. Seven items that represented the FLCA scale were adopted from the Foreign Language Classroom Anxiety Scale (Horwitz et al., 1986) and Foreign Language in a Medical Office Scale (Guntzviller et al., 2011). Following the response items used by Horwitz et al., the seven items were assessed on a 5-point scale (1 = *strong disagree*, 5 = *strongly agree*) and were averaged to form the scale. Psychometrics of the scale are discussed in the "Results" section.

Foreign language use index. Participants were asked whether they use their foreign language (1 = *yes*, 0 = *no*) in nine places (work, with friends, with native speakers, volunteering, at a store or restaurant, with family, when I travel, at home, and other). These answers were summed to calculate the index score.

Results and Discussion

Two multivariate outliers were identified and excluded: With 16 variables in the model and a probability of .001, these two outliers exceeded the Mahalanobis' distance critical value of 39.25 (Tabachnick & Fidell, 2007). With an alpha of .05, sample size of 224, and effect size of .15, the calculated power for the proposed regression was .97 (Faul, Erdfelder, Lang, & Buchner, 2007).

Construct validity. To examine the hypothesis of measure validity, the seven FLCA items were subjected to a CFA with robust maximum likelihood in Mplus 7.3 to determine their construct validity. The basic measurement model consisted of one latent variable (FLCA) and seven indicators. The model indicated good fit, $\chi^2(14, N \geq 224) = 17.49$, $p = .23$, χ^2 / df ratio = 1.25, CFI = 1.00, TLI = 1.00, RMSEA = .03 (90% CI = [.00, .077]), standardized root mean square residual (SRMR) = .017. All items loaded above .81 on the factor (see Table 1). The items were internally reliable (Cronbach's $\alpha = .95$) and formed a unidimensional reliable construct.

Convergent and divergent validity. Scales should have construct validity, in that the scale should correlate with other measures of related constructs (e.g., general CA) but should also measure aspects of a construct beyond those assessed by the related measures (DeVellis, 2003). To

demonstrate the hypothesized convergent and divergent validity, the FLCA scale should be related to, yet distinct from, CA (the subscales of the PRCA-24) and language skill. Tables 3 and 4 report descriptive statistics and correlations. As expected, FLCA was strongly correlated with group CA ($r = .45$, $p < .001$), meeting CA ($r = .47$, $p < .001$), dyadic CA ($r = .51$, $p < .001$), and public CA ($r = .41$, $p < .001$). In addition, FLCA was negatively correlated with participants' self-ratings of their ability to speak the language ($r = -.50$, $p < .001$), listen to the language ($r = -.41$, $p < .001$), and less strongly with their ability to read ($r = -.26$, $p < .001$) and write the language ($r = -.29$, $p < .001$). The FLCA measure displayed convergent and divergent validity.

Concurrent validity. Hierarchical regressions were used to examine the hypothesized growing confidence and growing anxiety models, which stated that the foreign language use index would either negatively or positively predict FLCA above and beyond demographics, language ability, and general CA. In addition, the regressions examined whether the relationship between FLCA and the foreign language use index was curvilinear. We entered age, sex, number of languages spoken, and education level in Block 1; speaking, listening, reading, and writing English ability and PRCA group, meeting, dyadic, public, and use of the foreign language in a classroom in Block 2; the foreign language use index in Block 3; and the squared foreign language use index in Block 4. As recommended by Cohen, Cohen, West, and Aiken (2003), the index was standardized before it was squared. All predictor variables except for the squared index were standardized.

The overall regression was statistically significant ($R^2 = .46$, $p = .04$), indicating that 46% of the variance in FLCA was explained by all predictors (see Table 5). Block 1 explained 6.4% variance, with both number of languages spoken ($\beta = -.15$, $p = .03$) and education ($\beta = -.14$, $p = .05$) being negatively related to FLCA in this block. Block 2 explained 38.3% variance, with speaking ability ($\beta = -.23$, $p = .004$), listening ability ($\beta = -.17$, $p = .01$), and dyadic CA ($\beta = .34$, $p = .002$) emerging as statistically significant predictors of FLCA in this block. Block 3 was not statistically significant (i.e., the linear foreign language use index was not a statistically significant predictor). Finally, Block 4 explained 1.1% variance, with the squared foreign language use index being a statistically significant predictor of FLCA ($\beta = -.11$, $p = .04$). As the squared term has a negative beta, the curvature is concave (i.e., inverted U shape; Cohen et al., 2003). We plotted the curvilinear function using raw scores, while fixing the other variables at their means (see Figure 1).

The curvilinear effect showed that U.S. participants had lower FLCA when speaking in few places and experienced growing anxiety as they spoke the foreign language in more places, until they reached an average of four places (i.e., the point of FLCA maxima). At this point, the quadratic trend peaked, and participants reported reduced FLCA with each additional place they spoke the language (i.e., growing confidence).

Study 3

As the focus of the measure is on anxiety about the use of a foreign language rather than on interacting with someone from another culture (for intercultural communication anxiety, see Neuliep & McCroskey, 1997), the third study was conducted in a geographic location in which multiple languages are spoken (i.e., India). Allen, Hecht, and Martin (1996) noted that when comparing groups, there can be differences in measurement, mean average, and process. To support the construct validity, there should not be measurement differences between Study 2 and Study 3 (i.e., FLCA should be unidimensional, load the same items in both studies, and demonstrate measurement invariance). However, there may be mean average differences in FLCA between Study 2 and Study 3 participants, although past studies have shown that communication anxiety remains somewhat stable across languages and cultures (Dewaele, 2007; Pederson et al., 2008).

Table 3. Descriptive Statistics.

	Study 2—United States						Study 3—India					
	M	*SD*	Minimum	Maximum	Skew	Kurt	*M*	*SD*	Minimum	Maximum	Skew	Kurt
Age	30.29	9.40	18	68	1.42	2.11	29.97	8.29	20	67	1.62	3.19
NumLangSpk[a]	2.25	0.58	2	5	2.63	7.16	3.02	0.84	2	6	0.82	0.87
Education[a]	6.87	1.74	3	11	−0.24	−1.00	8.10	1.30	3	10	−1.55	2.96
FL—Speak[a]	3.12	0.78	1	4	−0.43	−0.62	3.48	0.61	1	4	−0.86	0.39
FL—Listen[a]	3.40	0.71	2	4	−0.74	−0.69	3.63	0.57	2	4	−1.27	0.65
FL—Read[a]	3.11	0.95	1	4	−0.73	−0.51	3.61	0.64	1	4	−1.84	3.86
FL—Write[a]	2.72	1.01	1	4	−0.15	−1.13	3.45	0.75	1	4	−1.50	2.18
PRCA—Group	16.23	5.66	6	30	0.29	−0.40	15.50	4.04	6	28	−0.20	0.26
PRCA—Mtg	16.51	5.84	6	30	0.16	−0.62	15.68	4.06	6	27	−0.51	0.03
PRCA—Dyad	15.43	5.10	6	30	0.33	−0.14	15.74	3.98	6	28	−0.40	0.00
PRCA—Public[a]	17.86	5.94	6	30	0.07	−0.64	16.01	3.85	6	26	−0.61	0.30
FL index[a]	3.26	2.07	0	9	0.69	−0.25	3.99	2.10	0	8	0.36	−0.75
FLCA	2.45	1.05	1	5	0.35	−0.74	2.62	0.98	1	4.86	−0.06	−0.94

Note. NumLangSpk = number of languages spoken by the participant; FL = foreign language (e.g., FL—Speak = ability to speak in the foreign language); PRCA = Personal Report of Communication Apprehension; FL index = foreign language use index; FLCA = foreign language communication anxiety.
[a]Variables with superscripts have means that statistically differed between Study 2 and Study 3.

Table 4. Bivariate Correlations.

	Age	Sex	#Lang	Educ	Spk	Listen	Read	Write	Group	Mtg	Dyad	Public	Class	Index	FLCA
Age	—	.13*	.12†	.31***	.10	−.02	.02	.10	−.17**	−.14*	−.20**	−.19**	−.11	.16*	−.11†
Sex	.07	—	.00	.11	−.08	.00	.12†	.14*	.18**	.21**	.14*	.25***	.09	.16*	.07
NumLangSpk	.19**	−.04	—	.18**	.15*	.15*	.11	.07	−.10	−.08	−.09	−.11†	−.07	.11	−.18**
Education	−.16*	.04	.10	—	.17*	.12	.08	.15*	−.05	−.05	−.07	−.13†	−.19**	.17*	−.17**
FL—Speak	−.07	.09	.19**	.17*	—	.58***	.44***	.49***	−.19**	−.24***	−.24***	−.22**	−.26***	.48***	−.50***
FL—Listen	−.14*	−.01	.17*	.06	.65***	—	.35***	.30***	−.12†	−.13†	−.19**	−.18**	−.12†	.41***	−.41***
FL—Read	.01	.03	.11	.23**	.44***	.51***	—	.82***	−.07	−.08	−.07	−.09	.08	.43***	−.26***
FL—Write	.02	.10	.18**	.15*	.37***	.34***	.78***	—	−.11	−.11†	−.07	−.11	.05	.46***	−.29***
PRCA—Group	−.06	−.01	−.06	−.06	−.13†	−.15*	−.03	−.03	—	.88***	.84***	.75***	.12†	−.13†	.45***
PRCA—Mtg	−.09	.03	−.07	−.04	−.14*	−.10	−.08	−.13†	.78***	—	.82***	.79***	.12†	−.11	.47***
PRCA—Dyad	−.12†	.01	−.17*	.00	−.15*	−.09	−.02	−.07	.77***	.80***	—	.73***	.11	−.16*	.51***
PRCA—Public	−.13†	−.01	−.12†	−.05	−.09	−.07	−.03	−.07	.80***	.83***	.81***	—	.12†	−.11	.41***
Classroom	−.12†	.01	−.16*	.09	−.04	−.04	.03	.04	.10	.10	.07	.08	—	−.06	.20**
FL index	.01	.01	.09	.09	.27***	.28***	.29***	.28***	−.10	−.13†	−.14*	−.13†	.30***	—	−.30***
FLCA	−.32***	−.06	−.21**	.05	−.24**	−.18*	−.10	−.10	.56***	.57***	.57***	.53***	.17*	−.15*	—

Note. Study 2 (United States) data above diagonal, Study 3 (India) data below diagonal. For Sex: 1 = male, 2 = female. For Classroom: 0 = no, 1 = yes. FLCA = foreign language communication anxiety; NumLangSpk = number of languages spoken by the participant; FL = foreign language (e.g., FL—Speak = ability to speak in the foreign language); PRCA = Personal Report of Communication Apprehension; FL index = foreign language use index.
†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

Table 5. Hierarchical Regressions on FLCA.

	Study 2—United States				Study 3—India			
	B	β	*sr*	sr^2	*B*	β	*sr*	sr^2
Age	.03	.03	−.06	.00	−.24***	−.24	−.27	.07
Sex	.01	.00	.09	.01	−.05	−.05	−.06	.00
NumLangSpk	−.06	−.05	−.14	.02	−.07	−.08	−.16	.03
Education	−.08	−.07	−.13	.02	.03	.03	.02	.00
FL—Speak	−.23**	−.22	−.15	.02	−.13†	−.13	−.10	.01
FL—Listen	−.17*	−.16	−.13	.02	−.05	−.05	−.04	.00
FL—Read	−.01	−.01	.00	.00	.00	.00	−.02	.00
FL—Write	−.07	−.06	−.05	.00	.02	.02	.02	.00
PRCA—Group	.04	.04	.01	.00	.21*	.21	.10	.01
PRCA—Mtg	.12	.12	.05	.00	.26*	.26	.14	.02
PRCA—Dyad	.33***	.32	.16	.03	.15	.16	.08	.01
PRCA—Public	−.04	−.04	−.03	.00	−.04	−.04	−.02	.00
Classroom	.10	.09	.07	.00	.06	.06	.04	.00
FL index	.06	.06	−.01	.00	−.09	−.09	−.05	.00
FL $Index^2$	−.11*	−.13	−.11	.01	.10*	.12	.11	.01
F	4.31*				4.69*			
R^2	.46				.50			
R^2 change	.01				.01			

Note. Regression weights and R^2 change reported from the last block. *sr* and sr^2 reported from the block in which the variable was entered. All predictor variables were standardized prior to entry (FL $index^2$ was computed from the standardized version of FL Index). *B* = unstandardized regression weights; β = standardized regression weights; *sr* = semi-partial correlations; FLCA = foreign language communication anxiety; NumLangSpk = number of languages spoken by the participant; FL = foreign language (e.g., FL—Speak = ability to speak in the foreign language); PRCA = Personal Report of Communication Apprehension; FL index = foreign language use index.
†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

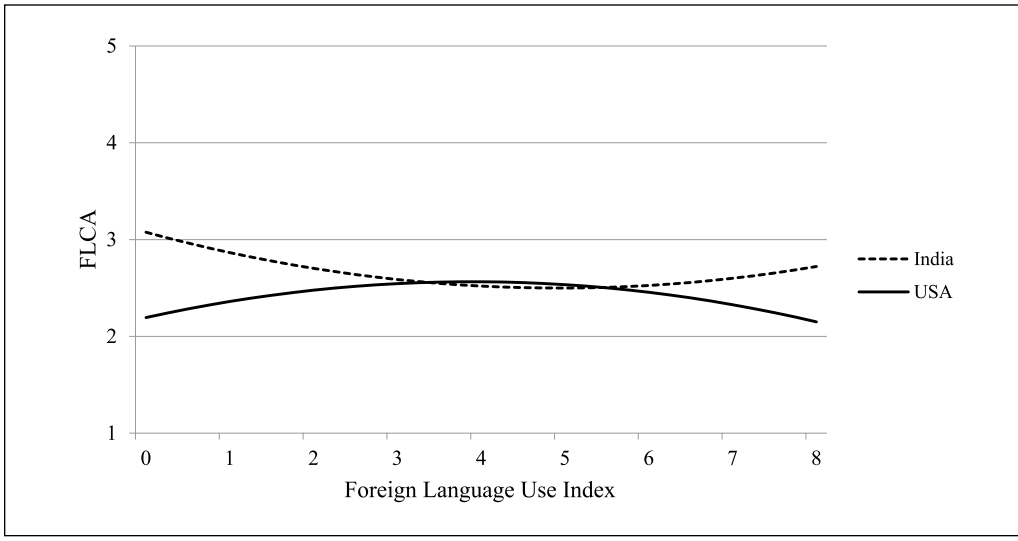

Figure 1. Curvilinear relationship between FLCA and foreign language use.
Note. The two lines (United States and India) represent Study 2 and Study 3 hierarchical regression findings. FLCA = foreign language communication anxiety.

In addition, process differences may be present for how FLCA relates to foreign language use, specifically as the United States and India differ linguistically. Thus, Study 3 sought to replicate the construct, convergent, divergent, and concurrent validity of Study 2. In addition, Study 3 allows for examination of the growing confidence and growing anxiety models in a geographically distinct population. The same hypotheses from Study 2 were examined in Study 3.

Method

Participants. Participants in this study lived in India; 216 people completed the survey (88 females, 128 males). On average, participants were 29.97 years old (SD = 8.29, range = 20-67), had a household income between US$10,000 and US$14,999 (range = less than US$10,000-US149,000), had a bachelor's degree, and spoke 3.02 languages (SD = .84, range = 2-6). Participants reported that their native language was Tamil (n = 85), Malayalam (n = 48), English (n = 34), Hindi (n = 21), Telugu (n = 12), Gujarati (n = 6), Kannada (n = 3), Konkani (n = 2), Marathi (n = 2), Sourashtra (n = 2), and Oriya (n = 1). Participants reported their second-most frequently used language was English (n = 140), Hindi (n = 36), Tamil (n = 21), Malayalam (n = 8), Telugu (n = 6), Kannada (n = 2), and one participant each reported French, Sinhala, and Urdu.

Procedure. Recruitment, study procedures, and measures were identical to those used in Study 2. The four subscales of the PRCA-24 (Group, Meeting, Dyadic, and Public) were internally reliable (Cronbach's α = .79, .80, .78, and .77, respectively). Participants reported whether they had spoken their second language in a classroom (n = 93) or not (n = 116).

Results and Discussion

Two multivariate outliers were identified and excluded: With 16 variables in the model and a probability of .001, these two outliers exceeded the Mahalanobis' distance critical value of 39.25 (Tabachnick & Fidell, 2007). With an alpha of .05, sample size of 216, and effect size of .15, the calculated power for the proposed regression was .97 (Faul et al., 2007).

Construct validity. To demonstrate the hypothesized validity, the seven FLCA items (indicating one latent variable) were subjected to a CFA with robust maximum likelihood in Mplus 7.3. The basic model had good fit (Byrne, 2012), $\chi^2(14, N = 216) = 17.35$, $p = .24$, χ^2 / df ratio = 1.24, CFI = 1.00, TLI = .99, RMSEA = .033 (90% CI = [.000, .077]), SRMR = .025. All items loaded onto the factor above .75 (see Table 1). The seven items were internally reliable (Cronbach's α = .93). Similar to Study 2, the seven items were deemed to form a unidimensional reliable construct.

Measure invariance across diverse samples is essential for generalizing or comparing results across groups (Brown, 2015). The FLCA scale was compared between Study 2 and Study 3 to determine if the factor structure, factor loadings, and indicator intercepts were invariant across the samples (i.e., if the scale had configural, metric, and scalar invariance; Brown, 2015). Measurement invariance evaluation was conducted in Mplus 7.3 with multigroup robust maximum-likelihood CFAs, the "model is configural metric scalar" command, and the Study 2 and Study 3 samples as the two groups. The configural model displayed good fit, $\chi^2(28) = 34.84$, p = .17, χ^2 / df ratio = 1.24, CFI = 1.00, TLI = .99, RMSEA = .030 (90% CI = [.000, .065]), SRMR = .02. The metric model also displayed good fit, $\chi^2(34) = 44.19$, $p = .11$, χ^2 / df ratio = 1.30, CFI = .99, TLI = .99, RMSEA = .040 (90% CI = [.000, .065]), SRMR = .04. The scalar model also displayed good fit, $\chi^2(40) = 57.53$, $p = .04$, χ^2 / df ratio = 1.44, CFI = .99, TLI = .99, RMSEA = .045 (90% CI = [.012, .069]), SRMR = .04. When comparing the three models, scaled chi-square difference tests indicated that the configural model did not statistically differ from the metric model. The scalar model significantly differed from the metric model, although the scalar model

fit was acceptable. Given the adequate fit statistics of all three invariance models, the FLCA scale was deemed to have measurement invariance across the U.S. and Indian participant samples. Population heterogeneity was also examined for factor and mean variances. According to scaled chi-square difference tests, the model with constrained factor variances and covariances did not fit worse than the scalar model, and the model with constrained factor means, variances, and covariances did not fit worse than the model only constraining factor variances and covariance; both models displayed acceptable fit. Thus, FLCA latent means did not statistically differ between the U.S. and Indian participants.

Convergent and divergent validity. To replicate the hypothesized convergent and divergent validity demonstrated in Study 2, the FLCA scale should relate to CA (the subscales of the PRCA-24) and language ability. Tables 2 and 3 report descriptive statistics and correlations. As expected, FLCA was strongly correlated with group CA ($r = .56$, $p < .001$), meeting CA ($r = .57$, $p < .001$), dyadic CA ($r = .57$, $p < .001$), and public CA ($r = .53$, $p < .001$). In addition, FLCA was negatively correlated with participants' self-ratings of their ability to speak the language ($r = -.24$, $p < .001$) and listen to the language ($r = -.18$, $p = .01$) but was not statistically associated with reading and writing ($r = -.10$, $p = .16$; $r = -.10$, $p = .13$, respectively). Given that FLCA focuses on conversing (rather than written communication) and that reading and writing were less strongly associated with ability to speak and listen than with each other, the lack of association between FLCA and reading and writing was not problematic. Convergent and divergent validity was established between FLCA, and CA and language ability.

Concurrent validity. To examine potential relational differences between Study 2 and Study 3, hierarchical regression analysis procedures were identical to those described in Study 2. The overall regression was statistically significant ($R^2 = .50$, $p = .03$), indicating that 50.2% of the variance in FLCA was explained by all predictors (see Table 4). Block 1 explained 12.9% variance, with both age ($\beta = -.27$, $p < .001$) and number of languages spoken ($\beta = -.16$, $p = .01$) being negatively associated with FLCA in this block. Block 2 explained 35.9% variance, with ability to speak the language negatively associated ($\beta = -.13$, $p = .045$) and CA group ($\beta = .20$, $p = .04$) and CA meeting ($\beta = .27$, $p = .01$) positively associated with FLCA in this block. Block 3 was not statistically significant (i.e., the linear foreign language use index was not a statistically significant predictor). Block 4 explained 1.2% variance, with the squared foreign language use index being a statistically significant predictor of FLCA ($\beta = .11$, $p = .03$). As the squared term has a positive beta, the curvature is convex (i.e., U shape, see Figure 1; Cohen et al., 2003).

The curvilinear effect in Study 3 differed from that in Study 2, in that participants who spoke in few places had the highest FLCA, and decreased in their reported anxiety as they spoke in more places. After speaking in five places on average (i.e., the point of FLCA minima), participants' FLCA increased with number of places spoken (i.e., growing anxiety), although the overall level of FLCA did not rise to the same degree of anxiety reported when participants had spoken in one or no places.

General Discussion

Although previous research has examined FLCA in students in a classroom context, the current study sought to move FLCA research into everyday settings. To achieve these ends, the current studies validated a measure of FLCA (Study 1) and tested two models describing the relationship between FLCA and language use (i.e., growing confidence and growing anxiety models, or a curvilinear combination of the two) in Studies 2 and 3. This relationship was examined in two distinct groups; Study 2 was composed of participants living in the United States and Study 3 consisted of participants living in India. Cultural differences can affect the results of a study

through measurement differences, mean differences, or through relational differences between variables (Allen et al., 1996). The current study assessed measurement differences and validated the FLCA measurement in all samples. The relationship between FLCA and language use differed between Studies 2 and 3; both relationships were curvilinear, but Study 2 supported a concave model (i.e., inverse U shaped; growing anxiety then growing confidence) while Study 3 supported a convex model (i.e., U shaped; growing confidence then growing anxiety). These results suggest that FLCA is an important construct to consider in intercultural communication competence, and that the function it plays in everyday life may differ based on linguistic setting.

The first purpose of these studies was to provide a short valid measure for FLCA that can be used for non-classroom settings. In all three studies, the FLCA measure was psychometrically valid. Study 1 verified the unidimensionality of the scale, as separating the scale into five subdimensions created problems with discriminant validity between the constructs. In addition, Study 1 examined a short-scale version (seven item) compared with the long version (22 item): the seven-item scale was deemed to be consistent with the 22-item version in its associations with other relevant measures, and thus was used for the subsequent two studies. A shorter measure provides a number of advantages when doing non-college-student research, including reducing participant fatigue and often being more feasible for time constraints (DeVellis, 2003). The seven-item instrument demonstrated construct validity in Studies 2 and 3, as it was internally reliable, factored into a unidimensional scale and demonstrated measurement invariance between the U.S. and Indian samples. The FLCA measure also demonstrated convergent and divergent validity in all three studies when compared with language ability in the foreign language and general communication anxiety (CA). As expected, FLCA was negatively related to language ability and positively related to the four types of general CA (i.e., group, dyadic, meeting, and public CA). However, while the associations between FLCA and the other variables were statistically significant and demonstrated small to large associations, the correlations were moderate in size, indicating that the concepts were distinct.

Along with validating the FLCA measure, Studies 2 and 3 examined the relationship between foreign language use and FLCA. In a study on general CA, Pederson and colleagues (2008) found that U.S. and Indian participants reported similar CA levels, but the current results indicate that while anxiety averages may not vary, relationships involving FLCA may manifest differently in the two populations. The squared foreign language places index predicted FLCA above and beyond other variables in Studies 2 and 3. Along with establishing concurrent validity for the FLCA measure, the curvilinear relationships (and the fact that the curvilinear relationship differed based on geographic location) provide preliminary results for how non-classroom FLCA may function. For the U.S. participants, the association of foreign language use with FLCA was concave (i.e., inverse U shaped; supporting growing anxiety then growing confidence), while the relationship was convex for Indian participants (i.e., U shaped; supporting growing confidence then growing anxiety).

The difference between U.S. and Indian participants in the curvilinear relationship between FLCA and language use may be due to different linguistic environments. U.S. participants predominantly reported that English was their first language, and thus reported a non-official language as their foreign language. Indian participants were mainly native speakers of one of Indian's 20 regional languages and primarily reported English or Hindi as their foreign language (i.e., the two official languages of India; Mohanty, 2006). U.S. participants may have the freedom to choose whether to use their foreign language, whereas interacting with business associates, customers, or government employees may necessitate the use of English or Hindi for Indian participants. Thus, Indian participants may have limited choices about engaging in situations in which a non-native language is required, as English or/and Hindi are frequently used for education, trade and commerce, and governmental or official business (Mohanty, 2006). Chakrabarti and Sengupat (2012)

examined foreign language anxiety in Indian students learning English in a classroom, and noted that students may be especially anxious to *speak* English, given that their English abilities are only assessed through reading and writing classroom exams. Furthermore, the authors note that speaking English in India is associated with power and prestige; thus, the "pressure" of speaking English may seem more daunting and anxiety inducing to Indians who have little practice and speak English in few places. In the current study, Indian participants reported their highest level of FLCA when they spoke the foreign language in no situations or only one setting. The initially high FLCA may decrease as Indians acquire experience speaking in various locations, especially given the multilingual culture of India and the numerous opportunities to observe others navigate similar situations (i.e., observation learning; Bandura, 2001). Indian participants' FLCA decreased until participants spoke the foreign language in about five locations, after which FLCA increased slightly with continued foreign language use. Indian participants who used the language in the greatest number of places may have encountered situations involving increasingly complex, sophisticated language and social skills, and thus correlating with a slight increase in FLCA.

In contrast, U.S. participants may have greater control over where and when they might initially speak a foreign language, and may perceive few consequences for making mistakes, not comprehending, or struggling to communicate in the foreign language. However, U.S. participants may become more anxious as they encounter increasingly varied situations, particularly as individuals in the United States may not frequently encounter multilingual situations, and thus may lack social templates for successful communication across potential language barriers (Bandura, 2001). However, once U.S. participants spoke in about four different settings, their FLCA peaked, in that greater foreign language use after this point associated with lower FLCA. Lower potential for observational learning in the United States may lead individuals to be increasingly anxious until they have personally experienced enough variety in settings to develop their own templates and understanding of social norms across situations (Bandura, 2001).

Alternatively, the concave curvilinear relationship may best represent those who voluntarily practice speaking in a foreign language, and the convex relationship may represent the necessity of communicating in a foreign language to accomplish specific tasks. Spitzberg (2000) modeled motivation for intercultural communication as composed of anxiety, reward potential, and objectives/goals. The current findings could be two representations of how these characteristics combine. Finally, perceptions of the power and prestige of the foreign language within the societal context may also drive or influence these relationships. Further research is needed on FLCA in more specific linguistic, geographic, and cultural contexts, to better understand the underlying reasons behind FLCA and language use.

Limitations and Future Directions

The current study provides a preliminarily examination of how FLCA can function in non-classroom settings, but has a number of limitations that could be addressed in future research. First, while the FLCA measure was validated in two different samples, participants in the two studies were not linguistically homogeneous and reported a variety of foreign languages and native languages. Psychometric properties of the sample should be examined in a group that is geographically similar, culturally homogeneous, and reporting on the same native and foreign language. For example, the scale could be examined in Mexican-heritage adults who natively speak Spanish and who live in a certain part of the United States, and thus use English as a second language. The current study focused on adults who communicate outside of a language-learning class, but FLCA could also be relevant to children or adolescents, such as immigrant children who moved to the United States during their adolescent years. Populations such as these may be required to use a foreign language, regardless of their level of FLCA (e.g., these children have to use English in school). Furthermore, the current participants may not have had equal opportunity to speak in

all places listed in the foreign language use index. Finally, the current study is cross-sectional and cannot assess causality between FLCA and foreign language use. A longitudinal study would shed light on how these constructs evolve over time as an individual learns and uses the foreign language, particularly in a variety of contexts.

The current study's findings support both the intercultural communication model, which states that willingness to communication and social anxiety are negatively associated, and the classroom model of FLCA, which states that increasingly difficult and advanced language tasks and FLCA may be positively intertwined. Both these relationships occur, albeit at different points in the language use process. Furthermore, the cultural and linguistic context in which individuals live may play a large role in how anxiety and language use are associated, particularly given the ability of the individual to choose whether to use a language and the prestige and power of the foreign language in a given societal context. Thus, these findings indicate that studying FLCA outside of a classroom can have important implications for language use, especially when comparing individuals using a foreign language in specialized contexts with individuals who encounter and have to negotiate multilingual situations in their everyday lives. FLCA may capture distinct cultural and societal aspects that may not be as evident or influential on general CA or FLCA in a language-learning classroom. Thus, future research may find utility in theoretically distinguishing between general CA, classroom-based FLCA, and non-classroom-based FLCA. Further research is needed with a psychometrically validated scale to understand FLCA and its role in intercultural communication.

Appendix

The Extended Foreign Language Communication Anxiety Measure

1. *I start to panic when I have to speak in the language without preparation (P)
2. *When speaking to a native speaker, I can get so nervous I forget things I know (P)
3. *I worry about speaking in the language, even if I'm well prepared for it (M)
4. *I get nervous and confused when I speak in the language (P)
5. *I get nervous when I do not understand every word in the language (U)
6. *I fear that people will laugh at me when I speak the language (I)
7. *I get nervous when I am asked questions in the language that I have not prepared in advance (M)
8. I am overwhelmed by the number of rules you have to learn to speak this language (CA)
9. I can feel my heart pounding when I have to talk to in the language (P)
10. I feel very self-conscious when I speak the language in front of other people (P)
11. I do not feel confident when I speak in the language (P)
12. It frightens me when I don't understand what the other person is saying in the language (U)
13. I feel anxious if I cannot understand everything the other person is saying in the language (U)
14. I get embarrassed when I do not understand what a native speaker is saying in the language (U)
15. I keep thinking that other people are better at languages than I am (I)
16. I always feel that other people who also learned the language speak it better than I do (I)
17. It embarrasses me to voluntarily speak in the language (I)
18. I am afraid native speakers are ready to correct every mistake I make (M)
19. I worry about making mistakes when speaking the language (M)
20. I am more tense and nervous when speaking in this non-native language than when speaking my native language in the same situation (CA)

21. Even though I do not usually get anxious when communicating with others, I do if I have to speak in the non-native language (CA)
22. Speaking in the language makes me unusually anxious (CA)

*The first seven items are the short version of the scale. P = physical anxiety subdimension; M = fear of making mistakes subdimension; U = anxiety about understanding subdimension; I = feelings of incompetence subdimension; CA = distinction from general communication apprehension subdimension.

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