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Vasiliki Gargalianou
Katrin Muehlfeld
Diemo Urbig
Arjen Van Witteloostuijn

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For editorial correspondence please contact SSBEEditor@wiwi.uni-wuppertal.de

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Vasiliki Gargalianou*
University of Antwerp, Belgium
Katrin Muehlfeld‡
University of Trier, Germany & Utrecht University, the Netherlands
Diemo Urbig†
University of Wuppertal, Germany & University of Antwerp, Belgium
Arjen Van Witteloostuijn+
Tilburg University, the Netherlands & University of Antwerp, Belgium

*Antwerp Centre of Evolutionary Demography (ACED), Faculty of Applied Economics, University of Antwerp, Prinsstraat 13, 2000, Antwerp, Belgium Telephone: + 32 3 2655024. Mail: Vasiliki.Gargalianou@ua.ac.be. Vasiliki Gargalianou gratefully acknowledges financial support through the Antwerp Centre of Evolutionary Demography (ACED), which is financed by the Odysseus program of the Flemish Science Foundation (FWO).

‡Correspondence address: University of Trier, Universitätsring 15, 54286 Trier, Germany. Telephone: + 49 651 2012681. Mail: Muehlfeld@uni-trier.de. Katrin Muehlfeld gratefully acknowledges financial support through the Antwerp Centre of Evolutionary Demography (ACED), which is financed by the Odysseus program of the Flemish Science Foundation (FWO).

† Correspondence address: Jackstädt Center of Research on Entrepreneurship and Innovation, Schumpeter School of Business and Economics, University of Wuppertal, Gaustraße 20, 42119 Wuppertal, Germany. Telephone: + 49 202 439 3006. Mail: urbig@uni-wuppertal.de. Diemo Urbig gratefully acknowledges financial support through the Antwerp Centre of Evolutionary Demography (ACED), which is financed by the Odysseus program of the Flemish Science Foundation (FWO), and through the Jackstädt Center, which is financed by the Dr. Werner Jackstädt-Foundation.

+Correspondence address: Tilburg School of Economics and Management, Department of Organization and Strategy, P.O. Box 90153, 5000 LE Tilburg, the Netherlands. Telephone: + 31 13 466 3248. Mail: a.vanwitteloostuijn@tilburguniversity.edu. Arjen van Witteloostuijn gratefully acknowledges the financial support through the Odysseus program of the Flemish Science Foundation (FWO).

The Effects of Gender and Personality on Foreign Language Anxiety among Adult Multilinguals

Abstract: We investigate the relationship between gender and foreign language anxiety (FLA) in the second language (L2: English) of 320 adult bilinguals (L1: Dutch) outside the foreign language learning context. Results show that females experience higher levels of FLA. The association between gender and FLA, however, is a reflection of gender differences in personality; personality mediates most of this relationship. Individuals who are highly emotional or conscientious—dimensions for which males and females demonstrate substantial differences—experience higher levels of FLA. Furthermore, this relationship is stronger for women; that is, gender also acts as moderator to the personality-FLA relationship.

Keywords: Foreign language anxiety, gender, personality, survey.

The Effects of Gender and Personality on Foreign Language Anxiety among Adult Multilinguals

Foreign language anxiety (FLA) is one of the best-documented psycholinguistic phenomena. It appears to affect one third to half of all foreign language learners (Worde, 1998). It is also a pervasive phenomenon outside classrooms, which occurs when people communicate in a foreign language. MacIntyre and Gardner defined FLA as "the feeling of tension and apprehension specifically associated with second language [L2] contexts, including speaking, listening, and learning" (MacIntyre & Gardner 1994a, p. 284). MacIntyre (1998) further characterized FLA as "the worry and negative emotional reaction aroused when learning or using a second language" (MacIntyre, 1998, p. 27). Its prevalence among L2 users and learners cannot surprise, given that "any performance in the L2 is likely to challenge an individual's self-concept as a competent communicator and lead to reticence, self-consciousness, fear, or even panic" (Horwitz, Horwitz & Cope, 1986, p. 128). While anxiety, in general, can be differentiated into trait, state (Spielberger, 1983), and situational anxiety (Horwitz et al., 1986), prior research has identified FLA as a situation-specific construct, which is largely independent of other forms of anxiety (Horwitz et al., 1986).

Over the past decades, globalization and changing life styles have, for large numbers of people, increased the importance of using foreign languages—and of dealing with their anxiety in the process of speaking, listening, and—as a precursor—learning L2. Given that FLA can cause a wide range of negative effects, from behavioral to psychodynamic (e.g., burn-out, withdrawal, humiliation, avoidance of interpersonal communication, dropping foreign language learning), and arguably affects vast numbers of people—already in the 1990s, over 50 per cent of the world's population were estimated to speak a foreign language (De Houwer, 1998)—it is critical to better

understand FLA. Research on FLA has increased rapidly (Horwitz, 2001, 2010). FLA has been examined through a cognitive lens (Sellers, 2000; Chen & Chang, 2009, from a curriculum perspective (Levine, 2003; Elkhafaifi, 2005), and from a cultural and policy angle (Cheng, 2008; Young, 1994). It has been measured through behavioral observation, physiological assessment, and self-reports (Casado & Dereshiwsky, 2001; Daly, 1991), and assessed in terms of its effects on language learning and resulting foreign language proficiency (e.g., Sparks, Patton, Ganschow, & Humbach, 2009). A range of socio-biographical variables has been found to affect FLA, including personality (Dewaele, 2013; Gregersen & Horwitz, 2002; MacIntyre, & Charos, 1996) and self-worth (Bailey, Onwuegbuzie, & Daley, 2000), experience with the foreign culture (Kitano, 2001), fluency (Brown, Robson, & Rosenkjar, 2001), age (Denovan & MacIntyre, 2005), frequency of use (Baker & MacIntyre, 2000), age of onset of acquisition (AOA) (Muñoz, 2006), and gender (MacIntyre, Baker, Clément, & Donovan, 2002). Gender, in particular, seems to be an important factor. For example, prior research has consistently documented gender differences in language use (e.g., Reid, Keerie & Palomares, 2003). But empirical research into the relationship between gender and FLA has yielded inconclusive results. Some studies found women to experience less FLA than men (Campbell & Shaw, 1994; Kitano, 2001), some documented the opposite (Arnaiz & Guillén, 2012; Donovan & MacIntyre, 2005; Elkhafaifi, 2005; Furnham & Haeven, 1999; Machida, 2001). Yet others found no significant gender differences in FLA (Dewaele, Petrides & Furnham, 2008; Matsuda & Gobel, 2004). In response to this ambiguity, Wang (2010) concludes that "unknown variables" (Wang, 2010, p. 96) or "unknown factors" may explain the association of gender and FLA, including related constructs such as listening anxiety (Elkhafaifi, 2005, p. 214).

In response, we suggest that a person's personality may constitute such a missing "unknown factor" that links gender and FLA. To the best of our knowledge, such mediation has not been

tested yet. While prior research has cautioned that (a) FLA represents a complex constellation of interacting variables (MacIntyre, 1995), and that (b) personality traits, which are relatively stable over time, cannot explain fluctuations in FLA over time (MacIntyre, 2007), several personality traits have emerged as predictors of interpersonal differences in FLA. Dewaele, Petrides, and Furnham (2008) found higher levels of the trait 'emotional intelligence' associated with reduced FLA. MacIntyre and Charos (1996) report that higher levels of the personality dimension 'extraversion' were linked to lower FLA. They argue that the simultaneous lack of a significant link between FLA and 'emotional stability', which reflects general trait anxiety, underscores the nature of FLA as a situation-specific construct. However, the claim that FLA is not associated with general trait anxiety has recently been challenged by Dewaele (2013), who found that 'neuroticism' (as the negative pole of 'emotional stability') was a strong predictor of FLA. More generally, research has shown that affective variables—i.e., personality, attitudes or motivation—exert interdependent effects, suggesting that their causal relationships warrant further examination (Gardner, Tremblay, & Masgoret, 1997).

In this paper, we combine the gender- and the personality-oriented perspectives on FLA with a focus on the context with more ambiguous results—that is, FLA outside the foreign language learning context. We suggest and find support for a medium-sized moderated mediation effect of personality on the gender—FLA relationship that may explain the inconclusive prior evidence regarding gender effects on FLA. Specifically, we hypothesize that the personality dimensions of extraversion, emotionality, and conscientiousness mediate the effect of gender on FLA. Also, we argue that the relationships between these traits and FLA are moderated by gender—i.e., that the associations with personality are stronger for females than for males. We address this issue by examining antecedents of FLA among relatively mature and advanced users of foreign language—a group that has received relatively little research attention to date (Dewaele, 2013)—in a relatively

formal foreign language setting, with important and broad implications for interpersonal communication, and by controlling for effects stemming from differences in language learning.

FOREIGN LANGUAGE ANXIETY

Definition and Measurement

Scovel (1978) distinguished facilitating and debilitating anxiety in foreign language learning. He argued that a certain amount of anxiety would stimulate effective language learning by motivating the individual "to 'fight' the new learning task" (p. 139)—that is, to engage in approach behavior geared at mastering the task. However, an excessive amount of anxiety, triggered, for example, by the perceived level of difficulty of the task, would hinder learning by inducing "the learner to 'flee' the new learning task" (p. 139)—that is, to opt for withdrawal behavior geared at avoiding the task. As a result, learning performance would suffer. Horwitz, Horwitz, and Cope (1991) later defined FLA as a "distinct complex of self-perceptions, beliefs, feelings, and behaviors related to classroom language learning arising from the uniqueness of the language learning process" (p. 31), and developed the Foreign Language Classroom Anxiety Scale (FLCAS) as a self-report instrument, which measures the debilitating effect of FLA. FLA is, however, relevant in contexts outside of the classroom and may impact performances other than language-learning as well (Guntzviller et al., 2011). For example, Guntzviller et al. (2011) found that Americans of Latin descent felt heightened stress in a doctor's office where they were required to speak English (L2) instead of Spanish (L1). As a result of their FLA and the associated adverse effects, such as feelings of self-consciousness and shame, they would be at higher risk to receive inadequate medical care.

FLA is embedded into a broader framework of social anxiety (MacIntyre, 1995). Social anxiety in a language learning context mainly derives from the social and communicative aspects of language learning. FLA may relate to worrying about making mistakes, perceived stress concerning

one's own competency, fear of being negatively evaluated, and anxiety about misunderstanding others and being misunderstood. Speaking in and listening to a foreign language, for example, in the classroom, have been shown to be potentially very problematic and to provoke FLA (MacIntyre & Gardner, 1994b; Price, 1991)—possibly even triggering a vicious circle from which the learner finds it difficult to escape: "Aptitude can influence anxiety, anxiety can influence performance, and performance can influence anxiety" (MacIntyre, 1995, p. 95).

Gender and Foreign Language Anxiety

While gender has emerged as a core explanatory variable in sociolinguistic and sociopsychological research (Dewaele, Petrides & Furnham, 2008), studies into gender differences in FLA have, to date, yielded inconclusive findings. Several studies found women to experience less FLA than men (Campbell & Shaw, 1994; Kitano, 2001). Campbell and Shaw (1994), for example, reported that males felt higher FLA in the classroom setting than females. In a study of students in a junior high school late French immersion program, MacIntyre, Baker, Clément, and Donovan (2002) found that male students' anxiety levels remained constant across the three analyzed grade levels (7^{th} to 9^{th} grades; ~12-14 years of age), while those of females' dropped from grade 8 to grade 9. Mejías, Applebaum, Applebaum, and Trotter (1991) revealed higher anxiety amongst Hispanic males compared to Hispanic females, noting that this result conflicts with their previous studies. Others scholars have reported women to experience higher levels of FLA when learning a foreign language (e.g., Arnaiz & Guillén, 2012; Donovan & Maclntyre, 2005; Elkhafaifi, 2005; Furnham & Haeven, 1999; Machida, 2001). For example, Furnham and Haeven (1999) found that males experienced less foreign language anxiety than females. In a study of Arabic as foreign language, Elkhafaifi (2005) found females to experience greater FLA than males. Similarly, Machida (2001) reported higher levels of FLA for women compared to men in a Japanese language class setting. Arnaiz and Guillén

(2012) showed that Spanish women experienced higher FLA than Spanish men when considering English as L2: Especially women were more anxious in terms of communication apprehension and evaluation anxiety. Finally, yet another stream of studies failed to find significant gender differences in FLA (Dewaele & Ip, 2013; Dewaele, Petrides, & Furnham, 2008; Matsuda & Gobel, 2004; Onwuegbuzie et al., 1999), or have reported results that suggest an interaction between gender and other socio-biographical or contextual variables. For example, while Donovan and MacIntyre (2005) found no support for gender differences in FLA among French junior high school and high school students, female university students experienced higher levels of FLA than their male counterparts. Dewaele, Petrides and Furnham (2008) did not find significant gender differences in FLA in general, but observed that women experienced more FLA in public speech in the L2, and when discussing with their colleagues in the L3. Dewaele and Ip (2013) did not find a significant gender difference.

Taken together, these findings suggest that indeed an investigation of mediating or moderating "unknown variables" (Wang, 2010, p. 96) or "unknown factors" (Elkhafaifi, 2005, p. 214) may be required to help resolve the empirical ambiguities. A prime candidate is personality. Not only have scholars identified dispositional differences in susceptibility to FLA that depend on personality (MacIntyre & Charos, 1996; Wang, 2010). Also, research in personality psychology has documented significant, robust gender differences for a variety of traits (e.g., Costa, Terracciano, & McCrae, 2001; Lynn & Martin, 1997; Schmitt, Realo, Voracek, & Allik, 2008). Together, these observations imply that indeed personality might mediate the relationship between gender and FLA.

Personality

Personality and FLA. Although personality is, by definition, relatively stable over time and, therefore, cannot explain intrapersonal variations in FLA *over time* (MacIntyre, 2007), several traits have been identified as important predictors of *interpersonal* differences in FLA. Most of the studies

that have related L2 acquisition and use to personality have drawn on either one of three major psychological frameworks (Ghapanchi, Khajavy, & Asadpour, 2011): the *Myers Briggs Type Indicator* (MBTI) (Myers and Briggs, 1976), the *Eysenck Personality Questionnaire* (EPQ) (Eysenck & Eysenck, 1975), and the *Five-Factor Model* (FFM)*,* also referred to as the *Big Five* (Costa and McCrae, 1992). The FFM consists of the dimensions 'extraversion', 'neuroticism' (versus 'emotional stability' as the corresponding low pole), 'agreeableness', 'conscientiousness', and 'openness to experience'. Recently, the FFM has been developed further into the HEXACO model, which refines the dimensions of agreeableness and neuroticism (versus emotional stability) and which adds a sixth dimension—'honest-humility' (Ashton & Lee, 2001). From among these frameworks, particularly three traits have attracted the attention of researchers interested in understanding the antecedents and effects of FLA: extraversion, emotional stability (vs. neuroticism), and conscientiousness. As to the remaining two dimensions of the FFM, agreeableness and openness to experience, and HEXACO's additional sixth dimension of honesty-humility, we are not aware of any prior study that explicitly conceptualize them as antecedents of FLA. Given this paucity of research, we refrain from stating explicit hypotheses for them. Instead, we inductively explore their effects on FLA and, in this way, comprehensively assess the effect of the full HEXACO personality model on FLA.

First, '*neuroticism*' describes individuals who are prone to anxiety and nervousness. It is inversely related to emotional stability (Digman, 1990; Lee & Ashton, 2005) and has been shown to be associated with higher levels of FLA (Dewaele, 2013). Referring to works by Hogan and Johnson (1997) and McCrae and John (1992), Müller and Schwieren (2012) state that neuroticism "represents the tendency to be anxious, insecure and emotionally unstable in general, and to be susceptible to be stressed or depressed" (p. 457). In the HEXACO model, the related, refined dimension is referred to as '*emotionality*'. It shares many features with FFM's neuroticism, such as a general tendency

towards experiencing anxiety. Persons who score high on emotionality experience pronounced anxiety in response to life's stressors, whereas individuals who score low on emotionality feel little worry even in stressful contexts. Yet, HEXACO's emotionality dimension also refines the trait referred to as neuroticism in the FFM by integrating sentimentality-related traits, such as vulnerability, sensitivity and sentimentality, which in FFM have been mainly associated with the positive pole of agreeableness (De Vries, Lee, & Ashton, 2008). With respect to a relationship with FLA, Dewaele (2002) reported that individuals who scored low on neuroticism experienced lower FLA in English (L3). Dewaele (2013) also found a significant link between neuroticism and levels of foreign language classroom anxiety (FLCA; Horwitz et al., 1986) in the second (L2), third (L3), and fourth (L4) languages of two groups of adult language learners and users enrolled at two major universities in the U.K. and in Spain. He concludes that "more emotionally stable participants suffer less from FLCA, whereas high-Neuroticism participants report significantly higher levels of FLCA" (p.678). However, the association between neuroticism/emotionality and FLA has not been entirely unambiguous. MacIntyre and Charos (1996), for example, did not find a significant relationship between neuroticism (vs. emotional stability), which reflects general trait anxiety, and FLA, arguing that this result underscored the nature of FLA as a situation-specific construct.

Second, '*extraversion*' has been linked to FLA. Individuals who score high on extraversion tend to feel positive about themselves and social interactions, whereas introverts tend to experience feelings of awkwardness or indifference in social interaction tending to be reserved rather than cheerful. MacIntyre and Charos (1996) report that higher levels of extraversion were associated with lower FLA. This result is consistent with studies that show that extroverts are, in general, less likely to experience feelings of anxiety, because they tend to feel more comfortable in communication-

oriented contexts (Brown, Robson, & Rosenkjar, 2001). Yet, Dewaele (2013) found an only moderately significant relationship between extraversion and FLCA, and only in one sub-group.

Third, '*conscientiousness*' is a trait that captures an individual's tendency toward organizing her/his time and physical surroundings, striving for accuracy and perfection, diligence, and engaging in deliberate and careful reflection before taking decisions. Gregersen and Horwitz (2002) found that perfectionists experienced higher FLA. Specifically, perfectionist students, who were not easily satisfied with own performance in an interview in a foreign language, experienced higher FLA and were more stressed about errors they made in the foreign language, compared to non-anxious individuals. Anxious learners set higher personal performance standards, were more afraid of evaluation, and tended to procrastinate.

Gender Differences in Personality. Prior research in social and personality psychology has uncovered gender differences in terms of average scores for a number of personality traits—including emotionality/neuroticism, extraversion and conscientiousness—that are significant and fairly consistent, even across cultures. Lynn and Martin (1997) in a study with participants from 37 countries found that mean neuroticism was higher for females in all 37 countries, whereas men's mean scores for psychoticism and extraversion were higher in 34 and 30 countries, respectively. In a cross-cultural study of 26 cultures, Costa, Terracciano, and McCrae (2001) reported that, although gender differences were small compared to individual variation within genders, they were replicated across cultures and for college-age as well as for adult samples. Women scored on average higher on neuroticism and agreeableness, while men scored higher on assertiveness. This is consistent with Feingold (1994) who found higher average anxiety, a sub-dimension of neuroticism, for females. Schmitt, Realo, Voracek, and Allik (2008) analyzed gender differences in personality in 49 countries, with women relative to men reporting higher levels of neuroticism, conscientiousness, and—in

contrast with Lynn and Martin (1997)—extraversion. Müller and Schwieren (2012), in a lab study of gender differences in preferences for competition, found higher average levels of neuroticism, conscientiousness, and extraversion, as well as of openness and agreeableness for women.

Combining these insights with evidence that these traits are significant predictors of FLA, we suggest that a possible, partial 'solution' to the puzzling ambiguity of gender effects on FLA might be to include personality as a mediating variable (see Figure 1). The 'average female' personality appears to differ significantly from the 'average male' one. In view of the association of personality traits with FLA, this difference in itself can already be expected to give rise to variation in FLA across genders. Furthermore, we suggest that we also need to consider a second effect: Men and women may differ in terms of their average personalities, but in addition there is substantial individual heterogeneity within genders in terms of personality (Costa, Terracciano, & McCrae, 2001). The relationship between this residual variation in personality (beyond personality differences driven by individuals' genders) and FLA might, in turn, be moderated by gender (see Figure 1). That is, differences in personality might be differently correlated with FLA for males versus females: First, linguistic studies have argued that FLA is a situation-specific anxiety, which is triggered by foreign language as a contextual factor (Horwitz et al., 1986). Second, psychological research has found that women are more susceptible to contextual triggers (Croson & Gneezy, 2009). Moreover, in comparison to men, females' building of intimate relationships occurs more extensively through language (Wodak, 1997). Differences in setting between native and foreign language might, therefore, have a stronger impact on women, because the unfamiliarity of the foreign language context more profoundly shakes the foundations of their (social) identity.

In sum, this study addresses how gender and personality are jointly and interdependently associated with FLA during L2 usage in general, that is, outside the foreign language classroom and

independent of language learning. We suggest a moderated mediation of personality on the gender—FLA relationship that may explain the inconclusiveness of prior evidence. Hence, this study involves addressing the following three research questions: Do individuals who score high on emotionality, conscientiousness or extraversion experience higher FLA? Is gender associated with FLA during L2 usage independent of personality, or is the gender effect mediated by personality (i.e., emotionality, conscientiousness or extraversion)? Does gender moderate the relationship between personality and FLA—that is, is the impact of differences in emotionality, conscientiousness or extraversion on FLA stronger for women than for men? From these research questions, and based on the literature reviewed above, we derived six hypotheses. First, we predict that females are more emotional (*H1a*) and that highly emotional individuals—independent of socio-biographical factors—experience higher FLA *(H1b)*. Second, we expect that females are more conscientious (*H2a*) and that highly conscientious individuals—independent of socio-biographical factors—experience higher FLA *(H2b)*. Third, we hypothesize that women score lower on extraversion than men *(H3a)* and that highly extraverted individuals experience less FLA *(H3b)*. In sum, these three personality dimensions mediate the relationship between gender and FLA. Further, we suggest that the positive association between emotionality and FLA *(H4)*, the positive association between conscientiousness and FLA *(H5)*, and the negative association between extraversion and FLA are stronger for women compared to men *(H6)*. Figure 1 displays the theoretical model.

METHOD

Participants

The data stems from a web-based survey administered at a major Dutch university in September 2011.[1] Students who were enrolled in a compulsory introductory course on organization

[1] The survey was part of a larger experimental project on foreign languages and cooperative behavior conducted by the authors in the autumn of 2011.

studies and who participated in accompanying tutorials for this course were advised—although, due to university regulations, not obliged—to participate. During the first week of the semester, they received email invitations for the survey. The survey remained online for two weeks. The purpose of the study was not revealed; the survey was announced to be part of the teaching to be explained later on during the course. After excluding incomplete responses, our sample comprises 320 bilingual adults (106 females; 214 males) for whom Dutch is the L1 and English is the L2. All participants were enrolled in a university Business program (BSc). The average age in the sample is 18.8 years.

Data Elicitation Instrument

Questionnaire. The web-based questionnaire was used to collect information on FLA, personality traits and socio-demographics such as gender, age, education, nationality and place of birth. Concerning English as a foreign language, participants were asked about the degree of their foreign language anxiety. Also questions relating to participants' frequency of use of the foreign language, age of acquisition, and assessment of own competence in the L2 were included. Subjects remained anonymous. All information was confidential.

Dependent Variable: FLA

Foreign Language Anxiety Scale. Following Guntzviller et al. (2011), we adapted items from the FLCAS scale developed by Horwitz et al. (1986), which has been extensively used in classroom research. We adjusted the items to fit a classroom-independent context and opted for a short ten-item version of the original scale in order to prevent respondents from logging out without finishing the survey due to the large personality inventories that followed the FLA scale. FLCAS items test five elements of FLA in the classroom: (a) degree of anxiety, (b) extent of understanding others (e.g., teacher, doctor or people who have power) when they speak the foreign language, (c) fear of making mistakes in the foreign language, (d) feelings of own competence, and (e) divergence

from general communication apprehension. Items from each of the five subscales of the FLCAS were selected for inclusion and adjusted to refer to a classroom-independent context. For instance, the FLCAS-item '*I get nervous and confused when I am speaking in my language class'*, which Guntzviller et al. (2011) adjusted to '*I get nervous and confused when I speak in the doctor's office'*, was changed to '*I get nervous and confused when I have to speak in English'*. The context was generalized and references to teachers and other students were replaced by references to powerful others and other people. Examples of other items are: '*I get nervous when I don't understand every word persons who have power on me say to me in English'* (measures extent of understanding), '*I don't worry about making mistakes when I interact in English'* (measures fear of making mistakes), '*I keep thinking that many other people are better in English than I am'* (measures feelings of own competence), '*I feel overwhelmed by the number of rules you have to learn to speak English'* (measures divergence from general communication apprehension).[2] Appendix 1 provides a list of all items and the introductory text of our FLA measurement instrument.

By examining FLA beyond the context of the classroom, participants may imagine and vary along a large variety of contexts that differ substantially from each other, e.g., from very informal to very formal settings. As this might introduce a substantial measurement error, we included a *specific classroom-independent type of context*. We adapted the FLCAS scale in order to produce an instrument that tests anxiety arousal in a *formal context* of an important meeting or public discussion where speaking English is mandatory, a context of high economic relevance: '*To answer the following questions imagine you are participating in an important meeting/public discussion which is done in English. To communicate with the rest of the participants you have to use a foreign language. Now, complete the questions*.' All items were assessed on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). We

[2] Furthermore, because women have been found to be (more) sensitive (than men) to the gender of their counterparts (Croson & Gneezy, 2009), we, like Horwitz and colleagues (1986), did not specify the gender of other persons in the items. For example, we included: "*I am afraid that many people will laugh at me when I speak English*."

chose a Likert scale with a larger number of categories than the original FLCAS in order to reduce biased answers due to individual response styles—that is, due to the tendency to fill in questionnaires without paying attention to the content of the questions (for a detailed discussion, see Harzing, 2006). The overall score is calculated by summing the appropriately reverse-coded responses to single items resulting in sum scores between 10 and 70. The scale used in this study factored into a unidimensional construct with high reliability (α=.77).

Independent Variables

Female gender. Gender (female = 1, and male = 0) was measured by asking the participants to indicate their gender in the online questionnaire.

HEXACO Personality Inventory-Revised 60-item version (HEXACO-PI-R; Lee & Ashton, 2004). The HEXACO-PI-R measures six personality dimensions: emotionality, conscientiousness, extraversion, agreeableness, openness to experience, and honesty/humility. We opted for this personality instrument in particular because of its refinement of the factor of emotionality, which captures, for example, more comprehensively sentiments of vulnerability, closely related to the FLA construct (Ashton et al., 2013) The ten items for each personality dimension are assessed on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly disagree). The HEXACO scale used in this study factored into a six-dimensional construct with high reliabilities for each dimension (Honesty-humility: α=0.75, Emotionality: α=0.79, Extraversion: α=0.79, Agreeableness: α=0.71, Conscientiousness: α=0.81, Openness to experience: α=0.74).

Control Variables

As our focus is on a possible association of gender and personality with FLA unrelated to learning and exposure, we include related socio-biographical variables as statistical controls: i.e., age of acquisition, self-rated foreign language proficiency, and reading frequency (cf. Dewaele & Ip,

2013; Dewaele et al., 2008). Without statistically controlling for these variables, a gender effect outside the foreign language classroom could primarily be based on the gender effect in the classroom. That is, by being anxious in the classroom, language competence might diminish, leading to anxiety outside the classroom simply based on the classroom-based differences in competences. ***Age*** is a core variable in socio-psychological research (Dewaele, 2007). It has been linked to FLA, with younger learners reporting lower FLA (Dewaele, 2007). Age ranges from 17 to 26 years (with the exception of one respondent aged 34). Information about ***age of onset of acquisition (AOA)***—the starting age for acquiring the foreign language—is an important but distinct correlate of language proficiency, which is often studied in relationship to language proficiency (Hernandez & Li, 2007). We collected data on AOA through the following question: '*At which age did you start learning English?'* Subjects were grouped into five categories of AOA: (1) those who learned English from birth up until 5 years of age, (2) those who started from 6 to 10, (3) those who started from 11 to 16, and, (4) those who started learning English after the age of 17. The majority was in categories 3 (44%) and 4 (53%). Prior research suggests that ***self-assessed fluency*** (even more so than objective proficiency) constitutes an important correlate of FLA (e.g., Dewaele & Ip, 2013) and language-related behavioral responses (Neeley, 2013). We assessed language proficiency in English through subjects' responses to the question '*How would you describe your own ability to understand written English?'*, based on a scale with seven categories ranging from "very poor" to "excellent". On average, 65.89% of men (46.23% of women) stated that their level was very good or excellent. ***Reading frequency*** in the L2 was assessed based on the response to the question '*How often do you read in English (e.g., text books, newspapers, magazines and/or the internet)?'* with four response categories (Daily / Several times a week / Once a week / Once a month or less). Women read more frequently in the foreign language, with 68.87% reading once a week or more often (51.40% for men).

RESULTS

With an average score of 40.91, women display higher FLA than men, who on average score 33.50. The difference of 7.41 is statistically significant (two-sample t-test with unequal variances: t=-5.07, p<0.001). Cohen's d as a well-accepted measure of effect size indicates a medium-sized effect: i.e., 0.61, which is above the value of 0.5 that is considered as a lower threshold for medium-sized effects. Thus, the effect we are investigating is not only consistent with prior research, but also *practically meaningful*. In order to explore this gender difference in detail, and in order to test our hypotheses, we employ a hierarchical multivariate moderated regression analysis (Cohen, Cohen, Aiken, & West, 2003) combined with statistical tests of multiple mediation (Preacher & Hayes, 2008) and moderated mediation (Preacher, Rucker, & Hayes, 2007). Note that our emphasis is not one what constitutes the strongest antecedents of FLA, but on explaining the gender difference in FLA. That is, most of our analysis is concerned with how much of the above-reported gender difference in FLA can be explained by other variables. As variance inflation factors for all models were found to below the threshold value of 3, ranging between 1.20 for Model 2 (minimum value) to 1.76 for Model 7 (maximum value), our analyses do not suffer from issues of multicollinearity.

Statistical control variables

First, we included the socio-biographical control variables: i.e., age, reading frequency, AOA, self-assessed fluency (Table 3, Model 1). Prior research has shown that exposure to and frequency of foreign language use gives speakers the opportunity to practice, develop greater self-confidence in the foreign language and feel less anxious (Baker & MacIntyre, 2000; Matsuda & Gobel, 2004). We find that frequency of reading in English has a statistically significant association with FLA in the new context where we are measuring FLA; more frequent reading in English is associated with lower FLA in formal contexts of meetings or discussions held in English (p<0.05). In the same vein,

research in foreign language learning indicates that fluency is linked with FLA (e.g., Dewaele & Ip, 2013; Chen & Chang, 2009, Baker & MacIntyre, 2000); we find that self-assessed fluency in English is negatively associated with FLA ($p<0.001$). Once reading frequency and language proficiency are statistically controlled for, age and AOA are not statistically significantly associated with FLA. Thus, while, overall, there is a relationship between age and AOA and FLA (see correlations in Table 2), this is explained through the relations of FLA with reading frequency and self-assessed proficiency.

Gender

To examine whether the two gender groups differed significantly in the anxiety they reported when communicating in English as L2, particularly independent of language proficiency and frequency of reading in L2, we additionally entered gender—a dummy for females—into the regression analysis (Table 3, Model 2). Gender (female=1) is statistically significantly related with FLA. When statistically controlling for language-related socio-biographical control variables, women reported higher levels of FLA, with the difference still being 4.50 points (compared to an overall difference in FLA score across men and women of 7.41 points). Cohen's d as measure of effect size reduces from 0.61 to 0.41 after partialling out these statistical controls. Thus, these socio-biographical control variables, and especially language proficiency, explain some gender difference in FLA, but there is a substantial part of the gender difference—with 4.50 points being more than 50% of the original difference of 7.41 points—that cannot be explained by them. Hence, there is a gender difference outside the classroom that cannot be explained by gender-specific effects in L2 learning.

Personality

The six personality dimensions were entered simultaneously (Table 3, Model 3). We centered and standardized the scores of the personality variables as it enables us to more intuitively interpret the estimated coefficient of gender in a model that includes a moderation of personality by gender

(see below). In support of *H1b*, emotionality is significantly positively related with FLA ($p<0.01$). Highly emotional individuals reported higher FLA: A difference of one standard deviation in emotionality (0.63 points) is associated with a difference of 1.92 points in FLA (0.63*3.06). In support of *H2b*, conscientiousness is positively associated with FLA ($p<0.01$). Highly conscientious individuals reported higher FLA: A difference of one standard deviation in conscientiousness (0.63 points) is associated with a difference of 1.52 points in FLA (0.63*2.42). In support of *H3b*, extraversion is significantly negatively related with FLA ($p<0.05$) with extroverts being less prone to FLA. A difference of one standard deviation in extraversion (0.56 points) is associated with a difference of -1.20 points in FLA (-2.16*0.56). We also explored possible associations of openness, agreeableness, and honesty-humility with FLA. In support of prior research, which has not emphasized these dimensions in relation to FLA, none is significantly related to FLA in our sample.

Gender mediated by personality

After controlling for personality, there is no significant difference between males and females: the gender coefficient is statistically not significant. Also, after partialling out personality (in addition to partialling out the socio-demographical control variables), Cohen's d as measure of effect size is 0.12 for gender differences, which according to Cohen's criteria is not even considered small and should not receive any attention. When partialling out the personality variables only but not the statistical control variables, Cohen's d decreases to a negligible size of 0.18. This is a first indication of a possible mediation of the relationship between gender and FLA through personality: Almost all of the gender difference can be explained by gender-related personality differences.

To statistically test the multiple indirect effects, we employ tests of multiple mediation (Preacher & Hayes, 2008). First, we regress personality on gender to establish that gender makes a difference with respect to personality (see Table 4). In support of *H1a, H2a*, and *H3a*, females are

significantly more emotional ($p<0.001$), more conscientious ($p<0.001$), and less extravert ($p<0.05$). As to the other HEXACO dimensions, females score higher on honesty-humility ($p<0.001$). Next, we calculate the indirect relationship of gender through each of the three focal personality dimensions and bootstrap their standard errors. Analyses reveal that these are statistically significant for emotionality (indirect effect=2.03 with bootstrapped S.E.=0.72, $p<0.001$) and conscientiousness (indirect effect=0.80 with bootstrapped S.E.=0.36, $p<0.05$). Thus, a gender gap of 2 points in FLA can be explained by the fact that females differ from males in the level of emotionality. A difference of 0.8 points is due to corresponding gender differences in conscientious-ness. While extraversion is significantly associated with FLA, mediation tests do not reliably indicate that it substantially mediates the relationship between gender and FLA (indirect effect=0.31 with bootstrapped S.E.=0.23, $p=0.18$). Conjointly, all six personality traits explain a gender difference in FLA of 2.93 points (total indirect effect=2.93 with bootstrapped S.E.=0.90, $p<0.01$). Considering that the gender gap is 4.5 points after controlling for self-assessed proficiency differences, personality explains about 65% of the gender effect, and this mostly through emotionality and conscientiousness.

Gender moderated by personality

To statistically test whether gender moderates the relationship between personality and FLA, we include three interaction terms into our analyses (Table 3): gender by emotionality (Model 4), gender by conscientiousness (Model 5), and gender by extraversion (Model 6). As we center the personality variables, correlations between variables and their interaction terms are reduced, and the coefficient of gender can be interpreted as the average association of gender with FLA, averaged over all observed levels of the interacted variables (Cohen et al., 2003). Based on the significantly positive coefficients for the interaction effects between gender and emotionality and between gender and conscientiousness, respectively, *H4* ($p<0.05$) and *H5* ($p<0.05$) are supported. *H6* is not

supported as the interaction effect of gender by extraversion is not statistically significant. As a robustness check, we also estimate a model where all personality dimensions are moderated by gender (Table 3, Model 7). The findings are robust. Results from moderated mediation tests (Preacher et al., 2007) also consistently show that the two mediated relationships are significant only for females but not for males (gender through emotionality: $\beta_{females}$=4.14, bootstrapped S.E.=1.30, p<0.01 versus β_{males}=0.94, bootstrapped S.E.=0.84, p=0.26; and gender through conscientiousness: $\beta_{females}$=1.55, bootstrapped S.E.=0.66, p<0.05, versus β_{males}=0.36, bootstrapped S.E.=0.36, p=0.31).

In order to convey a more intuitive idea of the strengths of these moderation relationships, Figures 2 and 3 graphically illustrate the statistically significant interactions (as estimated in Model 7). The figures plot the estimated levels of FLA for males and females for varying levels of emotionality and conscientiousness below and above the observed sample means. These levels range from the means of these variables minus two times their standard deviation to the mean plus two times their standard deviation. For both emotionality and conscientiousness, females display an association between personality and FLA that is more than four times stronger than the one for males. A change of two times the standard deviation in emotionality and conscientiousness is associated with a difference in FLA of only 1.78 and 1.38 points, respectively, for males, but 7.82 and 5.93 points, respectively, for females. While females with *above-average* levels of emotionality and conscientiousness display much higher levels of FLA than males with the same score along these personality dimensions, we also observe that females with a *below-average* score in emotionality and conscientiousness display a much lower FLA than comparable males.[3]

DISCUSSION

[3] If males are indeed less susceptible to negative reactions to contextual stimuli, we would not only expect that highly emotional males display less FLA than equally emotional females, but also that males in general display less variation in FLA. Based the variance of FLA scores for males (10.61) and females (13.05), we find support for this idea (Brown-Forsythe's median-based version of Leven's test for equality of variances indicates a difference: i.e., W=6.00, p=0.015).

Prior studies have yielded ambiguous findings regarding the effects of gender on FLA in classrooms (e.g., Wang, 2010; Elkhafaifi, 2005), resulting in calls to further investigate the impact of gender on foreign language learning in general and FLA in particular (Jiménez-Catalán, 2003; Sunderland, 2000, 2010). In response, this study combined gender- and personality-oriented perspectives on FLA by proposing a moderated mediation of the gender–FLA relationship by personality. Extending prior research, we focused on settings outside the foreign language classroom. Further, in investigating gender differences in FLA, we statistically controlled for gender differences that might stem purely from sex differences that derive from the language classroom, such as proficiency. Consistent with expectations, the statistically significant and practically meaningful association between gender and FLA (females experiencing higher FLA; e.g., Machida, 2001) disappears when personality, in general, and the personality dimensions of emotionality and conscientiousness, in particular, are taken into account. They (almost completely) *mediate* the relationship between gender and FLA—highly emotional and conscientious persons and introverts show higher levels of FLA (Dewaele, 2002; Dewaele, 2013; related, Gregersen & Horwitz, 2002) and females' higher emotionality and conscientiousness explain their higher FLA. Further, results are consistent with the interpretation that women are more sensitive to emotionally react to foreign language use and, consequently, to display FLA. FLA displays larger variance for women and is much more strongly related to females' than to males' personality. The *moderation* implied in this result can be explained from different perspectives, which are not mutually exclusive.

First, the results might capture *actual differences* in how women and men react to variations in personality in *experiencing FLA*. This argument is consistent with research in psychology that found that women, in general, are more strongly affected by context-specific cues (Croson & Gneezy, 2009). It is also consistent with prior linguistic research that argued that language is such a

contextual cue (Kravchenko, 2007) and that FLA is a situation- or context-specific construct (e.g., Horwitz et al., 1986; MacIntyre & Gardner, 1991). Second, the findings may be driven by *reporting differences* stemming from "differences in the willingness to admit to anxiety" (Arnaiz & Guillén, 2012, p. 18). The underlying argument, based on socialization processes, is that willingness to admit anxiety and weakness is more strongly encouraged in women from an early age on, as these are frequently regarded as 'feminine' properties (Arnaiz & Guillén, 2012; Dusek, 1980). Third, the results might capture differences in the *accuracy of FLA anticipation* between men and women, driven by their different average levels of context-sensitivity. Women tend to report more intense nervousness and fear in anticipation of negative outcomes (Brody, 1993). "Males are more likely to see a risky (difficult) situation as a challenge that calls for participation, while females interpret risky (difficult) situations as threats that encourage avoidance" (Croson & Gneezy, 2009, p. 6). Such diverging interpretation might give rise to different answers to statements such as: '*I can feel my heart pounding when I'm going to be called on in a meeting in English'*, where the challenging situation may be the meeting in the foreign language. Higher context-sensitivity (Lin, Hsu, Chen, & Wang, 2012) may allow women to more accurately foresee their levels of FLA, whereas men might underestimate them, and—since there is 'more' (FLA) to anticipate at higher levels of emotionality and conscientiousness—these differences may be more pronounced at higher levels of these traits. This would also be consistent with findings that men tend to be more overconfident (Niederle & Vesterlund, 2007). They appear to be more prone to the 'better-than-average effect': The majority of people rate themselves as better-than-average even if this cannot—by definition—be correct for all of them. Some of the items used to assess FLA indeed relate to assessing one's own competence (e.g., '*I keep thinking that many other people are better in English than I am*').

The practically meaningful findings of this study have implications for research and—given that we measured FLA outside of the classroom—practical implications for contexts where English is used as foreign language (L2). In terms of research, this study makes two contributions. First, it addresses empirical ambiguities regarding the relationship between gender and FLA. We developed a conceptual framework in which gender is associated with FLA through two mechanisms—first, through gender differences in personality and, second, through an interaction between gender and personality. Both mechanisms received strong empirical support in our correlational study. Second, this study adds to prior research on FLA by analyzing the relationship between gender and FLA outside the foreign language classroom, and by adapting the original FLCAS for this purpose (cf. Horwitz et al., 1986). By introducing the context of a formal meeting for all questions of the scale, we address different anxiety-provoking situations within the formal context of an important meeting or discussion held in English.[4] Thus, we reveal that not only language students suffer from FLA, but also non-native speakers in formal settings, thereby broadening the scope of application of FLA as a construct, and of the FLCAS/FLAS as a measurement instrument. Scholars in fields such as, for example, international business and human resource management may as well find it instructive to consider FLA, its antecedents, and consequences in the contexts that they typically study.

In practical terms, the results suggest that teachers, superiors, and others involved in supporting L2 users' communication need to resist the temptation of regarding gender as a simple proxy for gauging a person's susceptibility to FLA. Such an approach might lead to male learners with certain personality traits receiving too little attention in their efforts to overcome FLA. Also, addressing FLA in women may be more effective if the focus was not so much on gender as such, but on the specific personality traits that are associated with higher levels of FLA. Further, the

[4] Our scale does not capture anxiety arousal in informal contexts (e.g., chatting on the internet with a non-native friend), but addresses situations where a person is asked to talk/listen to a foreign language where important issues are at stake.

finding that using English as L2 can be anxiety-provoking in formal contexts suggests the need for policy-makers to build immersion/ intervention programs to decrease negative psychological effects of using a foreign language in situations where non-natives, especially individuals who are highly perfectionist or emotional (e.g., highly skilled immigrants who experience the shock of moving to a foreign country) would hesitate to speak the L2, with this stress harming their fundamental rights to education (e.g., interview for a master's program), health (e.g., speaking the foreign language with a doctor), or legal treatment (e.g., communication with lawyers; see Holmes, 2001, p. 331).

Limitations and Future Directions

This study is based on cross-sectional correlational self-reported data. While we believe that subjective self-reported perceptions rather than objective or third-party judgments of language proficiency and related anxiety are the drivers of individuals' responses to foreign language contexts (e.g., Neeley, 2013), Appendix 2 provides a post-hoc analysis suggesting that these self-reported measures are in a meaningful way related to relevant observational or behavioral variables. While an experimental approach related to gender and personality—that is, manipulating these variables, is by the variables' very nature impossible, any causal interpretation can, if at all, only rest on theoretical considerations (Cohen et al., 2003). Gender is clearly an exogenous variable and personality is widely viewed as fairly consistent (although not immutable) across time and age (e.g., McCrae & Costa, 1999; Roberts & DelVeccio, 2000), implying that reverse causality is not an issue. More salient than reverse causality issues are concerns regarding possible biases due to common method variance (Podsakoff et al., 2003). The threat of common-method variance would be especially salient for the relationship between personality and FLA, because both are measured based on Likert scales. While this could, in principle, inflate the observed correlation between personality measures and FLA, it cannot inflate the degree to which personality mediates the relationship between gender and FLA.

Neither can such common method variance create spurious interaction effects (Siemsen, Roth, & Oliveira, 2010). Also, by statistically controlling for self-reported proficiency, we at least partial out relationships that are possibly created through person-specific tendencies to either gravitate towards conservative or excessively positive or negative self-reporting—e.g., males consistently exaggerating their proficiency and understating their emotionality and anxiety. Another limitation is the focus on English as L2, and the use of a sample of Dutch respondents. While we consider this a plausible and relevant choice, given that English is widely used across the globe, and in view of ample evidence that English as L2 is useful for numerous contexts, still, future research should explore whether similar results prevail for L2s other than English, as well as for speakers of a mother tongue other than Dutch. Further, the subject pool consisted of young adults who were enrolled as first-year students in a Business study program. Given that one aim of this study was to extend the scope of application of a scale similar to the original FLCAS beyond the language learning classroom, this seemed like an appropriate choice. Still, future extensions should probe the results in contexts that are even further removed from the classic test-bed of the FLCAS. In addition, future follow-up studies should investigate the identified gender–personality–FLA nexus in other types of settings. While we used a relatively formal/'official' setting—an online survey that was clearly associated with the participants' study program, with items framed accordingly; respondents were asked to imagine that they participated in an important meeting or a public discussion held strictly in the L2—it would be interesting to explore whether the results also hold in more informal, intimate contexts. Such investigations may, in turn, require the use of a different research design (e.g., observational studies).

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Variable	Obs.	Mean	S.D.	Min	Max
FLA	320	35.95	11.98	10	67
Gender (female)	320	0.33	0.47	0	1
Age	320	18.80	1.37	17	34
Self-assessed fluency	320	4.39	1.01	1	7
Reading frequency	320	3.15	0.89	1	4
AOA	320	3.5	0.57	1	4
Emotionality	320	2.91	0.63	1.3	4.9
Conscientiousness	320	3.34	0.63	1.7	4.8
Extraversion	320	3.46	0.56	1.8	4.7
Agreeableness	320	3.03	0.52	1.5	4.4
Honesty/humility	320	3.04	0.58	1.1	4.5
Openness to experience	320	2.77	0.61	1.4	4.5

Table 1. Descriptive statistics

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. FLA	(0.77)											
2. Gender (female)	0.29***	-										
3. Age	-0.10+	-0.12*	-									
4. Self-assessed fluency	-0.54***	-0.19***	0.05	-								
5. Reading frequency	-0.34***	-0.19***	0.02	0.41***	-							
6. AOA	0.31***	0.11+	-0.09	-0.42***	0.34***	-						
7. Emotionality	0.34***	0.50***	-0.10+	-0.19***	-0.17**	0.09	(0.79)					
8. Conscientiousness	0.20***	0.27***	-0.20***	-0.08	0.03	0.10+	0.19***	(0.81)				
9. Extraversion	-0.15**	-0.11+	-0.09	0.01	-0.04	-0.02	-0.27***	-0.02	(0.79)			
10. Agreeableness	-0.01	-0.03	-0.08	-0.02	-0.04	-0.02	-0.06	-0.05	-0.09	(0.71)		
11. Honesty-humility	0.13*	0.30***	-0.05	-0.12*	-0.15**	0.14*	0.24***	0.25***	-0.02	0.26***	(0.75)	
12. Openness to experience	-0.19***	-0.07	0.22***	0.20***	0.16**	-0.19***	-0.01	-0.00	0.02	-0.15**	-0.09+	(0.74)

Notes: Where appropriate, Cronbach's alpha is reported in the diagonal;
Significance levels: + p<0.10, * p<0.05, ** p<0.01, and *** p<0.001.

Table 2. Bivariate correlations (N= 320)

Model	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Constant	70.89 (9.92)***	63.86 (9.90)***	60.37 (9.96)***	60.73 (9.88)***	61.90 (9.92)***	60.17 (9.96)***	61.55 (10.22)***
Age	-0.59 (0.41)	-0.41 (0.40)	-0.16 (0.41)	-0.18 (0.41)	-0.23 (0.41)	-0.14 (0.41)	-0.19 (0.43)
Self-assessed fluency	-5.38 (0.64)***	-5.10 (0.63)***	-4.80 (0.62)***	-4.84 (0.61)***	-4.77 (0.61)***	-4.82 (0.62)***	-4.83 (0.62)***
Reading frequency	-1.68 (0.70)*	-1.37 (0.69)*	-1.53 (0.68)*	-1.50 (0.67)*	-1.65 (0.68)*	-1.57 (0.68)*	-1.68 (0.68)*
AOA	1.44 (1.11)	1.45 (1.09)	1.10 (1.07)	1.00 (1.06)	1.10 (1.06)	1.10 (1.07)	0.97 (1.07)
Gender (female)		4.50 (1.20)***	1.68 (1.37)	0.76 (1.41)	1.23 (1.37)	1.66 (1.37)	0.19 (1.45)
Emotionality‡			3.06 (1.04)**	1.24 (1.27)	3.02 (1.03)**	2.96 (1.05)**	1.41 (1.29)
Conscientiousness‡			2.42 (0.92)**	2.39 (0.91)**	0.94 (1.14)	2.39 (0.92)**	1.09 (1.15)
Extraversion‡			-2.16 (1.01)*	-2.01 (1.01)*	-2.08 (1.01)*	-1.67 (1.18)	-1.92 (1.18)
Agreeableness‡			-0.37 (1.09)	-0.16 (1.09)	-0.37 (1.09)	-0.42 (1.09)	-0.77 (1.33)
Honesty-humility‡			-0.85 (1.04)	-0.83 (1.04)	-0.72 (1.04)	-0.83 (1.05)	-0.87 (1.25)
Openness to experience‡			-1.43 (0.93)	-1.12 (0.93)	-1.29 (0.93)	-1.39 (0.93)	-1.62 (1.19)
Emotionality‡ × Gender				4.91 (2.03)*			4.81 (2.18)*
Conscientiousness‡ × Gender					3.88 (1.82)*		3.61 (1.84)+
Extraversion‡ × Gender						-1.75 (2.13)	0.09 (2.27)
Agreeableness‡ × Gender							1.85 (2.31)
Honesty-humility‡ × Gender							0.60 (2.31)
Openness to experience‡ × Gender							1.55 (1.90)
R-squared	0.31	0.34	0.40	0.41	0.41	0.40	0.42

Notes: Standard errors in parentheses;
‡ = centered personality variable;
Significance levels: + p<0.10, * p<0.05, ** p<0.01, and *** p<0.001;
N=320.

Table 3. Hierarchical moderated regression analysis of FLA

Model	**1**	**2**	**3**	**4**	**5**	**6**
Dependent var.	*Emotionality*‡	*Conscientiousness* ‡	*Extraversion*‡	*Agreeableness*‡	*Honesty/Humility*‡	*Openness to experience*‡
Constant	0.14 (0.42)	1.35 (0.47)**	0.84 (0.43)*	0.61 (0.41)	0.01 (0.43)	-1.76 (0.46)***
Age	-0.02 (0.02)	-0.08 (0.02)**	-0.04 (0.02)+	-0.03 (0.02)	-0.01 (0.02)	0.09 (0.02)***
Gender (female)	0.67 (0.06)***	0.33 (0.07)***	-0.14 (0.07)*	-0.05 (0.06)	0.36 (0.07)***	-0.06 (0.07)
R-squared	0.26	0.05	0.10	0.09	0.01	0.02

Notes: Standard errors in parentheses;
‡= centered personality variable;
Significance levels: + p<0.10, * p<0.05, ** p<0.01, *** p<0.001;
N=320.

Table 4. Regression analysis of personality on gender statistically controlling for age

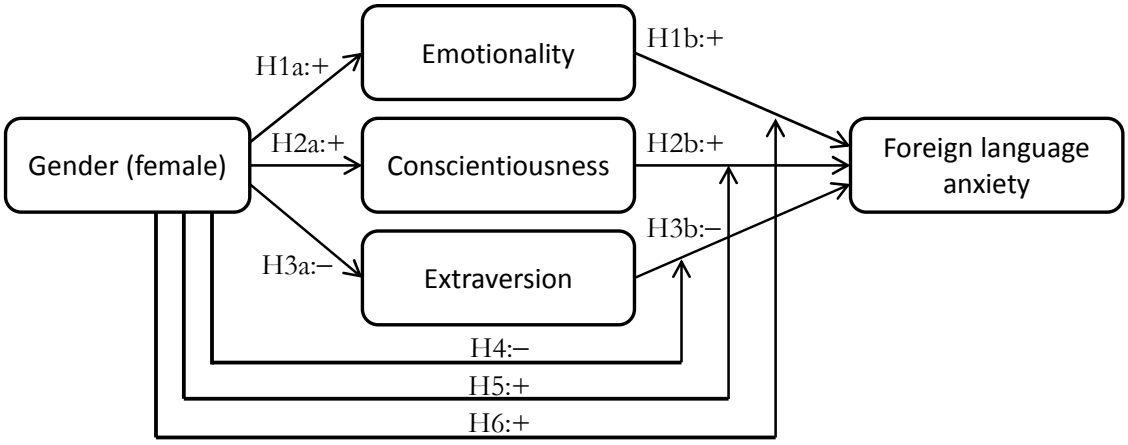

Figure 1. Theoretical model

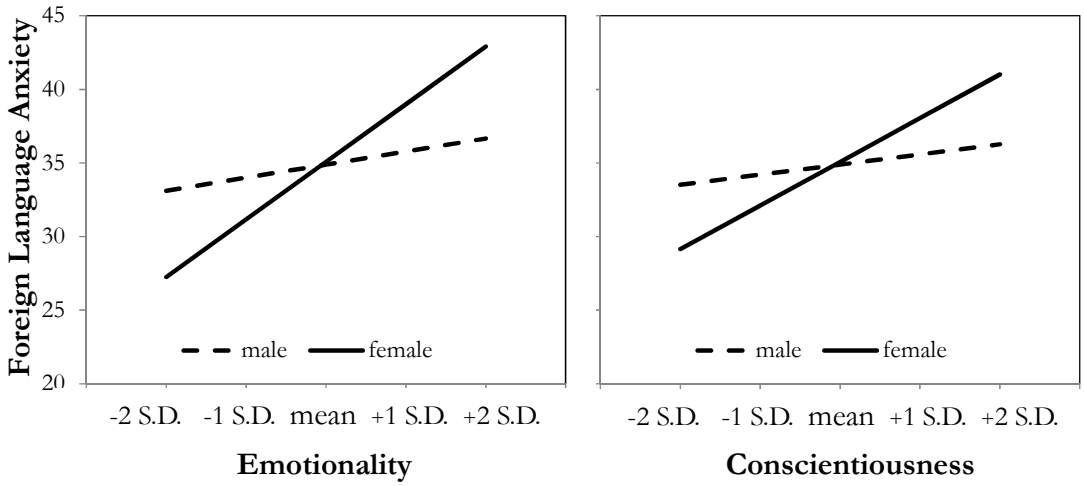

Figure 2. Interaction plots for FLA on gender by personality.

APPENDIX 1

Adapted Measure of FLA (complete list of items)

To answer the following questions imagine you are participating in an important meeting/public discussion which is done in English. To communicate with the rest of the participants you have to use a foreign language. Now, complete the questions:

1. I feel overwhelmed by the number of rules you have to learn to speak English.
2. I can feel my heart pounding when I'm going to be called on in a meeting in English.
3. I am afraid that many people will laugh at me when I speak English.
4. I get nervous and confused when I am speaking English.
5. I get nervous when I don't understand every word persons who have power on me say to me in English.
6. I get nervous when persons who have power on me ask questions in English which I haven't prepared in advance.
7. When interacting in English, I can get so nervous I forget things I know.
8. I am afraid that people above me are ready to correct every mistake I make when speaking English.
9. I don't worry about making mistakes when I interact in English.
10. I keep thinking that many other people are better in English than I am.

APPENDIX 2

Post-hoc tests of the validity of self-reported foreign language proficiency and anxiety

Two weeks after the administration of the survey, a subsample of 138 participants also participated in an experiment administered in English. At two different times during this experiment we asked them, given that the experiment was pretty complex, to indicate which percentage (0-100) of the questions/text/game they did fully understand. The two measures were sufficiently associated with one another (α=0.83) to be averaged as a measure of participants' understanding. The correlation with self-reported English language proficiency is 0.39 ($p<0.001$). When statistically controlling for (i.e., partialling out) foreign language anxiety (FLA) the association remains substantial, i.e. the partial correlation is 0.26 ($p=0.002$). Thus, self-reported English proficiency scores are related to later reports of the level of understanding of English language instructions.

To justify that foreign language anxiety (FLA) is meaningfully related to individuals' actual behavior and that this relationship is not merely a reflection of people's reported foreign language proficiencies, we also used this subsample to analyze the relationship between FLA and people's self-reported frequency of reading English (1 = once a month or less, 2 = once a weak, 3 = several times a week, 4 = daily). The correlation is -0.40 ($p<0.001$) and when controlling for self-reported English proficiency and reported level of understanding, the partial correlation is -0.22 ($p=0.012$). Thus, FLA carries an effect over and beyond self-reported language proficiency and slightly more objective reports of levels of understanding in a real foreign language task. Together with the reported link to personality (as reported in the manuscript), these results indicate that foreign language anxiety is not only based on an established scale, but is also uniquely related to real-world behavior.