Introductory Psychology Spring 2019

Foreign Language Anxiety and Learning Style

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ABSTRACT Research suggests that how students perceive themselves as language learners can affect both their level of anxiety in foreign language courses and their achievement. However, to date, the potential link between learning style and foreign language anxiety has not been empirically tested. Thus, this study of 146 university students attempted to identify a combination of learning modalities that might be correlated with foreign language anxiety. A setwise multiple regression analysis revealed that, of twenty learning modality variables, only responsibility and peer-orientation appeared to be related to foreign language anxiety. Specifically, students who are not responsible in attempting assignments and who preferred not to learn in cooperative groups tended to have higher levels of foreign language anxiety. These learning style variables explained only six percent of the variance; however, in the context of foreign language anxiety research, this minimal finding has important implications. This paper discusses these findings, suggests possible questions for future research, and makes recommendations for understanding foreign language anxiety and increasing foreign language learning.

Foreign Language Anxiety and Learning Style

In an age of globalization more Americans understand the necessity of reaching out to world markets. At the same time students are increasingly studying foreign languages to prepare for internationally focused job opportunities. Unfortunately, perhaps nowhere else in the world is the perceived need for foreign language study more frustrated by a myriad of complex misconceptions and malpractice. Too many students continue to hold erroneous beliefs about foreign language learning (Horwitz 1988), while some teachers cling to ineffective teaching methods. These factors combined lead to inevitable frustration. Thus, many students continue to have negative experiences while learning a foreign language at both the secondary and college levels, which often leads to heightened anxiety in foreign language classrooms. The results are discouraging. Students who experience difficulties in either their high school or initial college foreign language courses often delay subsequent enrollment in a language class for as long as possible (Onwuegbuzie, Bailey, and Daley, forthcoming; Young 1991), and may even change their degree program in order to avoid learning a foreign language (Horwitz, Horwitz, and Cope 1986). Since foreign language courses have been found more anxiety-inducing than any other course in a student's program of study (Campbell and Ortiz 1991; Horwitz et al. 1986; MacIntyre and Gardner 1989), increased attention to the learner dynamics involved in the concept of foreign lan-

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guage anxiety could greatly reduce the frustration levels we experience in our classrooms.

Researchers and language theorists have long counseled teachers to pay particular attention to the affective reactions of their students (Rivers 1964). Increasingly, research studies designed to determine the effects of anxiety in the classroom have indicated that anxiety is common among students (Aida 1994).[3] Furthermore, foreign language anxiety, as it is commonly termed, has been found to be associated negatively with language performance (Gardner and MacIntyre 1993), with final grades (Horwitz 1986), with teachers' ratings of achievement (Trylong 1987), and with student self-ratings of second language proficiency (MacIntyre, Noels, and Clément 1997).[4] Specifically, a recent body of literature suggests that high levels of foreign language anxiety interfere with foreign language learning (Madsen, Brown, and Jones 1991; MacIntyre and Gardner 1991a, 1991b, 1991c, 1993). In fact, anxiety appears to be one of the best predictors of second language achievement (Daley, Onwuegbuzie, and Bailey 1997; Ehrman and Oxford 1995; Gardner 1985; MacIntyre and Gardner 1993, 1994; MacIntyre et al. 1997). As such, research into the correlates of foreign language anxiety promises to aid both teachers and learners in bridging the gap between our desire to learn and teach foreign languages and our ability to do so.

Foreign language anxiety is best described as a form of situation-specific anxiety (Gardner 1979; Horwitz et al. 1986; MacIntyre, forthcoming). That is, it is neither a trait anxiety, which generally refers to a person's tendency to be anxious, nor is it state anxiety, although it often manifests itself in the physiological signs of the latter, including: perspiration; sweaty palms; dry mouth; muscle contractions and tension; and increases in heart and perspiration rates (Chastain 1975; Gardner 1985; Steinberg and Horwitz 1986). Other behavioral signs include avoiding class, not completing assignments, and a preoccupation with the performance of other students in the class (Bailey 1983; Horwitz et al. 1986; Young 1992). Furthermore, according to Young (1991, 430), foreign language anxiety can manifest itself via a "distortion of sounds, inability to produce the intonation and rhythm of the language, 'freezing up' when called on to perform, and forgetting words or phrases just learned or simply refusing to speak and remaining silent."

Much research exists examining the correlates of foreign language anxiety. Most recently, Onwuegbuzie et al. (forthcoming) found that students with the highest levels of foreign language anxiety tended to have at least one of these characteristics: older; high academic achievers; had never visited a foreign country; had not taken any high school foreign language courses; had low expectations of their overall average for their current language course; had a negative perception of their scholastic competence; and had a negative perception of their self-worth. However, psychological factors of foreign language anxiety have received scant empirical attention. Specifically, it appears that little research to date has investigated the relationship between college students' learning styles and their levels of foreign language anxiety, despite several researchers' suggestions that this area be studied (Loughrin-Sacco 1990; Phillips 1992). Given Westman's (1993) finding that deep processing (i.e., on a subconscious level) was correlated with the study of foreign languages, and his subsequent conclusion that learning styles are content specific and thus are influenced by the content area studied, it seems likely that certain learning styles will moderate foreign language anxiety in the classroom. Furthermore, since many students appear to have difficulty adapting their cognitive set to the study of foreign languages, learning style, "the ways in which an individual characteristically acquires, retains, and retrieves information" (Felder and Henriques 1995, 21), would appear to be a likely antecedent of foreign language anxiety. Indeed, since many researchers contend that learning may be impeded as a result of incongruities between the learning styles of students and the teaching style of their instructor,

it is likely that moderation between learning style and foreign language anxiety will manifest itself in classrooms where teaching and learning styles clash.[5]

Although little research exists that examines the link between learning styles and foreign language anxiety, Oxford and Ehrman (1993) have stated that "for some L2 students, writing or listening can also create fear, depending on the students' learning style preferences and skill levels" (193). Ehrman and Oxford (1990) also found that learners who were "thinkers," preferring analysis and structured learning, tended to be more "hindered by performance anxiety" (322). The small sample size (20) in Ehrman and Oxford's qualitative study requires that their findings be interpreted cautiously; however, their research suggests that other relationships may exist.[6] For example, visual learners may be frustrated and anxious when working with audio material in classrooms or language labs. Learners with tactile/kinesthetic preferences might experience increased anxiety in classrooms where little movement and hands-on learning is encouraged. Given the small-group work prevalent in classrooms organized around communicative methodologies, it would be important to learn whether certain students' predispositions to prefer to work alone might correlate with ratings of foreign language anxiety. Since learners bring their styles to the classroom, it is important to determine which learner traits correlate with situational-specific anxieties such as foreign language anxiety.

Generally, learning styles are overall patterns and characteristics that provide direction to learning and instruction (Cornett 1983). Indeed, learning style is considered as a "contextual" construct because what the learner brings to the learning experience is as much a part of the context as are the more salient features of the experience itself (Papert 1980, 1987). Learning styles can be defined, classified, and identified in many different ways (Entwistle 1981). Dunn, Dunn, and Price (1991) have developed a widely-used instrument to measure adult learning styles. The Productivity Environmental Preference Survey (PEPS) conceptualizes learning styles as comprising the following four areas: preference for environmental stimuli (sound, light, temperature, design, i.e., seating arrangements); quality of emotional stimuli (motivation, persistence, responsibility, structure); orientation toward sociological stimuli (peers, self, pair, team, varied); and preference related to physical stimuli (perception, intake—i.e., eating habits, time of day, mobility). Dunn et al. (1991) contend that each individual's learning style is based on a complex set of reactions to these stimuli when the person is learning in a particular context. Each person has a learning style profile that provides information as to how he or she prefers to produce or learn. It should be noted that learning styles are not the same as learning strategies, which have received considerable attention in recent years.[7] Learning styles represent unintentional or automatic individual characteristics, whereas learning strategies are actions chosen by students that are intended to facilitate learning. As such, learning strategies "1) focus on intentional actions and 2) require that the student chooses to perform the strategic action" (MacIntyre 1994, 190).

Several studies have investigated the relationship between learning styles and foreign language achievement, while the few studies that have investigated the relationship between learning style and other academic-related anxiety have reported an association.[8] At the college level, Reece and Todd (1989) observed that expressed preference for the formal-deductive style of thinking (i.e., synthesists and analysts) and mathematics anxiety are negatively correlated. McCoy (1992) found that the tactile/kinesthetic learning style is a significant predictor of mathematics anxiety. At the graduate level, Onwuegbuzie (1998) found that inservice teachers who prefer to learn in informal classroom settings, who like structure, who are authority-oriented learners, who require nutritious food breaks while learning, who do not prefer to undertake difficult tasks in the morning, and who require mobility in learning environments tend

to have higher levels of statistics anxiety. In a subsequent study, Onwuegbuzie (1997b) found that teachers with the highest levels of research anxiety tend to prefer informal classroom settings and material presented in a structured manner and tend to be peer-oriented, non-authority-oriented learners, who require mobility in learning environments. Interestingly, when instruction is matched to identified learning style (Lenehan, Dunn, Ingham, and Signer 1994) or when students are grouped with peers who perceive and process materials in different ways (E.C. Price 1991), situation-specific anxiety levels appear to attenuate. These findings of the connections between learning styles and other academic-related anxieties further suggest the potential role learning style may play in moderating foreign language anxiety.

Thus, this study was designed to identify a combination of learning styles that might be correlated with foreign language anxiety. It was hoped that through the application of setwise multiple regression analysis, specific learning styles would be identified that might better explain the nature of foreign language anxiety. This, in turn, could assist in designing instructional strategies to reduce student anxiety as it relates to learning style.

Method

Participants

The sample comprised 146 students at a mid-southern university who were in one of four subgroups: French first-semester (n = 38), French second-semester (n =15), Spanish first-semester (n = 55), Spanish second-semester (n= 38). Students participated voluntarily and were required to sign an informed consent form. An analysis of variance (ANOVA) revealed no differences among the subgroups with respect to foreign language anxiety ($p > .05$) or learning style variables ($p > .05$). Therefore, all responses were combined.

The ages of the respondents ranged from 18 to 50 (M = 22.2, SD = 5.7), with 29.6 percent being male. The participants, who had a mean GPA of 2.9 (SD = 0.6), consisted of freshmen (20.4 percent), sophomores (26.1 percent), juniors (30.3 percent), seniors (23.2 percent), and graduate students (1.9 percent), representing more than thirty different degree programs. The majority of students (62.5 percent) reported that they were taking the language course as a degree requirement. The number of previous foreign language courses taken by the participants ranged from one to eight (M = 5.0, SD = 1.1). In addition, 82.3 percent of the participants had studied a foreign language formally in high school, while 23.1 percent had done so in college. The majority (61.9 percent) had never left the United States. Of those who had, the number of countries visited ranged from one to nine. Approximately one-fourth (22.4 percent) of the students had immediate family members whose native language was not English. Finally, the grades expected by the participants for their foreign language course ranged from 68 to 100 ($M = 87.6$, $SD = 9.8$).

Materials and Procedure

Instruments were administered in the fourth week of the course. The following instruments were used in the study: the Foreign Language Classroom Anxiety Scale (FLCAS) and the Productivity Environmental Preference Survey (PEPS).

The Foreign Language Classroom Anxiety Scale (FLCAS), developed by Horwitz et al. (1986), is a 33-item questionnaire that assesses the degree to which students feel anxious during language class. Sample questions include: "I feel confident when I speak in foreign language class"; "Even if I am well prepared for language class, I feel anxious about it"; and "I tremble when I know that I'm going to be called on in language class" (Horwitz et al., 1986). Its authors have conducted numerous validity and reliability studies that have shown the scale to be both reliable and valid, with an alpha coefficient of .93 and an eight-week test-retest coefficient of .83 (Horwitz 1991; Horwitz et al. 1986). Validity has been established (see Horwitz 1986) via significant correlations with communication apprehension, as measured by McCroskey's (1970) Personal Report of

Communication Apprehension, and with test anxiety, as measured by Sarason's (1978) Test Anxiety Scale. In addition, Aida (1994) reported a Cronbach's alpha coefficient of .94, using a sample of 96 students in a second-year Japanese course.

The PEPS, designed by Dunn et al. (1991), is an instrument that surveys individuals' preferences in each of twenty different modalities. The PEPS was developed through a content and factor analysis. It is a comprehensive approach to the identification of how adults prefer to function, to learn, to concentrate, and to perform during educational or work activities in the following modalities: (a) environment (i.e., sound, temperature, light, and design); (b) emotionality (e.g., motivation, responsibility, persistence, and the need for either structure or flexibility); (c) sociological preferences (i.e., learning alone or with peers); and (d) physical needs (e.g., perceptual preference(s), time of day, intake, and mobility). Specifically, the PEPS measures preferences pertaining to the following twenty modalities: noise; light; temperature; design; motivation; persistence; responsibility; structure; peer orientation; authority orientation; multiple perceptual preferences; auditory; visual; tactile; kinesthetic; intake; evening/morning; late morning; afternoon; and mobility. Each subscale represents a learning modality. Performance on each of the twenty subscales is expressed in standard score units, which range from 20 to 80, with a mean of 50 and a standard deviation of 10. According to the instrument developers, individuals having a standard score of 40 or less, or 60 or more, find that modality important when they study or work. Thus, for example, a high score on the kinesthetic subscale (i.e., 60 or more) indicates a strong preference for receiving information via the kinesthetic mode, whereas a low score (i.e., 40 or less) indicates that the individual does not prefer to receive information via the kinesthetic mode. The reliabilities of the PEPS subscales range from .44 to .87 (median = .78), with nearly all the reliabilities exceeding .70 (Dunn et al. 1991). Unfortunately, the reliabilities of the subscales used for the present study were not available since the PEPS was scored by its owners. For the present study, all twenty modalities were used.

Data Analysis

Setwise multiple regression was used to identify a combination of learning style variables that predicted levels of foreign language anxiety. Multiple regression is a statistical procedure in which scores on one or more variables (i.e., independent variable) are used to predict scores on another variable (i.e., dependent variable). In the present study, the twenty learning style modalities were used as the independent variables and foreign language anxiety was used as the dependent variable. "Setwise" regression was utilized in order to select an optimal set of learning style variables in terms of maximum proportion of variance explained. All possible models involving some or all of the selected variables were examined (Tabachnick and Fidell 1989). In setwise regression, separate regressions are computed for all independent variables singly, all possible pairs of independent variables, all possible trios of independent variables, and so forth, until the best subset of independent variables is identified according to some criterion. For this study, the criterion used was the maximum proportion of variance explained (R^2). Using this criterion, setwise regression, which finds the R^2 value for all possible combinations of the independent variables, will lead to an identification of the model with the largest R^2 for each of the number of variables considered. Setwise regression is different from stepwise regression, in which the order of entry of variables is based solely on statistical criteria. Thus, stepwise regression is not guaranteed to find the model with the largest R^2 (Hocking 1976).

Results

The authors wish to clarify that, due to the correlational nature of this study, readers should be careful not to infer in what follows that factors that "predict" or correlate with learning styles can be assumed to exist in a

one-way causal relationship. That is, correlations do not imply causation. Table 1 (below) presents the correlations between each of the selected independent variables and foreign language anxiety. It can be seen that foreign language anxiety correlated significantly with the following variables: persistence; responsibility; peer orientation; and intake.

The Shapiro-Wilk test (Shapiro and Wilk 1965; Shapiro, Wilk, and Chen 1968) did not indicate that the distribution of foreign language anxiety scores was nonnormal ($W = .97$, $p > .05$), thereby justifying the use of multiple regression. In addition, evaluation of assumptions of linearity and homogeneity revealed no threat to multiple regression analysis.

Table 2 (on page 69) presents the unstandardized regression coefficients and intercept; the standard error of the unstandardized coefficients; t-values; the standardized regression coefficients; the semi-partial correlations; and the squared multiple correlation coefficient (R^2) of the chosen model. The setwise multiple regression analysis revealed that only two

TABLE 1

Correlations of Learning Style and Foreign Language Anxiety Variables

Learning Style Variable Language Anxiety	Foreign
Noise-level	-.12
Light	-.11
Temperature	-.09
Design	-.07
Self-motivation	-.09
Persistence	-.16*
Responsibility	-.17*
Structure	.03
Peer-orientation	-.16*
Several Ways	-.12
Authority Orientation	.02
Auditory	-.14
Visual	-.04
Tactile	-.05
Kinesthetic	-.12
Intake	-.21**
Evening/Morning	.06
Late Morning	-.01
Afternoon	-.14
Mobility	-.06

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

TABLE 2

Selected Multiple Regression Model for Predicting Foreign Language Anxiety

	Unstandardized		Standardized		Semi-Partial
Variable	Regression Coefficient	Standard Error *t*-value	Regression Coefficient	Squared Coefficients	
Intercept	4.17	0.40	10.50**	0.00	
Responsibility	-0.01	0.01	-2.16	-0.18	.03
Peer-orientaion	-0.01	0.01	-2.09	0.17	.03

Model R^2= 6.0%, $F(2, 143) = 4.39$*

* p < .05, ** p < .01, *** p < .001

learning style variables contributed significantly (F[2, 143] = 4.39, p < .05) to the prediction of foreign language anxiety: responsibility and peer-orientation. These variables combined to explain 6.0 percent of the variation in foreign language anxiety. Each of the remaining eighteen learning style variables added less than 1 percent to the variance accounted for and thus were not included in the final model. Examination of the tolerance statistics, the variance inflation factors, the eigenvalues, and the condition numbers of the selected regression model suggested strongly that no multicollinearity was present. In addition, an inspection of the standardized residuals generated from the model suggested that the assumptions of normality, linearity, and homoscedasticity were met. From the semi-partial squared coefficients (Table 2), it can be seen that responsibility and peer orientation each explained 3.0 percent of the variance.

The regression model suggests that students who are not responsible in completing assignments and who preferred to learn alone tended to have higher levels of foreign language anxiety.

Discussion

The authors were unable to identify any previous studies examining the relationship between foreign language anxiety and learning style. As such, the present study appears to be the first that has attempted to identify those particular learning styles that predict foreign language anxiety. Only two learning style variables—namely, responsibility and peer-orientation—were found to be associated with foreign language anxiety, providing weak support to the hypothesis of an overall relationship between learning styles and foreign language anxiety.

However, although the current finding that the two learning style variables explain only 6 percent of the variance in foreign language anxiety seems insignificant, in the context of foreign language anxiety research, this minimal finding has important implications. First, the fact that such a small proportion of the variance in foreign language was related to learning style reflects the complex nature of the constructs being measured. Both learning style and foreign language anxiety manifest themselves in individual learners along a continuum that apparently resists simple correlational analyses. That is, since individual learners often possess characteristics at both ends of the spectrum, it is possible that learning style, as measured by instruments like the PEPS, will not relate clearly to anxiety. Furthermore, since learning styles can be considered traits that the learner possesses both in and out of the foreign language classroom, such general tendencies might not correlate well with foreign language anxiety, which has been proven to be a form of situation-specific anxiety related to the unique experience of foreign language learning (Horwitz et al. 1986; MacIntyre and Gardner 1989, 1991a, 1991c, 1994). Thus the present findings underscore the specificity of foreign language anxiety to the experience of the learner in the class-

room. The fact that the present study's findings do not generally confirm the findings of studies regarding other academic anxieties related to mathematics (Reece and Todd 1989; McCoy 1992), research (Onwuegbuzie 1997b), or statistics (Onwuegbuzie 1997a) further supports the contention that foreign language anxiety is a unique form of situation-specific anxiety, distinct from other academic-related anxieties. Future research may wish to explore the possibility that an instrument developed to measure learning styles specific to the experience of foreign language learning in the classroom might better illuminate the relationship between style preference and foreign language anxiety.

The greatest implication of the relative lack of correlation between foreign language anxiety and learning style appears, however, when the findings are seen in the light of the many attempts that have been made to reduce foreign language anxiety in the classroom. Unlike research into other academic-related anxieties (Lenehan, Dunn, Ingham, and Signer 1994; E.C. Price 1991), which suggests that situation-specific anxiety levels appear to attenuate when instruction is matched to identified learning style, research reflecting attempts to reduce foreign language anxiety have not been as promising. Indeed, research suggests that it is unlikely that any single instructor can diversify his or her teaching style in a sufficient number of ways to accommodate all the learning style/anxiety correlations that may exist. Horwitz and Young (1991), conclude that "the complete elimination of debilitating language anxiety...[may be] an impossibility" (177).

A good example of the difficulty in moderating learner anxiety can be found in the case of the Natural Approach (NA), a method advocated by researchers and instructors to reduce anxiety (Young 1991). In outlining the concept of NA to language acquisition, Terrel (1977) maintains that "the overriding consideration in all of the components of any natural approach must be to make the student feel at ease during activities in the classroom" (329). However, in a study of NA's effect on student anxiety, Koch and Terrel (1991) were forced to conclude that the method is not successful in eliminating anxiety for all students. Thus, assuming that teaching methodology is the only or the most important factor of foreign language anxiety misses the point that Koch and Terrel (1991) acknowledge—there are no simple solutions. Given the findings of the present study and the fact that the context of learning a second language as an adult in a college classroom setting is fundamentally unnatural, it is perhaps unrealistic to suggest that we need only eliminate "unnatural" aspects of our teaching to solve learner difficulties, especially anxiety. As Crookall and Oxford (1991) remind us, it is impossible to eliminate foreign language anxiety completely from the foreign language college classroom. Based on the findings from the present study and logical analyses, the following recommendations are offered. It is hoped that some of these suggestions might inspire future research on the effectiveness of the strategies mentioned.

Recommendations: Foreign Language Anxiety and Learning Style

The results of the current study suggest that foreign language anxiety is only moderated to a small extent by learning style; however, the two learning style variables that are related to foreign language anxiety merit some consideration—although the low level of variance explained again suggests that other variables such as native language aptitude (Sparks and Ganschow 1993) or student self-perceptions and expectations (Onwuegbuzie et al. forthcoming) play more important roles in moderating foreign language anxiety.

Responsibility

For students who are not responsible in completing tasks, instructors might consider (a) short-term, simple assignments that require frequent discussions with the instructor; (b) clear options that are based on the students' interests; and (c) student-developed goals and procedures (Price, Dunn, and Dunn 1991). Oxford (1990) has argued that one way teachers can improve the classroom's affec-

tive atmosphere is "by changing the social structure of the classroom to give students more responsibility" (140). In other words, increased responsibility may lead to decreased anxiety. It might be helpful if students were asked to keep a journal in which they document their progress, since journal writing has been found to be of great help in identifying and reducing anxiety levels (Bailey 1983; Foss and Reitzel 1988; Oxford and Ehrman 1993) and one of the lowest anxiety-producing learning strategies (MacIntyre and Noels 1996). Instructors may wish to encourage students who lack responsibility to seek help whenever they experience difficulties. Young (1991) found that students reported anxiety when they came to class unprepared and suggested brief pop quizzes as a way to reward students for preparing for class. Improving responsibility through graded activities also is in line with Nyikos and Oxford's (1993) finding that college students tend to employ more learning strategies that reveal an instrumental motivation as opposed to an integrative one; that is, they are more concerned with getting good grades than in learning to communicate in the target language. It is likely that frequent short quizzes motivate students to prepare for class and provide feedback on performance from the instructor. The first author finds confirmation of this suggestion in his own teaching experience, although quizzes are generally announced in advance. Having recently switched first-year French text books to one that requires students to prepare exercises on new material and to take short, self-correcting quizzes before coming to class, he has found that giving a series of short quizzes over the course of a semester rewards students who prepare, and provides visible evidence to those less "responsible" of the consequences of their lack of preparation. An unexpected additional benefit of this approach has proven to be that, when final overall class grade percentage is calculated, there is an obvious correlation between final grade percentage (based on homework/compositions, participation, exams, dictations, and oral presentations) and the quiz average. This allows the instructor to point out simply and concretely to students who routinely do not prepare why they are not, perhaps, receiving the grade they desire. If unprepared students are manifestly anxious learners as well, they may benefit from knowing that they may be able to control some of their own anxiety in class by taking responsibility for preparing the day's lesson as suggested by the instructor.

Peer-Orientation

The present finding that students who prefer to learn in cooperative groups tend to have lower levels of foreign language anxiety supports the assertion of Lightbown (1983), Long and Porter (1985), and Seliger (1983) that cooperative learning addresses students' affective needs and encourages students to speak in the target language. Consequently, foreign language instructors not currently relying on small cooperative learning groups might wish to consider this approach as an alternative to subjecting students to class-wide scrutiny. Those students who prefer cooperative learning techniques also could be encouraged to form study groups outside of class. Indeed, use of these groups could reduce the need for instructors to call on students at random, since the latter appears to increase anxiety levels (Daly 1991).

Unfortunately, for those who prefer solitary study, small-group work is likely to be somewhat anxiety provoking (Koch and Terrel 1991). Given the nature of foreign language anxiety and peer-orientation, however, it is inadequate to judge the use of cooperative learning groups solely in regard to learner anxiety. Since teachers are often confronted by the fact that their methods are better suited to some students than others, they should wherever possible consider the individual student's reactions to classroom methods. Instructors should also be aware that some students may express a "preference" for more individualized work, while acknowledging a "need" for more traditional teacher-controlled classroom instruction (Zampogna et al. 1976). Whatever the case, simply acknowledging in class that the instructor is aware that individ-

ual students may not like group work can go a long way to alleviating anxiety and to convincing students that it is permissible and, indeed, important to express individual learning preferences. Students who indicate a particularly strong aversion to paired group work might benefit from being allowed to do some activities on their own, perhaps in a computer-based environment.

Conclusion

This study explored the relationship between a given set of learning preferences as measured by the Productivity Environmental Preference Survey (Dunn et al. 1991) and foreign language classroom anxiety as measured by Horwitz et al.'s (1986) Foreign Language Classroom Anxiety scale. Although only two variables—responsibility and peer-orientation—were related to foreign language anxiety, these findings highlight the complex nature of foreign language anxiety as a unique form of situation-specific anxiety distinct from other forms of academic-related anxieties. Although the PEPS did not reveal strong correlations between learning style and foreign language anxiety, it is perhaps unwise to conclude that learning style and foreign language anxiety do not interact. Future research might explore other conceptualizations of learning style with instruments such as the National Association of Secondary Schools Principals' Learning Styles Profile (Keefe and Monk 1989), the Learning Styles Inventory (Renzulli and Smith 1978), or the Myers-Briggs Type Indicator (Myers and McCaulley 1985) to determine whether such conceptualizations might capture possible relationships between learning styles and foreign language anxiety. Clearly the possibility remains that a situation-specific learning style instrument on the order of Heyde Parsons' (1979) self-esteem scale—created specifically for the foreign language context—might yield more significant findings for language researchers. It is also possible that since this study was limited to students at the introductory college level, studies exploring learning style and anxiety at more advanced levels might yield more significant results. Finally, qualitative studies of students' affective reactions to small-group work and other activities might also provide more detailed insight as researchers seek to explain how learner traits relate to foreign language anxiety. If we are to reduce the learner and teacher frustration that continues to impede foreign language education, we need to explore all the factors that affect language learning. To this effect, better understanding of the nature of foreign language anxiety remains a key element in reducing the negative experiences of learners in the classroom.

NOTES

[1] The authors wish to acknowledge the Research Council of the University of Central Arkansas, which provided funding for this project. We also wish to thank the faculty of the Department of Foreign Languages who assisted in data collection.

[2] The authors contributed equally to this article.

[3] See also Campbell and Ortiz 1991; Daly 1991; Gardner and MacIntyre 1993; MacIntyre and Gardner 1994; Phillips 1992; Powell 1991; M.L. Price 1991; and Young 1991.

[4] See also Gardner, Smythe, and Lalonde 1984; Horwitz et al. 1986; MacIntyre and Gardner 1991c, 1993; Mettler 1987; Phillips 1992; Trylong 1987; and Young 1986.

[5] See Felder and Henriques 1995; Lawrence 1993; Oxford, Ehrman, and Lavine 1991; and Schmeck 1988.

[6] See for example, MacIntyre 1994; MacIntyre and Noels 1996; Nyikos and Oxford 1993; Oxford and Crookhall 1989; and Oxford and Ehrman 1995.

[7] For examples of studies examining foreign language achievement and learning styles, see Ehrman 1994; Ehrman and Oxford 1990, 1995; Felder and Henriques 1995; Moody 1988; and Sunderland 1992.

[8] Scores on the PEPS were analyzed as continuous variables, instead of partitioning them (e.g., dichotomizing the scores into preference vs. neutral vs. nonpreference), since to categorize a continuous variable is "to reduce its variance and thus its possible correlation with other variables" (Kerlinger 1986, 558). Indeed, Pedhazur (1982, 452-453) asserted that "categorization leads to a loss of information, and consequently to a less sensitive analysis."

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