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### *The impact of contemplative practices on foreign language anxiety and learning*

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#### Abstract

This study looked at the impact of the integration of contemplative practices on foreign language anxiety, positive and negative affect, self-efficacy, classroom climate, and language learning in students enrolled in an advanced intermediate Spanish language course in the USA. Data included pre- and post-test surveys, exam scores to measure learning outcomes, student interviews, and course evaluations. In the contemplative group, students engaged in brief 10-minute contemplative practices once a week, while the non-contemplative group followed the same syllabus but was not exposed to contemplative practices. Analysis of the data showed no significant differences in foreign language anxiety, self-efficacy or affect between the non-contemplative and contemplative groups at post-test but significantly higher scores on classroom climate measures in the contemplative group. Significantly higher grades were found on course exams for students in the contemplative group. Analysis of the pre-/post-survey data revealed a significant decrease in foreign language anxiety in both groups over the semester but not for affect or self-efficacy. This study extends the existing research on contemplative practices to a new context— affect and learning in foreign language courses.

*Keywords:* foreign language anxiety; affect; contemplative practices; classroom climate; self-efficacy

## 1. Introduction

Even after decades of attention, foreign language anxiety (FLA) continues to occupy a prominent place in the research on second language acquisition. It comes as no surprise that emotions, both positive and negative, have a significant impact on language learning—retention, performance, skill development, and learner experience. Recent studies on affect have incorporated ideas from positive psychology in second language learning and focus on promoting positive emotion in the classroom to support effective learning by broadening attention and thinking, building personal resources, and promoting resilience and well-being (MacIntyre & Gregersen, 2012a; MacIntyre, Gregersen, & Mercer, 2016). A significant body of research on contemplative practices (e.g., mindfulness and meditation) has demonstrated the benefits of these practices for physical and psychological health and well-being (Baer, 2003; Brown & Ryan, 2003; Brown, Ryan, & Creswell, 2007; Grossman, Niemann, Schmidt, & Walach, 2004). Our study builds on this work by examining the role that contemplative practices might have in both reducing negative affect, like stress and anxiety, and promoting positive affect and well-being among language learners.

## 2. Literature review

### 2.1. Foreign language anxiety

FLA is understood to be a situation-specific anxiety defined 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” (Horwitz, Horwitz, & Cope, 1986, p. 128). Different from trait anxiety, a generalized anxiety relevant across situations, and from state anxiety, experienced as an emotional state at a particular moment, FLA is categorized as a situation-specific anxiety, one that is associated with a particular context—that of learning and using a second language (MacIntyre & Gardner, 1991b). Because FLA involves performance evaluation, Horwitz et al. (1986) found similarities between it and three related anxieties: (a) communicative apprehension—a hesitation or fear of communicating with people, (b) test anxiety—a fear of failure in performance evaluation contexts, and (c) fear of negative evaluation—an anxiety about being evaluated by others in any social context. Horwitz et al. (1986) developed an instrument to measure FLA called the Foreign Language Classroom Anxiety Scale (FLCAS), which has been utilized in numerous studies and which consists of 33 items designed to elicit students’ feelings about second language learning.

### 2.1.1. Effect on achievement and learner experience

Understanding FLA is critical because of its potential debilitating effect on student performance, achievement, motivation, and learning experience. Research has indicated that students who experience FLA may engage in avoidance behaviors, like homework procrastination, skipping classes, postponing taking their foreign language required courses, or reluctance to engage in the classroom (Horwitz et al., 1986). For some, FLA includes physiological manifestations such as heart palpitations, sweating, trembling, or tenseness. Psychological effects of FLA may include low levels of self-confidence and self-efficacy. Within social cognitive theory (Bandura, 1986), self-efficacy, or one's beliefs in the ability to perform a task or activity, has been shown to predict academic achievement and performance in various academic domains (Graham & Weiner, 1996). In a meta-analysis of research on self-efficacy and foreign language (FL) learning (Raofi, Tan, & Chan, 2012), 11 out of 12 studies showed that self-efficacy predicted academic achievement, and three out of four studies found that self-efficacy was negatively related to anxiety.

FLA can affect learning experiences and outcomes in every realm of the FL course: retention and recall of vocabulary and grammar, poor test performance, difficulties in development of speaking (MacIntyre, Noels, & Clément, 1997), listening (Arnold, 2011; Vogely, 1998), reading (Saito, Horwitz, & Garza, 1999), and writing (Cheng, Horwitz, & Schallert, 1999). The experience of FLA may differ based on target language, course, and level. For example, Kim (2009) reported higher levels of self-reported anxiety among EFL students enrolled in a conversation course compared to those in a reading course. Ewald (2007) found that even students enrolled in upper-level Spanish courses experience FLA despite their advanced proficiency, while Marcos-Llinás and Garau (2009) demonstrated that advanced-level Spanish language students experience higher levels of FLA as compared to beginning and intermediate learners. A study by Rodriguez and Abreu (2003) showed FLA to be stable across Spanish L1 learners of different target languages, in this case, English and French, while Huang (2012) found that Chinese undergraduates studying non-Western languages (Korean, Japanese, Arabic) experienced higher levels of anxiety than those studying English.

Much research has identified a negative relationship between FLA and various measures of language achievement (Horwitz, 2001). "One of the most consistent findings in the SLA literature is that higher levels of language anxiety are associated with lower levels of language achievement" (MacIntyre & Gregersen, 2012b, p. 103). In fact, MacIntyre and Gardner (1991b, p. 96) claim that FLA "is one of the best predictors of success in the second language," which other studies (Onwuegbuzie, Bailey, & Daley, 2000; Saito & Samimy, 1996) confirm.

For example, in a study of learners of Japanese, Aida (1994) showed that students with high levels of anxiety, as measured by the FLCAS, had significantly lower final grades in the course than the low anxiety group. The same findings were attained by Horwitz (1991) for students in beginning-level French and Spanish and by Gardner and MacIntyre (1993) for learners of French. Others have studied the impact of FLA on oral performance measures. Phillips (1992) found that students with high levels of anxiety scored lower on oral exams in an intermediate French course; not only were their oral exam grades lower, but they also produced shorter utterances, used fewer dependent clauses, and spoke less than low anxiety students. These results held in a replicated study by Hewitt and Stephenson (2011), who reported that among Spanish-speaking learners of English, more highly anxious learners performed more poorly (in quantity and accuracy) and received significantly lower grades on oral exams than less anxious learners. MacIntyre and Gardner (1994) demonstrated that FLA affects cognitive processing during input, processing, and output stages, concluding that the “combined effects of language anxiety at all three stages may be that, compared with relaxed students, anxious students have a smaller base of second language knowledge and have more difficulty demonstrating the knowledge that they do possess” (p. 301).

Academic performance and achievement may suffer due to the adverse effect that stress and anxiety have on memory, attention, concentration, and problem-solving (Bamber & Schneider, 2016). The negative self-talk and rumination associated with anxiety “can impair the ability of an individual to process information at each of these stages [input, processing, and output] because the self-related cognition consumes cognitive resources that would otherwise be allocated to the task at hand” (MacIntyre & Gardner, 1991a, p. 515-6). Attention and working memory are inhibited by intrusive negative thoughts, which may interfere with learning, because “excessive self-evaluation, worries over potential failure, and concern over what others think, divide their attention between the task and their own self-thoughts, thus sapping the learner of the cognition necessary for learning” (Gregersen & MacIntyre, 2014, p. 5). One study (Sellers, 2000) that supports this claim looked at the effect of reading anxiety on students of Spanish and found that students with high levels of anxiety were less focused and more distracted by interfering thoughts, which resulted in lower reading comprehension scores. While much previous research has focused on typical experiences of FLA using a retrospective, summative approach, more recent research applies an idiodynamic approach (MacIntyre & Legatto, 2011) to assess moment-to-moment changes in learners’ affect in a particular context and to understand the interacting variables that produce these fluctuations. One such study by Gregersen, MacIntyre, and Meza (2014) underscores the importance

of understanding affective factors like language anxiety on an individual level using qualitative and quantitative approaches, including physiological, idiodynamic, interview, and self-report survey data.

### 2.1.2. Addressing FLA in the classroom

Given the potential negative consequences of experiencing FLA in second language contexts of use, we might ask ourselves what can be done to prevent or reduce student anxiety in our classrooms. Teachers can establish a supportive and comfortable learning environment by incorporating more small group activities, focusing on communication rather than accuracy, using familiar topics and tasks, providing sensitive error correction, and adopting authentic assessment practices (Phillips, 1999). Helping students to confront mistaken beliefs and expectations about language learning and offering instruction on successful learning strategies, such as affective strategies, can bring their beliefs and approaches to learning more in line with what research has proven to be realistic and effective. Teacher immediacies, like making eye contact, leaning in, using gestures, and incorporating humor, can all contribute to a positive affective atmosphere (Gregersen, 2005). The ability of teachers to recognize nonverbal cues characteristic of high anxious students, like limited eye contact and facial expression, closed postures, and nervous hand movements, will help us to identify those students who are anxious in our classes (Gregersen, 2005). Teachers might consider introducing students to anxiety management strategies like relaxation techniques, breath exercises, guided mental imagery, journal writing, and systematic desensitization (Gregersen & MacIntyre, 2014; Horwitz et al., 1986; Kim, 2009; MacIntyre & Gregersen, 2012a; Onwuegbuzie, Bailey, & Daley, 1999; Smith, 2008). Gregersen and MacIntyre (2014, p. 13) suggest that “social interaction and community-building play a critical role in overcoming language anxiety” and present a number of classroom activities designed to promote positive interaction, provide encouragement, and reduce or prevent anxiety. In addition, instead of focusing solely on reducing or eliminating negative emotions (anxiety, fear, worry) in the classroom, teachers might emphasize promoting positive emotions that facilitate language learning through building and broadening techniques, such as imagining future L2 (second language) selves (Dewaele & MacIntyre, 2014; MacIntyre & Gregersen, 2012a; MacIntyre, Gregersen, & Mercer, 2016).

### 2.2. Research on contemplative practices

Contemplative practices quiet the mind, develop insight and self-awareness, and promote an attitude of kindness and compassion toward ourselves and others.

Examples include a wide variety of practices such as yoga, sitting and moving meditations, writing, contemplative arts, and deep listening, among others. Mindfulness involves the cultivation of a receptive attention to and open-awareness of present experience with a compassionate, non-judgmental stance and can be developed through formal meditation practices or informal practices applied to everyday activities and interactions.

### 2.2.1. Benefits for health and well-being

Research has demonstrated that mindfulness training and other contemplative practices are effective in improving physical, mental, and emotional health, reducing stress and enhancing well-being in healthy populations, and alleviating physical and psychological symptoms of conditions such as chronic pain, cancer, fibromyalgia, post-traumatic stress disorder, anxiety, depression, substance abuse, and eating disorders, in clinical populations (Baer, 2003; Brown & Ryan, 2003; Brown, Ryan, & Creswell, 2007; Grossman et al., 2004; Kabat-Zinn et al., 1992; Shapiro, Oman, Thoresen, Plante, & Flinders, 2008; Shapiro, Brown, & Astin, 2011). One program that incorporates contemplative practices is the Mindfulness Based Stress Reduction Program (MBSR), developed by Jon Kabat-Zinn in 1979. It is an 8-week program in which participants learn and practice a variety of mindfulness and meditation practices which have proven to result in improved health and well-being and reduced stress in numerous studies (e.g., Baer, 2003; Brown, Ryan, & Creswell, 2007; Grossman et al., 2004). Mindfulness-based practices and programs are now widely integrated outside of the field of medicine, with the goal of enhanced well-being, health, and performance—in education, business contexts, the military, government, law enforcement and sports, among other areas.

“Mindfulness, as an open, or receptive attention to present experience, may facilitate non-defensive processing of threatening experience, and thereby produce more adaptive responding in challenging or threatening situations, with salutary well-being consequences” (Weinstein et al., 2009, p. 376). Contemplative practices like mindfulness result in positive psychological outcomes because they have the effect of increasing emotional and cognitive flexibility, lowering emotional reactivity to stressful situations, cultivating more adaptive coping strategies, and promoting quicker recovery from negative emotional states like anxiety. Results of a number of studies on the effects of MBSR point to significant reductions in symptoms of anxiety and depression in patients diagnosed with these disorders (Kabat-Zinn et al., 1992) and in patients diagnosed with other medical conditions (Hofmann, Sawyer, Witt, & Oh, 2010). In a review of 57 research studies on the effects of mindfulness meditation on the stress and anxiety of college students, Bamber and Schneider (2016) found that MBSR

was effective in reducing stress in 73% and anxiety in 100% of studies reviewed, while mindfulness meditation was effective in reducing stress in 78% and anxiety in 77% of studies reviewed. With this potential benefit in mind, the authors state that “mindfulness-based interventions could easily be incorporated into courses with a brief meditation session before the start of every didactic course” (Bamber & Schneider, 2016, p. 29). In a research review on universal promotion and prevention programs for higher education students, Conley, Durlak, and Dickson (2013) found that mindfulness-based interventions were the most effective in reducing students’ levels of emotional distress (including depression, anxiety, and stress), as compared to cognitive-behavioral interventions, and those delivered in class (as opposed to in small group workshops/programs) were the most effective. In a qualitative study, college-level students with diagnosed anxiety who had participated in an MBSR program reported a greater sense of inner calm, a greater ability for focus and concentration in learning situations like studying or test-taking, approaching learning in more effective ways, and relating to their anxiety in new ways (Hjeltnes, Binder, Moltu, & Dundas, 2015).

### 2.2.2. Effect on learning

While research points to the numerous benefits for health and well-being, mindfulness interventions have also been shown to improve concentration and attention (Hjeltnes et al., 2015, p. 9). A number of studies have demonstrated that meditation may enhance attention, working memory, executive functioning, and the ability to process information, suggesting the potential to affect learning (Jha, Krompinger, & Baime, 2007; Moore & Malinowski, 2009; Shapiro et al., 2011). For example, Zeidan et al. (2010) examined whether four brief 20-minute mindfulness practices would affect cognition and mood among undergraduate students; they found that these interventions enhanced visuo-spatial processing, working memory, and executive functioning and reduced anxiety and fatigue in the treatment group. They posit that the reduction in anxiety and fatigue and improved vigilance (present-moment awareness) contributed to the improvement in cognitive performance. In a study looking at the effect of meditation on brain structure, Hölzel et al. (2011) reported increases in gray matter concentration in brain regions associated with learning and memory processes, emotion regulation, self-referential processing, and perspective taking among participants in an MBSR program. Morrison, Goolsarran, Rogers, and Jha (2013) asked whether participation in a short-form mindfulness training would reduce mind-wandering and improve working memory, which are crucial for learning, among college students over the course of the semester; results pointed to reductions in mind-wandering (improved sustained attention) but no effect on

measures of working memory. Turning to another component of learning, Sable (2014) looked at the impact of contemplative practices (mindfulness meditation practice extended into journal writing, listening, inquiry, and dialogue) on critical thinking among undergraduates. Based on qualitative and quantitative data, the author concluded that these practices strengthened students' development of reflective dispositions for critical thinking and resulted in higher levels of self-confidence, engagement with multiple points of view, and a sense of connectedness with others. Mindfulness-based practices can also enhance positive emotions, important in any learning context, since positive emotions broaden one's attention and thinking, build one's personal resources, promote creativity and flexibility, and support well-being and resilience (MacIntyre & Gregersen, 2012a; Shapiro, Brown, & Astin, 2011). Recent research in FL learning emphasizes the importance of both enhancing positive emotions and reducing negative emotions in the classroom (Dewaele & MacIntyre, 2014).

### 2.2.3. Effects on FLA and language learning

While contemplative practices have been integrated into educational contexts with the goal of supporting well-being, reducing stress and negative emotions, fostering resilience and emotion regulation, and enhancing learning, we found little research in the field of second language learning that has investigated the effects of contemplative practices on FLA and language learning. Several studies (MacIntyre & Gregersen, 2012a; Ratzlaff, 2012; Smith, 2008; Young, 1999) have advocated the use of relaxation techniques to establish a comfortable low-stress classroom environment for language learners; however, only one has tested the effect of such practices on the reduction of FLA (Schlesiger, 1995). One study (Franco, Mañas, Cangas, & Gallego, 2010) investigated the effects of contemplative practices on academic performance (in three courses: Spanish language, foreign language, and philosophy), anxiety, and self-concept in a group of freshman high school students in Spain. Their results indicate that for students in the treatment group there was a significant increase in academic performance in all three courses and in self-concept and a significant decrease in anxiety as compared to students in the control group. While this study did examine changes in anxiety, the authors used the *State-Trait Anxiety Inventory* (STAI; Spielberger, 1983) as a general measure of anxiety and not an instrument to measure FL anxiety. Arnold (2011) incorporated visualization techniques and breath practices to reduce the anxiety associated with listening comprehension exams among college-level EFL students and found that students in the treatment group outperformed those in the control group on the final listening comprehension test, with students reporting positive experiences with the practices used. No measure of anxiety was



included in Arnold's study. Schlesiger (1995) studied the effects of using different anxiety-reduction techniques on FLA and on achievement in a second-semester German course. The anxiety-reduction techniques consisted of visual imagery, assertiveness training, mantra concentration, and autogenic training. Results indicated a significant reduction in anxiety in the treatment groups compared to the control group; as for achievement, only the mantra concentration technique resulted in improvements in learning among students.

Outside of foreign language learning, results of research looking at the effects of mindfulness on student achievement are mixed. For example, Yamada and Victor (2012) incorporated brief 10-minute mindfulness practices at the beginning of class time in an undergraduate psychology course. They found that while students in the treatment group demonstrated reduced levels of anxiety and rumination and increased mindful awareness traits as compared to the control group, there were no significant differences in student learning outcomes between the groups as measured by three exams and course final grade. In Ramsburg and Youmans (2014), students who meditated at the beginning of a lecture in a psychology course scored higher on post-lecture quizzes than students who did not meditate.

Research has suggested a relationship between teacher support, classroom climate, and student learning. Teachers who exhibit social and emotional competence in the classroom establish positive relationships with students and are perceived by students as caring and supportive (Jennings & Greenberg, 2009). Teacher support may have a direct impact on student motivation, which in turn may result in improved academic performance (Niemic & Ryan, 2009; Taylor et al., 2014). For example, in a study on foreign language learning in a university course, Noels, Clement, and Pelletier (1999) found that an autonomy-supportive teaching style is linked to intrinsic motivation among students and that greater intrinsic motivation is related to lower anxiety, increased perceived competence, and improved learning outcomes.

The potential for contemplative practices to positively affect anxiety and student learning informed this study. Specifically, we were interested in the following research questions:

1. To what extent are there differences between students in the contemplative practice group and non-contemplative practice group for the following measures: students' perceived
  - a. FLA,
  - b. positive and negative affect,
  - c. self-efficacy,
  - d. classroom climate?

2. Are there significant differences from pre- to post-test in the following measures between students in the contemplative practice group and non-contemplative practice group: students' perceived
  - a. FLA,
  - b. positive and negative affect,
  - c. self-efficacy?
3. Are there differences in measures of L2 learning (average exam scores) between students in the contemplative practice group and non-contemplative practice group?
4. What were students' overall perceptions of and experiences with the contemplative practices integrated into the course?

### 3. The study

#### 3.1. Course description

The Advanced Intermediate Spanish course is the last course in the four-course sequence that students may take to fulfill the foreign language requirement at the University of Virginia, Charlottesville, USA. The goal of this course is to support development of intermediate-level proficiency, in speaking, listening, reading, and writing, communicative competence, and cultural competence. To promote these goals, students engage in learning activities that include compositions, a cultural video project, exams, quizzes, a final exam, online homework, and an oral exam. Our department typically offers 22-25 sections each semester with 18 students in each section. Classes meet three days a week for 50 minutes each or two days a week for 75 minutes each and are taught by graduate student instructors and full-time lecturers.

#### 3.2. Research design

This project involved the integration of contemplative practices in our Advanced Intermediate Spanish course with the primary goals of decreased FLA and improved learning. We were also interested in seeing the relationship, if any, between the practices and students' self-efficacy, positive and negative affect, and perceptions of classroom climate. Two instructors, teaching three sections each, integrated contemplative practices into the classroom, and the remaining three instructors did not incorporate these practices. All instructors followed the same syllabus and administered the same course assessments throughout the semester (exams, quizzes, language skill assessments, etc.), and all had comparable teaching experience and qualifications. Throughout this article, the students

who took the course with the teachers who integrated contemplative practices are referred to as *the contemplative group* and students who took the course with a teacher who did not use contemplative practices are referred to as *the non-contemplative group*. The instructors of the contemplative practice group sections led their classes in brief 5-10 minute contemplative practices at the beginning of class time approximately once a week, generally in English; students in the non-contemplative group were not exposed to stress-reduction practices. Students in the contemplative practice group were invited to participate but were not required to do so. A variety of contemplative practices were chosen to expose students to different options that might appeal to different students, and these included:

- Breath meditation
- Loving-kindness practice
- Body scan/body awareness
- Mindful movement/stretching
- Journaling
- Visualization meditation
- Gratitude writing
- Just Worrying labeling technique
- Rest Your Hands
- Vision-setting, goal-setting, intention-setting

### 3.3. Methodology

#### 3.3.1. Sample

The data for this study comes from two semesters of Advanced Intermediate Spanish: Fall 2014 and Spring 2015. The total number of participants in this study was 249 students, enrolled at the University of Virginia. In Fall 2014, the contemplative group consisted of four sections taught by two instructors, for a total of 71 students, while the non-contemplative group had six sections taught by two instructors, for a total of 107 students. In Spring 2015, the contemplative group included two sections, taught by the same two instructors with 36 total students, and the non-contemplative group also had two sections, taught by one instructor, with 35 total students. Both the contemplative and non-contemplative groups followed the same syllabus. The two instructors of the contemplative group were long-time practitioners of contemplative traditions (meditation and yoga). Most students involved in this study had minimal or no prior experience with contemplative practices. Students in these sections were generally between 18-25 years old with the majority taking the course to fulfill a

foreign language requirement. For additional details on students' background and academic characteristics, see Table 1. Placement in Spanish is through the appropriate score on the SAT II Exam or on our online placement exam or through completion of the prior course in the sequence. Many students place directly into this course having taken several years of Spanish in high school.

Table 1 Respondents' background characteristics

Characteristics	Percentage
<b>Gender</b>	
Male	42.7%
Female	56.8%
Transgender	< 1.0%
<b>Race/ethnicity</b>	
White/Caucasian	76.5%
Hispanic or Latino	4.3%
Black/African American	9.4%
Asian/Asian American or Pacific Islander	11.1%
American Indian or other Native American	1.3%
Multiracial	3.4%
Other Race	1.7%
<b>U.S. citizen</b>	
Yes	97.0%
No	3.0%
<b>Average grades in high school</b>	
A's	84.5%
B's	14.6%
C's	0.8%
<b>Years studying Spanish prior to college</b>	
1 year	8.2%
2 years	8.2%
3 years	15.6%
4 years	23.8%
5 or more years*	44.2%
<b>Year at university</b>	
First**	27.8%
Second	38.9%
Third	21.4%
Fourth	12.0%
Fifth	0.0%

*Note.* All questions represented in this table were multiple choice/fixed-response questions.

\*There are significantly more students who took five or more years of Spanish in the contemplative group (contemplative group: 54.9%; non-contemplative group: 35.7%).

\*\*There are significantly more first-year students in the contemplative group (contemplative group: 38.8%; non-contemplative group: 19.1%).

### 3.3.2. Data collection

To answer the first research question, we compared scores of self-reported FLA, positive and negative affect, self-efficacy, and student perceptions of classroom climate at post-test. To answer the second research question, we evaluated changes in self-reported FLA, positive and negative affect, and self-efficacy using pre-tests and post-tests. We used the following instruments in the online questionnaires. *The Foreign Language Classroom Anxiety Scale* (FLCAS) examines students' anxiety related to FL learning with 33 statements evaluating feelings about language learning (Horwitz et al., 1986). *The Positive and Negative Affect Scale* (PANAS) measures self-reported mood on a time scale with a list of 20 emotion words (Watson, Clark, & Tellegan, 1988). *The General Self-Efficacy Scale* (Schwarzer & Jerusalem, 1995) assesses a general sense of perceived self-efficacy using 10 statements to predict coping and adaptation after stressful events. Classroom climate measures (Fassinger, 1995) measure student perception of the classroom climate with 23 statements that evaluate class, student, and teacher traits. All of these instruments have been tested for reliability and consist of composite measures that address each respective instrument. Pre- and post-questionnaires were delivered via an online survey platform called QuestionPro. To answer the third question about learning outcomes, we compared the achievement of students in the contemplative group to those in the non-contemplative group, looking at grades on four chapter exams. Because there is some missing data for either pre- or post-measurements across the groups, the sample sizes vary in the final analysis, since missing data was not imputed given the small size of missing data and randomness of the missing data. To answer the fourth question, we relied on comments from the surveys, and we conducted individual interviews with 14 students after the academic year had ended. To triangulate data, we also used end-of-semester anonymous course evaluations. The next section presents the data analysis.

### 3.3.3. Data analysis

To analyze differences between students in the contemplative and non-contemplative groups (Research questions 1 and 3), we used independent samples *t* tests. Although results are skewed slightly positive, given the ordinal and positive nature of the scale (i.e., going from negative to positive), we would expect that type of distribution. The results of normality tests are displayed in Table 2; these were computed using SPSS Skewness (Skew) and Kurtosis (Kurt) whereby the only variables that exceed a +/-2 threshold are students' grade, students' general efficacy (pre-) and students' perceptions of instructor supportiveness.

For all scaled items (i.e., FLA, positive affect, negative affect, general efficacy, classroom climate), the minimum is 1.0 and the maximum is 5.0. For the contemplative practices, the mean represents the proportion of respondents who indicate that they engage in practices that help reduce stress or anxiety. As for average exam grades, the minimum is 60.7 and the maximum is 98.3. Moreover, the sample size is sufficient for the independent samples *t* test. For the comparisons between pre- and post-measures, conducted for the contemplative and non-contemplative groups separately, we used paired samples *t* test. For both tests, when there were significant differences between the standard deviations among the groups being compared, we report and use the “equal variances not assumed” test statistic.

Prior to analysis, several transformations were made in order to ensure that, for all variables and composite measures, a more positive mean score indicates a better outcome, that is, a higher mean score means less anxiety, more positive affect, less negative affect, more efficacy, or a better classroom environment. The following section presents the results for all research questions.

### 3.4. Results

To answer Research questions 1 and 3 (Are there significant differences between the contemplative and non-contemplative groups across the following measures: average exam grades, FLA, positive and negative affect, self-efficacy, and classroom climate), Table 2 presents the sample size, minimum, maximum, standard deviation, variance, skewness and kurtosis. Then, Table 3 separates most of these statistics by contemplative and non-contemplative group. The last column in Table 3 indicates the test statistic that compares the means of the contemplative and non-contemplative group. We used 10 separate independent samples *t* tests to answer this question; due to this volume we applied the Bonferroni correction by dividing the significance level (.05) by the total number of independent samples *t* tests. That is, significance is evaluated by whether or not the *p* value is less than .005. Thereafter, Table 4 uses a + or - to visually display the significant differences and which group (i.e., contemplative or non-contemplative) had a more positive outcome for the variable (e.g., + would mean less anxiety).

Table 2 Descriptive statistics for variables

Variables	<i>N</i>	Min	Max	<i>M</i>	<i>SD</i>	<i>SEM</i>	Skew	Kurt
Average exam grades	247	60.70	98.31	88.15	6.81	.433	-4.64	39.85
Overall anxiety (FLCAS) (pre)	182	1.13	4.76	2.96	0.71	.052	-0.08	-0.09
Overall anxiety (FLCAS) (post)	210	1.55	4.82	3.32	0.65	.045	-0.33	-0.05
Positive affect (pre)	181	1.00	4.60	3.06	0.76	.056	-0.34	-0.29
Positive affect (post)	210	1.10	5.00	3.00	0.82	.057	0.04	-0.47
Negative affect (pre)	181	1.20	5.00	3.94	0.77	.057	-1.18	1.66

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Negative affect (post)	210	1.00	5.00	3.94	0.79	.055	-1.09	1.15
General efficacy (pre)	180	1.00	4.00	3.12	0.45	.034	-0.49	2.28
General efficacy (post)	209	1.40	4.00	3.20	0.46	.032	-0.44	1.37
Classroom interaction norms	206	2.50	5.00	3.69	0.50	.034	0.02	-0.25
Emotional climate	206	2.25	5.00	3.68	0.62	.043	-0.21	-0.51
Student trait confidence	206	1.71	5.00	3.48	0.72	.050	0.03	-0.49
Instructor approachability	206	1.00	5.00	3.92	0.68	.048	-0.65	1.10
Instructor supportiveness	205	1.00	5.00	4.41	0.66	.046	-1.36	2.96

Table 3 Independent samples *t* tests: differences in key metrics between the contemplative and non-contemplative groups

Metric	Contemplative group				Non-contemplative group				Sig. (2-tailed)	Effect size (Cohen's <i>d</i> )
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SE</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SE</i>		
Average exam grades	107	89.64	5.69	.55	141	86.39	10.38	.62	.002*	0.388
Overall anxiety (FLCAS; post)	95	3.36	.73	.07	115	3.30	.57	.05	.481	0.092
Positive affect (post)	95	3.14	.87	.09	115	2.89	.76	.07	.029	0.306
Negative affect (post)	95	3.81	.83	.09	115	4.06	.74	.07	.023	0.318
General efficacy (post)	94	3.21	.47	.05	115	3.19	.45	.04	.784	0.043
Classroom interaction norms	93	3.79	.48	.05	113	3.60	.49	.05	.005*	0.392
Emotional climate	93	3.82	.62	.06	113	3.57	.60	.06	.004*	0.410
Student trait confidence	93	3.52	.79	.08	113	3.44	.66	.06	.405	0.110
Instructor approachability	93	4.11	.60	.06	113	3.77	.71	.07	.000*	0.517
Instructor supportiveness	92	4.63	.48	.05	113	4.23	.74	.07	.000*	0.641

Note. \**p* < .005

Table 4 Independent samples *t* tests: differences in key metrics between the contemplative and non-contemplative groups with indication of which group had a more positive outcome for a given variable

Metric	Contemplative	Non-contemplative
Average exam grades*		+
Overall anxiety (FLCAS)		
Positive affect		
Negative affect		
General efficacy		
Classroom interaction norms*		+
Emotional climate*		+
Student trait confidence		
Instructor approachability*		+
Instructor supportiveness*		+

Note. \**p* < .005

As seen in Table 4, the contemplative group had significantly higher average exam grades and more positive perceptions of their classroom environment for the following classroom climate measures: classroom interaction norms, emotional climate, instructor approachability, and instructor supportiveness.

In Tables 5-8, we present the results that correspond to Research question 2. Table 5 and Table 7 present the descriptive statistics and results for the paired samples *t* test, and Table 6 and Table 8 highlight and interpret the significance tests. To adjust for the multitude of paired-samples *t* tests, we used the Bonferroni correction for this research question by dividing the desired significance level (.05) by the total number (5) of paired-samples *t* tests used to answer this research question resulting in a desired *p* value of .01. Between the pre- and post-survey, students' anxiety decreased significantly in both the contemplative and non-contemplative groups. Not surprisingly, the contemplative group indicated that they engaged in contemplative practices more frequently at the end of the semester compared to the beginning, whereas the non-contemplative group was not significantly more likely to engage in stress reduction practices. For measures of affect and efficacy, there are no significant differences between the two groups.

Table 5 Non-contemplative group, paired samples *t* tests, pre/post comparisons

Metric	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SE</i>	Sig. (2-tailed)	Effect size (Cohen's <i>d</i> )
Do you engage in any practices that help reduce your stress or anxiety levels? (pre)	87	0.57	0.50	0.053		
Do you engage in any practices that help reduce your stress or anxiety levels? (post)	87	0.67	0.47	0.051	0.059	0.205
Overall anxiety (FLCAS) (pre)	82	2.92	0.63	0.069	0.000*	0.875
Overall anxiety (FLCAS) (post)	82	3.28	0.61	0.067		
Positive affect (pre)	82	2.98	0.71	0.079	0.539	0.068
Positive affect (post)	82	2.92	0.78	0.086		
Negative affect (pre)	82	3.99	0.69	0.076	0.790	0.030
Negative affect (post)	82	4.02	0.75	0.083		
General efficacy (pre)	82	3.06	0.41	0.045	0.029	0.246
General efficacy (post)	82	3.19	0.42	0.047		

Note. \**p* < .01

Table 6 Summary table, non-contemplative group, paired samples *t* tests, pre/post comparisons

Metric	Significance
Do you engage in any practices that help reduce your stress or anxiety levels?	
Overall anxiety (FLCAS)	Less anxiety*
Positive affect	
Negative affect	
General efficacy	

Note. \**p* < .01



Table 7 Contemplative group, paired samples *t* tests, pre/post comparisons

Metric	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SE</i>	Sig. (2-tailed)	Effect size (Cohen's <i>d</i> )
Do you engage in any practices that help reduce your stress or anxiety levels? (pre)	82	0.54	.50	.055	.007*	0.304
Do you engage in any practices that help reduce your stress or anxiety levels? (post)	82	0.71	.46	.051		
Overall anxiety (FLCAS) (pre)	79	3.03	.71	.080	.000*	0.770
Overall anxiety (FLCAS) (post)	79	3.23	.74	.083		
Positive affect (pre)	79	3.13	.77	.087	.820	0.026
Positive affect (post)	79	3.15	.89	.100		
Negative affect (pre)	79	3.93	.81	.091	.043	0.232
Negative affect (post)	79	3.78	.86	.097		
General efficacy (pre)	78	3.14	.47	.053	.091	0.194
General efficacy (post)	78	3.21	.50	.056		

Note. \**p* < .01

Table 8 Summary table, contemplative group, paired samples *t* tests, pre/post comparisons

Metric	Significance
Do you engage in any practices that help reduce your stress or anxiety levels?	More practices*
Overall anxiety (FLCAS)	Less anxiety*
Positive affect	
Negative affect	
General efficacy	

Note. \**p* < .01

To better understand student experiences with and perceptions of the contemplative practices used in class, we examined their responses in the interview data and comments from end-of-the-semester course evaluations. Student reactions to the practices were overwhelmingly positive. They were initially surprised at encountering them in class but quickly adjusted and accepted them as part of the routine: “by the second and third time we did it, it was old news, and everybody . . . got comfortable with it.” One student reflected:

*I did not expect that to happen in a class setting . . . and for the Spanish department to allow time to be taken out of class to do that, I really appreciated that! I thought that showed that they were really, you know, invested in our mental health.*

On average, students who participated in the contemplative practices noted a reduction in stress levels and worry, especially before exams, as well as improved focus and increased energy. Whether the practices helped performance and achievement, students were unsure.

*I don't know . . . I don't think they had like a really direct impact in my learning process. I think it was just kind of a way to release stress and...kind of relax and just prepare. I mean maybe in a sense it can help, because it kind of takes your focus away from stresses and makes you more focused in the class and what you are learning. So I can see that could be like a potential benefit of it. I don't really know if it helped me or not like that but maybe it did, I don't really know.*

One student remarked how the practices functioned as a transition into the lesson, *"because you are kind of resetting, like going from English and then calm down and then go to Spanish. So it was kind of like a nice barrier, break right in between the two languages."* Overall, the contemplative practices helped to establish a comfortable classroom climate, with positive interactions, respect, and appreciation.

*I definitely think that taking a moment collectively to be mindful had an effect on the way that we interact with each other, the atmosphere of the class . . . sort of broke everything down and created a moment of peace before continuing. It definitely has an effect on how you treat other people, the way everyone interacts and the process of class work . . . as a student it was a good exercise to being more attentive, maybe interactive . . . at least appreciative of the class.*

For another student, the practices *"did add that feeling of feeling comfortable in the classroom that I would say helped in general with the class."* Students also responded positively to the teachers of the contemplative groups, perceiving them as caring and supportive and, with one teacher, *"I think . . . by her being calm and just open to contemplative practices like offering it made us a little more calm too in that class."* A comment from the course evaluations stated that the practices *"showed that the teacher really cared about our stress levels and wanted us to do the best we could do."*

Another interesting finding from the interviews was the connection made by students between the contemplative practices used in class and their own religious practices. One student, who had attended a Catholic high school, had experience with using prayer, meditation, and reflection in class before, and for her

*this is another take on the same idea of sort of taking a break, pausing and . . . being quiet and reflective for a moment before . . . I feel the same objective is being is trying to be met with the mindfulness and the deep breathing . . . Sort of just things that again disconnect you from the chaos of everyday . . . allow you to you know to sort of put things in proper places and take a deep breath.*

This student recognized also that there are other ways to practice self-care—exercise or taking a walk—that may lead to the same end. Another student saw a link between her religious life and the contemplative practices used in class,

especially compassion exercises where you think of another person and “*give them kind thoughts,*” and “*taking a moment to . . . think about greater things*” is something they have in common. In a comment from course evaluations, another student remarked that he had attended a Quaker school “*where we practice a moment of meditation before each class and I fully believe that meditating before class allows you to refocus yourself on the present subject.*”

While the majority of student experiences and perceptions were positive, the contemplative practices received a more lukewarm reception from others who thought that they were interesting and relaxing but did not deem them necessary. On the course evaluations, one student shared: “*I did not benefit from these techniques. They seemed out of place in the classroom and I was not a fan.*” For some, doing a contemplative practice right before an exam took valuable time away from the exam. In the interviews, one student remarked that the practices had “*nothing to do with Spanish*” and were “*taking up class*” but still found them “*kind of relaxing.*”

We also wanted to understand whether students used the practices beyond the confines of the class. For one student, a practice called Just Worrying—where one labels thoughts as “*just worrying*” and then returns to present moment awareness—resonated for her:

*I thought about the one—worrying—a couple of times throughout the rest of the semester when I was walking somewhere and tons of things were going on and I was like: it will get done! Like, this is just worrying! It always gets done!*

The breath practices were also used, especially before exams: “*When I am getting stressed, I just sit there, take a second, close my eyes and just breathe for a minute.*” In the course evaluations, a student shared: “*I have begun to do breathing exercises before starting big assignments because it helps to focus. A few minutes of relaxation seems to lead to productivity.*” Another student remarked: “*I’ve incorporated the breathing and stretching techniques outside of class time because I’ve found that those techniques have especially helped me de-stress, and I will continue to practice these techniques.*” This is also reflected in the survey data, where students in the contemplative group were significantly more likely to engage in stress reduction practices at the end of the semester as compared to the beginning. When asked what recommendations students had regarding the future implementation of these practices in our Spanish courses, the most common remark was that we should integrate them more frequently, more regularly, making it a part of the class routine instead of something that happened spontaneously. One student suggested that we explain in class why these practices are beneficial.

### 3.5. Discussion

The purpose of this study was to examine the impact of contemplative practices integrated into a foreign language course. Specifically, we were interested in whether the practices would have an effect on FLA, positive and negative affect, self-efficacy, classroom climate, and learning outcomes as well as how students perceived and experienced the contemplative practices used in class. While there was a significant decrease in FLA from pre- to post-test among students in both the non-contemplative and contemplative groups, there was no significant difference in FLA between groups at the end of the semester. We had expected that the integration of contemplative practices would have a significant impact on student anxiety, as had been reported in other studies on FLA (Franco et al., 2010; Schlesiger, 1995) and in numerous studies demonstrating the positive effects of mindfulness on stress and anxiety (e.g., Bamber & Schneider, 2016; Conley et al., 2013). While the students interviewed did perceive a direct impact on their stress and worry, perhaps the small “dosage” of practices was not sufficient to impact levels of FLA. In addition, the timing of survey administration at the end of the semester may have failed to measure potential effects in the quantitative data.

Another important result of this study is that students in the contemplative group demonstrated significantly higher average exam grades compared to students in the non-contemplative group. This finding aligns with many studies reporting the positive effects of contemplative practices on student learning (Arnold, 2011; Franco et al., 2010; Ramsburg & Youmans, 2014; Schlesiger, 1995) but contrasts with results of a prior study (Yamada & Victor, 2012) that found no improvements in student grades. Previous research (e.g., Hjeltnes et al., 2015; Jha et al., 2007; Zeidan et al., 2010) has shown that contemplative practices enhance focus, attention, concentration, and processing, resulting in improved learning and performance. In the interview data, many students reported experiencing decreased levels of stress and worry and an increased ability to focus on learning and testing after having participated in the contemplative practices. There were no significant differences in levels of self-efficacy between the contemplative and non-contemplative groups at the end of the semester or from pre- to post-test. The lack of increased self-efficacy in the contemplative group would suggest no link between self-efficacy and FLA or achievement, which runs counter to some prior research pointing to a positive relationship between self-efficacy and learning outcomes and a negative relationship between self-efficacy and FLA (Raofi et al., 2012).

Finally, the results of measures of classroom climate at the end of the semester show significantly higher scores in the contemplative group as compared to the non-contemplative group in classroom interaction norms, emotional climate,

instructor approachability, and instructor supportiveness. This suggests that the use of contemplative practices in class is related to students' perception of a positive classroom climate, but further research is needed to understand if there is a causal connection between these factors. In the qualitative data, students in the contemplative groups perceived their teachers to be caring and supportive, and many experienced the class community to be close-knit. Research suggests that a positive classroom climate may have a positive impact on student motivation and learning (e.g., Noels et al., 1999).

Despite the favorable results of this study, it is not free from limitations. Primarily, the design is not a true experiment since the instructors teaching the contemplative group did not teach the non-contemplative groups and vice-versa. Second, most of the data is based on self-report and students' perceptions, and timing of the administration of the survey instruments at the end of the semester may have affected results of the post-survey measures. In addition, while student learning outcomes were higher in the contemplative group as compared to the non-contemplative group, we cannot be certain whether the contemplative practices and/or other factors generated that result. For example, although overall prior aptitude is non-significant between groups, further analysis may control for students' prior aptitude and other student background characteristics such as prior language experience and other demographic variables. Finally, as with many studies, this is a single-institution study with a small sample size and therefore the results cannot be generalized to all contexts of second and foreign language courses or all learner populations.

#### 4. Conclusion

Negative affective states like FLA can have a significant adverse effect on student achievement, performance, and self-concept in our courses. Contemplative interventions like mindfulness may reduce negative affect, like stress and anxiety, promote positive affect, and enhance focus and attention in learning contexts. Results of the current study suggest that the integration of contemplative practices in a foreign language course may positively affect learning by addressing student stress, enhancing attention and focus in class, and promoting a comfortable and supportive classroom climate. This study points to several implications for FL teaching. The first is to address student emotion in the classroom by incorporating activities that promote positive emotion as well as those that reduce negative affect like stress and anxiety; examples might include activities that spark creativity, imagination, and self-direction, like group projects, guided imagery, and imagining future L2 selves (Dewaele & MacIntyre, 2014; Gregersen & MacIntyre, 2014; MacIntyre & Gregersen, 2012a). Second, teachers should

aim to establish a caring, supportive classroom climate with positive teacher-student and student-student relationships and teacher support and approachability. To better measure the potential impact of such interventions on FLA, future studies might integrate longer “doses” of contemplative practices (longer practices, and/or more frequency) and consider examining the long-term effect on students across the sequence of FL courses or throughout their undergraduate careers. Future research might also investigate the potential for contemplative practices to promote positive emotion, and what role that may have on language learning.

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