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The anxiety-proficiency relationship and the stability of anxiety: The case of Chinese university learners of English and Japanese

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Abstract

Adopting a longitudinal design, this study investigates the effects of foreign language anxiety on foreign language proficiency over time within English and Japanese learning contexts. It also explores the stability of anxiety in English and Japanese over time and the stability of anxiety across English and Japanese. Chinese university students (*N* = 146), who were simultaneously learning Japanese and English, participated in this study. Data were collected twice over a 2-month interval, using the Foreign Language Classroom Anxiety Scale, the English Proficiency Scale, and the Japanese Proficiency Scale. Results showed that anxiety changes had a significantly negative, but weak, correlation with the development of overall proficiency and the proficiency in subskills such as reading or speaking, for both English and Japanese, suggesting the interference of anxiety with proficiency levels. Anxiety in Japanese tended to decrease significantly over time, but no significant change was found for

English. Furthermore, no significant difference between anxiety in Japanese and English was found at either testing time.

Keywords: foreign language anxiety, foreign language proficiency, stability, Chinese university students, longitudinal study

1. Introduction

Foreign language (FL) anxiety is a frequently examined affective variable in FL learners. It refers to "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). One issue that has received abundant attention is the effect of FL anxiety on FL learning. It is now widely accepted that FL anxiety can interfere with FL learning (e.g., Horwitz, 2001; Woodrow, 2006). Nevertheless, several issues related to such interference deserve more attention and clarification. For one, the construct of FL anxiety would benefit from a better understanding of the mechanisms through which FL anxiety affects FL learning. Previous studies in relation to FL anxiety are almost exclusively cross-sectional, making it hard to assess the effects of FL anxiety on FL proficiency over time.

Indeed, the stability of FL anxiety over time has been almost completely ignored in past work. As for the stability of anxiety across FLs, the available research focuses almost exclusively on European multilingual contexts, although there are a few studies addressing a non-European FL learning context. Furthermore, some existing research shows methodological problems. For one, in Saito, Horwitz, and Garza (1999), American students learning Japanese, French, or Russian as FLs were recruited from different years. Moreover, all FL courses were required for some students but were elective for others. Because of this high degree of variability, a comparison of the anxiety levels in Japanese, French, and Russian cannot directly answer the question of whether FL anxiety varies across FLs.

In the present study, 146 Chinese university students' anxiety in English and Japanese was tested twice, over a 2-month interval. At each of the time points, the students' English and Japanese proficiency was assessed as well. The relationships between FL anxiety changes and the development of overall proficiency and specific skills were examined in English and Japanese learning contexts. Comparisons between anxiety in English and Japanese were performed at each time point and across-time comparisons were done for both.

2. Literature review

2.1. The effects of FL anxiety on FL learning

Studies on the effects of FL anxiety on FL learning generally fall in one of two categories (MacIntyre & Gardner, 1994). Studies in Category 1 explore the effects of FL anxiety using broad-based indices of FL learning, such as course grades, standardized proficiency tests, and self-evaluations of proficiency. Research across varying instructional contexts and target languages has shown a negative correlation between anxiety and these achievement indicators (e.g., Aida, 1994; Cheng, Horwitz, & Schallert, 1999; Hewitt & Stephenson, 2012; Horwitz, 1986; Liu & Jackson, 2008; Saito & Samimy, 1996; Trylong, 1987).

Studies in the second category typically address the effects of FL anxiety on subtle aspects of FL learning. Steinberg and Horwitz (1986) found that anxious students provided less interpretative content than their more relaxed counterparts when orally describing stimulus pictures in a second language. MacIntyre and Gardner (1994) explored the potential effects of anxiety on three stages of FL learning: input, processing, and output. Students recruited from a monolingual (English) Canadian university (N = 97), who were learning French as a second language, participated in the study. Three 6-item scales were developed to measure the anxiety experienced at the three stages of learning French. Three tasks assessed the performance at each stage. Significant correlations were obtained between stage-specific anxiety and tasks. For one, translation accuracy showed a significantly negative correlation with processing anxiety. In another one of Category 2 studies, Sellers (2000) probed the anxiety-reading relationship on the basis of 89 American university students of Spanish. Results showed that FL reading anxiety or general FL anxiety had a significant main effect on the number of pausal units recalled (Sellers defined a pausal unit as "one that has a pause at each end during normally paced oral reading" [p. 514]). Students with high reading anxiety were found to recall fewer units representing the central ideas of a passage, whereas those with high general anxiety recalled fewer units representing ideas of mid-level importance. In addition, irrespective of anxiety type, highly anxious individuals tended to experience more cognitive interference than their less anxious peers.

The aforementioned findings endorse a widely accepted proposition that FL anxiety can impair FL learning (e.g., Horwitz, 2001; MacIntyre & Gardner, 1994; Woodrow, 2006). Nonetheless, this viewpoint is not without dispute. Illustrating the linguistic coding differences hypothesis (LCDH), Sparks and Ganschow, sometimes with others (Sparks & Ganschow, 1991, 1993a, 1993b, 1995; Sparks, Ganschow, & Javorsky, 2000; Sparks, Ganschow, & Pohlman, 1989;

Sparks, Patton, Ganschow, & Humbach, 2006), argued that phonological, syntactic, and/or semantic coding deficits in native language learning accounted for poor FL achievements. Among all deficits, the impact of phonological coding deficits is most pervasive and important. FL anxiety is then seen as a mere consequence of FL learning difficulties. Responding to the LCDH, MacIntyre (1995) described how language anxiety as a social anxiety construct cognitively interfered with FL learning tasks. That is, as best elaborated by Eysenck (1979), "highly anxious subjects are effectively in a dual-task or divided attention situation, in contrast to non-anxious subjects who primarily process task-relevant information" (p. 364). MacIntyre (1995) also emphasized that anxiety arousal could affect learning activities such as short- and long-term memory and functional use of vocabulary items, citing the correlational or experimental studies that exist. The LCDH is incomplete because it "[assigns] mere epiphenomenal status to affective variables in general and language anxiety in particular" (MacIntyre, 1995, p. 90). Horwitz (2000) also responded to the LCDH and argued that FL anxiety could be independent of processing deficits and still interfere with FL learning.

A good deal of evidence has pointed to the negative influences of FL anxiety on FL learning, so in any event FL anxiety should not be excluded from the constellation of causal variables of deficient FL learning. After all, "the potential of anxiety to interfere with learning and performance is one of the most accepted phenomena in psychology and education" (Horwitz, 2000, p. 256). Yet several issues related to the interference need clarification, for example, the precise mechanisms of FL anxiety affecting FL learning (Horwitz & Young, 1991). Another challenge is "to determine the extent to which anxiety is a cause rather than a result of poor language learning" (Horwitz, 2001, p. 118). Furthermore, the effects of FL anxiety on FL proficiency should be studied as a function of time as previous work in this area has been almost exclusively cross-sectional.

2.2. The stability of FL anxiety

The stability of FL anxiety can be approached from two perspectives: stability over time and stability across target languages. Inspired by a distinction of synchronic and diachronic linguistics, the present authors conceptualize the stability of anxiety over time as diachronic stability and that across FLs as synchronic stability.[1]

[1] For us, diachronic and synchronic stability refer to whether there is a significant change in FL anxiety among a group of learners over a given time span, or whether two or more FL anxieties in the same group of learners significantly differ. We focus on the variability tendency of anxiety in a population from which samples were taken, for three reasons. First, the conclusions regarding the stability of FL anxiety in previous studies were almost uniformly based on inferential tests for group comparisons. A focus on significance testing enables a

To our knowledge, the diachronic stability of FL anxiety has been underresearched until now. In an early study, Gardner, Smythe, and Clément (1979) found that French classroom anxiety significantly decreased after 6 and 5 weeks for Canadian and American students, respectively. It should be noted that the participants in Gardner et al. (1979) attended an intensive FL program highly similar to immersion. Therefore, the results cannot be generalized to more regular classroom situations where the input is less intensive. More recently, Liu, Liu, and Su's (2010) study of 934 1st-year Chinese students from three universities reported significant decreases in the scores of the full adapted Foreign Language Classroom Anxiety Scale (FLCAS) (Horwitz et al., 1986) and of two factors: low self-confidence in speaking English and general English classroom performance anxiety, over a period of one semester. However, the profiles of diachronic anxiety differed between female and male subjects and were quite different among three universities. Females showed significant decreases in the scores of the full anxiety scale and the two factors, but males' anxiety levels significantly decreased only for the factor of low self-confidence in speaking English. The results of paired samples *t* tests for two of the three universities replicated the findings for males and females. Significance levels were not attested for the third university. It should be noted that anxiety levels do not always naturally decrease as a function of time. Samimy and Tabuse (1992), for instance, reported a significant increase in the level of discomfort experienced within the Japanese classroom among 39 university students from the spring to the autumn quarter. Furthermore, in a recent study, Jee (2014) reported a significant increase in the scores of the full FLCAS and one of the FLCAS factors, that is, communication apprehension, from the first to the second semester among 12 Korean FL students.

Saito et al.'s (1999) study is the first to look into the synchronic stability of FL anxiety (Rodríguez & Abreu, 2003). In their study, 383 American students learning French, Japanese, or Russian completed the FLCAS (Horwitz et al., 1986) and the Foreign Language Reading Anxiety Scale (Saito et al., 1999). Results showed that reading anxiety significantly fluctuated depending on the target languages, but general FL anxiety did not. It should be noted that the participants came from different grades (e.g., freshmen and sophomores). Foreign

comparison with previous studies. Second, data at the level of individuals tend to be chaotic, and this means that it is difficult to draw a conclusion. For instance, the present participants showed an increase, decrease, or no change in anxiety levels in English across surveys. Some students showed more of an increase than others. Third, pedagogical decisions are more frequently made on the basis of evaluating the general characteristics of learners within an institution, such as a class or a school. The results of significance tests can provide such information. Therefore, a focus on significance testing is pedagogically meaningful.

language courses were required for some students but were elective for others. This high degree of variability thus obscures the findings (Sparks et al., 2000).

Rodríguez and Abreu (2003) compared the anxiety experienced by 110 Venezuelan students in English and French classes. These students with various proficiencies in the two languages came from two Venezuelan universities. Their anxiety levels in English and French were not found to significantly differ. Kim (2009) criticized Rodríguez and Abreu's (2003) study for ignoring contextual factors that contributed to learners' anxiety and subsequently compared 59 Korean college students' anxiety in English reading and conversation courses. The results showed that learners experienced significantly higher anxiety in the conversation course. Rodríguez (2010) responded to Kim's criticism by clarifying that Rodríguez and Abreu (2003) took contextual factors into account, because the participants were recruited from two schools and were studying two FLs, and furthermore identified deficiencies in Kim (2009). For example, what Kim claimed, that is, that her study paid attention to cross-cultural differences in FL instruction, conflicted with the fact that her subjects were taking two English courses at the same college. Moreover, Kim omitted some relevant information in the results section, such as homogeneity of regression slopes and effect size. As can be seen, studies of synchronic changes in anxiety levels have provoked many debates between researchers.

In a more recent investigation, Piniel (2006) examined FL anxiety in 61 9th-year secondary school students at a grammar school in Hungary. The students were learning two FLs. The one that had been learnt in elementary school was the students' first FL according to the school's curriculum. The FL that started being learnt after enrollment in secondary school was labeled the second FL. In the first FL category, there were English and German. Languages in the second FL category included French, German, Italian, and English. Students' anxiety in the first and second FL was assessed through the FLCAS and compared. Results showed that learning the first and second FL rendered significant effects on the anxiety levels.

Much work in this area has also been done by Dewaele and his colleagues (Dewaele, 2002, 2007a, 2007b, 2013; Dewaele, Petrides, & Furnham, 2008). The 2002 and 2007a studies found that pupils in the last year of their secondary school, who were either mostly (2002 study) or all (2007a study) native speakers of Dutch, showed a significantly higher communicative anxiety in French than in English. In a follow-up study (Dewaele, 2007b), university students (35 bilinguals, 33 trilinguals, and 38 quadrilinguals) were targeted. Participants had learned their FLs either in instructional settings or under naturalistic conditions. According to the order of acquisition, the languages known by the students were labelled L1, L2, L3, and L4, although the actual languages were very diverse.

Communicative anxiety in the L1, L2, L3, and L4 was measured in three situations, that is, speaking with friends, with strangers, and in public. Paired samples *t* tests revealed that speaking anxiety gradually significantly increased from L1 to L4 in the three situations (with the exception of nonsignificant differences between anxiety in the L3 and L4 when speaking with friends and strangers). Dewaele, Petrides, and Furnham's (2008) study also pertains to speaking anxiety of multilingual adults across situations where the participants use the known languages to talk with friends, colleagues, and strangers, on the phone and in public. Similar to the findings in Dewaele (2007b), a significant increase in anxiety levels in the language learnt later was identified. An explanation for the gradually higher speaking anxiety is that the participants may be more proficient in the languages learnt earlier, as noted by Dewaele (2007b). In a recent study by Dewaele (2013), the FLCAS was filled out by 86 and 62 university students from London and Mallorca, respectively, who were bilinguals, trilinguals, or quadrilinguals. Simple correlation analyses suggested that the FLCAS scores in L2, L3, and L4 were highly related for both the London and Mallorca groups. Interpreting these findings, Dewaele (2013) contended that "strong correlations between FLCA [foreign language classroom anxiety] values in L2, L3, and L4 suggest that levels of FLCA are relatively stable across the foreign languages known by the learners/users" (p. 670).

Dewaele and his colleagues' studies are important in more ways than one. For one, they compared the anxiety level in the L1 with those of multiple FLs. The result that all FL anxiety was significantly greater than L1 anxiety further substantiated the overwhelming task that is FL learning. Moreover, their studies are the first ones to compare anxiety levels in more than two FLs, which is methodologically inspiring. The finding that anxiety gradually became more intense in the order of acquisition of FLs is pedagogically meaningful. It means that instructors who are teaching a FL that is relatively new to learners should pay more attention to the affective state of their students and make more efforts to lessen students' anxiety.

To sum up, research into the stability of FL anxiety is only in its infancy, especially for diachronic stability. Longitudinal studies in relation to FL anxiety are rare. William's (1991) suggestion that "a long-term study that would allow an evaluation of the students' foreign-language classroom anxiety and their progress in the target language would be a very good one" (p. 26) has not been met by empirical studies. Garrett and Young (2009) pointed out that previous longitudinal research solely focused on learners' development of linguistic ability or communicative competence in the target language. Hence, the dearth of research into anxiety over time partly roots in a traditional neglect of changes of learners' inner feelings. Not many studies have been conducted to look at

the synchronic changes of FL anxiety either, however, and the existing research shows methodological shortcomings. The focus of the majority of past work related to synchronic stability has furthermore been on European FL learning contexts. No study has compared Asian learners' anxiety for multiple FLs.

We designed a longitudinal study involving two surveys at two different time points within the context of learning English and Japanese in Chinese universities. At the two time points, English and Japanese proficiency was assessed using self-reports. Anxiety in English and Japanese was measured using Horwitz et al.'s (1986) FLCAS. The interconnections of the changes in FL anxiety intensity with the development of overall proficiency and four specific skills were investigated in the two learning contexts. Between-surveys comparisons in and within-survey comparisons between anxiety in English and Japanese were conducted. The aim of the study was to answer the following research questions (RQs):

1. Can changes in FL anxiety intensity affect the development of overall FL proficiency?
2. Can changes in FL anxiety intensity affect the development of FL subskills, namely listening, speaking, reading, and writing?
3. Is anxiety in Japanese and English stable over time (diachronic stability)? Does anxiety in English and Japanese differ in terms of the stability over time?
4. Is FL anxiety stable across English and Japanese (synchronic stability)?

3. Methodology

3.1. Participants

The participants were 146 Chinese students of Japanese in the first year of their studies, who were also studying English. They were recruited from six Japanese classes at three universities in China, which are representative of a large number of universities in this country. Two universities were located in Henan Province in the central part of China and one in Shandong Province in East China. All the students were taking more than one Japanese course and Japanese teachers were not always the same for different classes at the same school. However, the participants at the same university were taking one compulsory English course as a group. Hence, the 146 students were sampled from three English classes, and furthermore consisted of 21 males and 125 females, with ages ranging from 17 to 23 (M = 19.57, SD = 1.00). In addition, generally speaking, the students came from less developed places and their parents had not received much education. They had studied English for 4.5 to 13.5 years (M = 9.05, SD = 1.88) until the Time 1 survey and almost all the students (n = 145) started learning Japanese after university enrollment (M = 0.52, SD = .29).

3.2. Instruments

In addition to the Demographic Information Questionnaire (DIQ) used to collect the participants' name, age, gender, home location (village, township, county, prefecture city or above), parental education (primary school, junior school, senior school, college), duration of English and Japanese learning, three other questionnaires were used, including the FLCAS (Horwitz et al., 1986), the English Proficiency Scale (EPS), and the Japanese Proficiency Scale (JPS). The DIQ, the EPS, and the JPS were constructed in Chinese by the current authors. The FLCAS, which is originally in English, was translated into Chinese.

The FLCAS contains 33 items that all follow a 5-point Likert format. Responses range from *strongly disagree* to *strongly agree*. The lower and upper boundary for the possible FLCAS scores is 33 and 165, respectively. Higher scores indicate more intense FL anxiety. In this study, the FLCAS was used to assess anxiety in Japanese and English. Therefore, *foreign language* in the FLCAS was altered to *Japanese* and *English*, which led to the creation of the English Classroom Anxiety Scale (ECAS) and the Japanese Classroom Anxiety Scale (JCAS), respectively. Two exemplar items from the ECAS and the JCAS are: "I tremble when I know that I'm going to be called on in English class" and "I don't feel pressure to prepare very well for Japanese class."

The EPS and the JPS are self-report instruments of English and Japanese proficiency. Both have four subscales pertaining to listening, speaking, reading, and writing proficiency. Each subscale consists of five items in a 4-point Likert format. In total, there are 20 items in both the EPS and the JPS. Responses range from *probably impossible* to *easy*. The minimum obtainable score on both the EPS and the JPS is 20 and the maximum is 80, with higher scores representing higher levels of English and Japanese proficiency. Two sample items from the EPS and the JPS are: "I can be relatively fluent in answering teachers' questions related to text contents in Japanese" and "I can compose letters, notifications, or invitation letters in English on immediate needs." The two scales were constructed following different Chinese national standards, which clearly spell out requirements for students' English and Japanese proficiency in four subskills: the *Curriculum Standard for Senior High School English (Experimental)* (MOE, 2003) for the EPS and the *Curriculum Standard for Japanese Majors at Elementary Level in Higher Education* (MOE, 2001) for the JPS. The EPS is a measure of intermediate level of English. The JPS is a test of elementary level of Japanese. As the two scales were newly developed, their effectiveness in measuring English and Japanese proficiency was validated in a pilot study by correlating students' self-reports and teachers' ratings of students' listening, speaking, reading, and writing proficiency. The validation process is introduced in the procedures section. Teachers' ratings were given in a 5-point Likert format.

Responses ranged from *poor* to *excellent*. The score range resulting from this teacher instrument was between 4 (minimum) and 20 (maximum). The results of this validation are reported below, together with the reliability levels.

3.3. Procedures

Data collection followed three steps. Step 1 was a pilot study, which was carried out during regular class hours, following the same procedures as outlined below for the full surveys and which itself consisted of two parts. In Part 1 of the pilot study, two intact Japanese classes with 41 students in total were tested at a university in Shaan'xi Province in West China. The students were freshmen majoring in Japanese and were taking a compulsory English course, similar to those in the two full surveys at different time points. Class 1 was tested first. Based on the results for Class 1, all scales were revised and the resulting scales were tested in Class 2. Because the JCAS and the ECAS are identical except for the wording of *Japanese* or *English*, the pilot study for anxiety scales was only conducted for the JCAS. In Part 2 of the pilot study, the EPS and the JPS, which had already demonstrated adequate internal reliability in Part 1, were administered to a class of 27 students at another university in Shandong Province in East China, which is more on a par with the three universities where the 146 participants were recruited than the Shaan'xi university in Part 1. Teachers' ratings were also collected for these 27 students to validate whether the two scales effectively assessed English and Japanese proficiency. There were 26 valid self-reports for each scale. In short, the results of the pilot study (internal reliability) reported in the results section were based on Class 2 in Part 1 for the JCAS, the EPS, and the JPS. The effectiveness of the EPS and the JPS in measuring proficiency was validated by correlating the 26 self-evaluations and teacher's ratings.

Step 2 of this study's design involved two full repeated surveys conducted with a 2-month interval on the 146 participants in an out-of-class session with no teacher present. At either time point, all participants attending the same university filled out the full questionnaire at the same time in a classroom. At Time 1, research purposes were only partly explained to students before they set to complete the questionnaires, to avoid a situation where the subjects would give answers anticipating the researcher's predisposition. The students were informed that their participation was voluntary and that the survey had no effects on their course grades. All participants were expected to give their genuine views independently. Following the instructions, the full set of questionnaires was administered. The questionnaires were arranged in the following order: the DIQ, the JPS, the EPS, the JCAS, and the ECAS. The Time 2 survey followed the same procedure, except that the DIQ was left out and instructions

were shortened. Questionnaires were immediately and carefully checked after being collected to ensure that no items were left unanswered. In instances where missing items were found, those subjects were traced to complete the missing questions. The third step of the study's design was data registration. Questionnaires were numbered and responses registered for further analyses.

3.4. Data analysis

For RQs 1 and 2, the differences in anxiety in Japanese/English and in Japanese/English proficiency were computed, by subtracting the Time 1 scores from the Time 2 scores. The differences in anxiety and proficiency were subsequently correlated. The diachronic and synchronic stability of FL anxiety (RQs 3 and 4) was investigated by using inferential statistics: paired samples *t* test or the Wilcoxon signed rank test, depending on the results of assumption testing.

4. Results

4.1. Reliability estimates of the scales

The JCAS achieved an internal reliability of .95 (Cronbach's alpha) in the pilot study. At two time points, internal reliability was .93 and .94 for the JCAS, and .92 (twice) for the ECAS. The results for the FLCAS obtained from this sample are comparable with those of other studies, for example, .93 in Horwitz (1986) and .94 in Aida (1994). The test-retest reliability was .81 for the JCAS and .72 for the ECAS in the current study. Horwitz (1986) obtained a test-retest coefficient of .83 on 78 samples over an 8-week interval.

The internal and external reliability coefficients of the EPS and the JPS are reported in Table 1. As shown, all reliability coefficients were adequate. The results of the validation process were also satisfactory. The correlation of students' self-evaluations and teacher's ratings was .71 for Japanese proficiency and .63 for English proficiency, suggesting that the two scales can effectively measure language proficiency.

Table 1 Reliability levels of the EPS and the JPS (*N* = 146)

Measure	Internal reliability (α)						Test-retest reliability (*r*)	
	EPS^{PL}	EPS^{1}	EPS^{2}	JPS^{PL}	JPS^{1}	JPS^{2}	EPS	JPS
Listening subscale	.86	.79	.78	.76	.76	.80	.59**	.63**
Speaking subscale	.90	.83	.83	.69	.79	.79	.64**	.57**
Reading subscale	.86	.72	.73	.77	.80	.75	.60**	.57**
Writing subscale	.82	.84	.83	.79	.83	.81	.59**	.62**
Overall scale	.95	.92	.92	.91	.92	.92	.68**	.68**

Note. ^{PL} = pilot study; ^{1} = the Time 1 survey; ^{2} = the Time 2 survey; ** $p < .01$

4.2. The anxiety-proficiency relationship (RQs 1 and 2)

In Table 2, the descriptive results of self-assessment of English and Japanese proficiency, and anxiety in the two FLs are reported for the Time 1 and Time 2 surveys, including mean scores and standard deviations. FL anxiety changes over two months were calculated using the Time 2 FLCAS scores minus the Time 1 scores. In the same manner, the between-surveys differences in overall proficiency and the proficiency of subskills were obtained. Anxiety changes were then correlated with the differences in the overall and specific proficiency after checking the linear relationship in scatterplots[2]. The results are reported in Tables 3 and 4.

Table 2 Means (and standard deviations) of language proficiency and anxiety (N = 146)

Measurements	Time 1	Time 2
Anxiety in English	91.46 (17.54)	91.60 (16.26)
Anxiety in Japanese	94.23 (18.41)	91.58 (18.34)
English listening proficiency	17.44 (2.34)	17.62 (2.07)
English speaking proficiency	15.15 (3.19)	15.18 (2.92)
English reading proficiency	16.86 (2.43)	17.13 (2.27)
English writing proficiency	17.00 (2.58)	17.00 (2.60)
Overall English proficiency	66.45 (8.96)	66.93 (8.28)
Japanese listening proficiency	15.79 (2.63)	16.51 (2.45)
Japanese speaking proficiency	14.69 (3.02)	15.09 (2.83)
Japanese reading proficiency	15.52 (2.92)	16.05 (2.63)
Japanese writing proficiency	15.09 (3.30)	15.59 (2.94)
Overall Japanese proficiency	61.08 (9.94)	63.23 (9.33)

As shown in Tables 3 and 4, the correlations of anxiety in English with the overall and specific English proficiency were all significantly negative. Correlation coefficients ranged from -.20 to -.38, indicating 4% to 14.4% variance shared by the variables of anxiety and proficiency. The changes of anxiety in Japanese were also significantly negatively associated with the development of overall Japanese proficiency and the specific skills. Correlations ranged from -.25 to -.38 (6.3% to 14.4% shared variance). A small index of shared variance in both cases indicated a weaker relation between the changes of FL anxiety and the development of overall FL proficiency or the specific skills. In addition, a positive correlation was found between the changes of anxiety in English and Japanese, suggesting that the decrease or increase of anxiety in English can lead to a similar

[2] In this study, we investigated the diachronic and synchronic stability of anxiety on the basis of individual universities. To be consistent in the way of using data, we also correlated the Time 2-Time 1 differences of anxiety in English/Japanese with those of overall proficiency and proficiency in the subskills in English/Japanese for each university. A negative relationship between anxiety and overall proficiency or proficiency in the four subskills was found.

change of anxiety in Japanese, and vice versa. The four specific skills were also positively correlated with each other in English and Japanese learning contexts.

Table 3 Correlations between FL anxiety and overall proficiency (*N* = 146)

	AJ-C	AE-C	JP-D	EP-D
AJ-C	1.00			
AE-C	.43***	1.00		
JP-D	-.38***	-.36***	1.00	
EP-D	-.41***	-.38***	.59***	1.00

Note. AJ-C = change of anxiety in Japanese; AE-C = change of anxiety in English; JP-D = Japanese proficiency development; EP-D = English proficiency development; ***p < .001

Table 4 Correlations between FL anxiety and specific skills (*N* = 146)

	Anxiety and proficiency in English					Anxiety and proficiency in Japanese				
	AC	LD	SD	RD	WD	AC	LD	SD	RD	WD
AC	1.00					1.00				
LD	-.30***	1.00				-.33***	1.00			
SD	-.29***	.58***	1.00			-.29***	.47***	1.00		
RD	-.36***	.48***	.43***	1.00		-.25**	.39***	.51***	1.00	
WD	-.20*	.39***	.40***	.34***	1.00	-.29***	.27**	.34***	.51***	1.00

Note. AC = anxiety change; LD, SD, RD, and WD = listening, speaking, reading, and writing development; *p < .05; **p < .01; ***p < .001

4.3. The stability of FL anxiety (RQs 3 and 4)

The stability of anxiety was explored based on the full sample and separately for the individual universities. Before that, the JCAS and the ECAS scores were compared across classes (six Japanese classes and three English classes, as indicated in the methodology section) at each time point. The Kruskal-Wallis test was used for anxiety in Japanese and a one-way analysis of variance (ANOVA) for anxiety in English, after checking normality and homogeneity of variances. Results indicated that anxiety in Japanese did not significantly differ across the six classes: $x^2(5, n = 146) = 4.12$, $p = .52$ at Time 1 and $x^2(5, n = 146) = 3.89$, $p = .57$ at Time 2. Likewise, significance levels were not identified for anxiety in English across the three classes: $F(2, 143) = 0.30$, $p = .74$ (Time 1) and $F(2, 143) = 0.41$, $p = .66$ (Time 2). Hence, being in different classes did not significantly influence FL anxiety. The participants were thus found to stem from the same population in terms of anxiety in English or Japanese, which warrants amalgamating classes as a larger sample.

4.3.1. The diachronic stability using the full sample

As shown in Table 2, anxiety in Japanese gradually decreased from Time 1 to Time 2, but anxiety in English stayed virtually the same. Paired samples *t* tests

confirmed that there was a significant decrease in anxiety level in Japanese from Time 1 to Time 2, with $t(145) = 2.81$, $p < .05$ and $d = .23$; and that the change of anxiety in English was not significant, with $t(145) = -.13$, $p = .90$.

4.3.2. The diachronic stability at individual universities

In this section, the results of comparisons in the two anxieties across time conducted on the basis of individual universities are reported. Before comparisons, descriptive analyses for the three universities were performed, the findings of which are presented in Table 5. Moreover, the mean JCAS and ECAS scores for the three universities are plotted in Figures 1 and 2 to visualize the differences across the two time points.

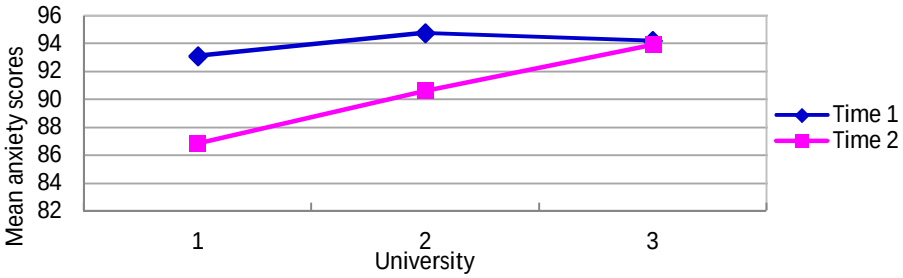

Figure 1 Plot of the mean JCAS scores for three universities at two times

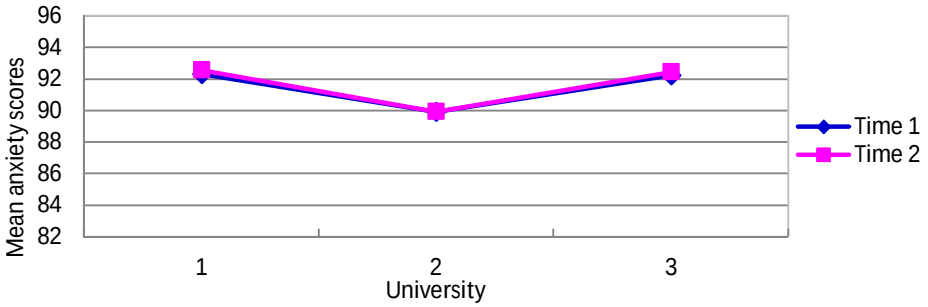

Figure 2 Plot of the mean ECAS scores for three universities at two times

Table 5 Means (and standard deviations) of the ECAS and the JCAS scores for three universities and two surveys ($N = 146$)

University	Size	Time 1 survey		Time 2 survey	
		AE	AJ	AE	AJ
1	25	92.32 (19.32)	93.12 (19.31)	92.56 (20.13)	86.84 (18.40)
2	50	89.90 (18.53)	94.78 (19.10)	89.90 (16.11)	90.62 (20.16)
3	71	92.25 (16.31)	94.23 (17.84)	92.45 (14.97)	93.93 (16.78)

Note. AE = Anxiety in English; AJ = Anxiety in Japanese

As shown in Table 5, anxiety in Japanese strikingly decreased in two of the three universities as a function of time. In one university, the mean JCAS scores showed almost no change. Furthermore, anxiety in English remained virtually unchanged in all the three universities. After checking whether the differences between Time 2 and Time 1 in the two anxieties were normally distributed in the population, paired samples *t* tests were performed. Results revealed that there was no significant diachronic change in anxiety levels in English for the three universities. With respect to anxiety in Japanese, significance levels were identified for two universities. The results of significance testing are presented in Table 6.

Table 6 Diachronic stability of anxiety at individual universities

University	Size	Anxiety in English			Anxiety in Japanese		
		t	*p*	Cohen's *d*	*t*	*p*	Cohen's *d*
1	25	-.08	.94	N/A	2.57	.02	.51
2	50	.00	1.00	N/A	2.26	.03	.32
3	71	-.15	.88	N/A	.27	.79	N/A

Note. N/A = not available

4.3.3. The synchronic stability using the full sample

As shown in Table 2, the entire sample showed higher anxiety in Japanese at Time 1. In contrast, the mean JCAS and ECAS scores were almost the same at Time 2. Paired-samples *t* tests showed that the two anxieties were not significantly different at either time point: $t(145) = 1.63$, $p = .11$ at Time 1 and $t(145) = -.009$, $p = .99$ at Time 2.

4.3.4. The synchronic stability at individual universities

In the Time 1 survey, anxiety in Japanese was higher than anxiety in English at all three universities, particularly at University 2, as shown in Table 5. At Time 2, anxiety in Japanese was still higher at Universities 2 and 3, but the differences between the two anxieties at the two universities were smaller than those at Time 1. Anxiety in Japanese showed weaker intensity than anxiety in English at University 1. The mean ECAS and JCAS scores are plotted in Figures 3 and 4 to visualize the differences between the two anxieties in these schools.

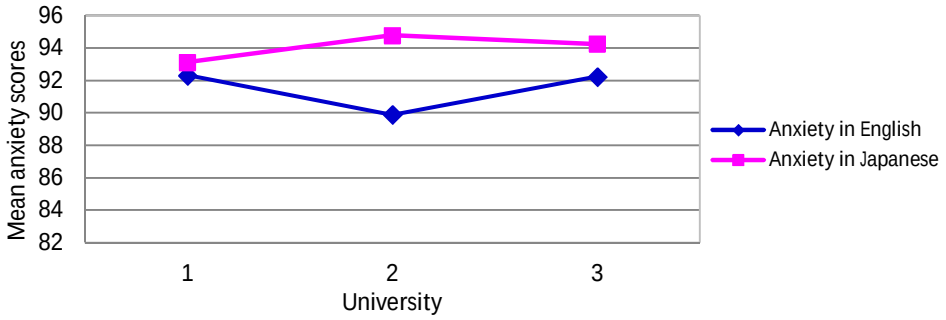

Figure 3 Plot of the mean ECAS and JCAS scores for three uiversities at Time 1

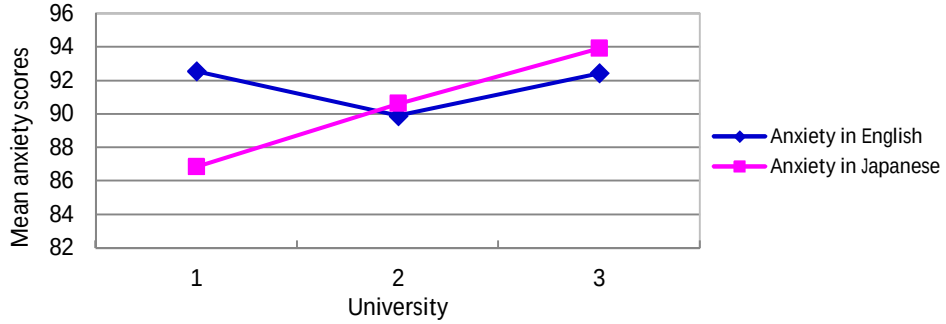

Figure 4 Plot of the mean ECAS and JCAS scores for three uiversities at Time 2

To check whether there was a significant within-university difference between the two anxieties at both times, a paired-samples *t* test or Wilcoxon signed rank test was used according to the results of assumption testing. It was found that anxiety levels in Japanese and English were not significantly different for the three universities. The results of comparing the two anxieties at Time 2 mirrored those of Time 1. No significance was attested for all comparisons. The results at Times 1 and 2 are reported in Table 7. It should furthermore be noted that the results of significance testing based on individual universities were consistent with those obtained from the full sample.

Table 7 Synchronic stability at individual universities

University	Size	Time 1		Time 2	
		t(z)	*p*	*t*	*p*
1	25	-.24	.82	-1.58	.13
2	50	1.64	.11	.27	.79
3	71	.82	.42	.77	.44

Note. Wilcoxon signed rank test was only performed for University 1 at Time 1, $z = -.24$, $p = .82$.

5. Discussion

One of the purposes of this study was to longitudinally examine the effects of FL anxiety on FL proficiency (RQs 1 and 2). Results showed that FL anxiety changes were negatively correlated with the development of overall FL proficiency and the subskills of reading, writing, speaking and listening. The results suggest that the increase or decrease of FL anxiety over time can lead to an inverse change in either overall or specific proficiency. In other words, evidence was found to support the interference of FL anxiety with FL learning. Moreover, the findings also suggest the necessity to trace the changes of anxiety at the level of individuals or learner groups as that can help to shed light on proficiency development. It should be noted that the correlations of anxiety changes vis-à-vis overall and subskill proficiency development were weak. Only 4% to 14.4% shared variance was detected in English and Japanese learning contexts, which suggests that the influencing factors of FL learning are rather complex, with FL anxiety being only one of the relevant factors. Vice versa, the weak correlation between anxiety changes and overall or subskill proficiency development indicates that FL anxiety itself is also subject to multiple influences. FL proficiency is merely one of the variables, albeit an important one.

Noteworthy is that the negative anxiety-proficiency correlations found in this study do not mean that FL anxiety and FL learning underachievement always show a straightforward cause-effect relationship, as FL anxiety can interfere with FL learning via other mediums: In a study of 547 Chinese EFL students, Liu and Jackson (2008) found that FL anxiety was positively related to two dimensions of unwillingness to communicate, that is, avoidance and reward, and was negatively linked with risk-taking and sociability in class. The results suggest that anxious students are liable to avoid engaging in communication activities in class. The avoidance is disadvantageous to the improvement of their speaking ability, which demands a lot of practice. As a consequence, the learners will continue experiencing communication breakdowns. Their interest in FL learning may fade owing to the constant frustration following communication failures. In the end, they may stop devoting energy to learning a FL and become underachievers in FL learning.

The present study adds to this line of work. For one, a positive correlation between the changes of anxiety levels in English and Japanese was found. The finding bears out the findings of Dewaele's (2007b, 2013) cross-sectional studies: Communicative anxiety in multiple FLs tends to be highly related. All this suggests that the decrease or increase of anxiety in one FL an individual experiences may similarly influence the anxiety level in another. The current study has also shown that the development in listening, speaking, reading, and writing

positively interacts in English and Japanese learning contexts. The enhancement of one skill facilitates the improvement of others, which demands the balanced development of all four skills in learners.

Research Question 3 was concerned with diachronic changes of anxiety levels in English and Japanese. There was virtually no diachronic change in anxiety intensity in English for the full sample and individual universities, but anxiety in Japanese had strikingly decreased from Time 1 to Time 2. In other words, anxiety in Japanese exhibited a pattern of decrease, but anxiety in English was relatively stable, and this was confirmed by statistical tests. While anxiety in Japanese did significantly decrease over time, anxiety in English did not show a significant change, suggesting stabilization of learners' anxiety in a FL which has been learned for a long time. Alternatively, anxiety hardly changes over time. Also noteworthy is that in the current study FL anxiety scores measured at two time points were highly correlated: a test-retest coefficient of .81 was obtained as part of the JCAS, but a significant decrease in anxiety in Japanese was still attested. Therefore, a high correlation between measurements may not be a guarantee of stability over time.

Regarding the causes of the decrease in anxiety in Japanese and stability in anxiety in English as observed in the sample,[3] they are difficult to pinpoint as FL anxiety is related in a complex way to a myriad of affective, cognitive, and demographic variables, or interactions among these variables (Rodríguez & Abreu, 2003). Tentative explanations can be given along the lines of language proficiency. In other words, more students (n = 86) showed improvement in their Japanese proficiency, as opposed to English proficiency. As a result, the decrease of anxiety in Japanese (M = -4.3) among the students of increased Japanese proficiency was larger than the decrease of anxiety in English (M = -3.7) for those students who showed an increase in English proficiency. The difference of motivation in learning Japanese and English may explain why more students improved their Japanese proficiency as opposed to English. That is, the participants were more motivated to learn Japanese as they were Japanese majors for whom English was only the second FL; they will be engaged in careers that demand more use of Japanese and need excellent Japanese achievements to succeed in the job market or to pursue graduate education.

Research Question 4 was related to the difference of anxiety levels in English and Japanese. At Time 1, the subjects as a whole experienced more anxiety

[3] Anxiety in Japanese decreased and increased from the Time 1 to Time 2 survey respectively in 79 and 59 students. The numbers for anxiety in English were 66 and 72. In both cases, 8 students indicated no change across time. The results further support the conclusion drawn on the basis of the mean JCAS and ECAS scores that anxiety in Japanese exhibited a pattern of decrease, while anxiety in English was relatively stable.

in Japanese learning.[4] At all three universities taking part in this study, anxiety in Japanese was stronger than anxiety in English. At Time 2, anxiety levels in Japanese and English were very similar overall. Anxiety in Japanese was lower than anxiety in English at one university, but was higher at the two other universities. Yet, the discrepancies in the intensity between the two anxieties at the two universities displaying higher anxiety in Japanese were smaller than those at Time 1. Inferential tests did not reveal the differences between the two anxieties at the levels of full sample and individual universities to reach significance, supporting Saito et al. (1999) and Rodríguez and Abreu's (2003) findings that general FL anxiety was stable across target languages, furthermore indicating that learning a familiar FL is not necessarily less anxiety-provoking than learning a FL that is relatively new to students. Despite the nonsignificant difference, the fact that learning Japanese provoked more anxiety than learning English among the participants at Time 1 warrants a closer inspection. It was so probably because the students were faced with a greater challenge in learning new Japanese knowledge at the beginning of a new term. However, students could handle the difficulties of English learning more easily due to the fact that they had been learning this language for a longer time.

6. Implications

The findings of this study have important implications. Before illustrating these implications, we must reveal two limitations of the study. First, FL proficiency was assessed by means of self-reports. It is unclear whether the same relationships involving FL proficiency would have been attested if course grades or other explicit measurements had been employed. Second, two surveys took place within the interval of a mere 2 months. For a longitudinal study, a 2-month interim is a relatively short time span. The nonsignificant results for the across-time comparisons in anxiety in English might be attributed to this.

Still, measures should be taken to control learners' anxiety as the increase of anxiety can impair the development of FL proficiency. The necessity of anxiety control is also warranted by a positive relation between the changes in anxiety in Japanese and English. Controlling one type of FL anxiety helps stabilize other types of anxiety and further facilitates learning other FLs. Particularly, Chinese university students' anxiety in English should not receive less attention by teachers, despite the fact that the students usually have learned English for a

[4] At Time 1, anxiety in Japanese was higher in 87 students. Anxiety in English was higher in 52 students. The results showed that the higher mean JCAS scores did not result from extreme values but from the fact that more students scored higher on the JCAS.

long time before university enrollment, as this study found that anxiety in English had no significant difference from anxiety in learning a new FL (i.e., Japanese). Moreover, to reduce anxiety in English, much more energy and time is required because anxiety in English tends to be stable over time. In addition, anxiety-reducing measures should be taken after a wide-ranging analysis of extrinsic and intrinsic variables of learners, such as learning difficulties, motivation, classroom climate, and teaching methods. This is because the anxiety-provoking factors are complex, which is underscored by a small portion of shared variance between anxiety and proficiency.

Care should also be taken to ensure that learners' listening, speaking, reading, and writing skills develop in parallel. No one facet of language learning should be treated as unimportant and ignored. The implication is particularly relevant for college English courses taught in China, which are usually taught to large groups. We suggest that college English courses should ideally be organized in small classes, with each teacher being responsible for only a small number of classes. That way, teachers can attend to each student, which is especially important in training speaking. In addition, the development of writing ability needs not only a great deal of practice but also teachers' prompt feedback to students' written pieces. Faced with small numbers of students, teachers may find it easier to offer prompt responses.

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