
The current study reports on three investigations of (1) the predictive power of four skill-based anxieties in students’ perceptions of English competence (PEC) and their intention to continue English studies (ITC), (2) the possibility of gender as a moderator in the relationships between the four skill-based anxieties in students’ PEC and ITC, and (3) factorial similarity of the four skill-based anxiety scales across gender. Results of the study support the following three findings. First, only writing and speaking anxieties made an independent contribution to students’ PEC, with writing anxiety playing a substantially more important role. The higher level of L2 writing anxiety was also observed in students’ ITC, but its effect was moderate. Second, gender was found to moderate only the relationship between writing anxiety and students’ PEC. Third, test bias was detected in three of the four skill-based anxiety scales, thus indicating factorial similarity across gender only for the speaking anxiety scale. Pedagogical implications associated with the findings are also discussed.

**Key words:** skill-based L2 anxieties, chi-square difference tests, factorial similarity, gender effects

1. **INTRODUCTION**

Language anxiety is defined as the feeling and apprehension experienced in the process of language learning (MacIntyre & Gardner, 1994). A large body of research suggests that language anxiety exerts undesirable effects on learners’ cognitive as well as affective domains. Second or foreign language anxiety, in particular, occurs because of “the inherent inauthenticity associated with immature second language communicative abilities” (Horwitz, 2001, p. 114), and L2 anxiety is responsible for students’ negative reactions to L2 learning. These anxiety reactions operate in all processes of L2 acquisition, from the

---

* This research was supported by the Yeungnam University Research Grant in 2013.
input stage, through the processing stage to the output stage (MacIntyre & Gardner, 1989, 1994; Onwuegbuzie, Bailey, & Daley, 2000; Tobias, 1986). The Foreign Language Classroom Anxiety Scale (FLCAS) as developed by Horwitz and colleagues is an instrument to measure second or foreign language anxiety in the context of classroom, and offers a tool to scientifically gauge the presence of L2 anxiety and its relationships with various measures of L2 outcomes.

Since the development of the FLCAS, researchers have tended to focus on the examination of skill-based L2 anxieties at the micro level (e.g., L2 listening anxiety). Findings generally point to the independent existence of each of the four skill-based L2 anxieties (e.g., Cheng, Horwitz, & Schallert, 1999; Elkhafaifi, 2005; Mills, Pajares, & Herron, 2006; Saito, Horwitz, & Garza, 1999; Woodrow, 2006). It should be noted, however, that these studies typically targeted only one individual skill-based L2 anxiety at a time and analyzed the effects of this skill-based L2 anxiety on a range of dependent variables, thereby ignoring the simultaneous effects of the four skill-based L2 anxieties and their potential confounding effects at the macro level. Moreover, it is reasonable to assume that the effects of L2 anxieties may be moderated by gender, since previous studies have well documented gender differences in language anxieties in general (e.g., Campbell & Shaw, 1994; Koul, Roy, Kaewkuekool, & Ploisawaschai, 2009; Park & Brian, 2013; Zhang, 2000). However, so far, to the best of this researcher’s knowledge, no studies have examined gender differences in skill-based L2 anxieties, either at the micro or macro level. This study was designed to bridge these gaps in the literature, and was guided by the following three research questions (RQs):

RQ1. What are the effects of four skill-based L2 anxieties (i.e., listening, reading, writing, and speaking anxiety) on Korean EFL learners’ affective variables, as measured by perceptions of English competence (PEC) and intention to continue English studies (ITC)?

RQ2. Are the effects of skill-based L2 anxieties on the affective variables moderated by gender?

RQ3. Are the scales measuring skill-based L2 anxieties invariant across gender?

2. RESEARCH BACKGROUND

Second or foreign language (FL) anxiety has been most extensively researched in association with its contexts in the classroom (i.e., situation-specific anxiety) rather than as a general personality trait or emotional state. For instance, Gardner (1985) suggested that scales directly measuring FL anxiety are more appropriate in the study of language anxiety
than general anxiety scales. In a similar vein, Horwitz, Horwitz, and Cope (1986) defined FL anxiety as a distinct combination of self-perceptions, beliefs, feelings and behaviors unique to the FL learning process, and emphasized L2 anxiety research that is closely aligned to the FL classroom. The conceptualization of FL anxiety as a situation-specific construct has brought fruitful advances to the understanding of FL anxiety both in theory and methodology, thus leading to more accurate definition of the construct and enhanced measurement tools with desirable psychometric properties.

Empirical studies utilizing instruments that were developed to measure a situation-specific construct of language anxiety, such as the Foreign Language Classroom Anxiety Scale (Horwitz et al., 1986), the French Class Anxiety scale (Gardner & Smythe, 1975) or the English Use Anxiety scale (Clément, Gardner, & Smythe, 1980), have consistently reported a negative correlation between FL anxiety and L2 achievement. This finding had not been clearly established before because of the ambiguities in construct definition and the lack of a reliable and valid instrument specifically targeting FL anxiety (Horwitz et al., 1986; MacIntyre & Gardner, 1989, 1991a; Scovel, 1978). The negative relationship between language anxiety and L2 achievement has been found not only across diverse measures of L2 achievement, such as final grades, teacher ratings, self-ratings, and objective measures (Aida, 1994; MacIntyre & Gardner, 1989, 1991a, 1991b, 1994; MacIntyre, Noels, & Clément, 1997; Phillips, 1992; Saito et al., 1999; Saito & Samimy, 1996; Trylong, 1987), but also for learner groups with different target languages (e.g., Aida, 1994; Coulombe, 2000; Elkhafafi, 2005; Kim, 2000; Kunt, 1997; Rodriguez, 1995; Saito et al., 1999; Spitalli, 2000; Truitt, 1995).

Previous research on the skill-based L2 anxieties has typically focused on one of the four skill-based L2 anxieties, and examined its effects on various measures of L2 outcome. On the one hand, a group of studies attempted to examine the independent existence of each of the four skill-based anxieties, and these studies attempted to demonstrate the independent existence of these skill-based L2 anxieties via correlation analyses. However, it should be noted that most of these studies performed a series of Pearson correlation analyses between the FLCAS and the targeted skill-based L2 anxiety, and the proportion of shared variance (i.e., squared Pearson correlation coefficients) between the FLCAS and the targeted skill-based L2 anxiety was taken as evidence for the independent existence of the targeted skill-based L2 anxiety (e.g., Kim, 2005; Saito et al., 1999). On the other hand, another group of researchers tried to analyze the effects of these skill-based L2 anxieties, and findings show that the relationships between the individual skill-based L2 anxieties and measures of L2 achievement are largely negative (e.g., Cheng et al., 1999; Elkhafafi, 2005; Mills et al., 2006; Saito et al., 1999; Woodrow, 2006), which are thus consistent with the results of empirical studies conducted with the FLCAS. For example, Woodrow (2006) developed an instrument for measuring speaking anxiety both within and outside the L2
learning classroom, and used this measure to study the relationship between speaking anxiety and students' performance in an oral assessment. The study results indicated a significant negative association between students' oral performance and both in-class and out-of-class L2 anxiety, thus verifying the previous findings. The study also detected a significant main effect of ethnic group on the perceived speaking anxiety, but an insignificant gender effect on speaking anxiety. Elsewhere, MacIntyre and Gardner (1994) applied Tobia's (1986) three-stage model (i.e., input, processing, and output) to the study of FL anxiety, and found significant relationships between output anxiety and output task measures.

In another line of research, Pae (2013) empirically examined the intra-relations as well as the inter-relations of the four skill-based L2 anxieties. Specifically, through a series of chi-square difference tests utilizing a sample of 229 Korean EFL students, this study analyzed the relationship among the four skill-based L2 anxieties as well as the relation of the skill-based anxieties to general foreign language classroom anxiety. Results of the study demonstrated that all four skill-based L2 anxieties were statistically distinct from each other, and all four skill-based L2 anxieties constituted an independent contribution to general classroom anxiety.

Park and Brian (2013) investigated gender differences in L2 anxieties and the combined effects of gender and anxiety on L2 performance. Using the FLCAS and final course grade as a measure for L2 anxiety and L2 performance, respectively, they found that Korean female university students had higher anxiety levels compared to their male counterparts, and both females and high anxiety students obtained higher course grades than males and low anxiety students. On the other hand, Campbell and Shaw (1994) reported that female students were less vulnerable to language anxiety, and thus, better language learners. In a similar vein, Zhang (2000) showed that males had higher level of English reading anxiety than females, and these gender differences were ascribed to the lower level of perceived English competence on the part of males. A reverse pattern, however, was reported by Koul et al. (2009). This study demonstrated that female university students, who were better English learners than their male counterparts, in fact, had a higher level of anxiety than males. Taken together, these findings highlight the importance of gender as a potential moderator in the relationships between L2 anxieties and measures of L2 achievement.

3. METHODS

3.1. Subjects

Originally, a total of 472 students (male: 208, female: 264) participated in the present
study, and a list-wise deletion of the missing data resulted in a sample of 200 males and 259 females. However, in order to partial out potential gender effects, an equal number of males and females were targeted for the present investigation. Therefore, 200 females were randomly selected from the original female sample consisting of 259 students, which led to a final sample of 400 participants consisting of equal number of males and females (male: 200, female: 200). All of them were recruited from a large university in South Korea. All the participants were sampled from a college English program of the university, which required all the students to complete at least two English courses. Basic English, which focused on developing academic reading skills in the context of communicative language teaching, was a compulsory course. As for the other English course, students were free to choose one additional course from a list of English courses announced every year by the university. Participating students’ major was various, ranging from humanities (40%) to social sciences (32%) and hard sciences (28%). All the participants were currently freshmen or sophomores with a mean age of 20.9. Data were collected during normal class times in the form of questionnaires. All the data collection was completed at the 11th week of the Spring semester, 2013.

3.2. Instrument

In order to provide empirical answers to the three research questions formulated in the present investigation, the present study utilized a total of five scales (Listening Anxiety, Speaking Anxiety, Reading Anxiety, Writing Anxiety, Perceptions of English Competence, and Intention to Continue English Study). Development of each scale was guided by previous studies (e.g., Cheng et al., 1999; Elkhafaifi, 2005; Horwitz et al., 1986; Saito et al., 1999; Pae, 2013; Pae & Shin, 2011; Woodrow, 2006). The initial version of the scales was pilot-tested, and after necessary revisions, the final version was distributed to the participating students for data collection. The following section presents detailed information of the composition of each scale, along with corresponding reliability evidence as measured by Cronbach's alpha.

1. Listening Anxiety (LA): 32 items, alpha = 0.92
2. Reading Anxiety (RA): 13 items, alpha = 0.90
3. Writing Anxiety (WA): 26 items, alpha = 0.96
4. Speaking Anxiety (SA): 12 items, alpha = 0.93
5. Perception of English Competence (PEC): 4 items, alpha = 0.89
   A. I am good at reading English.
   B. I am good at writing English.
   C. I am good at understanding English.
D. I am good at speaking English.
6. Intention to Continue English Study (ITC): 3 items, alpha = 0.83
   A. I want to continue to learn English after I finish this course.
   B. I don’t want to study English any more after I finish this course.
   C. I want to take another English course next semester.

3.3. Analysis

To analyze the relationships between the four skill-based L2 anxieties and students’ PEC and ITC (i.e., RQ1), two separate multiple regression analyses were performed with the four skill-based anxieties serving as the predictors and PEC and ITC as the dependent variables. Specifically, each of the four skill-based anxiety scores and the two dependent variables were combined in order to produce a single aggregate measure for each scale. After that, the four skill-based anxiety scores were simultaneously entered into a regression model as predictor variables in order to predict variances associated with students’ perceived English ability and intention to continue English study. These regression analyses were expected to gauge the predictive power of each of the four skill-based anxiety scores in relation to students’ PEC and ITC, when the effects of the other anxiety scores were statistically partialled out. In this respect, it should be noted that most previous studies on the relationship between skilled-based anxieties and outcome measures have only focused on the bivariate correlation between the FLCAS and an individual skill-based anxiety (e.g., listening anxiety), thus ignoring the simultaneous influences coming from the other types of skill-based anxieties. Results of the present regression analyses will, therefore, complement the existing database and make a more insightful contribution to L2 anxiety research.

In order to examine whether gender moderates the relationships between the four skill-based anxieties and students’ PEC and ITC (i.e., RQ2), interaction effects between gender and each of the four skill-based anxieties were tested for each of the two dependent variables (i.e., PEC and ITC) using a MANOVA procedure. The presence of significant interaction effects would signal that the strength of the relationships between the four-skill-based anxieties and students’ PEC and ITC would be different, depending on students’ genders.

Finally, to simultaneously test factorial invariance (i.e, similarity) of the four skill-based L2 anxiety scales across the two gender groups (i.e., RQ3), multi-sample analysis in the framework of confirmatory factor analysis (CFA) was performed (Jöreskog & Sörbom, 2001). In view of the parsimony of the CFA models, a data reduction procedure was implemented, since the original CFA model featuring the four skill-based anxieties had 83 observed variables, and this was expected to make the fit of the CFA model unacceptable.
Therefore, an optimal number of factor scores were extracted from each skill-based L2 anxiety, and these factor scores served as the indicator variables for the multi-sample CFA analysis. Specifically, as per recommendation of Pae (2013), three factor scores were extracted from the scales of writing, reading, and listening anxieties, and two factor scores from the speaking anxiety scale. The final CFA model consisted of four latent factors and their corresponding 11 factor scores, which were treated as observed variables. All the analyses were performed using the covariance as the input matrix, and parameters were estimated with the LISREL 8.8 program. This multi-sample analysis can shed light on whether the four-skill-based L2 anxieties function differentially for the two gender groups.

4. RESULTS

4.1. Descriptive Statistics

Table 1 presents descriptive statistics of the measures utilized in the present study. Each scale score was created through aggregation of all the items belonging to each scale after recoding the negative items. Since each item was based on a 7-point Likert scale, the possible raw score range for each scale was 32 to 224 for the Listening Anxiety (LA), 12 to 84 for the Speaking Anxiety (SA), 13 to 91 for the Reading Anxiety (RA), 26 to 182 for the Writing Anxiety (WA), 4 to 28 for the Perceived English Competence (PEC), and 3 to 21 for the Intention to Continue (ITC).

Table 1 further shows that WA had the highest value of average response (4.23 on the 26
WA items), followed by SA (4.15 on the 12 SA items), LA (4.11 on the 32 LA items), and RA (4.02 on the 13 RA items). Most of the average response values were centered above 4.0 on a 7-point Likert scale and showed little variation. Table 1 also shows that except for writing anxiety, female students had a higher level of skill-based L2 anxieties than their male counterparts.

4.2. Effects of Skill-based L2 Anxieties on Learners’ PEC and ITC

The results of the regression analysis for the relationship between the four skill-based anxieties and the students’ PEC are presented in Table 2. Table 2 shows that out of the four independent variables, only two (WA and SA) made a significant negative prediction of student’s PEC, when the effects of other independent variables in the regression model were held constant. Writing anxiety had the largest influence on PEC ($\beta = -0.482$), followed by speaking anxiety ($\beta = -0.229$), whereas both listening and reading anxieties did not explain a significant proportion of the variance in the students’ PEC. A one unit increase in writing anxiety related to a decrease of approximately 0.48 units in the students’ PEC. These results indicate that a higher level of writing and speaking anxieties are likely to correlate with a lower level of positive PEC. The four skill-based anxieties altogether explained about 48% of the variance in students’ PEC.

<table>
<thead>
<tr>
<th>Model</th>
<th>Beta</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA</td>
<td>-0.097</td>
<td>-1.24</td>
<td>0.201</td>
</tr>
<tr>
<td>SA</td>
<td>-0.229</td>
<td>-3.21</td>
<td>0.002*</td>
</tr>
<tr>
<td>RA</td>
<td>-0.041</td>
<td>-0.57</td>
<td>0.567</td>
</tr>
<tr>
<td>WA</td>
<td>-0.482</td>
<td>-6.71</td>
<td>0.000*</td>
</tr>
</tbody>
</table>

* indicates significance at 0.05 alpha level.

When it comes to the effects of the four skill-based anxieties on students’ ITC, it was found that only writing anxiety made a marginal influence on Korean university EFL learners’ intention to continue English study, as presented in Table 3. This suggests that there is no statistical relationship between Korean university students’ perceived level of anxieties in reading, listening, and speaking and their intention to study English. However, it was found that one unit increase in writing anxiety was associated with about a 0.10 unit decrease in students’ intention to continue English study.
TABLE 3
Results of Multiple Regression Analysis for ITC

<table>
<thead>
<tr>
<th>Model</th>
<th>Beta</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA</td>
<td>-0.159</td>
<td>-1.613</td>
<td>0.108</td>
</tr>
<tr>
<td>SA</td>
<td>-0.021</td>
<td>-0.222</td>
<td>0.824</td>
</tr>
<tr>
<td>RA</td>
<td>-0.066</td>
<td>-0.721</td>
<td>0.472</td>
</tr>
<tr>
<td>WA</td>
<td>-0.101</td>
<td>-2.108</td>
<td>0.036*</td>
</tr>
</tbody>
</table>

Note. \( N = 400 \); Dependent Variable: intention to continue English study (ITC); \( R^2 = 0.12 \); * indicates significance at 0.05 alpha level.

4.3. Moderating Effects of L2 Anxieties on Learners’ PEC and ITC

Results of the MANOVA procedure, which examined whether gender moderates the relationships between the four-skill-based anxieties and students’ PEC and ITC, are presented in Tables 4 and 5. Tables 4 and 5 report only the parts of the MANOVA output pertaining to the interaction effects between each of the four-skill-based anxieties and gender, since main effects of the four skill-based anxieties were already examined in the multiple regression analyses (Tables 2 and 3).

TABLE 4
MANOVA Results for Interaction Effects for PEC

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA*Sex</td>
<td>3.50</td>
<td>1</td>
<td>3.50</td>
<td>0.23</td>
<td>0.645</td>
</tr>
<tr>
<td>SA*Sex</td>
<td>38.92</td>
<td>1</td>
<td>38.92</td>
<td>1.22</td>
<td>0.207</td>
</tr>
<tr>
<td>RA*Sex</td>
<td>44.64</td>
<td>1</td>
<td>44.64</td>
<td>2.95</td>
<td>0.130</td>
</tr>
<tr>
<td>WA*Sex</td>
<td>48.00</td>
<td>1</td>
<td>48.00</td>
<td>6.22</td>
<td>0.041*</td>
</tr>
</tbody>
</table>

Note. Dependent Variable: perceived English competence (PEC)

TABLE 5
MANOVA Results for Interaction Effects for ITC

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA*Sex</td>
<td>44.64</td>
<td>1</td>
<td>44.64</td>
<td>3.70</td>
<td>0.096</td>
</tr>
<tr>
<td>SA*Sex</td>
<td>13.82</td>
<td>1</td>
<td>13.82</td>
<td>0.93</td>
<td>0.592</td>
</tr>
<tr>
<td>RA*Sex</td>
<td>16.07</td>
<td>1</td>
<td>16.07</td>
<td>0.81</td>
<td>0.399</td>
</tr>
<tr>
<td>WA*Sex</td>
<td>16.33</td>
<td>1</td>
<td>16.33</td>
<td>1.33</td>
<td>0.286</td>
</tr>
</tbody>
</table>

Note. Dependent Variable: intention to continue English study (ITC)
As indicated in Tables 4 and 5, it was found that only the relationship between L2 writing anxiety and students’ PEC was significantly moderated by gender \((p = 0.041)\), meaning that the strength of the relationship between these two variables is significantly different depending on the gender of the students. However, no significant interaction effects were found between the other three skill-based anxieties and students’ PEC. Similarly, it was also found that the relationships between the four skill-based L2 anxieties and students’ ITC were not significantly influenced by gender, as indicated by the non-significant \(p\)-values reported in Table 5.

4.4. Factorial Similarity of the Four Skill-based L2 Anxieties

The final CFA model with 11 observed (i.e., 11 factor scores) and four latent variables (i.e., four skill-based L2 anxieties) was subjected to a series of multi-sample confirmatory factor analysis. Results of the multi-sample analyses are summarized in Table 6. Gender differences both in the structural paths and in the error variances of each observed variable were tested through chi-square invariance (i.e., difference) statistics.

**Table 6**

<table>
<thead>
<tr>
<th>Model</th>
<th>Equality Constraint</th>
<th>(\chi^2)</th>
<th>(df)</th>
<th>(df_{\text{diff}})</th>
<th>(\chi^2_{\text{diff}})</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Free</td>
<td>168.86</td>
<td>82</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>3 WA Factor Loadings</td>
<td>172.27</td>
<td>85</td>
<td>3</td>
<td>3.41</td>
</tr>
<tr>
<td>3</td>
<td>3 RA Factor Loadings</td>
<td>172.96</td>
<td>85</td>
<td>3</td>
<td>4.10</td>
</tr>
<tr>
<td>4</td>
<td>3 LA Factor Loadings</td>
<td>177.92</td>
<td>85</td>
<td>3</td>
<td>9.06*</td>
</tr>
<tr>
<td>5</td>
<td>2 SA Factor Loadings</td>
<td>173.40</td>
<td>84</td>
<td>2</td>
<td>4.54</td>
</tr>
<tr>
<td>6</td>
<td>3 WA Error Variances</td>
<td>191.26</td>
<td>85</td>
<td>3</td>
<td>22.40*</td>
</tr>
<tr>
<td>7</td>
<td>3 RA Error Variances</td>
<td>211.23</td>
<td>85</td>
<td>3</td>
<td>42.37*</td>
</tr>
<tr>
<td>8</td>
<td>3 LA Error Variances</td>
<td>173.04</td>
<td>85</td>
<td>3</td>
<td>4.18</td>
</tr>
<tr>
<td>9</td>
<td>2 SA Error Variances</td>
<td>172.68</td>
<td>84</td>
<td>2</td>
<td>3.82</td>
</tr>
</tbody>
</table>

*Note. \(df_{\text{diff}}\): difference in degrees of freedom between the free model and each corresponding model; \(\chi^2_{\text{diff}}\): difference in chi-square values between the free model and each corresponding model; * indicates significance at 0.05 alpha level.*

As shown in Table 6, the model with no equality constraints across the two gender groups (i.e., Model 1) produced a chi-square value of 168.86 with 82 degrees of freedom. The fit of the model to the sample data was satisfactory with a GFI (Goodness of Fit Index) value of 0.98, a CFI (Comparative Fit Index) value of 0.96, and an NNFI (Non-Normed Fit Index) value of 0.97. This free model served as a baseline model, against which the fit of
the successively more restrictive models was compared through a series of chi-square difference tests (Bentler & Bonett, 1980).

Model 2 through Model 5 examined invariance of the four skill-based anxiety scales in terms of factor loadings. Results of the chi-square difference tests indicate that imposing equality constraints on the three factor loadings of the listening anxiety scale significantly increased the chi-square value of Model 4, hence demonstrating that the listening anxiety scale was not invariant for the males and females. Invariance of the path coefficients of the other three skill-based anxiety scales was, however, maintained, as indicated by non-significant increase of chi-square values of these three anxiety scales.

Model 6 through Model 9 tested factorial similarity of the four skill-based anxiety scales in terms of error variances. Model 6, for example, put equality constraints on the three error variances associated with the corresponding three observed variables of the writing anxiety scale, while allowing the three factor loadings to be freely estimated for males and females. This model increased the chi-square value by 22.40, and this increase was found to be significant at the 3 degrees of freedom differences, which means that the three error variances of the writing anxiety scale function differentially for males and females. The same pattern was also observed in the three error variances of the reading anxiety scale.

5. DISCUSSION

The current study was comprised of three investigations of (1) the predictive power of the four skill-based anxieties in students’ PEC and ITC, (2) the possibility of gender as a moderator of the relationships between the four skill-based anxieties in students’ PEC and ITC, and (3) factorial similarity of the four skill-based anxiety scales across gender. In the first investigation (RQ1), only writing and speaking anxieties made an independent contribution to the students’ PEC over and beyond the influences arising from the other skill-based anxieties. For students’ ITC, only writing anxiety was found to contribute a significant effect, although the strength of the influence was marginal \( p = 0.036 \). This finding suggests that skill-based L2 anxieties are more related to learners’ PEC than their ITC, and this makes sense because anxiety is often defined as lack of self-confidence (e.g., Clément, Dörnyei, & Noels, 1994).

The findings reported in Tables 2 and 3 are a remarkable departure from previous studies, where a significant negative correlation has been consistently reported between individual skill-based anxieties and various outcome measures of achievement, from final grades to self-assessment of L2-related competence (Cheng, 2002; Cheng et al., 1999; Elkhafaifi, 2005; Kim, 2000, 2005; MacIntyre et al., 1997; Phillips, 1992; Saito et al., 1999; Woodrow, 2006). These discrepancies further reflect the methodological limitations accompanying
bivariate correlation analysis, which fails to detect any unique contribution of an independent variable to the dependent variable in the presence of a third variable sharing variance with the independent variable (Hair, Anderson, Tatham, & Black, 1995; Kachigan, 1991).

Results of the regression analysis highlight writing and speaking anxieties as two of the main influences on the students’ PEC. This pattern, however, is not consistent with the results of a previous regression analysis (Mills et al., 2006), where listening anxiety exerted a significant influence on students’ listening proficiency when listening efficacy was controlled for, whereas reading anxiety was not significantly related to reading proficiency when the effect of reading efficacy was considered in the regression model. In Mills et al.’s study, however, the effects of reading and listening anxieties on the corresponding proficiency measures were assessed using a separate regression analysis, hence ignoring the variance simultaneously shared by the four skill-based anxieties. Other than the design issue, it is also possible that the use of different measures of achievement outcome (i.e., objective measure vs. self-perception of L2 competence) may explain the contrasting results between the present study and Mills et al.’s study. It is of relevance here that L2-related anxieties are more influenced by subjective self-perception of L2 competence than objective measures of L2, as discussed by several L2 researchers (e.g., Cheng, 2002; MacIntyre et al., 1997), which offers important implications for L2 classrooms free from anxiety. A relatively higher R-square value (i.e., $R^2 = 0.48$) further underscores the conceptual similarity between L2 anxiety and perceived L2 competence, as noted by previous L2 research (e.g., Clément, 1980, 1986; Clément & Kruidenier, 1985; Clément et al., 1994).

The strength of prediction also warrants discussion. The magnitude of prediction made by writing anxiety (i.e., $\beta = -0.482$) was more than twice than for speaking anxiety (i.e., $\beta = -0.229$), hence pinpointing writing anxiety as the most important factor in enhancement of the students’ PEC when the effects of other skill-based anxieties were considered. The finding that productive skill anxieties (i.e., writing and speaking anxieties), relative to their receptive counterparts, exerted significantly stronger effects on the students’ PEC was not surprising. The superiority of writing anxiety in accounting for the variance associated with the students’ PEC was, however, unexpected and can be attributed to several reasons. One possibility is related to the changes in English curriculum and syllabus design from traditional grammar-translation method to communicative language teaching in South Korea (Kwon, 2000; Pae, 2008). Given the demographic characteristics of the sample in the present study, where more than half of the participants were college freshmen, it is highly likely that a majority of the participants must have experienced a more communicative-based English instruction in their middle or high schools, thereby reducing their anxiety about the oral aspects of English teaching and learning. English writing, on
the other hand, typically receives only marginal attention during secondary education, which might have increased the anxiety for Korean university students, who had not previously received systematic instruction in English writing.

With respect to the roles played by gender in students’ L2 anxieties and affective domains, gender was found to moderate the relationship only between writing anxiety and students’ PEC, which indicates that the effect of writing anxiety on students’ perception of their English competence is moderated by gender, hence partially confirming the moderating role of gender in the relation between the four skill-based L2 anxieties and students’ PEC. However, no significant moderating effects were detected for the relationships between skill-based L2 anxieties and students’ ITC. These findings, taken together, suggest that gender effects may be minimal in the relationships between L2 anxieties and students’ affective orientations.

Finally, tests of factorial similarity for the four skill-based L2 anxiety scales across gender showed that except for the speaking anxiety scale, the skill-based L2 anxiety scales were not invariant across the two gender groups in terms of either the strength of factor loadings or error variances. This finding further suggests that the three L2 anxiety scales, as utilized in the present study, may not be measuring the same construct for males and females, thus threatening construct validity of these scales. Therefore, caution is advised in interpreting the results of gender differences in L2 anxieties.

6. CONCLUSION AND IMPLICATIONS

In summary, the present study results support the following three findings. First, only writing and speaking anxieties made an independent contribution to the students’ PEC, with the writing anxiety playing a substantially more important role. The superiority of L2 writing anxiety was also observed in the students’ ITC, but its effect was moderate. Second, gender was found to moderate only the relationship between writing anxiety and students’ PEC. Third, test bias was detected in three out of the four skill-based anxiety scales (i.e., reading, listening, and writing anxiety scales).

Pedagogical implications are evident, especially with respect to the first research question posed in the present study. Although the present study indicated writing and speaking anxieties as the ones that significantly decrease students’ perceived English competence, considering the debilitating effects of L2 anxieties on the process of L2 learning, L2 classroom teachers are advised to give balanced attention to each of the four skill-based anxieties. This suggests that anxiety arising from L2 training in each skill area should receive due instructional efforts.

To reduce listening anxiety, for instance, it is recommended that instructors provide
comprehensible input, focusing on strategies at the sentence level (e.g., sound discrimination), as well as more macro-level strategies, such as taking risks, guessing meaning (Elkhafaifi, 2005), or checking message flow of using discourse signaling cues (Jung, 2003). Furthermore, L2 listeners, especially at the beginning to intermediate levels, should be reminded that understanding everything in a listening passage may be an unrealistic expectation and thus may be anxiety-provoking, since a desire to be perfect often leads to a greater anxiety level (Gregersen & Horwitz, 2002). L2 teachers should also help students to acknowledge that making mistakes is not harmful and is a normal process of the L2 learning process. In this respect, teachers should be careful in the selection of listening materials so that students can experience small successes, as suggested by Elkhafaifi (2005). In a similar manner, discretion is advised when designing a speaking activity and corresponding assessment tool, since L2 learners tend to feel an intense level of anxiety when their speaking performance is to be evaluated in front of other students (Aida, 1994; Horwitz, 2001; Horwitz et al., 1986; Woodrow, 2006). In this regard, a classroom environment capitalizing on sincere teacher support, lack of competition, peer interactions, and clear task orientation (Horwitz, 2001; Palacios, 1998) should be promoted to decrease L2 anxiety in general and speaking anxiety in particular.

Likewise, to make reading less stressful, L2 readers are advised to be aware of their own reading processes at both local (i.e., bottom-up) and global (i.e., top-down) levels so that readers can better cope with the anxieties caused by reading a text with unfamiliar language structure and cultural practices (Saito et al., 1999). This advice is especially important for novice L2 readers, since a higher level of L2 anxiety, which is typically experienced in the earlier stage of L2 learning (MacIntyre & Gardner, 1991a), tends to negatively interact with an unknown writing system and unfamiliar cultural messages. In pedagogical terms, this suggests that teachers should give careful attention to the selection of authentic reading texts with appropriate levels of difficulty both for the content and the structure, as discussed by Saito et al. (1999). For writing anxiety, classroom teachers should integrate a self-confidence component in the teaching of L2 writing more than anything else, since the relationship between L2-related anxieties and self-perception of L2 competence was found to be intensified to the greatest extent in the area of writing. Other than the self-confidence factor, the promotion of positive attitudes and motivation toward L2 writing should be emphasized.

REFERENCES


**APPENDIX**

**Skill-based L2 Anxiety Scales**

**A. Writing Anxiety**

1. I avoid English writing.
2. I have no fear of my English writing being evaluated.
3. I look forward to writing down my ideas in English.
4. I am afraid of writing English essays when I know they will be evaluated.
5. Taking an English composition course is a very frightening experience.
6. Handing in English composition makes me feel good.
7. My mind seems to go blank when I start to work on an English composition.
8. Expressing ideas through English writing seems to be a waste of time.
9. I would enjoy submitting my English writing to magazines for evaluation and publication.
10. I like writing my ideas down in English.
11. I feel confident in my ability to clearly express my ideas in English writing.
12. I like to have my friends read what I have written in English.
13. I am nervous about writing in English.
14. People seem to enjoy what I write in English.
15. I enjoy writing in English.
16. I never seem to be able to clearly write down my ideas in English.
17. Writing in English is a lot of fun.
18. I expect to do poorly in English composition classes even before I enter them.
19. I like seeing my thoughts on paper.
20. Discussing my English writing with others is an enjoyable experience.
21. I have a terrible time organizing my ideas in an English composition course.
22. When I hand in an English composition, I know I am going to do poorly.
23. It's easy for me to write good English compositions.
24. I don’t think I write in English as well as others.
25. I don’t like my English compositions to be evaluated.
26. I am no good at English writing.

B. Speaking Anxiety
1. I feel anxious when the teacher asks me question in English in class.
2. I feel anxious when I speak informally to my English teacher out of class.
3. I feel anxious when I take part in an English group discussion in class.
4. I feel anxious when I take part in an English role play or dialog in front of my class.
5. I feel anxious when I give an English oral presentation to the rest of the class.
6. I feel anxious when I am asked to contribute to a formal English discussion in class.
7. Starting conversation in English with an unknown foreigner makes me nervous.
8. I would feel anxious when I had to take a job interview in English.
9. I am afraid the other students will laugh at me when I speak English.
10. It worries me that other students in my class seem to speak English better than I do.
11. I never feel quite sure of myself when I am speaking in our English class.
12. I would feel anxious when a native speaker of English asked me street directions in English.

C. Reading Anxiety
1. I get upset when I am not sure whether I understand what I am reading in English.
2. When reading English, I often understand the words but still can't quite understand what the author is saying.
3. When reading English, I get so confused I can't remember what I am reading.
4. I feel intimidated whenever I see a whole page of English in front of me.
5. I am nervous when I am treading a passage in English when I am not familiar with the topic.
6. I get upset whenever I encounter unknown grammar when reading English.
7. When reading English, I get nervous and confused when I don't understand every word.
8. It bothers me to encounter words I can't pronounce while reading English.
9. I usually end up translating word by word when I am reading English.
10. I enjoy reading English.
11. I feel confident when I am reading in English.
12. I don’t mind reading to myself, but I feel very uncomfortable when I have to read English aloud.
13. I am satisfied with the level of my reading ability in English that I have achieved so far.

D. Listening Anxiety
1. When listening to English, I tend to get stuck on one or two unknown words.
2. I get nervous if a listening passage is read only once during English listening tests.
3. When someone pronounces words differently from the way I pronounce them, I find it difficult to understand.
4. When a person speaks English very fast, I worry that I might not understand all of it.
5. I am nervous when I am listening to English if I am not familiar with the topic.
6. If I let my mind drift even a little bit while listening to English, I worry that I will miss important ideas.
7. When I'm listening to English, I am worried when I can't watch the lips or facial expression of a person who is speaking.
8. During English listening tests, I get nervous and confused when I don't understand every word.
9. When listening to English, it is difficult to differentiate the words from one another.
10. I feel uncomfortable in class when listening to English without the written text.
11. I have difficulty understanding oral instructions given to me in English.
12. It is hard to concentrate on what English speakers are saying unless I know them well.
13. I feel confident when I am listening in English.
14. When I'm listening to English, I often get so confused I can't remember what I have heard.
15. I fear I have inadequate background knowledge of some topics when listening in English.
16. My thoughts become jumbled and confused when listening to important information in English.
17. I get worried when I have little time to think about what I hear in English.
18. When I'm listening to English, I usually end up translating word by word without understanding the contents.
19. I would rather not have to listen to people speak English at all.
20. I get worried when I can't listen to English at my own pace.
21. I keep thinking that everyone else except me understands very well what an English speaker is saying.
22. I get upset when I'm not sure whether I understand what I am listening to English.
23. If a person speaks English very quietly, I am worried about understanding.
24. I have no fear of listening in English as a member of an audience.
25. I am nervous when listening to an English speaker on the phone or when imagining a situation where I listen to an English speaker on the phone.
26. I feel tense when listening to English as a member of a social gathering or when imagining a situation where I listen to English as a member of a social gathering.
27. It is difficult for me to listen to English when there is even a little bit of background noise.
28. Listening to new information in English makes me uneasy.
29. I get annoyed when I come across words that I don't understand while listening to English.
30. English stress and intonation seem familiar to me.
31. When listening to English, I often understand the words but still can't quite understand what the speaker means.
32. It frightens me when I cannot catch a key word of an English listening passage.
Application levels: Tertiary

Tae-II Pae
Department of English Education
College of Education, Yeungnam University
280 Daehak-ro, Gyeongsan-si
Gyeongsangbuk-do 712-749, Korea
Phone: 053-810-3153
Fax: 053-812-1460
Email: paet@yumail.ac.kr

Received in September 2013
Reviewed in October 2013
Revised version received in November 2013