

The underlying factors of foreign language reading anxiety: Their effects on strategy use and orientation toward reading

Hyang-Il Kim

Sahmyook University, South Korea

<https://orcid.org/0000-0002-4340-0173>

hyangil@syu.ac.kr

Abstract

Both positive and negative emotions have been the focus of a wealth of language learning research in recent years. This can mostly be attributed to the established links between an individual's psychological responses, existing and emerging from learning, the learning processes they engage in, and the outcomes they achieve. A look at advanced research on language anxiety, a negative emotion that appears to be strongly involved in learning, has shown that specific information about reading anxiety is comparatively insufficient. This study, therefore, examines the underlying factors of reading anxiety in Korean university students, using the *Foreign Language Reading Anxiety Scale*. Subsequently, it explores how these anxiety factors are related to strategy use (i.e., metacognitive, cognitive, and support strategies) and orientation toward reading, which demonstrates a reader's active involvement while reading. Three sub-factors of reading anxiety were found: anxiety experienced during the process of reading English, confidence in reading, and anxiety when reading English characters. Interestingly, confidence or positive emotion was found to be a far more powerful positive contributor to Korean EFL university readers' use of metacognitive strategies and the degree of orientation to reading than was anxiety experienced while reading. Pedagogical implications are discussed.

Keywords: reading anxiety; reading strategy use; orientation to reading; reading confidence

1. Introduction

Language anxiety has been researched widely over four decades since the first leading studies (e.g., Chastain, 1975; Scovel, 1978) and related studies have offered information as to what individuals bring to the process of learning a target language and how they are involved in it. Compared to language learning anxiety, reading anxiety has only gained attention relatively recently and has been researched to examine its predictive power in reading performance and its impact on reading processes (Lien, 2011; Sellers, 2000; Shi & Liu, 2006; Tsai & Lee, 2018; Zhao et al., 2013). Sellers (2000) argues that successful reading, with the aim of adequate comprehension, requires a great deal of cognitive endeavors, such as orchestrating attention, memory, or problem-solving processes. Her findings suggest that anxiety while reading may limit cognitive processes by causing a distraction. It is not surprising, then, that reading anxiety affects some cognitive processes, such as readers' strategy use or an orientation to reading, which are required for effective and successful comprehension. A few studies provide some important findings about the relationships between anxiety and strategy use (Lien, 2011, 2016; Tsai & Lee, 2018); however, the results of these studies still seem cursory and appear to fall short of forming a comprehensive view of the impact of reading anxiety. In other words, such information needs to be explored further and a more systematic approach needs to be adopted. Extensive research in foreign language anxiety (e.g., Aida, 1994; Huang et al., 2010; Thompson & Lee, 2012, 2014) suggests that it is worth describing the nature of reading anxiety and then examining how it may potentially affect reading processes. To fill the gap evident in the current literature, this study first attempts to explore the underlying factors of reading anxiety using the scale constructed by Saito et al. (1999). It then examines how these uncovered factors are related to readers' strategy use and orientation to reading.

2. Literature review

2.1. Saito et al.'s (1999) foreign language reading anxiety scale

Anxiety appears as a pervasive emotional response in several language learning areas, with reading being no exception. More than three decades ago, Horwitz et al. (1986) set out to describe language learning anxiety in such a way as to distinguish it from general anxiety, and constructed the *Foreign Language Classroom Anxiety Scale* (FLCAS) based on its definition "as a distinct complex of self-perceptions, beliefs, feelings, and behaviors related to classroom language learning arising from the uniqueness of the language learning process" (p. 128).

Given that the FLCAS addresses anxiety mostly related to skills such as speaking and listening, Saito et al. (1990) developed an anxiety questionnaire centered heavily on reading, called the *Foreign Language Reading Anxiety Scale (FLRAS)*, related to language anxiety, but also being a distinct construct. Reading anxiety is viewed as specific psychological responses obtaining in and emerging from the learning environment unique to reading a foreign language, based on the definition of foreign language classroom anxiety by Horwitz et al. (1986).

By analyzing the data collected from American university students who were studying French, Russian, and Japanese, Saito et al. (1999) demonstrated that the FLRAS has a relatively good level of internal consistency ($\alpha = .86$), supporting its reliability as a measuring tool to gauge reading anxiety. They suggested that the two aspects of reading, that is, familiarity with the writing systems and cultural concepts of the target language, would be the main factors that result in arousing anxiety. The findings suggest that reading anxiety is likely to be caused by dealing with relatively unfamiliar writing systems and the background knowledge needed to learn the target language, and that anxiety levels may vary depending on the target language. In addition, they found that students' subjective difficulty in reading is positively related to the level of reading anxiety, and that there exists a negative correlation between the levels of reading anxiety and students' reading performances.

2.2. Studies in reading anxiety

Negative relationships between reading anxiety and reading proficiency are supported by many other studies (e.g., Saito et al., 1999; Sellers, 2000; Shi & Liu, 2006; Zhao et al., 2013). There is, however, some contradicting evidence. For example, Mills et al. (2006) did not find any significant correlations between reading anxiety and reading performance in 95 English speaking university students who were learning French. They interpreted the insignificant link as probably stemming from the simplicity of the task in their study. In addition, Zhao et al. (2013) partly failed to relate the level of reading anxiety to reading performance. Among the 114 English speaking students learning Chinese, Zhao and his colleagues found that elementary level 1 and intermediate level 1 students exhibited a significantly negative relationship between reading anxiety and their performance, but an insignificant relationship was found in elementary level 2 students. They inferred that this finding might be related to the vast amount of new words or text styles that have to be learned when first starting a new level, while the participants in elementary level 2 would have been used to a continuous stream of information. Although some inconsistent findings still exist in the literature, when keeping such variables (e.g., kinds of tasks or levels of students)

in mind, there seems to exist a general consensus on the negative role of reading anxiety in reading performance.

In search of explicating the nature of anxiety and exploring its role as an important variable in the foreign language context, a few instruments have been developed and used, such as the *Foreign Language Classroom Anxiety Inventory* (Walker & Panayides, 2014) and most notably the FLCAS. There have also been some attempts to examine the underlying factors of anxiety through the use of the FLCAS, although it appears there is no such research in the area of reading. For example, Aida (1994) found four factors: speech anxiety and fear of negative evaluation, fear of failing the class, comfortableness in speaking with Japanese people, and negative attitudes toward the Japanese class. Similarly, Huang et al. (2010) offer four factors based on data collected from Taiwanese students. The study by Thompson and Lee (2012) that examined the responses of Korean university students also resulted in an indication of anxiety factors, that is, English class performance anxiety, lack of self-confidence in English, confidence with native speakers of English, and fear of ambiguity in English, and compared their characteristics with those of the previous studies. Further studies using these underlying factors in conjunction with other important variables have shed light on the impact of anxiety on language learning. On the other hand, knowledge about the nature of anxiety in foreign language reading still appears to be superficial, without such exploration. This would seem to be a vital step in the investigation of the underlying characteristics of reading anxiety before examining the relationships with other important reading-related variables. The current study is, therefore, motivated by the need to fill such a gap in the previous literature. It aims to uncover the underlying factors of reading anxiety using the FLRAS developed by Saito et al. (1999) and examine their impact on the two following important reading constructs.

2.3. Reading strategy use and reading orientation

Reading, or learning to read in a foreign language, offers readers plenty of opportunities for engagement and interaction with reading texts in an attempt to derive meaning. In particular, a reader's involvement in reading processes, as an active agent, is well depicted by their use of reading strategies to improve comprehension. Not surprisingly, previous studies generally support the idea that skillful and unskillful readers exhibit different patterns of strategy use while reading. According to their findings, proficient, strategic reading requires metacognitive awareness that can be reflected by the readers' behavior, like planning and implementing based on a conscious awareness of the appropriate actions to take so as to reach a certain reading goal (Auerbach & Paxton, 1997; Malcolm,

2009; Sheorey & Mokhtari, 2001; Zhang, 2010; Zhang & Zhang, 2013). These studies commonly indicate that the use of metacognitive strategies may reflect such metacognitive awareness and have a positive relationship with reading performance (Malcolm, 2009; Zhang & Zhang, 2013; Wang et al., 2009).

In general, reading strategies are divided into three categories: metacognitive, cognitive, and support strategies (Malcolm, 2009; Phakiti, 2008; Sheorey & Mokhtari, 2001). Following the definitions of reading strategies offered by Sheorey and Mokhtari (2001, p. 436), metacognitive strategies are purposeful and carefully planned actions aimed to monitor or evaluate reading, such as "taking an overall view of a text," or "critically evaluating the information." Cognitive strategies are those actions and procedures that readers employ directly when working with a reading text, such as "adjusting reading speed," or "guessing the meaning of unknown words." Support strategies are related to the actions that readers can take to support comprehension such as "using a dictionary" or "taking notes." Among these three strategy categories, metacognitive strategies have been recognized to play the most significant role in proficient reading, as mentioned above.

In order to gain a deeper insight into the patterns of EFL (English as a foreign language) readers' reading processes, some recent studies have examined how their reading strategy use has been related to levels of reading anxiety. Lien (2011) reported a negative correlation between reading anxiety and reading strategy use using the data collected from 108 Taiwanese university students responding to the FLRAS and the *Survey of Reading Strategies* (SORS). In her later study using a path analysis, Lien (2016) found that 372 Taiwanese college students' EFL reading anxiety had a negative effect on their metacognitive strategy use, with a few other variables such as self-perceived English proficiency and satisfaction over their proficiency. In addition, the study by Tsai and Lee (2018) also produced similar results with 202 Taiwanese university students responding to the FLRAS and the SORS. Using strategy use as a predictor variable, they found that students' employment of such strategies had a negative influence on reading anxiety. This indicates that the more frequently students use reading strategies, the less anxiety they tend to experience. While such studies do describe the relationships between anxiety and strategy use shown in reading processes, they seem to lack in the detailed specifications that describe the relationships between these two variables.

Students' attention while reading affords another potentially rewarding avenue for the exploration of their engagement in the reading process. A few studies have attempted to examine how students pay attention to their learning (e.g., Guilloteaux & Dörnyei, 2008; Sellers, 2000); however, upon careful examination of the previous literature, there appears to exist some confusion in the use of the term *attention* (see Ellis, 2008). Tomlin and Villa (1994) describe attention from a cognitive and neuroscientific perspective. In their model, attention

is divided into three processes, namely, alertness, orientation, and detection. Alertness indicates an overall readiness to handle incoming stimuli. Orientation involves an attentional process that works to focus the various modes of attention on certain categories of sensory information while simultaneously excluding others. Detection refers to the cognitive registration of sensory information. Tomlin and Villa (1994) argue that the importance of attention in language learning increases from the first (alertness) to the third (detection) and claim that the three states can possibly exist as separate attentional processes in learning.

This study is based on the assumption that the term *orientation*, derived from the model mentioned above, is sufficient to index students' attentional process. In reading, orientation can be defined as the state in which students direct their attention to certain types or classes of information in order to construct meaning from text, and maintaining a state that allows a focus on the target information to the point that other sensory input is, to a large extent, excluded. This includes not being interrupted by trains of thought or external stimuli perceived to be unrelated to the goal of the reading at hand. In other words, reading orientation in this study indicates the state where students concentrate on reading to make meaning out of texts without inner or outer distraction.

In studies of young learners, Kaderavek et al. (2014) use the term *orientation* to describe a degree of interest, persistence, and attention while reading. They found that orientation is correlated with attention and effortful control that a child shows during reading activities. Although orientation appears to be a relatively new concept in language learning for adult learners, this finding by Kaderavek et al. (2014) supports the definition of orientation as attentional processes while reading used in this study. Orientation also appears susceptible to a reader's emotional states. Negative emotions, such as anxiety, fear, sadness, or disappointment are likely to overload a brain engaged in controlling cognitive processes, which results in a reduced ability to pay attention to and handle new information (Jalongo & Hirsh, 2010). In other words, experiencing reading anxiety may decrease reading orientation. The scarcity of empirical evidence in this area in the existing literature warrants further exploration into the relationship between reading anxiety and orientation toward reading.

Given the lack of research mentioned above, it seems that there is a critical need to establish links between these important variables in reading, and this study aims to fill in the current gaps by seeking answers to the following research questions (RQs):

- RQ1. What are the underlying factors of reading anxiety as described by the FLRAS?
- RQ2. How is reading anxiety related to reading performance?
- RQ3. What is the relationship between reading anxiety and reading strategy use?
- RQ4. Does reading anxiety affect EFL students' orientation to reading?

3. Method

This study employs exploratory factor analysis and hierarchical multiple regression analyses of data from 256 Korean EFL university students to investigate the interactions between the aforementioned variables.

3.1. Participants

The data were collected using the convenience sampling method based on availability and willingness to join the study. Participants were drawn from students studying English-related courses at one university in Seoul, South Korea at the time of study. 256 students, 122 males and 134 females, took part in the study voluntarily after its purpose was introduced. Their ages ranged from 18 to 26 years ($M = 21.4$, $SD = 1.92$). They were majors in various fields such as the humanities, languages, technology, and science. The average time they spent learning English as a foreign language was 11.6 years. The participants in these courses were required to have mid-term and final exams, and their grades were evaluated on a curve, meaning that many of them had to compete to be in the distributions they aimed for (e.g., getting an A or B).

3.2. Instruments

To measure anxiety and strategy use in reading, the following two questionnaires were used.

- The FLRAS, developed by Saito et al. (1999): 20 items were employed to gauge the participants' anxiety when reading English. The internal consistency of the 20 items was found to have an acceptable level (Cronbach's $\alpha = .84$).
- The SORS by Mokhtari and Sheorey (2002): 30 items were used to explore strategy use. They are categorized into three subsets: global/metacognitive strategies (13 items), problem-solving/cognitive strategies (8 items), and support strategies (9 items). Each item of these questionnaires was translated into Korean before being administered, and the translations were checked by a colleague who has had expertise in English education for more than seven years. The participants were advised to mark their answers on a 6-point Likert scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*) in both surveys. The internal consistencies of the first two categories (global/metacognitive strategies and problem-solving/cognitive strategies) were found to have acceptable levels

(Cronbach's $\alpha = .83$ and $.80$, respectively) and the last one (support strategies) was close to an acceptable level (Cronbach's $\alpha = .60$).

- Reading orientation: Based on the participants' subjective judgements toward the degree of orientation to reading – being engaged in the attentional process that focuses on certain types or classes of information related to the reading text with no distraction, they were asked to score on the 6-point Likert scale ranging from 1 (*unengaged*) to 6 (*fully engaged*). The descriptive statistics for the categories of reading strategies and reading orientation are illustrated in Table 1. The participants' answers to the items belonging to each category were averaged and the mean scores were employed as dependent variables (RQ3 and RQ4).
- Reading proficiency: For this study, TOEIC¹ reading scores were used. After data collection, the participants were asked to present their official TOEIC scores which were valid at the time of data collection. Among 256 participants, only 120 students provided the scores. For this study, only their reading scores were used ($M = 368.30$, $SD = 76.99$). According to ETS (2015), 385 or above is considered equivalent to “independent user – vantage” (B2) in the CEFR levels. The average TOEIC reading scores that these participants submitted was slightly lower than the minimum score of the B2 band in the CEFR, which means their English reading level can be considered as high-intermediate.

Table 1 Descriptive statistics for the categories of reading strategies and reading orientation ($N = 256$)

Variables	<i>M</i>	<i>SD</i>
Global/metacognitive strategies	4.03	0.69
Problem-solving/cognitive strategies	4.52	0.71
Support strategies	4.00	0.64
Reading orientation	3.10	0.97

3.3. Data analysis

In order to answer RQ1, investigation of the underlying factors in the FLRAS, all the 256 Korean students' responses to the 20 items of the FLRAS were put into SPSS (version 23.0) and analyzed using exploratory factor analysis. Maximum likelihood extraction method and a direct oblimin rotation method were employed.

¹ TOEIC or *Test of English for International Communication* is an authorized test that examines two parts of English competence, that is, listening and reading. The total score of each part is 495. The reading section with 100 questions consists of three major tasks: sentence completion, text completion, and reading comprehension.

The factor solutions' eigenvalues and a scree plot were examined to extract the number of factors. Factors with eigenvalues greater than 1.0 were retained (Hair et al., 2010; Kaiser, 1960).

For RQ2, a simple regression analysis was employed with reading anxiety as an independent variable and reading scores as a dependent variable to examine the effect of reading anxiety on reading proficiency. To address RQ3 and RQ4, this study employed a hierarchical multiple regression analyses. The averages of the three subset strategy scores and reading orientation scores were used as dependent variables for each question, and the averages of the three anxiety factor scores were used as independent variables (see Tables 1 and 3).

4. Findings

For RQ1 relating to identifying the underlying factors of reading anxiety, exploratory factor analysis was conducted. The first trial with 20 items resulted in a four-factor solution that accounts for 46.38% of the total variance ($\alpha = .81$). The four items were loaded below the value of 0.4 (items no. 9, 16, 17, and 19). The second attempt after removing these four items yielded a three-factor structure, accounting for 49.59%. This time, it was found that only one item did not have the loading value of more than 0.4 (item no. 20) and it was removed. The final solution of the three-factor structure with 14 items (item no. 4 was deleted for having a lower loading value than 0.4) accounts for 51.87% of the total variance² and Cronbach's alpha is slightly improved ($\alpha = .84$).

The first factor (F1), labeled "Anxiety experienced during the process of reading English," includes six items that indicate the anxiety felt by EFL students while reading that arises from experiencing confusion, nervousness, and getting upset based on the difficulty of the reading and explains 30.20% of the variance ($\alpha = .85$). The second factor (F2) includes four items and was labeled "Confidence in reading" since the items address enjoyment, satisfaction, and confidence in reading English. With reversed coding, this factor could be termed a lack of confidence in reading, but to facilitate the examination of its natural relationship it was labeled as confidence. F2 explains 14.57% of the variance ($\alpha = .83$). The last factor (F3) includes four items and was named "Anxiety when reading English characters" since the items mainly indicate anxiety when reading what is written in English characters. F3 explains 7.10% of the variance ($\alpha = .67$). Table 2 shows the factor loadings for each factor.

² The meta-analysis conducted by Peterson (2000) indicates that the average of explanatory value is about 56.6%. The explanatory value in this study was approximately 52% of the total variance, which is near the reported average. Therefore, it was decided to use this result of the factor analysis for the further analysis.

Table 2 Factor loadings for foreign language reading anxiety

	Factor		
	1	2	3
<i>Factor 1: Anxiety experienced during the process of reading English</i>			
1. I get upset when I'm not sure whether I understand what I am reading in English.	.796		
3. When I'm reading English, I get so confused I can't remember what I'm reading.	.795		
2. When reading English, I often understand the words but still can't quite understand what the author is saying.	.703		
5. I am nervous when I am reading a passage in English when I am not familiar with the topic.	.627		
7. When reading English, I get nervous and confused when I don't understand every word.	.550		
6. I get upset whenever I encounter unknown grammar when reading English.	.533		
<i>Factor 2: Confidence in reading</i>			
12. I enjoy reading English.		.832	
13. I feel confident when I am reading in English.		.792	
14. Once you get used to it, reading English is not so difficult.		.723	
18. I am satisfied with the level of reading ability in English that I have achieved so far.		.666	
<i>Factor 3: Anxiety when reading English characters</i>			
11. I am worried about all the new symbols I have to learn in order to read English.			.724
10. By the time you get past the funny letters and symbols in English, it's hard to remember what you're reading about.			.541
15. The hardest part of learning English is learning to read.			.518
8. It bothers me to encounter words I can't pronounce while reading English.			.417

The descriptive statistics for the three-factor scores are presented in Table 3. Based on the three-factor structure revealed in the factor analysis, the participants' responses to the items that belong to each factor were averaged and the mean scores were used as independent variables to address the other research questions (RQ3 and RQ4).

Table 3 Descriptive statistics for the three underlying factors of the FLRAS ($n = 256$)

Variables	Mean	SD
FA1	4.32	0.91
FA2	3.54	1.05
FA3	3.36	0.93

Note. FA1 = anxiety experienced during the process of reading English; FA2 = confidence in reading; FA3 = anxiety when reading English characters

RQ2 addresses the impact of reading anxiety on performance. Among the 256 participants, 120 students presented the official TOEIC reading scores ($M = 368.30$, $SD = 76.99$). Their anxiety (using the total scores of the 14 FLRS items – the four items under F2 were reverse coded this time) was shown to be slightly more than the median ($M = 3.81$, $SD = .68$). A regression analysis indicated that reading anxiety was a significant predictor of the TOEIC reading scores ($F(1, 118) = 15.15$, $p = .0001$), explaining 11% of total variance ($\beta = -.34$). This regression model indicates a significant reverse relationship between the two variables. In other words, the more the students exhibit anxiety toward reading, the lower their proficiency.

RQ3 was concerned with the relationship between reading anxiety and reading strategy use. In order to explore the roles of the three anxiety factors, F2 – confidence in reading – was used without being reverse coded. First, the way the three anxiety factors influence metacognitive strategy use (MSU) was examined. A hierarchical multiple regression analysis indicates that Model 2 with F1 and F2 as predictor variables ($R = .51$, $R^2 = .26$) accounts for approximately 21% of the total variance, more than Model 1 with F1 as a single predictor ($R = .23$, $R^2 = .05$), as shown in Table 4. The R square change from Model 1 to Model 2 was significant ($p = .0001$). Between the two predictors in Model 2, F2 ($\beta = .46$) is found a more significant predictor of MSU than F1 ($\beta = .31$). On the other hand, Model 3, which includes F1, F2, and F3 as predictor variables, explained the same total variance as Model 2, and the R square change from Model 2 to Model 3 was insignificant ($p = .39$).

Table 4 Regression models with MSU as a dependent variable

		Unstandardized coefficients		Standardized coefficients			
		B	Std. Error	Beta	t-value	p-value	R ²
Model 1	(Constant)	3.27	.21		15.93	.00	.05
	FA1	.18	.05	.23	3.81	.00	
Model 2	(Constant)	1.94	.24		8.04	.00	.26
	FA1	.24	.04	.31	5.63	.00	
	FA2	.30	.04	.46	8.36	.00	
	(Constant)	1.89	.25		7.55	.00	
Model 3	FA1	.22	.05	.28	4.54	.00	.26
	FA2	.31	.04	.46	8.38	.00	
	FA3	.04	.05	.05	.86	.39	

Note. FA1 = anxiety experienced during the process of reading English; FA2 = confidence in reading; FA3 = anxiety when reading English characters

Secondly, how the three anxiety factors influence cognitive strategy use (CSU) was investigated. A hierarchical multiple regression analysis indicated that Model 5 with F1 and F2 as predictor variables ($R = .50$, $R^2 = .25$) accounts for approximately 14% more of the total variance than Model 4 with F1 as a single predictor ($R = .33$, $R^2 = .11$). The R square change from Model 4 to Model 5 was significant ($p = .0001$). As illustrated in Table 5, F1 ($\beta = .39$) was found to be as significant a predictor of CSU as F2 ($\beta = .39$), with the same values. On the other hand, Model 6 that includes F1, F2, and F3 as predictor variables explains approximately 1% of the total variance more than Model 5, and the R square change from Model 5 to Model 6 was insignificant ($p = .10$).

Table 5 Regression models with CSU as a dependent variable

		Unstandardized coefficients		Standardized coefficients			
		B	Std. Error	Beta	t-value	p-value	R ²
Model 4	(Constant)	3.42	.20		16.79	.00	.11
	FA1	.25	.05	.33	5.52	.00	
Model 5	(Constant)	2.28	.25		9.19	.00	.25
	FA1	.30	.04	.39	7.10	.00	
	FA2	.26	.04	.39	7.00	.00	
Model 6	(Constant)	2.39	.26		9.34	.00	.26
	FA1	.34	.05	.44	7.05	.00	
	FA2	.26	.04	.38	6.94	.00	
	FA3	-.08	.05	-.10	-1.65	.10	

Note. FA1 = anxiety experienced during the process of reading English; FA2 = confidence in reading; FA3 = anxiety when reading English characters

With the third subcategory, support strategy use (SSU) with the three anxiety factors, a hierarchical multiple regression analysis shows that Model 9 with all three anxiety factors as independent variables ($R = .47$, $R^2 = .22$) explains approximately 2% more of the total variance when compared to Model 8 with F1 and F2 as predictors ($R = .45$, $R^2 = .20$). The R square change from Model 8 to Model 9 was significant ($p = .02$). Model 8 accounts for approximately 4% more of the total variance when compared to Model 7 with a single factor of F1 ($R = .40$, $R^2 = .16$), showing a significant R change from Model 7 to Model 8 ($p = .0001$). Among the three anxiety factors, it was found that F1 is the strongest contributor ($\beta = .36$), followed by F2 ($\beta = .22$), and F3 ($\beta = .15$), as shown in Table 6.

Table 6 Regression models with SSU as a dependent variable

		Unstandardized coefficients		Standardized coefficients			
		B	Std. Error	Beta	t-value	p-value	R ²
Model 7	(Constant)	2.80	.18		15.63	.00	.16
	FA1	.28	.04	.39	6.84	.00	
Model 8	(Constant)	2.23	.23		9.62	.00	.20
	FA1	.30	.04	.43	7.54	.00	
	FA2	.13	.03	.21	3.74	.00	
Model 9	(Constant)	2.09	.24		8.79	.00	.22
	FA1	.25	.05	.36	5.60	.00	
	FA2	.13	.03	.22	3.87	.00	
	FA3	.10	.04	.15	2.28	.02	

Note. FA1 = anxiety experienced during the process of reading English; FA2 = confidence in reading; FA3 = anxiety when reading English characters

RQ4 addresses the relationship between reading anxiety and the degree of EFL students' orientation during the reading process. To address the question,

the averages of the three anxiety factor scores were used as predictor variables and the average of the orientation scores was used as dependent variables. When examining Model 10, which has F1 as a single factor, it was found to approach a significant value ($p = .055$). However, when F2 was put together with F1 as predictor variables, the regression model became significant ($p = .0001$), accounting for 27% of the total variance. It is interesting to note that the nearly significant value of F1 becomes insignificant ($p = .52$) when F2 is considered together in Model 11 (see Table 7). Model 12 with all three anxiety factors as independent variables ($R = .53$, $R^2 = .28$) explained approximately only 1% more of the total variance than Model 11 ($R = .52$, $R^2 = .27$), but saw a significant R change from Model 11 to Model 12 ($p = .02$). When examining the values of F2 and F3 in Model 12, F2 is a stronger contributor ($\beta = .50$) to the degree of orientation than F3 ($\beta = -.14$).

Table 7 Regression models with orientation to reading as a dependent variable

		Unstandardized coefficients		Standardized coefficients			
		B	Std. Error	Beta	t-value	p-value	R ²
Model 10	(Constant)	3.65	.29		12.48	.00	.01
	FA1	-.13	.07	-.12	-1.93	.055	
Model 11	(Constant)	1.60	.34		4.76	.00	.27
	FA1	-.04	.06	-.04	-.65	.52	
	FA2	.47	.05	.51	9.30	.00	
Model 12	(Constant)	1.81	.34		5.25	.00	.28
	FA1	.04	.07	.03	.55	.58	
	FA2	.46	.05	.50	9.26	.00	
	FA3	-.15	.06	-.14	-2.36	.02	

Note. FA1 = anxiety experienced during the process of reading English; FA2 = confidence in reading; FA3 = anxiety when reading English characters

5. Discussion

The current study attempted to tap into the complexity of the relationships between crucial variables involved in reading processes which cannot be easily noticed. The relevance of the study lies in the fact that it sought to use factor analysis to explore the FLRAS, which has been only superficially investigated thus far. In addition, it complements previous research by revealing more details about the nature of the relationship between reading anxiety and other major cognitive aspects of reading, such as the use of reading strategies. Further, it indicates the effect of these anxiety factors on the degree of students' orientation toward reading.

RQ1 was addressed by examining the underlying factors of the FLRAS with data collected from Korean university students. The FLRAS was originally

constructed on two potential anxiety yielding concepts found in a study by Saito et al. (1999): students' awareness of the writing systems of a target language and the awareness of its cultural norms. The chief norms of the original FLRAS construct were partially supported by the factor solution of the present study. Interestingly, the English writing system (i.e., symbols and characters) was found to be an anxiety provoking factor among Korean university students. The anxiety that arises from unfamiliarity with writing systems – named Anxiety when reading English characters (F3) in this study – was evidenced to be one of the components of the FLRAS, accounting for 7.10% of the total variance. This means that Korean EFL students, despite decades of exposure to English in an academic setting, may still experience a significant level of unfamiliarity with the writing system, or individuals who studied English for years can still be anxious about reading texts merely because of the letters and symbols. This may be caused by the fact that the two languages have completely different writing systems. This finding is in line with many previous studies that indicate that students may experience reading anxiety in cases when there are differences in writing systems between their native language and a target language (e.g., Saito et al., 1999; Zhang, 2002; Zhao et al., 2013). However, a closer examination of the students' motivation may be warranted due to the strong possibility of their reason for learning the target language playing an impactful role in the level of anxiety felt.

This study did not, however, support Saito et al.'s (1999) claim that unfamiliarity with target language culture may elicit reading anxiety. Items 19 and 20 of the FLRAS, directly dealing with culture concepts, failed to load on any factors. For native speakers of English in the study by Saito et al. (1999) who were learning French, Japanese, and Russian, the lack of cultural background knowledge about these target languages was shown to raise anxiety when reading. On the other hand, for the Korean university students who were learning English at the time of data collection, it was not found as an anxiety provoking factor. The possible cause of such contradicting findings is likely a result of the differences in the degree of background cultural knowledge of the target languages in the two studies. For example, in the study by Saito et al. (1999), the majority of the participants had no experience learning their target languages in high school and more than 60% of the total number of participants were freshmen and sophomores, which indicates that these participants' experience of learning and their exposure to the target languages were relatively low. Many scholars support the claim that the amount of cultural knowledge significantly influences readers' reading comprehension (see Abu-Rabia, 1996; Hudson, 2007; Pritchard, 1990) and seemingly determines the level of anxiety when reading. The duration of the participants' English learning experience in this study is much longer than in the study by Saito et al. (1999). Most Korean university participants

start learning English officially from the third grade of elementary school (Korean Ministry of Education, 2019). Their background information suggests that the average time they spent learning English was 11.6 years. In addition, due to trends in globalization and Korea's special relationship with the United States, English itself serves not only as a tool of communication for Koreans but is also relatively important as a powerful tool for obtaining social opportunities (Shin & Park, 2015). It is likely that most Korean university students have become reasonably familiar with the culture of prominent English speaking countries, by activities such as investing time in a target language context, participating in exchange learning programs, or traveling; or indirectly by watching movies, actively engaging in social networking sites, and reading international news with the help of current sophisticated technologies. Therefore, it appears that the familiarity with the target language culture was not a significant anxiety yielding factor for the current participants.

The other two underlying factors of the FLRAS are anxiety experienced during the process of reading English (F1) and confidence in reading (F2). F1 can be defined as negative emotional responses like confusion, nervousness, uneasiness, or getting upset that arise when a reader is engaged in the reading process. Not surprisingly, this factor was found to be a major component of reading anxiety, explaining more than 30% of the total variance, for EFL Korean university students when engaged in reading processes. F2 is directed at EFL readers' confidence as it addresses reading enjoyment, satisfaction, and self-belief. Reversely interpreted, the finding also suggests that Korean EFL readers have anxiety caused by a lack of confidence in reading English texts.

RQ2 addressed the relationship between reading anxiety and reading performance. Although this result was obtained from less than half of the total number of participants ($N = 120$) who submitted the official TOEIC scores by the time of this research, the finding shows consistency with most previous studies (Saito et al., 1999; Sellers, 2000; Shi & Liu, 2006; Zhao et al., 2013), that is, a negative relationship was found. This result may indicate that reading anxiety is likely to hamper reading skills. More specifically, the issues that are likely to lower Korean students' achievements in reading are: (a) encountering anxiety during reading processes, (b) not possessing enough confidence or lacking positive emotional feelings toward English reading, and (c) having anxiety when encountering unfamiliar English characters or combinations.

It may be reasonable to infer that the impact of reading anxiety on reading processes may result in less reading achievement. In particular, this study has examined the impact of EFL readers' strategy use, which is one of the important variables that has been shown to greatly influence reading performance in previous literature, on reading processes while under the influence of anxiety. Specifically, RQ3 examined how these three factors of reading anxiety and the three sub-

categories of reading strategy use are inter-related. First, regression models were run that include F1, F2, and F3 as independent variables and MSU as a dependent variable. Model 2 with F1 and F2 as predictors were identified to have five times more explanatory value (26% of the variance) than Model 1 with F1 as a single predictor (5% of the variance). The *R* square change from Model 1 to Model 2 was significant. In other words, to understand how MSU is influenced by anxiety that arises while reading English, it is crucial to also consider the amount of confidence in reading that an individual brings in. Based on this result, both F1 and F2 need to be considered together when examining how metacognitive strategies are used, but it should also be noted that F2 (confidence) has a stronger predictor value than F1 (anxiety) (see Table 4). It suggests that the more anxious students become while reading English texts, the more MSU they use, but students who have confidence in reading are likely to use far more MSU, that is, strategies related to planning, monitoring, and evaluating, than when they become anxious. According to Fredrickson (2013), positive emotions may help an individual broaden his or her awareness in perceptual, semantic, social, and physical areas. To be more precise, when an individual is experiencing positive emotions, he or she has the tendency to recognize more resources visually and react in a wider variety of ways as compared to when experiencing negative emotions (MacIntyre & Vincze, 2017). Likewise, an individual with confidence in reading, that is, one of the positive emotions, may engage in more diverse reading processes and confidently employ global strategies. In other words, confidence may help EFL readers to more actively employ reading strategies reflecting metacognitive awareness. Therefore, it is necessary to examine both variables in order to understand students' use of metacognitive strategies while keeping in mind that confidence in reading is a more effective drive for EFL readers to more actively engage in reading processes than is anxiety.

Concerning the impact of the three anxiety factors on CSU, Model 5, containing F1 and F2 as predictor variables, exhibits more explanatory value (25% of the variance) than Model 4 (11% of the variance). As shown in Table 5, the *R* square change from Model 5 to Model 6 was insignificant. In other words, much like MSU, the CSU in Korean university students was not affected by F3, anxiety when reading English characters. This finding is predictable since the two kinds of strategies are not directly related to reading English symbols and letters (i.e., MSU is related to purposeful and carefully planned actions deployed to monitor or evaluate reading, while CSU describes procedures that readers employ directly when working with a reading text). Anxiety related to unfamiliar writing systems, therefore, may not affect the level of their use of metacognitive and cognitive strategies to aid comprehension. However, unlike the patterns of the independent variables' predictor values for MSU, those of CSU were shown to be

the same ($\beta = .39$ each). Given that cognitive strategies are the ones that help directly solve problems encountered while reading, such as when failing to identify an author's intention or not properly comprehending the text, the anxiety caused by such nervousness and confusion in reading processes may lead students to use cognitive strategies as frequently as when they have confidence in reading.

Unlike the relationships of anxiety factors with MSU and CSU, the results suggest that all three anxiety factors influence SSU. Model 9 in Table 6 explains approximately 22% of the variance and the *R* square change from Model 8 to Model 9 was significant ($p = .02$), although this model has only 2% more explanatory value than Model 8. As seen in Model 9, F1 has the strongest predictor value of SSU among the three anxiety factors, even more than that of confidence in reading. Unlike with the other subsets of strategies, when students become anxious due to encountering difficult English words that are hard to pronounce or not being able to remember what they are reading due to unfamiliar letters, they are likely to employ basic helping mechanisms or support strategies, such as underlying or highlighting a certain area, using a dictionary, or translating from English into Korean.

Lastly, this study revealed how anxiety provoking factors influence the degree of reading orientation. When examining Table 6, F1 alone was at a nearly significant level ($p = .055$). However, when F2 was included in Model 11, F1 lost its significance, leaving confidence in reading as the most powerful predictor of the level of reading orientation. Model 12 with all three anxiety factors as independent variables had approximately only 1% more explanatory value than Model 11, of which the *R* change was significant ($p = .02$). This result indicates that the more confidence students have in reading English texts, the more likely they are to manifest reading orientation, or an attentional state of not being distracted by stimuli irrelevant to the goal of understanding the reading at hand. On the other hand, anxiety experienced during the reading process did not affect reading orientation. In a similar way, the predictor value of anxiety stemming from trouble with the English writing system is quite marginal as compared to that of confidence in reading, although it seems to be inversely proportional to the level of orientation. This finding does not support the assertion by Jalongo and Hirsh (2010) that negative emotions may play a detrimental role in the ability to control cognitive processes. Rather, positive emotions such as confidence possibly enhance such controls over reading orientation. A study by McGeown et al. (2015) provides evidence that confidence is an important factor which leads to reading success. Although the scope of the current study does not allow to shed light on any links between reading orientation and reading performance, it seems plausible that orientation to reading may serve as one of the factors that help strongly connect confidence to reading success, and this needs to be studied in the future.

While this study started by examining the relationship between anxiety and other factors, what emerges from the findings partly reflects the importance of positive psychology (e.g., Dewaele et al., 2018; Dewaele & MacIntyre, 2014; MacIntyre & Gregersen, 2012). According to MacIntyre and Gregersen (2012), positive emotions help build learning resources because such emotions are likely to widen an individual's perspective. In turn, this facilitates the individuals' learning of the target language. This study shows that an individual's confidence or positive emotion is a far more powerful contributor to the enhancement of Korean EFL university readers' exercise of metacognitive strategies and their reading orientation than anxiety while reading.

There are a few limitations to the present study. First, the student data were collected using self-reported questionnaires that ask for the participants' subjective judgements. There exists a possibility that the participants provided answers to the survey items reflecting external expectations. Therefore, for more insight, similar studies conducted in the future should also take into account qualitative data. Since this study focused on the Korean EFL context specifically, future research may investigate whether these data are transferable to other contexts as well. Second, the reliability and validity of reading orientation could be more strongly established. The findings suggest that *orientation toward reading* is worthy of receiving more focus in future research and needs to be developed into a more reliable construct, the exploration of which is likely to bear fruit in literature if investigated more thoroughly. In addition, the current scope of the study has limitations when investigating the students' growth patterns and their relationships with these variables. It is worth documenting the changes in these relationships in further studies.

6. Conclusions

Since the 1970s, a great deal of academic interest has been paid to learner anxiety, and its impact on other important variables has been actively studied, providing considerable and informative findings. This study was motivated to gain a clearer picture of the relationship between anxiety and strategy use in reading, particularly the inner-complexity of their relationships. Indeed, the results of this study indicate that anxiety has a negative impact on reading performance and it influences other cognitive variables for the sample of Korean university students. Along with such research findings, however, certain important roles that positive emotions play have been revealed, reflecting a current focus on positive psychology (MacIntyre & Gregersen, 2012; MacIntyre & Mercer, 2014; MacIntyre & Vincze, 2017).

The results of this study indicate where teachers should focus to lead students to increase the efficiency of their reading process. In particular, it would seem to be more effective for teachers to pay more attention to enhancing positive

emotions such as enjoyment, satisfaction, or confidence, rather than struggling to reduce anxiety. It is also advisable for teachers to implement reading strategy instruction so that students can build more mastery experiences through successfully performing reading tasks and thus have a more positive learning experience.

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