

“Does English make you nervous?” Anxiety profiles of CLIL and non-CLIL students in Sweden

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This study aims to explore the relationship between Content and Language Integrated Learning (CLIL) vs. non-CLIL students and language learning anxiety. As part of a larger research project, this study is conducted at the high school level in Sweden and includes students enrolled in CLIL programs (N=109) and non-CLIL programs (N=68) at three different schools. While both CLIL and non-CLIL groups study English as a separate subject, the difference between the two groups is that part of the curriculum is taught through the medium of English in the CLIL programs. The participants completed the Swedish version of the Foreign Language Classroom Anxiety Scale (FLCAS) (Horwitz, Horwitz & Cope 1986), which is a measure of anxiety that has been used since its inception. First, the factor structure of the instrument was explored in order to ensure its applicability, and then analyses on CLIL status and gender were completed. An exploratory factor analysis and subsequently five 2 x 2 factorial ANOVAs were performed, illustrating the relationship of CLIL status and gender on language learning anxiety. Our study fills a gap in the research by providing baseline data for a longitudinal study of CLIL students in Sweden, thereby allowing the comparison of anxiety over time.

Keywords: anxiety, CLIL, Sweden, gender, individual differences, SLA

1 Introduction

Whereas Content and Language Integrated Learning (CLIL) is increasingly common in Europe as a way to cater to the language learning needs in our globalized world (e.g. Dalton-Puffer 2011), little is known about its relationship to language learning anxiety, a complex issue involving many constructs. This study aims to explore the relationship between CLIL vs. non-CLIL students and language learning anxiety.

As part of a larger research project, this study is conducted at the high school level in Sweden and includes students enrolled in CLIL programs (N=109) and non-CLIL programs (N=68) at three different schools, using the Swedish version of the Foreign Language Classroom Anxiety Scale (FLCAS) (Horwitz et al. 1986). This study fills a void in the literature in that there have thus far been few studies illustrating anxiety profiles of CLIL students. Our analysis provides

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ISSN: 1457-9863

Publisher: Centre for Applied Language Studies

University of Jyväskylä

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<http://apples.jyu.fi>

baseline data for a longitudinal study of CLIL students in Sweden, thereby allowing the comparison of anxiety over time. Implications are discussed in this paper, including the notion that educators need to be aware of their learners' level of language learning anxiety to assist them in maximizing their language learning potential. The conclusion of this study calls for more longitudinal work in the area of individual differences in order to fully illustrate the complex and adaptive profiles of language learners (e.g. Larsen-Freeman & Cameron 2008).

2 Review of the Literature

2.1 Language learning anxiety

Anxiety is an important variable to take into account when studying language learning and anecdotal evidence of language learning anxiety is overwhelming. From a theoretical perspective, anxiety is defined as an emotional state having to do with fear, panic and worry (Abu-Rabia 2004), but according to Scovel (1978), who redefined foreign language learning, anxiety is seen as binary, with a facilitating and a debilitating side to it. Anxiety can have negative effects on the individual's language learning potential, and is, therefore, a highly relevant condition to investigate. Insofar as measuring the concept of classroom anxiety, Horwitz et al. (1986) created the most commonly used measure of language learning anxiety, the Foreign Language Classroom Anxiety Scale (FLCAS), which they used to identify "foreign language anxiety as a conceptually distinct variable in foreign language learning" to illustrate the idea that "many people find foreign language learning, especially in classroom situations, particularly stressful" (p. 125). Both Horwitz, Horwitz, and Cope (1986) and MacIntyre and Gardner (1994) indicate that language learning anxiety (state anxiety) is distinct from general anxiety (trait anxiety). Although several studies have concluded that foreign language anxiety is a result of insufficient language abilities, including those in the L1 (e.g. Sparks & Ganschow 1991, 2007; Sparks, Ganschow & Javorsky 2000), MacIntyre and Gardner (1994) showed otherwise in their study, indicating that anxiety is a construct unrelated to cognitive or linguistic deficiencies, a view to which we adhere in the present paper. Specifically, we examine the feelings of apprehension about language learning in a classroom setting.

Reliability and validity testing have been carried out on the FLCAS, and are reported in Horwitz (1986). As Horwitz (1986) stated, before the FLCAS was created, there was not an anxiety measure that tested "an individual's response to the specific stimulus of language learning" (p. 559). In the context of classroom language learning, the FLCAS assesses "the degree of anxiety, as evidenced by negative performance expectancies and social comparisons, psychophysiological symptoms, and avoidance behaviors" (Horwitz 1986: 559). The process of the creation of the FLCAS had multiple steps, including focus group interviews with university students, consultation with university counselors, personal experiences of the author, and review of previously developed instruments. After its creation, the instrument was piloted with about 300 students. As stated in Horwitz (1986), "Internal consistency, as measured by Cronbach's alpha coefficient, was .93, and test-retest reliability over 8 weeks was $r = .83$, $p = .001$, $n = 78$ " (p. 560). Additionally, criterion-related construct

validity was also measured by comparing the FLCAS with a variety of other instruments (e.g. State-Trait Anxiety Inventory, Personal Report of Communication Apprehension, Fear of Negative Evaluation Scale, and the Test Anxiety Scale). “These results suggest that foreign language anxiety can be discriminated from these related constructs, although it appears that foreign language classroom anxiety is moderately associated with test anxiety” (Horwitz 1986: 561). This reliability and validity report is ended with the statement: “Results to date suggest that foreign language anxiety can be reliably and validly measured and that it plays an important role in language learning” (p. 561). Since this instrument was created to measure classroom language learning anxiety, it is a suitable instrument to measure language learning anxiety in CLIL and non-CLIL classrooms, as it does in the current study. It is important to note that the 33 questions that compose the FLCAS have been shown to measure classroom language learning anxiety, illustrated by the aforementioned reliability and validity tests. However, the questions can be grouped together in a variety of ways (underlying constructs), and it is important to study these constructs in a variety of settings.

No specific factors were built into the FLCAS upon its creation, although many researchers have incorrectly understood that the FLCAS measures communication apprehension, fear of negative evaluation, and test anxiety:

Actually, I do not see the FLCAS as being composed of communication apprehension, fear of negative evaluation, and test anxiety as some published works argue. Horwitz, Horwitz, & Cope specifically state that these anxieties are only related to FLA and that FLA is not simply composed of them. In fact they argue that foreign language anxiety is different from those three constructs (E. Horwitz, personal communication, 6 October, 2011).

Thus, explanatory factor analyses (EFA) from diverse contexts are necessary to understand how classroom language learning anxiety manifests itself in diverse settings.

There have been several studies that link anxiety and achievement; for example, Abu-Rabia (2004); Aida (1994); Coulombe (2000); Horwitz (1986); Kim (2009); Malallah (2000); Saito and Samimy (1996) all show that the participants’ final grades have an inverse relationship with scores on the FLCAS; Horwitz (2001) provides a summary of several important studies involving foreign language anxiety and achievement. Additionally, several studies (e.g. MacIntyre, Noels & Clément 1997; Gardner & MacIntyre 1993) have also found an inverse relationship between the scores on the FLCAS and language proficiency self-ratings.

Many studies have indicated that the FLCAS contains the latent variables of communication apprehension, fear of negative evaluation, and test anxiety. However, previous results do not support this view (see Thompson & Khawaja 2015; Thompson & Lee 2013, for further elaboration). Consequently, it is imperative to perform EFA on data from diverse contexts to investigate the cultural implications of language learning anxiety.

One of the first analyses of using a EFA with the FLCAS is from Aida (1994), finding a four-factor structure with 96 American students studying Japanese. More recently, Thompson and Lee (2013) also found a four-factor structure in a

study with 123 EFL learners in Korea, although the factor names and item loadings were somewhat different from those of Aida (1994). A closer look at the latent variables in these two studies illustrate the need to avoid the assumption that results from a factor analysis in one context will always transfer to a different context. One similarity between the two studies was with F3; the third factor in both studies resulted in the same three questions loading onto that factor: Q32, Q14, and Q11. Thompson and Lee (2013) suggested that “The similarity of the results for factor 3 in both studies could indicate that similar levels of anxiety exist with regards to interactions with native speakers regardless of the language being learned or the cultural background of the student. As an extension of this idea, we can postulate that the anxiety that results from interactions of native speakers is perhaps a universal phenomenon” (p. 744). Factor 1 in both studies also had several overlapping questions; Thompson and Lee (2013) suggested that “The similarity in these results also point towards the idea that all students to some extent have anxiety in the classroom and to some extent lack self-confidence when learning a second or foreign language” (p. 745). However, Thompson and Lee (2013) found a latent variable that did not appear in Aida (1994): Fear of ambiguity in English, and there was a call for research in different contexts to investigate this factor further. In the Turkish context, Thompson and Khawaja (2015) found a similar factor structure to Thompson and Lee (2013), and the context presented in the current study (Swedish EFL learners) provides an additional data point to explore the potential factor structures of the FLCAS in diverse contexts, as suggested in Thompson and Lee (2013).

2.2 Language Learning Anxiety in the Swedish context

Anxiety in the Swedish/Scandinavian context has not been widely researched and is clearly an area in need of further investigation. McGee (1999) explored the level of language anxiety among students from Sweden, Italy, Germany, France and China studying at a Swedish university. The results indicate that the Chinese students suffered from high levels of language anxiety in connection with listening and speaking (p. 184) and furthermore, that the Swedish students showed by far the highest confidence in all four skills (reading, writing, speaking and listening). Thus, it seems that the Swedish students have the least amount of language anxiety among these informants. In a study on slightly younger learners of English, age 14-15, Sundqvist (2009) investigated the relationship between extramural exposure to English and oral proficiency. One of the factors accounted for was speaking anxiety, and the results indicate that the majority of these Swedish adolescents were not very anxious at all about speaking English (p. 179). In addition, Sundqvist (2009) found a statistically significant correlation between oral proficiency and language anxiety; the most proficient students were also those exhibiting the lowest levels of anxiety.

A minor study (Ekström 2013) investigating foreign language anxiety among high school students in Sweden corroborates the above reported results. The majority of informants report very low levels of anxiety, and when broken down according to gender, the male students were relatively more anxious about listening and writing, whereas the females showed relatively higher levels of anxiety in speaking and reading (p. 24). Furthermore, the results show that

multilingual students display the most relaxed attitude towards communicating in the target language (p. 27).

In a large-scale, quantitative study on the impact of various factors on grades, Klapp-Lekholm (2008) used a database with information on a cohort of more than 99,000 Swedish individuals. One of the variables investigated was anxiety. The factor was named “coping,” which was “hypothesized to reflect student anxiety about school work and how the student is coping in school” (p. 61). Thus, the focus in the study was on anxiety in general, rather than specifically on language or speaking anxiety. However, the findings are nevertheless of some interest to the present article in that a significant correlation was found between grades in both Swedish and English language class, and level of anxiety. Students who reported low levels of anxiety were also those who obtained the highest grades.

2.3 The Interface of Anxiety, CLIL, and Gender

Given the profound effect anxiety can have on language learning, it is only expected that several studies on various perspectives of CLIL also touch on the interface of anxiety and CLIL. In a CLIL class, the focus is on conveying content knowledge through the use of (in the present case) English, whereas in English as a foreign language (EFL) class, the focus is on the language itself. Thus, in theory, levels of language learning anxiety ought to be lower when the focus is on communicating content (CLIL) than when it is on language form (EFL). In an early publication on the potential of CLIL, Muñoz (2002), for instance, refers to CLIL as “a relatively anxiety-free environment” (p. 32). Maillat (2010), on the basis of a study on CLIL and non-CLIL classroom interaction, discusses the filter caused by the use of an L2 as the medium of instruction, resulting in what he calls “the mask effect” (p. 39). In other words, the learner feels as though using the L2 is like putting on a mask behind which one can hide one’s real persona, and is thus less worried about making mistakes. According to Maillat (2010), the mask effect helps lower anxiety levels and, thus, facilitates L2 learning. At OneStopEnglish, a website for English L2 teachers hosted by the Macmillan Education group (2014), CLIL is characterized as an environment in which anxiety is lowered. However, in none of these instances is it clear whether there were any initial differences between students in the CLIL and non-CLIL groups concerning anxiety levels, thus making it virtually impossible to claim a “CLIL effect” on anxiety. Furthermore, there is currently no study focusing on anxiety in a CLIL environment that includes the gender perspective; thus, there is a void in research concerning not only CLIL and anxiety, but also concerning CLIL, anxiety, and gender. It may be the case that CLIL helps lower anxiety levels, but in order to make such claims we need to be able to empirically validate the order of causality. In other words, does CLIL actually lead to lower levels of anxiety among language learners, or do CLIL students typically exhibit lower levels of anxiety already pre-CLIL. This is especially important to investigate in contexts where CLIL is an optional choice, and where there is a selection effect to be anticipated among those who voluntarily opt for CLIL. Thus, any study aiming at shedding light on the relationship between CLIL and anxiety needs to be longitudinal and include baseline data from the informants before the CLIL experience starts.

3 The Study

The current study is motivated by the gap in the literature regarding baseline data for an in-depth study of CLIL students. In order to draw conclusions on the effectiveness of CLIL, pre-existing conditions prior to the CLIL experience need to be controlled for. The data in the present study were collected at the very outset of high school, coinciding with the start of CLIL for the CLIL students, and are, thus, baseline data. Before going into the details of the present study, information about the large-scale, longitudinal research project, of which the current study is a part, is briefly given below.

The research project Content and Language Integration in Swedish Schools, CLISS, was launched in 2011 at high schools (school years 10-12) in Sweden, and the informants are students in a) CLIL groups, where English, apart from being studied as a foreign language (EFL), is used as the medium of instruction in several subjects, such as for instance history and biology, and b) non-CLIL groups where everything, except for EFL class and other language arts classes, is taught through the majority language, Swedish. The primary aim of the project is to investigate CLIL (N = 109) and non-CLIL (N = 68) students' proficiency and progress in written, academic language in both Swedish (the L1 of the majority of participants) and English (the L2 of the majority of participants). A variety of data was collected during the students' three years in high school. Among the data collected are vocabulary tests, written texts, reading comprehension tests, interviews with students and teachers, classroom observations and questionnaires.

One of the questionnaires filled out by the students was a Swedish version of the FLCAS (Horwitz et al. 1986), which was administered at the very outset of the first semester, and then again during the final semester of high school. This paper is concerned only with the results from the first round of the questionnaire. The survey was completed by the students online, using SurveyMonkey, during school hours. Out of the total number of students involved in the CLISS project (N = 205), 177 completed the FLCAS, resulting in a response rate of 86%, a high completion rate for questionnaire research.

3.1 Research Questions

The specific research questions in focus in the current study are as follows:

1. What are the possible underlying factors in the FLCAS?
2. Are there differences in language learning anxiety between CLIL and non-CLIL students?
3. Are there differences in language learning anxiety between male and female students?

3.2 Participants

As mentioned above, a total of 177 students completed the FLCAS. Of them, 109 are in the CLIL group and 68 in the non-CLIL group. The majority of students in both groups have Swedish as their L1 (84 CLIL students, 65 non-CLIL students), whereas 28 (25 CLIL students, 3 non-CLIL students) have a variety of other L1s. Table 1 summarizes the characteristics of the participants in this study.

Table 1. Participant Characteristics.

	Male	Female	Swedish L1	Other L1	Total
CLIL	29	80	84	25	109
non-CLIL	29	39	65	3	68
Total	58	119	149	28	177

As is seen in Table 1, there is a majority of female students in both the CLIL (29 males, 80 females) and non-CLIL group (29 males, 39 females). For the non-CLIL group, this is a reflection of the fact that more female students than males agreed to take part in the study. For the CLIL group, it seems that CLIL programs attract female students to a larger extent than male (San Isidro 2010; Sylvén 2004). Furthermore, the total percentage of students with another L1 than Swedish (16%) mirrors the general situation in Sweden, where in 2013, 15.9 % of the population was of a non-Swedish background (Migrationsinfo.se 2015).

It should be noted that up until the end of compulsory school (year 9), all students have been exposed to 480 hours of English, as stipulated in the national curriculum (Skolverket 2015). English is the first foreign language introduced in Swedish schools, normally already in first grade. Thus, the amount of input of English in school is the same for all students when they start high school (year 10). None of the students in the present study had attended CLIL programs at lower levels. Furthermore, the choice to attend a CLIL program is optional, and the decision is made by the individual student (alone or together with his/her parents). No screening tests are done, as such tests are forbidden by Swedish law. The activities in connection with the CLISS project were carried out as regular classroom activities, and all students in the respective classes took part. In the subsequent analyses of the data, any material from students who did not wish to take part in the project was not included.

3.3 Procedure

For the data in this portion of the study, the participants answered a Swedish version of the Foreign Language Classroom Anxiety Scale (FLCAS) with the 33 items available in both Swedish and English simultaneously. SurveyMonkey was used for the data collection (see Wilson & Dewaele 2010, for an elaboration of the benefits of online surveys and SLA research), and the data were analyzed using SPSS version 22.0. The specific procedures for the exploratory factor analysis (EFA) and factorial ANOVAs are described below in the data analysis section of the paper.

3.4 Data Analysis

The statistical tests used in this study are an exploratory factor analysis (EFA) and factorial ANOVAs. To answer RQ1 (the underlying factors of the FLCAS), we used Maximum Likelihood (ML) as the extraction method and the oblique rotation of direct oblimin as a rotation tool for the EFA. The ML extraction method (as opposed to the oft-used Principle Component Analysis [PCA]), coupled with an oblique rotation has been argued to be the best match for social

science research (Field 2013). Orthogonal rotations (varimax, quartimax, and equamax) do not anticipate a relationship between factors, while oblique rotations (direct oblimin and promax) assume that there might be some relationship between factors. Field (2013) emphasizes this point with the following statement: "...there are strong grounds to believe that orthogonal rotations are complete nonsense for naturalistic data, and certainly any data involving humans [...] As such, some argue that orthogonal rotations should never be used" (p. 809). For these reasons, we used Maximum Likelihood (ML) as the extracting method (as opposed to PCA) and the oblique rotation of direct oblimin as a rotation tool (see Thompson & Lee 2013, for further justification for these extraction and rotation methods). Also most commonly used in social science research (second language acquisition [SLA] research being under this umbrella term), EFAs are the types of factor analyses used, as they help researchers explore the data. Since language learning is inextricably intertwined with culture, and affective variables, such as anxiety, are culturally construed, it can be anticipated that the affective data collected from different cultures would need to be *explored* and not *confirmed*. In other words, it would be imprudent to assume that Swedish learners understand and exhibit language learning anxiety in similar ways as do Korean learners, for example. This point is emphasized by the fact that the software most commonly used for social science research (SPSS being the most common, followed by R and SAS), do not have the capability for running confirmatory factor analysis, as it has different underlying theoretical assumptions. As Field (2013) states, running CFAs "...requires considerable complexity and can be done with computer programs such as [...] AMOS" (p. 801). Loewen and Gonulal (2015) also discuss this aspect of EFA versus CFA. For these reasons, we have chosen EFA over CFA in this study, as we are, in fact, exploring the anxiety data obtained from our Swedish learners of English.

To answer RQs 2 and 3, five 2 x 2 factorial ANOVAs were performed. In the analyses, five of the six factors obtained from the EFA from the FLCAS were the dependent variables, using the average of the student responses to each question in the factor to obtain a factor average. The CLIL status (two levels) and gender (two levels) were the independent variables for the factorial ANOVAs.

4 Results

4.1 RQ1: What are the underlying factors in the FLCAS?

Research question one is 'What are the underlying factors in the FLCAS?' An EFA was performed with the responses of 177 Swedish CLIL and non-CLIL students on the FLCAS questionnaire consisting of the 33 items. The EFA employed the Maximum Likelihood extraction method and the oblique direct oblimin rotation method. Based on Field's (2013) recommendation, "It is probably best to run a primary analysis with the Eigenvalues greater than 1 option selected" (p. 818), the items were included if they had an eigenvalue greater than 1¹. The initial value of internal consistency, measured by Cronbach's alpha, was .869 with the original 33 items. Four items which had a value of below 0.3 for the factor loadings (items 2, 8, 10, and 15)² were removed because according to Guadagnoli and Velicer (1988), items containing lower factor loadings tend to be eliminated in exploratory factor analysis. The

Cronbach's alpha was improved ($\alpha = 0.883$) after these four items were removed. As far as sample size is concerned, there are conflicting suggestions on the "sufficient" number of participants to conduct an EFA. For example, Hair, Anderson, Tatham, and Black (1995) suggest a minimum sample size of 100. While Field (2013) suggests 300 or more participants to be sure the analysis is stable, he also states that "the picture is a little more complicated than that" (p. 813). Some researchers recommend minimally 5 participants per item for a stable analysis (Costello & Osborne, 2005); with the 33 items in the FLCAS, we would need minimally 165 participants, using this recommendation; with 177 participants, this study satisfies this recommendation. However, being on the lower end of the recommended number of participants makes checking and interpreting the KMO value especially important. The KMO value for this analysis was .948. According to Loewen and Gonulal (2015), "KMO values range from 0 to 1, with higher values representing better sampling adequacy" (p. 187), and Field (2013) provides a scale for interpreting KMO values ranging from .9 and above ("marvelous") to below 0.5 ("merde" - i.e. "unacceptable") (p. 813). According to this scale, the KMO value of this study is "marvelous," illustrating that there were enough participants in the sample to show sampling adequacy.

The final solution of the 6-factor structure with 29 items accounts for 57.88% of the total variance. The first factor (F1), labeled 'English class performance anxiety,' contains 11 items that address fear of using English in front of other students or the teacher in the English class and explains 43.92% of the variance. Several of the items that loaded onto this factor specifically addressed a lack of spontaneity on the part of the student (item 9 - *I start to panic when I have to speak without preparation in English class*), whereas some of the items suggested class performance anxiety more generally (item 27 - *I get nervous and confused when I am speaking in my English class.*). This factor has a Cronbach's alpha value (measuring internal reliability) of 0.95. The second factor (F2), 'Self confidence in English,' contains 2 items, both of which loaded negatively onto this factor, illustrating that the students felt the opposite of what the statement stated. For example the fact that item 23, *I always feel that the other students speak the foreign language better than I do* loaded negatively illustrates that the students actually feel that they speak the language better than the other students in the class. The factor explains 2.82% of the variance and has a Cronbach's alpha value of 0.92. The third factor (F3) 'Affinity towards English class,' contains three items, has a Cronbach's alpha value of 0.65, and explains 4.12% of the variance. The direction of the factor loadings (positive or negative) in F3 shows that learners agreed with statements indicating an affinity towards English class (such as item 5 *It wouldn't bother me to take more English classes.*) and disagreed with the statements that did not indicate an affinity towards English class (such as item 17 - *I often feel like not going to my English class.*). It is noteworthy that item 5 also loaded onto F4 (.388), although it is recommended to include the item with the factor on which it loaded the highest (Field 2013; Loewen & Gonulal 2015); in this case, item 5 loads more strongly onto F3 (.508). The fourth factor (F4) contains 6 items, and was labeled 'Relaxed attitude towards English and confidence with native speakers' because the items that loaded on this factor address both of these themes: a relaxed attitude towards English and the lack of anxiety of interacting with native speakers. This factor accounted for 3.90% of the variance and has a Cronbach's alpha value of 0.72. The fifth factor (F5) is labeled 'English learning tempo anxiety' and includes two items related to class preparation and speed of

the course. This factor explains 1.81 % of the variance and has a Cronbach's alpha value of 0.62. The sixth factor (F6) was labeled 'Fear of ambiguity in English,' which has 5 items indicating a panicked feeling when not everything is understood in English as well as a general dislike and nervousness about English and English courses, explains 1.31 % of the variance and has a Cronbach's alpha value of 0.88. Field (2013) states that the general rule of thumb for acceptable Cronbach's alpha values is 0.7 or higher (although some researchers have argued that anything above 0.5 is acceptable) (pp. 237-238). The suggested values for communalities vary depending on the sample size, but for the factors used in the subsequent factorial analyses (F1, F2, F3, F4, and F6), overall, the communality values are acceptable for this sample. Table 2 below is a summary of the internal reliability measures for each factor (Cronbach's alpha values) and the amount of variance explained, and Table 3 below illustrates the factor loadings for the six factors, along with the questions that loaded onto each factor.

Table 2. Summary of the internal reliability for the factors.

Factor	Cronbach's alpha value	% of variance explained
F1	.95	43.92 %
F2	.92	2.82 %
F3	.65	4.11 %
F4	.72	3.90 %
F5	.62	1.81 %
F6	.88	1.31 %

Table 3. Factor loadings for EFL anxiety in Sweden.

	Factors						<i>h</i> ²
	1	2	3	4	5	6	
<i>Factor 1: English class performance anxiety</i>							
9. I start to panic when I have to speak without preparation in English class.	.789						.783
13. It embarrasses me to volunteer answers in my English class.	.701						.642
33. I get nervous when the English teacher asks questions which I haven't prepared in advance.	.647						.642
4. It frightens me when I don't understand what the teacher is saying in the English class.	.608					.303	.668
20. I can feel my heart pounding when I'm going to be called on in English class.	.596						.792

27. I get nervous and confused when I am speaking in my English class.	.586		.829
29. I get nervous when I don't understand every word the English teacher says.	.561		.662
24. I feel very self-conscious about speaking English in front of other students.	.521		.694
16. Even if I am well prepared for English class, I feel anxious about it.	.521		.673
26. I feel more tense and nervous in my English class than in my other classes. ³	.409		.687
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<i>Factor 2: Self confidence in English</i>			
23. I always feel that the other students speak English better than I do. (-)		-.897 ⁴	.902
7. I keep thinking that the other students are better at English than I am. (-)		-.781	.856
<hr/>			
<i>Factor 3: Affinity to English class</i>			
17. I often feel like not going to my English class (-)		-.831	.814
6. During English class, I find myself thinking about things that have nothing to do with the course (-)		-.532	.345
5. It wouldn't bother me at all to take more English classes.		.508	.388
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<i>Factor 4: Relaxed attitude towards English and confidence with native speakers</i>			
18. I feel confident when I speak in my English class.		.531	.688
14. I would not be nervous speaking English with native speakers.		.503	.237
28. When I'm on my way to English class, I feel very sure and relaxed.		.486	.595
11. I don't understand why some people get so upset over English classes.		.469	.303
22. I don't feel pressure to prepare very well for English class.		.469	.338
32. I would probably feel comfortable around native speakers of English.		.461	.345
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<i>Factor 5: English learning tempo anxiety</i>			
21. The more I study for an English test, the more confused I get.		.441	.321
25. English class moves so quickly that I feel worried about getting left behind.		.388	.592
<i>Factor 6: Fear of ambiguity in English</i>			
3. I tremble when I know that I'm going to be called on in English class.	.470	.557	.867
1. I never feel quite sure of myself when I am speaking in my English class.	-.312	.552	.706
19. I am afraid that my English teacher is ready to correct every mistake I make.		.486	.586
31. I am afraid the other students will laugh at me when I speak English.		.396	.729
30. I feel overwhelmed by the number of rules you have to learn to speak English.		.385	.609

Thus, our analysis shows 6 underlying factors: F1 – English class performance anxiety, F2 – Self-confidence in English, F3 – Affinity towards English class, F4 – Relaxed attitude towards English and confidence with native speakers, F5 – English learning tempo anxiety, and F6 – Fear of ambiguity in English. There have been few other studies that have also done an EFA on the FLCAS (e.g. Aida 1994; Thompson & Lee 2013; Thompson & Khawaja 2015). The analysis in the current study shows similarity to the analysis in Thompson and Lee (2013) in four of the factors (F1, F2, F4, and F6), and F3 in the current study corresponds to F3 in Thompson and Khawaja (2015). F5 has not appeared in previous analyses using the FLCAS, and there is no theoretical rationale for this factor. For this reason, as well as other methodological reasons (only two items loading onto this factor, making it less “stable,” with one having a low communality of .321, and being the only factor whose Cronbach’s alpha did not round up to 0.7 – the acceptable range for this reliability statistic), F5 has been excluded from the subsequent analysis. As one of the purposes of this study is to explore the construct of anxiety in a variety of environments, in the discussion section a detailed comparison of two studies, Thompson and Lee (2013) and the current study is given to account for EFAs performed on two fundamentally different contexts.

4.2 RQs 2-3 Differences in anxiety profiles using the independent variables of CLIL and gender

To answer RQs 2 and 3, five 2 x 2 factorial ANOVAs were performed. In the analyses, the factors obtained from the EFA from the FLCAS were the dependent variables, using the average of the student responses to each question in the factor to obtain a factor average. For example, if a participant answered 4 for one item and 5 for another item in a 2-item factor, the score for that participant would be 4.5. Additionally, the Likert-scale data were computed as continuous variables (see Larson-Hall 2010, for the rationale). CLIL status (two levels) and gender (two levels) were the independent variables for the factorial ANOVAs. The results of the analyses are found in the text and tables below. In order to better interpret the results, tables 4 and 5 include the mean, standard deviation, and standard error for the results of the CLIL versus the non-CLIL groups and the male versus female groups, respectively, for each of the six factors. According to procedures commonly used for Likert-scale data, the normality of the data was determined using a visual examination of the Q-Q plots for each of the five factors, and the data were found to be normally distributed. As a note, according to Schmider, Ziegler, Danay, Beyer, and Bühner (2010), ANOVAs (such as the factorial ANOVAs used in this study), are robust enough to use, even when data are not normally distributed.

Table 4. Descriptive statistics for CLIL status.

	CLIL (n = 109)			non-CLIL (n = 68)		
	M	SD	SE	M	SD	SE
F1	2.37	1.03	0.10	2.74	1.23	0.15
F2	4.18	1.35	0.13	3.82	1.58	0.19
F3	4.43	0.91	0.09	3.89	1.10	0.12
F4	4.33	0.83	0.08	3.99	1.02	0.12
F6	2.64	1.10	0.11	3.01	1.23	0.15

Table 5. Descriptive statistics for gender.

	Male (n = 58)			Female (n = 119)		
	M	SD	SE	M	SD	SE
F1	1.97	0.90	0.12	2.78	1.13	0.10
F2	4.70	1.09	0.14	3.73	1.50	0.14
F3	4.26	0.99	0.13	4.21	1.03	0.09
F4	4.47	0.95	0.12	4.07	0.88	0.08
F6	2.11	0.84	0.11	3.12	1.16	0.11

To examine the effects of CLIL status and gender on F1, “English class performance anxiety,” a 2 x 2 factorial ANOVA was run with F1 as the dependent variable and CLIL status and gender as the independent variables. The results indicate a main effect for both CLIL status [$F(1, 173) = 7.239, p = .008$] and gender [$F(1, 173) = 29.855, p < .001$]. The mean scores indicate that the non-CLIL students ($M = 2.74, SD = 1.23$) have higher English class performance anxiety than the CLIL students ($M = 2.37, SD = 1.03$), and that the female students ($M = 2.78, SD = 1.13$) have higher English class performance anxiety than do the males ($M = 1.97, SD = 0.90$). There was no significant interaction between CLIL and gender [$F(1, 173) = 1.302, p = .255$]. The R^2 value shows that this model accounts for 17% of the variance, and Levene’s test of equality of variances produced non-significant results (0.163). The observed power for both CLIL status and gender was high at 0.763 and 1.000, respectively. Table 6 illustrates a summary of the results.

Table 6. Factorial ANOVA results for F1.

	F1: English class performance anxiety				
	<i>df</i>	<i>F</i>	<i>partial η^2</i>	<i>power</i>	<i>p</i>
(A) Group (CLIL/non-CLIL)	1	7.239	.040	.763	.008
(B) Gender	1	29.855	.147	1.000	.000
(AB) Interaction	1	1.302	.007	.206	.255
Error (within groups)	173				

In order to see the effects of CLIL status and gender on F2, “Self-confidence in English,” a 2 x 2 factorial ANOVA was run with F2 as the dependent variable and CLIL status and gender as the independent variables. The results indicate a main effect for both CLIL status [$F(1, 173) = 6.263, p = .013$] and gender [$F(1, 173) = 23.413, p < .001$]. The mean scores indicate that the CLIL students ($M = 4.18, SD = 1.35$) have higher self-confidence than the non-CLIL students ($M = 3.82, SD = 1.58$), and that the male students ($M = 4.70, SD = 1.09$) have higher English class performance anxiety than do the females ($M = 3.73, SD = 1.50$). There was no significant interaction between CLIL and gender [$F(1, 173) = 2.430, p = .121$]. The R^2 value shows that this model accounts for 14.3% of the variance, and Levene’s test of equality of variances produced non-significant results, when transformed using the cubed method (0.297). The observed power for CLIL status was acceptable at 0.702 and was strong for gender at 0.998. Table 7 illustrates a summary of the results.

Table 7. Factorial ANOVA results for F2.

	F2: Self-confidence in English				
	<i>df</i>	<i>F</i>	<i>partial</i> η^2	<i>power</i>	<i>p</i>
(A) Group (CLIL/non-CLIL)	1	6.263	.035	.702	.013
(B) Gender	1	23.413	.119	.998	.000
(AB) Interaction	1	2.430	.014	.341	.121
Error (within groups)	173				

To examine the effects of CLIL status and gender on F3, “Affinity towards English class,” a 2 x 2 factorial ANOVA was run with F3 as the dependent variable and CLIL status and gender as the independent variables. The results indicate a main effect for CLIL status [$F(1, 173) = 13.238, p < .000$], but no main effect for gender [$F(1, 173) = 0.856, p = .356$]. The mean scores indicate that the CLIL students ($M = 4.43, SD = 0.91$) have more affinity toward English classes than the non-CLIL students ($M = 3.89, SD = 1.10$). There was no significant interaction between CLIL and gender [$F(1, 173) = 0.109, p = .742$]. The R^2 value shows that this model accounts for 7.2% of the variance, and Levene’s test of equality of variances produced non-significant results (0.076). The observed power for CLIL status was high at 0.951. Table 8 illustrates a summary of the results.

Table 8. Factorial ANOVA results for F3.

	F3: Affinity to English class				
	<i>df</i>	<i>F</i>	<i>partial</i> η^2	<i>power</i>	<i>p</i>
(A) Group (CLIL/non-CLIL)	1	13.238	.071	.951	.000
(B) Gender	1	.856	.005	.151	.356
(AB) Interaction	1	.109	.001	.062	.742
Error (within groups)	173				

In order to examine the effects of CLIL status and gender on F4, “Relaxed attitude toward English and confidence with native speakers,” a 2 x 2 factorial ANOVA was run with F4 as the dependent variable and CLIL status and gender as the independent variables. The results indicate a main effect for both CLIL status [$F(1, 173) = 8.937, p = .003$] and gender [$F(1, 173) = 10.566, p = .001$]. The mean scores indicate that the CLIL students ($M = 4.33, SD = 0.83$) and the male students ($M = 4.47, SD = 0.95$) have a more relaxed attitude towards English and higher confidence with native speakers than do the non-CLIL students ($M = 3.99, SD = 1.02$) and the female students ($M = 4.07, SD = 0.88$), respectively. There was no significant interaction between CLIL and gender [$F(1, 173) = 0.003, p = .955$]. The R^2 value shows that this model accounts for 8.8% of the variance, and Levene’s test of equality of variances produced non-significant results, when transformed using the cubed method (0.648). The observed power

for both CLIL status and gender was high at 0.884 and 0.898, respectively. Table 9 illustrates a summary of the results.

Table 9. Factorial ANOVA results for F4.

F4: Relaxed attitude toward English and confidence with native speakers					
	<i>df</i>	<i>F</i>	<i>partial</i> η^2	<i>power</i>	<i>p</i>
(A) Group (CLIL/non-CLIL)	1	8.937	.049	.844	.003
(B) Gender	1	10.566	.058	.898	.001
(AB) Interaction	1	.003	.000	.050	.995
Error (within groups)	173				

In order to see the effects of CLIL status and gender on F6, “Fear of ambiguity in English,” a 2 x 2 factorial ANOVA was run with F6 as the dependent variable and CLIL status and gender as the independent variables. The results indicate a main effect for both CLIL status [$F(1, 173) = 11.521, p = .001$] and gender [$F(1, 173) = 42.969, p < .001$]. The mean scores indicate that the non-CLIL students ($M = 3.01, SD = 1.23$) have a higher fear of ambiguity in English than the CLIL students ($M = 2.64, SD = 1.10$), and that the female students ($M = 3.12, SD = 1.16$) have a higher fear of ambiguity in English than do the males ($M = 2.11, SD = 0.84$). There was no significant interaction between CLIL and gender [$F(1, 173) = 1.149, p = .285$]. The R^2 value shows that this model accounts for 22.3% of the variance, and Levene’s test of equality of variances produced non-significant results (0.079). The observed power for both CLIL status and gender was high at 0.922 and 1.000, respectively. Table 11 illustrates a summary of the results.

Table 10. Factorial ANOVA results for F6.

F6: Fear of ambiguity in English					
	<i>df</i>	<i>F</i>	<i>partial</i> η^2	<i>power</i>	<i>p</i>
(A) Group (CLIL/non-CLIL)	1	11.521	.062	.922	.001
(B) Gender	1	42.969	.199	1.000	.000
(AB) Interaction	1	1.149	.007	.187	.285
Error (within groups)	173				

In sum, there were main effects for both CLIL status and gender for F1, F2, F4, and F6, and there was a main effect for CLIL for F3. There were no interactions between CLIL status and gender for any of the factors. When main effects for the independent variables were found, high levels of power were also found with this analysis, illustrating the potential for replicating this study and getting similar results.

The results illustrated above indicate similarities and differences between those students who chose to enroll in the CLIL courses and those who chose the

more traditional EFL courses before their high school English courses (both CLIL and non-CLIL) had begun. The implications of collecting baseline data for CLIL research in order to be able to accurately state causality will be illustrated further in the discussion section below.

5 Discussion

The focus of this paper is language anxiety among CLIL and non-CLIL high school students in Sweden as evidenced through the FLCAS (Horwitz et al. 1986). The results reported are from the students' first semester in high school, coinciding with the start of CLIL for the CLIL students. Thus, these are baseline data at a point in time where the total amount of input of English in school is at an equal level for the two groups of students investigated. In other words, since the students had just begun their CLIL courses at the time of this data collection, there is no effect of CLIL in these results; therefore, the data will be decisive as a point of comparison with data collected later on in the CLISS project, and the CLIL experience for the CLIL students. These comparisons will then be better able to pinpoint any causality between anxiety and CLIL. As evidenced above, previous research investigating the effects of CBI/CLIL seem to do so without controlling for levels of anxiety before students are exposed to CLIL (e.g. Muñoz 2002; Maillat 2010). It is therefore dubious whether the positive effects reported actually are a result of CLIL, or are the result of other pre-existing individual differences. As mentioned above, these results are of specific interest in contexts, such as the Swedish one, where CLIL is a voluntary choice, which in turn is likely to cause a selection effect among its students.

Moreover, the present study gives interesting insights into language anxiety among high school students in general in Sweden, an area that has previously been under-researched. As Sweden is a country with a large influx of English into everyday society (Medierådet 2010; Sundqvist 2009; Sylvén 2007), it offers a fascinating context to study, among other things, language anxiety.

To start with our first research question in the present study, we found six underlying factors in the FLCAS in the Swedish context, revealing two more factors as compared with three of the other detailed studies involving factor analysis (Aida 1994; Thompson & Khawaja 2015; Thompson & Lee 2013), although one of the factors (F5) was eliminated because of theoretical and methodological considerations. To present a more detailed description of the factors found, the results of the current study will be compared to the Thompson and Lee (2013) study. The results of the current study indicate a six-factor structure: F1 - English class performance anxiety, F2 - Self-confidence in English, F3 - Affinity towards English class, F4 - Relaxed attitude towards English and confidence with native speakers, F5 - English learning tempo anxiety, and F6 - Fear of ambiguity in English, whereas the Thompson and Lee (2013) study resulted in a four-factor structure: F1 - English class performance anxiety, F2 - Lack of self-confidence in English, F3 - Confidence with NSs of English, and F4 - Fear of ambiguity in English. Four of the six factors in the current study correspond to the four factors in Thompson and Lee (2013), but with potentially insightful implications as to directionality for F2 in the current study. Regarding F3 in the current study, this factor was similar to F3 in Thompson and

Khawaja (2015), giving it a theoretical basis for remaining in the factorial ANOVA analysis subsequent to the EFA in the current study.

Especially interesting are the results of F1 and F6 in the current study, which had a tremendous amount of overlap with F1 and F4, respectively, in Thompson and Lee (2013). For example, for F1 in the current study, questions 9, 13, 33, 20, 27, 24, and 12 overlapped with F1 in Thompson and Lee (2013), with four additional questions from F1 in the current study (4, 29, 16, and 26) loading onto F4 in Thompson and Lee (2013). Likewise, F6 in the current study “fear of ambiguity in English” overlapped with the same-named factor in Thompson and Lee (2013) with questions 19, 31, and 30. Two additional questions in F6 from the current study (3 and 1) loaded on F1 “English class performance anxiety” in Thompson and Lee (2013). Similar results were reported in Thompson and Khawaja (2015): “From these results, it can perhaps be surmised that F1, ‘English class performance anxiety’ and F4 ‘Fear of ambiguity in English’ are closely related” (p. 12). English class performance anxiety, thus, is related to the concept of tolerance of ambiguity (TA)/fear of ambiguity which “refers to the way an individual (or group) perceives and processes information about ambiguous situations when confronted by an array of unfamiliar, complex, or incongruent cues” (Furnham & Ribchester 1995: 179). Further evidence of the overlapping latent variables can be found in the current study with items 3 and 4. Item 4, “It frightens me when I don’t understand what the teacher is saying in the English class,” loaded the most strongly onto F1 (.608), although it also loaded onto F6 (.303). Similarly, item 3, “I tremble when I know that I’m going to be called on in English class,” had a higher loading on F6 (.557), although it also loaded onto F1 (.470); both of these overlaps indicate some relationship between the two factors. In fact, all of the factors in the current study significantly correlate with each other at the $p < .01$ level, although the correlation of F1 and F6 is the strongest at .872. Given the similarity in the relationship of “English class performance anxiety” and “fear of ambiguity in English” in the current study, as well as the two most recent studies using an EFA with the FLCAS (Thompson & Khawaja 2015; Thompson & Lee 2013), it can be postulated that these are closely related, yet distinct, latent variable in the overall concept of classroom language learning anxiety. In all three studies, “English class performance anxiety” was F1 and “fear of ambiguity in English” was the last factor. Looking closely at the questions in F1 and F6 in the current study, there are some subtle differences. For example, being embarrassed to volunteer answers in class (item 13, F1) indicates less of a physical reaction than trembling when being called on in English class (item 3, F6). Even having a pounding heart (item 20, F1) is less extreme than trembling. Similar comparisons can be made with the other studies. The analogous, yet not identical, comparative results indicate the importance of performing EFAs with questionnaire data when using the instrument in different cultural contexts, and future research should continue to use EFAs with the FLCAS to explore classroom anxiety in different locales.

Regarding the other factors, similar results were found for the factor involving questions with native speakers (F4 in the current study and F3 in Thompson and Lee 2013). Questions 14, 11, and 32 overlapped with questions 18, 28, and 22 in the current study loading on F1 in Thompson and Lee (2013). F2 of the current study corresponded to F2 in Thompson and Lee (2013), but with potential context-bound implications insofar as directionality. Questions 23 and 7 both loaded onto F2 in the studies; however, in the current study, these

questions both loaded negatively. For example, question 23 '*I always feel that the other students speak English better than I do*' loaded positively in Thompson and Lee (2013), but negatively in the current study; question seven, '*I keep thinking that the other students are better than I am*' illustrated the same pattern. As such, F2 in the current study was named "Self confidence in English" whereas in Thompson and Lee (2013), it was named "Lack of self confidence in English."

The two additional factors that formed in the current study that were not found in Thompson and Lee (2013) were F3 "Affinity to English class" and F5 "English learning tempo anxiety." F3 in the current study contained two questions (6 and 5) that did not load onto any factor in Thompson and Lee (2013) along with a question 17 that loaded onto F4 in Thompson and Lee (2013). F5 in the current study contained one question from F2 and one question from F4 in Thompson and Lee (2013). Also interesting to note is that question 10 '*I worry about the consequences of failing my English class*' did not load onto any factor in the current study, whereas it loaded onto F4 in Thompson and Lee (2013). Thus, although there were similarities between the two studies insofar as factor structure, there were also some marked differences. One notable similarity was the overlap in the "fear of ambiguity in English" factor, a concept that is becoming more prevalent in the SLA literature, both in the realm of language aptitude (Sternberg 2002), as well as in discussions of characteristics of multilinguals (Dewaele & Wei 2013). Based on the results of Thompson and Khawaja (2015), Thompson and Lee (2013), and the current study, how a language learner handles ambiguity is also an important question with regards to language class performance anxiety.

With regards to RQ2, the results indicate that there are differences in language learning anxiety between CLIL and non-CLIL students. A main effect was found for group (CLIL status) for all of the factors included in the factorial ANOVA analyses: F1, "English class performance anxiety," F2, "Self-confidence in English," F3, "Affinity to English class" F4, "Relaxed attitude toward English and confidence with native speakers," and F6, "Fear of ambiguity in English." This indicates significant differences in anxiety in the CLIL and non-CLIL groups before the effect of the CLIL curriculum can be seen, which will lead to more accurately interpreted results for the follow up data after the students have finished the CLIL curriculum.

Our third research question concerns possible gender differences in anxiety levels, and a main effect was found for gender for four out of five factors. The only factor where there is no main effect for gender is F3, "Affinity towards English class," which may be seen as an illustration of the importance all students put on studying English in school. With the factors where there are differences between the males and the females, both the males and the females give answers which accord well with cultural stereotypes (e.g. Abu-Rabi 2004). For instance, on F1, "English performance anxiety," females score higher than males; on F2, "self-confidence in English," the females score lower than the males, indicating that the females adhere to the stereotypical view of themselves as being more anxious in general, and perhaps specifically when using an L2, and, further, that females are not as self-confident as males. On the other hand, the males show significantly lower levels of English performance anxiety and higher levels of self-confidence, thus adhering to the stereotypes of males being self-confident and free from anxiety. These figures apply to the entire cohort involved in the present study, and are not CLIL or non-CLIL specific. It is,

therefore, important for L2 teachers in general to be aware of stereotypical gender views that may exist, in order for them to be able to counterbalance them at an early point in the educational system.

6 Conclusion

To conclude, the results of the current study when compared to Thompson and Lee (2013) indicate that factor structures of the FLCAS are indeed culturally influenced. This indicates the importance of conducting one's own factor analysis when collecting data, as the results are likely to change between different contexts. Additionally, the emergent factor "Fear of ambiguity in English" found in Thompson and Khawaja (2015) and Thompson and Lee (2013) also emerged in this data, illustrating the significance of such a construct when examining foreign language learning anxiety. Additional contexts would need to be explored for more data to be compared.

Furthermore, in this sub-study within the larger framework of the CLISS project, we have found a main effect of group (CLIL versus non-CLIL) in the level of anxiety on the following factors: "English class performance anxiety," F2, "Self-confidence in English," F3, "Affinity to English class" F4, "Relaxed attitude toward English and confidence with native speakers," and F6, "Fear of ambiguity in English." In the above factors, CLIL students show clear signs of being less anxious about using L2 English. These results illustrate the state of affairs before CLIL has begun, and thus, provide baseline data for future longitudinal work on CLIL and language learning anxiety. Likewise, they confirm the anticipated selection effect of a voluntary CLIL alternative.

Finally, we have found that gender plays a significant role in language learning anxiety with main effects found in four factors (no main effect for F3: "Affinity towards English class"). These results are similar to other studies involving anxiety and gender (e.g. Abu-Rabi 2004) and indicate that educators need to be aware of and counterbalance such gender stereotypes in the classroom.

This study fills a gap in the research about language learning anxiety by providing data for secondary Swedish EFL learners, an under-researched context. Moreover, by providing baseline data this study paves the way for future CLIL studies. Our results indicate that CLIL students show clear signs of being less anxious about using L2 English before CLIL has begun, suggesting that CLIL is not necessarily a catalyst for reducing language learning anxiety. However, the second part of this longitudinal project will indicate what effect CLIL has on language learning anxiety after students have been in the CLIL classroom for a substantial period of time.

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Endnotes

¹ As noted in both Field (2013) and Loewen and Gonulal (2015), Joliffe's criterion of eigenvalues greater than 0.7 is also common. However, based on our visual analysis of the screen plot, Kaiser's criterion was a better fit for our data.

² Item 2 = I don't worry about making mistakes in English; Item 8 = I am usually at ease during tests during my language class; Item 10 = I worry about the consequences of failing my foreign language class; Item 15 = I get upset when I don't understand what the teacher is correcting.

³ Item 12, "In English class, I can get so nervous that I forget things I know," which was the last question loading onto F1, was deleted from this factor because of the almost equal cross-loading for F1 (.319) and F5 (.318).

⁴ Note: In Factor 2 and Factor 3, some of the items (6, 7, 17, and 23) have negative factor loadings. These items were reverse coded in order to resolve the issue of cancelling out the answers magnitude because of oppositely worded questions. The responses of the four items were recoded (i.e., 1=6, 2=5, 3=4, 4=3, 5=2, and 1=6) in order to maintain the same directionality for all factors.

Received May 6, 2014

Revision received January 2, 2015

Accepted August 5, 2015