

To the Graduate Council:

I am submitting herewith a dissertation written by Katrinda Wills Scott entitled “Relationships between Operationalizations of Dyslexia and Attitudes and Perceptions of Learning a Foreign Language.” I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirement for the degree of Doctor of Philosophy, with a major in Education.

Sherry Mee Bell
Major Professor

We have read this dissertation
and recommend its acceptance:

Karl Jost

Steve McCallum

Edmund Campion

Accepted for the Council:

Anne Mayhew
Vice Chancellor and
Dean of Graduate Studies

(Original signatures are on file with official student records.)

RELATIONSHIPS BETWEEN OPERATIONALIZATIONS OF DYSLEXIA AND
ATTITUDES AND PERCEPTIONS OF LEARNING A FOREIGN LANGUAGE

A Dissertation
Presented for the
Doctor of Philosophy
Degree
The University of Tennessee, Knoxville

Katrinda Wills Scott
December 2005

Dedication

This dissertation is dedicated to my parents, Stanley and Barbara Wills and my husband, Tyler Scott, for always believing in me, inspiring me, and encouraging me to reach my goals.

Acknowledgments

I wish to thank all those who helped me complete my Doctor of Philosophy Degree in Education. I would like to thank Dr. Sherry Mee Bell for her guidance and her effort in helping me to achieve my goals. I would like to thank Dr. Karl Jost for standing by me all these years. I would also like to thank Dr. Edmund Campion and Dr. Steve McCallum for serving on my committee.

Lastly, I would like to thank my family and friends, whose suggestions and encouragement made this work possible.

Abstract

Relationships among foreign language attitudes and perceptions and reading skills were investigated for 278 English-speaking college students enrolled in 100 and 200 level foreign language classes using the Foreign Language Attitudes and Perceptions Survey (FLAPS; Sparks and Ganschow, 1993), a 35 item questionnaire, the Test of Dyslexia, Rapid Assessment Profile (TOD-RAP; Bell, McCallum, & Cox, 2003), and the Woodcock Johnson III (WJIII; McGrew & Woodcock, 2001). Correlational analyses indicated that spelling, silent reading fluency, orthography and listening vocabulary were correlated modestly but significantly with foreign language attitudes and perceptions, i.e., those with weaker reading and reading-related scores exhibited more negative attitudes and perceptions (correlations range from $-.26$ to $-.05$). Mean difference analysis for high (HR), medium (MR) and low risk (LR) dyslexia groups based on spelling performance revealed significant differences in FLAPS scores ($p < .05$) but no significant differences in FLAPS scores based on language being learned and no significant interaction ($p > .05$). Follow-up analyses indicated significantly higher FLAPS scores for HR versus LR participants. Results of a second mean difference analysis, with dyslexia risk operationalized by reading fluency scores, yielded no significant differences based on dyslexia risk status, language being learned, or the interaction. A post hoc analysis of covariance revealed significant difference in attitudes and perceptions as measured by the FLAPS as a function of language being studied when reading scores were controlled ($p < .05$). Students enrolled in German classes had lower FLAPS scores (i.e., more

positive attitudes) than students taking Spanish. Results are consistent with previous research indicating high school students with learning disabilities report more negative experiences in learning a foreign language; results are inconsistent with assertions that students studying Spanish experience less difficulties than those studying Spanish, a more transparent language. Apparently learning a foreign language is difficult for those with dyslexia tendencies and underscores the importance of instructor awareness and flexibility in teaching methods and grading.

Table of Contents

Chapter 1	1
Introduction	1
Purpose and Rationale	1
Review of Literature.....	2
Etiology of Dyslexia	3
Dyslexia across Language	6
Method.....	14
Participants and Setting	14
Instruments.....	14
Procedures.....	17
Chapter 3	19
Results.....	19
Chapter 4.....	21
Discussion	21
Implications	25
Limitations and Need for Further Research.....	27
Importance of Study	27
References	29
Appendices.....	37
Appendix A.....	38
Foreign Language Survey	38
Appendix B	41
Study Information Sheet	41
Appendix C	43
Tables.....	43
Vita	53

Tables

Table 1	43
Demographic Characteristics of Participants	43
Table 2	42
<i>Descriptive Statistics for Foreign Language Attitudes and Perceptions Survey (FLAPS), Attitudes and Perceptions and Total Score, Test of Dyslexia, Rapid Assessment Profile (TOD-RAP) and Woodcock-Johnson III Reading Fluency (WJ RF)</i>	<i>42</i>
Table 3	43
<i>Intercorrelations between Foreign Language Attitudes and Perceptions Survey (FLAPS), Attitudes and Perceptions and</i>	<i>43</i>
<i>Total Score, and Test of Dyslexia, Rapid Assessment Profile (TOD-RAP) and Woodcock-Johnson III Reading Fluency (WJ RF)</i>	<i>43</i>
Table 4	44
<i>Descriptive Statistics for Dyslexia Tendency Groups as Defined by Scores on Test of Dyslexia Rapid Assessment Profile (TOD-RAP) and Woodcock-Johnson III Reading Fluency (WJ RF)</i>	<i>44</i>
Table 5	45
<i>Mean and Standard Deviation for Foreign Language Attitudes and Perceptions Survey (FLAPS) for High, Medium and Low Dyslexia Tendency Groups Based on Test of Dyslexia, Rapid Assessment Profile (TOD-Spelling) and Woodcock-Johnson III (WJ) Reading Fluency Test, and for Language Groups</i>	<i>45</i>
Table 6	46
<i>Factorial Analysis of Variance (ANOVA) of Foreign Language Attitudes and Perceptions Survey (FLAPS) Total Means for Dyslexia Tendency Groups as Defined by Spelling Scores on Test of Dyslexia Rapid Assessment Profile (TOD-RAP) and Language (French, Spanish and German)</i>	<i>46</i>
Table 7	47
<i>Post Hoc Pairwise Comparisons Analysis Using Sidak Adjustment of Foreign Language Attitudes and Perceptions Survey (FLAPS) Total Means Scores for Dyslexia Tendency Groups as Defined by Spelling Scores on Test of Dyslexia Rapid Assessment Profile (TOD-RAP)</i>	<i>47</i>
Table 8	48
<i>Factorial Analysis of Variance (ANOVA) of Foreign Language Attitudes and Perceptions Survey (FLAPS) Total Means, for Dyslexia Tendency Defined by Woodcock Johnson III Reading Fluency (WJ RF) and Language (French, Spanish and German).....</i>	<i>48</i>
Table 9	49
<i>Means for Foreign Language Attitudes and Perceptions Survey (FLAPS) Questions for High, Medium and Low Dyslexia Tendency Groups Based on the Combined Scores of Test of Dyslexia, Rapid Assessment Profile (TOD) and Woodcock-Johnson III (WJ) Reading Fluency Test</i>	<i>49</i>

Table 10	51
<i>Factorial Analysis of Covariance (ANCOVA) for Foreign Language Attitudes and Perceptions Survey (FLAPS) Total Means of Language Groups (French, Spanish, and German) with Woodcock Johnson III Reading Fluency (WJ RF) and Test of Dyslexia Rapid Assessment Profile (TOD-RAP) as Covariates</i>	
	51
Table 11	52
<i>Post Hoc Pairwise Comparisons Analysis Using Sidak Adjustment of Foreign Language Attitudes and Perceptions Survey (FLAPS) Total Means with Woodcock Johnson III Reading Fluency (WJ RF) and Test of Dyslexia Rapid Assessment Profile (TOD-RAP) as Covariates</i>	
	52

Chapter 1 Introduction

Purpose and Rationale

Learning to read is particularly difficult for learners who exhibit poor phonological awareness, and slow automatic naming ability; these are the learners who are often diagnosed with dyslexia. In fact, according to experts in the field (e.g., Grisseman, 1974; Miles, 2000; & Spencer, 2000) native English language learners have a higher incidence of dyslexia than native learners of most other languages, perhaps because of the complexity of the language structure. And, the problem is compounded because those who experience difficulty learning often avoid opportunities to learn English language-related academic content, and report negative attitudes regarding those activities (Sparks & Ganschow, 1993). However, there is inadequate literature investigating the relationship between the foreign language learning attitudes and perceptions of students who have English as a first language (EFL) as they study a second language and particularly the extent to which these attitudes and perceptions are related to performance on marker tests of dyslexia (e.g., operationalizations of phonological awareness and rapid automatic naming). Sparks and Ganschow used the Foreign Language Attitudes and Perceptions Survey (FLAPS; 1993) to examine the foreign language experiences of students identified as having learning disabilities (LD). However, these students were not diagnosed as having dyslexia, and the heterogeneity of the LD population is legendary (Sparks & Ganschow, 1993). Consequently, the primary purpose of this study is to explore the relationship between the scores on tests of dyslexia

and the foreign language learning attitudes and perceptions of EFL students who are studying a second language. The second purpose is to examine these attitudes and perceptions as a function of the particular foreign language studied and magnitude of the EFL students' "dyslexia" tendencies.

Review of Literature

Contrary to conventional wisdom, dyslexia is not simply a condition that involves reversals of letters. It is characterized by

difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede the growth of vocabulary and background knowledge (International Dyslexia Association [IDA], 2004; Lyon, 2003, pp. 2-9).

Several other researchers have offered definitions; according to Smythe and Everatt (2002), "dyslexia is a difficulty in the acquisition of literacy skills that may be caused by a combination of phonological processing and visual auditory system deficits. Lexical confusions and speed of processing difficulties may also be present. The manifestation of dyslexia in any individual will depend upon not only the individual cognitive differences, but also the language used" (p. 73). A common misconception is that people with

dyslexia have low intelligence; however the two are not directly related (Gersons-Wolfensberger & Ruissenaars, 1997; Sawicki, 1997).

Etiology of Dyslexia

Dyslexia is a neurologically-based disorder which interferes with the acquisition and processing of languages, and is the most common and prevalent of all learning disabilities (National Institute of Neurological Disorders and Stroke [NINDS], 2005). According to Shaywitz (2003), dyslexia affects one out of five children in the United States. However, estimates differ; for example, the British Dyslexia Association estimates that one out of every 10 people in the population exhibit signs of dyslexia (BDA, 2005).

Dyslexia was observed over one hundred years ago in England when E. Pringle Morgan wrote in *The British Medical Journal* about a boy, aged 14, who was unable to learn to read (Shaywitz, 1996). The difficulty was believed to be a visual problem. However, as recent research has indicated, dyslexia is more complicated. In order to understand it, one must first understand the reading process and the cognitive skills that underlie reading.

A problem in processing one or more of the three components of language, phonology, syntax and semantics, typically characterizes dyslexia (Sawyer & Butler, 1991; Shaywitz, 1996; Simon, 2000; Sparks, 2001; Sparks, Philips, & Javorsky, 2003). According to Sawyer & Butler (1991), "Phonology refers to the sound structure of the language- the speech sounds (syllables and phonemes) we produce and the rules

governing the combining of sounds in a given language” (p. 56). Syntax involves sequential order of words in a sentence; learning to read involves understanding how to code by means of the syntax of a language (Honig, 1997; Sawyer & Butler, 1991). Semantics can be defined “as the psycholinguistic system that patterns the content of an utterance, intent, and meanings of words and sentences...it may be helpful to think about syntax as being the form which language takes, while semantics deal with content of language” (Sawyer & Butler, 1991, p. 62). Most researchers agree that phonological working memory deficits have a negative impact on acquiring first and second languages (Simon, 2000). Long and short-term memory also affect reading skills. One must have the ability to remember, which means coding, storing and retrieving information from memory (Sawyer & Butler, 1991; Simon, 2000). Gathercole and Baddeley (1993) argued that poor vocabulary growth, linked with both developmental language disorders and specific reading impairments, may be attributed to deficits of phonological short-term memory. According to Sparks (2000, 2001, and 2003) and Simon (2000), phonological recoding skills in “translating the spelling of written words into the speech sounds they represent” (Center for Dyslexia Glossary, 2005, p. 2) are the key indicators of foreign language success.

According to Downey and Snyder (2000), the core deficit in dyslexia is phonological processing; phonology is “the process that allows readers to attach letters to sounds, blend or analyze sound segments as well as rearrange phonetic elements” (p. 84). Phonological processing is key in speech as well, but while “speaking is natural...

Reading is an invention and must be learned at a conscious level. The task of the reader is to transform the visual percepts of alphabetic script into linguistic ones that is, to recode” (Shaywitz, 1996, pp. 79-80). Dyslexia usually involves a deficit in the processing of phonemes. The phoneme is the smallest segment of language, and is the fundamental element of the linguistic system (Gottardo, 2002; Haseltine, 2000; Lyon 1996; Sawicki, 1997; Shaywitz, 1996). Therefore, when a student with dyslexia learns to read, the deficit in recognizing phonemes leads to difficulties in recoding makes it difficult to read (Simon, 2000).

According to Wolf (1999), there appear to be two major causes for difficulties in dyslexia-phonemic awareness and rapid automatic naming. Phonological awareness contributes “to word attack skills in reading, whereas naming speed contributes more to the orthographic aspects in word identification... Phonological awareness tasks predict significant portions of the variance in word attack; naming speed best predicts word identification” (pp. 12-13). Wolf, Bowers and Biddle (2000) found that naming speed and the phonological system in those with dyslexia are deficient across ages, languages and readers; they refer to the dual weaknesses as the double-deficit hypothesis, (i.e., the two most salient causes of dyslexia). Naming speed is often operationalized by the Rapid Automatic Naming (RAN) test; it requires the ability to name visual stimuli rapidly (Krieger, 2000). In this task participants are asked to “name an array of familiar digits, pictures, letters, or color patches in serial order as rapidly as possible. RAN accounts for sizable variance in word reading when phonological skill and IQ are partialled out”

(Manis, Doi & Bhadha, 2000, p. 325). Because of problems in phonemic awareness and processing speed, persons with dyslexia exhibit four types of errors: a) errors in reading caused by erratic correspondences between graphemes and phonemes; b) stress emphasis on the wrong syllable in multi-syllabic words; c) jumbling of homophones during reading for comprehension; and d) errors of phonological spelling (Zoccolotti, De Luca, Di Pace, Judica, Orlandi, & Spinelli, 1999).

Using functional magnetic resonance imaging (fMRI), Sawicki (1997) and Shaywitz (1996) discovered differences in the brains of those with dyslexia and those without. According to Lyon (2003), “dyslexic readers show a failure of left hemisphere posterior brain systems to function properly during reading” (p. 4). Interestingly, in the early stages of second language acquisition the right hemisphere is presumed to have a more prominent role and with increasing proficiency the left hemisphere is supposed to assume precedence (Lundberg, 2002). Since dyslexia is a condition that impairs language acquisition, it is reasonable to question how it might affect a person’s ability to learn more than one language.

Dyslexia across Language

According to Downey and Snyder (2000), demand for rapid and efficient reading comprehension skills and fluent writing ability create difficulty for students with phonetic coding deficits. Some languages, such as Italian, Spanish, Greek, German and Turkish use more transparent orthographies; consequently readers presumably have fewer problems in decoding the words, “making them easy to teach and learn, while others have

more complicated structures and are more difficult for teachers and students” (Spencer, 2000, p.152). According to Grisseman (1974), learners in Anglo-Saxon countries exhibit more dyslexia because of the lower sound-symbol relationship. English “is a language where the influence of other languages through invasions, particularly during the two-century long periods of bilingualism after the Norman invasion, has swamped the German basis, introducing different spelling varieties, especially for vowels, and so making the fundamental phonemic simplicity difficult to discern” (Miles, 2000, p. 33).

Wolf (1999; 2000) found that naming-speed is a predictor of reading difficulties in transparent languages (those languages with regular orthography). She also noted that phonological skills play a somewhat more reduced role in languages with more regular orthographies than English. Naming-speed differences have been found to be related to difficulty in reading in various languages including German, Finnish, Dutch, and Spanish. For those languages, naming-speed performance becomes an even stronger, more important diagnostic indicator and predictor of reading performance. According to Wolf (2000):

The importance of these cross-linguistic findings is that they eliminate the irregularity of English orthography as a possible explanatory factor in the naming-speed findings...in languages where a regular structure can be decoded using relatively lower levels of phonological skill than needed in English, the speed-of-processing variable emerges as a stronger predictor of reading performance than phonological awareness tasks (pp. 390-1).

Researchers have investigated whether learning another language affects knowledge of the first language for learners with and without learning disabilities. According to Bruck (1982), for the general population learning a second language does not interfere with progress in the first language, though both languages seem to emerge more slowly than when learning only one language. However, according to Trites and Price (1979), children with learning disabilities should not start learning a second language until around age 9 or 10, the age by which learning disabilities are usually diagnosed and a child will have mastered his/her native language.

Should educators encourage a student with dyslexia to learn a foreign language? Students with dyslexia are often deficient in reading and writing skills, as well as in speaking and listening. Phonological ability is thought to be the most important variable affecting the student with dyslexia's ability to process language. Students with dyslexia who face difficulties when processing English phonology are also hindered when learning modern foreign language phonology (Crombie, 1997). According to Miller-Guron and Lundberg (2000), native language weakness, including dyslexia, suppresses the development of foreign language proficiency. "The dyslexic reader, who reads native language texts with poor efficiency and low automaticity is assumed to experience considerably less efficiency and lower automaticity when approaching a second language (L2) text" (Miller-Guron & Lundberg, 2000, p. 42). Any physiological or biological limitations that cause problems with first language learning will likewise cause problems with second language learning (Spolsky, 1989).

Some researchers and linguists argue that learning two languages is beneficial to the learner. According to Martin (1999), being bilingual and learning two languages brings cognitive benefits to the learners including, higher metalinguistic skills, higher level thinking skills and better social skills than their peers learning only one language. Lambert (1990) found that bilingual children in Montreal scored considerably higher than monolingual children on verbal and nonverbal measures of intelligence, presumably due to students learning English and French at the same time. Cummins (1979) also asserted that bilingualism can influence both cognitive and linguistic growth. According to Crombie (1997; 2000), denying students the opportunity of learning a certain subject could affect their future job opportunities and friendships

For individuals who are learning a second language, an important question is whether dyslexia will manifest itself in both languages. According to Lundberg (2002), common or shared knowledge and skills learned in the first language should transfer to the second language. According to Lundberg (2002), “a number of studies have consistently documented positive relationships between bilingual students’ first and second language literacy skills, clearly supporting the theoretical notion of linguistic interdependence...It seems as if greater elaboration of the mother tongue results in more efficient acquisition of the second language” (pp. 172-3). It seems plausible that the neuropsychological problems that caused dyslexia in the native language would also cause problems acquiring the second language (Cline & Frederickson, 1999). According

to Wertheimer (1999), bilingual dyslexia may occur in people of all abilities and any spoken language.

According to Cummin's (1984) common underlying theory, language skills from the first and second languages are interdependent and skills are transferred from one language to another. If Cummin's hypothesis is correct, it is reasonable to suggest that bilingual children, who have reading disabilities in one language as a result of underlying cognitive difficulties, should evidence the same difficulty in the other language, assuming the languages share a similar linguistic base (Majhanovich, 1993; Wiss, 1993; 1986). There is theoretical and clinical evidence to support the idea that LD will be found cross-linguistically in children learning a foreign language. According to Vetter (1969), the principal difficulty students face is interference between the two languages. This interference means that the student learns parts from more than one linguistic and cultural system. The inference is caused by confusion with the first language's grammar, phonics and lexicon. Studies show that Spanish/English speakers will read a confusing word in the non-target language (i.e. language not speaking at the moment), using speech sounds from one language to read another language. If a child with dyslexia's first language is English, the child will presumably have an easier time learning a language with similar phonetic structures, such as Italian or Spanish, rather than French (Crombie, 2000).

For example, Italian has a high grapheme-phoneme correspondence while French and English do not. Therefore, errors that occur in French and English, due to grapheme-phoneme irregularities, would not occur as frequently in Italian, because Italian has "no

irregular words, no nonhomographic homophones, and no alternative acceptable phonological ways of spelling words; in between these two extremes are writing systems such as Spanish, where homophonous and phonological spelling errors can occur” (Zoccolotti et al., 1999, p. 192).

Although several researchers have speculated about the impact of dyslexia on learning a foreign language, few studies have been published. Wimmer, Mayringer and Landerl (1998) conducted studies with German children with dyslexia. Results indicated that these children have “little difficulty acquiring phonological recoding as an accurate word recognition procedure” and their main problem in reading was “speed impairment, ranging from frequent words and text to nonwords” (p. 321-2). German dyslexic children presumably have relatively little difficulty because German has straightforward and simple grapheme-phoneme relationships, and children are taught systematic synthetic phonics instruction (Wimmer et al., 1998; 1996). German spelling is very similar to English, although it is more consistent than English (Wimmer, 1996).

Zavala and Mims (1983) compared 20 bilingual Hispanic students who were learning disabled (LD) and bilingual students who were not learning disabled (NLD). Crucial discrepancies were found between the LD and NLD groups in 75% of the measured results; LD students scored lower on a nonverbal IQ test and a language achievement tests. The students lacked proficiency in their first (Spanish) and second language (English); in essence they were “double semilingual.” This finding is consistent with Cummins’ assertion that bilingual students need to have attained a beginner’s level

of proficiency in their first language to enable them to gain “the beneficial aspects of being bilingual to influence their cognitive growth” (p. 229).

One study focused on the experiences of high school students with learning disabilities and whose first language was English. Sparks and Ganschow (1993) used the Foreign Language Attitudes and Perceptions Scale (FLAPS) to compare “the perceptions of low and high risk (for LD) students and students with learning disabilities enrolled in first year high school foreign language courses” (p. 491). Seventy-nine students, ranging from 14 to 17 years of age, participated. Results indicated significant differences between the three groups: low risk (good FL learners who were not identified as LD), high risk (poor FL learners who are not identified as LD) and learning disabled (students identified as LD) students. Low-risk students predicted high estimated grades and expressed more positive attitudes. High-risk and LD students reported inadequate skills to be successful in a foreign language and less positive attitudes about learning a foreign language. High-risk and LD students were very similar in their responses, except for two questions regarding being distracted in class and spelling. All the groups reported equal interest in wanting to learn a foreign language. Sparks and Ganschow (1993) concluded that “students with foreign language learning problems have underlying but subtle native language learning difficulties, and that affective differences are, most likely, consequences of these native language differences” (p. 491).

In conclusion, there is limited research examining the relationship between attitudes and perceptions of foreign language learning and performance on marker tests of

dyslexia among EFL students studying a foreign language. Because increasing numbers of students with dyslexia are pursuing higher education, it is important to examine the experiences of those who have characteristics of dyslexia as they learn a second language. This study was designed to determine the relationships between performance on multiple operationalizations of dyslexia and foreign language attitudes and perceptions of EFL students learning a second language. Furthermore, while there is a body of research suggesting a higher incidence of dyslexia among English-speaking students than among students of many other languages (Grissman, 1974; Miles, 2000; and Spencer, 2000), no studies are available that address foreign language attitudes and perceptions as a function of characteristics of the language under study of EFL students with varying levels of scores on measures of dyslexia. Consequently, the second purpose of this study is to examine differences in attitudes and perceptions, based on the characteristics of the language being learned, for those who score low on measures of dyslexia versus those who score high.

This study was guided by the following two questions: 1. What are the relationships between measures of reading-related skills and attitudes and perceptions of English speaking (English as first language or EFL) students learning a second language? 2. Are there any differences in attitudes and perceptions of students learning a second language based on the language (i.e., French, German, and Spanish) under study?

Chapter 2

Method

Participants and Setting

Data were collected from 278 college students enrolled in 100 and 200-level foreign language courses during mini term and summer semester of 2005 at a large state university in the southeastern United States. The participants ranged in ages from 18 to 71 years ($M = 23.90$; $SD = 6.75$). As shown in Table 1 (tables are located in Appendix C), there were 129 males and 149 females; 246 identified themselves as White, 22 as African American, four as Asian, three as Other, and three participants did not disclose race. Thirty-one participants (11% of the sample) indicated that they had been formally identified as having a learning disability (11% of the sample); six participants (2% of the sample) indicated they had been formally diagnosed as having dyslexia; and 73 (26% of the sample) indicated that they believed they had a learning disability.

Instruments

The (FLAPS) Foreign Language Attitudes and Perceptions Survey was developed by Sparks and Ganschow (1993) “to elicit responses to questions relating (students) to their foreign language academic history, learning attitudes, and academic skills” (p. 491). The survey consists of 35 questions. For this study, slight modifications in the 1993 FLAPS were made in an attempt to make the instrument more suitable for college-age students (i.e., questions #6, #8, #10 and #11 were deleted, and question #2 was moved from Academic History to Demographics for the current study). This modified version of the FLAPS is broken into four sections: *Demographics*, which examines the student’s

overall experience with foreign languages and dyslexia tendencies (questions 1-17); *Academic History*, which examines estimated grades in the foreign language course, tutorial assistance, and self-perceptions about learning a foreign language (questions 18-19); *Foreign Language Attitudes*, which examines the perceptions of their anxiety, attention, motivation and self-confidence in the foreign language classroom (questions 20-28); and *Foreign Language Perceptions*, which examines the perceptions of how the student learns the language skills and relates those skills to learning and tests (questions 29-35). The demographics section is fill in the blank, and multiple choice. The other three sections used a Likert-type scale- Strongly Agree, Agree, Neutral, Disagree and Strongly Disagree. Each item was assigned a number from 1-5; 1 most positive, 2 positive, 3 neutral, 4 negative and 5 most negative. Questions #22, #26, #30, #32, and #35 were scored in reverse order to maintain consistency with the other items. Questions from the modified version of the FLAPS are presented in Appendix A.

Because no reliability data have been reported for the FLAPS (L. Ganschow & R. Sparks, personal communication, April, 14, 2005), the reliability of the FLAPS was examined in two ways. First, internal consistency estimates (coefficient alpha) were calculated for the FLAPS total score and for the attitudes and perceptions components. Also, retest reliability (over a one to two week period) for the FLAPS Total was calculated for a sample of 91 participants, aged 19 to 53 and enrolled in a graduate level course in special education ($n = 34$) or 100 and 200 level foreign language ($n = 57$) courses. Internal consistency reliability, as determined by alpha coefficient, for the

FLAPS Attitude score is .74 and for FLAPS Perception, .80. Test-retest reliability for the FLAPS total score is .83. Because the correlation between FLAPS attitudes (questions 20-28) and perceptions (questions 29-35) were highly significant ($p < .001$; $r = .70$) and because the total FLAPS yielded a relatively stronger internal consistency measure, the FLAPS Total was used for mean comparisons in this study. The test-retest correlation coefficient for the FLAPS Total score was strong ($p < .001$, $r = .83$). Descriptive statistics for the FLAPS are presented in Table 2. There are no norms available for the FLAPS; however, some relative interpretation is possible. A score of 3 is neutral, 5 negative and 1 positive. For items 20-28 (attitudes), the mean of 24.59 yields an item mean of 2.73. For items 29-36 (perceptions), the mean of 22.12 yields an item mean of 3.16. Both round to 3, which is a neutral score.

The Test of Dyslexia, Rapid Assessment Profile (TOD-RAP, based on Bell, McCallum, & Cox, 2003) includes five measures of reading and related skills. These measures are: listening vocabulary (30 items), phonological decoding (30 items), spelling (45 items), rapid letter matching (75 items), and orthography (75 items). The TOD-RAP is group-administered; each measure (except for rapid matching) has a four item multiple-choice format. Participants listen and mark on individual answer sheets as the examiner reads directions and presents stimuli orally. The TOD-RAP measures vocabulary knowledge (students listen to a definition and mark the correct word); phonological awareness (students listen to pseudowords and mark the correct choice); spelling (students listen to a word and choose its correct spelling); rapid automatic

identification (students visually scan rows of letters and mark target letters); and orthography (students mark correctly spelled words without oral input). Internal consistency reliability coefficients for the TOD-RAP calculated for a sample of 357 students from ages 4 to 71 were as follows: listening vocabulary .79, phonological decoding .79, spelling .91, rapid letter matching .96, and orthography .92 (McCane, 2006). Test-retest reliability coefficients for the TOD-RAP were also robust: listening vocabulary .94, phonological decoding .70, spelling .97, rapid letter matching .97, and orthography .97 (McCane, 2006). Descriptive statistics for the TOD-RAP are presented in Table 2.

The Woodcock Johnson III (WJIII) Test of Reading Fluency is a measure of silent reading fluency and comprehension (McGrew & Woodcock, 2001). Students read simple statements (e.g. *The sky is green*) and mark either *Y* for yes or *N* for no. The score is based on items correct minus incorrect within a three minute period. The WJIII Reading Fluency subtest has a median reliability of .90 in the age 5 to 19 range and .90 in the adult range (McGrew & Woodcock, 2001). Directions were modified slightly so that the test could be group administered. Descriptive statistics for the WJRF for this sample are presented in Table 2.

Procedures

Instruments were administered to participants in college classrooms with the consent of their instructors. Assessment sessions lasted approximately one hour and were conducted by the author with the assistance of a doctoral student in school psychology,

and a graduate student in special education. Participants were first given a copy of the Study Information Sheet (Appendix B) explaining the research project. Students were asked to voluntarily complete the FLAPS, the Test of Dyslexia, Rapid Assessment Profile screening tests, and the WJIII Reading Fluency test. The FLAPS and reading screening measures were coded so that the students' identities remained confidential. In addition to the primary data collection, internal consistency and test-retest data were derived from two administrations of these instruments to volunteer participants enrolled in a graduate class in special education and four foreign language classes. There was a one to two-week period from test to retest, and instruments were completed in counterbalanced order.

Chapter 3

Results

Relationships between attitudes and perceptions about learning a foreign language as measured by FLAPS and measures of reading and reading related skills as measured by TOD-RAP and WJIII RF were examined via correlational analysis as shown in Table 3. Modest negative correlations between measures of attitudes and perceptions and measures of reading-related skills are indicated. Relationships between FLAPS Total and TOD-RAP Scales and WJ RF range from $-.26$ ($p = .01$) to $p > .05$ ($p > .05$). Ten of the 21 measures were significant at the .01 level, four were significant at the .05 level, and seven were nonsignificant. The measure of spelling from the TOD-RAP and the measure of reading fluency from the WJIII yielded the strongest correlations. Descriptive statistics for dyslexia tendency groups as defined by scores on the TOD-RAP and the WJ RF are presented in Table 4.

Two separate 3 (dyslexia tendencies) by 3 (languages) ANOVAs were conducted to determine if there were any differences in attitudes toward learning a foreign language based on dyslexia tendencies and on the particular language being learned, either French, Spanish or German. Means and standard deviations of FLAPS Total Score for dyslexia groups and for language groups (French, Spanish, and German) are presented in Table 5. Participants were divided into three approximately equal size groups based on scores on reading-related measures: high-risk for having dyslexia tendencies (HR), medium-risk for having dyslexia tendencies (MR), and low-risk for having dyslexia tendencies (LR). For the first ANOVA, group membership was determined by scores on the spelling subtest

from the TOD-RAP; the spelling subtest was chosen because it yielded the strongest correlation with the FLAPS score and because spelling skills are notoriously weak for those identified with dyslexia. Results of the ANOVA indicated significant differences in FLAPS scores based on dyslexia tendencies ($p < .05$); see Table 6. In addition, the effect size ($\eta^2 = .03$) is between small and medium, according to Kline (1995). Post hoc pairwise comparisons were conducted using the Sidak adjustment; significant difference between participants in the HR and LR groups ($p < .01$) but no significant differences between participants in the MR and LR groups nor the HR and MR groups were indicated; see Table 7. The ANOVA indicated no significant differences in FLAPS scores based on language being learned nor the dyslexia tendency times language interaction.

For the second 3 X 3 ANOVA, group membership was determined by scores on the WJ Reading Fluency subtest; of the reading-related measures, this subtest yielded the second strongest correlation with FLAPS scores. Again, high-risk (HR), medium-risk (MR) and low-risk (LR) groups were formed by dividing the groups approximately into thirds. Results of the second ANOVA yielded no significant differences based on either dyslexia tendencies (reading fluency group membership), language being learned, or the interaction; see Table 8. However, the difference based on dyslexia tendency approached significance ($p = .06$) and a small effect size is indicated ($\eta^2 = .02$) (Kline, 1995).

Chapter 4

Discussion

Results indicate a slight but significant tendency for college student participants with relatively low scores on marker tests of dyslexia (i.e., fluency, orthography, spelling, and listening vocabulary) to have negative attitudes and perceptions toward learning a foreign language. Further, students who scored relatively weaker than peers on measures of spelling had significantly more negative attitudes and perceptions about the experiences associated with learning a foreign language. When students were assigned to groups based on a second marker test of dyslexia (word reading fluency) similar results emerged, but differences were not pronounced ($p = .06$). Student participants exhibited no significant mean differences in their attitudes and perceptions based on the language they were studying. Nor did students in the various risk groups for dyslexia exhibit differential attitudes and perceptions towards certain languages.

Means for the FLAPS attitudes and perceptions items (#20-35) for high, medium and low dyslexia tendency groups based on the combined scores of the TOD-RAP and WJ III Reading Fluency Test are found in Table 9. Visual inspection of the items indicated that students in the high risk group reported more difficulty with spelling and vocabulary and feeling more distraction in class. They also reported feeling less in control of their grades and fear of not being successful.

These results are similar to those obtained by Sparks and Ganschow (1993) with high school students; their results showed differences in foreign language attitudes and perceptions of high school students with reading and reading-related difficulties as

compared to those without reading problems. Students identified with learning disabilities and those defined as high risk for learning problems had more negative attitudes than those defined as low risk. Unlike students in the Sparks and Ganschow study, participants in this study were not formally identified as having learning disabilities or dyslexia; rather, they were identified as high, medium or low risk for dyslexia tendencies based on direct measures of reading and reading-related skills.

Importantly, even though significant relationship emerged correlations between foreign language attitudes and perceptions and reading and reading-related skills were not particularly strong, ranging from .10 and .29 (Rosenthal, 2001) and effect sizes were small to medium. Spelling and silent reading fluency scores were correlated most strongly with foreign language learning attitudes and perceptions (at the .01 level). This is not surprising. According to Lyon (2003) and Bruck (1993) dyslexia is characterized by poor spelling; further Sparks (2000, 2001, and 2003) and Simon (2000) have indicated that spelling is a key factor in foreign language success.

For this study, spelling was measured via a visual matching task; it is possible that a dictation measure of spelling might yield stronger correlations. Presumably, dictation is a particular problem for those with learning disabilities when learning a foreign language and such a task may have produced more variability and consequently larger coefficients (Mabbott, 1994).

Reading fluency was most strongly related to attitudes and perceptions following spelling. Because reading speed tends to be slow for students with dyslexia (Wimmer et

al., 1998) it is not surprising that slower readers express more negative attitudes about learning a foreign language than faster readers. Listening vocabulary correlated modestly but significantly with the FLAPS Total score. Weaknesses in vocabulary are associated with dyslexia (Gathercole & Baddeley, 1993; Lyon, 2003) and, hence, might be expected to be weaker in those experiencing difficulty in learning a foreign language. In contrast, and somewhat surprisingly, measures of rapid automatic naming and phonological skills were not significantly related to foreign language learning attitudes and perceptions. According to Downey and Snyder (2000), students with dyslexia have deficits in phonological processing and, according to Wolf (1999), naming speed is a predictor of reading difficulties in transparent languages. Nonetheless, these results indicated no relationship between either phonological skills or rapid naming and foreign language learning attitudes and perceptions. Because the sample was comprised of college students at a major university, it is likely that dyslexia tendencies are underrepresented in the sample relative to the general population. In fact, the sample mean on the WJIII Reading Fluency subtest was approximately 104 with a standard deviation of 13, compared to a population mean of 100 and standard deviation of 15, indicating a slight restriction in range for the sample. Normative scores are not available for the TOD-RAP but the WJIII reading fluency score indicates the sample is slightly above the average in reading skills, as one might expect of a sample drawn from a college population. Further, the TOD-RAP is designed to screen for difficulties with reading and reading-related skills. Consequently, the ceiling on some of the subtests may have been too low to capture

subtle differences in rapid naming and phonics skills. Also, it is likely that college students with the most significant reading deficits either choose majors in which a foreign language is not required or receive a waiver for the foreign language requirement.

It was expected that students taking Spanish might have more positive attitudes because Spanish is considered a transparent language. Results of the ANOVAs did not show such a relationship. Because reading level could have an influence on the language of choice for college students (e.g., weaker readers or less studious students might choose Spanish because it is generally considered to be relatively easy to master), a post hoc analysis of covariance was conducted, using scores on the reading measures (TOD-RAP Total and WJ Reading Fluency) as covariates. With reading level controlled, results indicate a significant difference ($p < .05$) in attitudes and perceptions as measured by the FLAPS Total based on the language being studied; see Table 10. The effect size ($\eta^2 = .03$) is medium (Kline, 1995). Post hoc pairwise comparisons using the Sidak's adjustment indicated that students taking German had lower FLAPS scores (i.e., more positive attitudes) than students taking Spanish ($p < .04$). The difference in attitudes between those studying German and those studying French approached significance ($p < .06$); the difference between those studying French and Spanish was not significant; see Table 11. Table 5 presents FLAPS means and other demographic data for these three groups.

German language students in this study reported more positive attitudes and perceptions towards learning a foreign language than those studying Spanish and the

difference between German and French language learners approached significance, when reading level was controlled. These results should be interpreted cautiously because the sample size of those studying German was relatively small ($n = 27$). According to Crombie (2000) and Spencer (2000), students with reading disabilities should study a language with a similar phonetic structure to English, such as Spanish, the most transparent language of those used in this study; this transparency purportedly makes the language easier to teach and learn. However, in this study, those students studying Spanish exhibited more negative attitudes and perceptions than those studying German, a less transparent language. It is possible that the students from this population who chose to study German were more studious than those studying Spanish and French. It is also possible that students fulfilling the language requirement over the summer may have different motivations than those taking it during the academic year.

Implications

Professors and instructors should be aware of the challenges some students, particularly those with dyslexia tendencies, face when studying a foreign language. Professors need to provide multiple opportunities for practice and review, including reteaching opportunities (before or after class) in a nonthreatening environment to allow students to practice making mistakes and understand why they made them. Flexibility in grading, particularly in spelling, may help students overcome the anxiety of writing words incorrectly and may reduce inhibitions to attempt the work. Because students with dyslexia often exhibit auditory and phonological weaknesses, spending extra time

listening to tapes in the target language may help ease tension when tapes are used in classroom. Students may also be able to tape themselves reading passages, thus enabling professors to listen and give suggestions on improving pronunciation. Assigning small, frequent reading passages is recommended to help students build reading fluency and confidence. According to the National Reading Panel (National Institute of Child Health and Human Development, 2000), students can build proficiency by reading and re-reading short passages at an appropriate instructional level. Counting, saying the alphabet, saying verb conjugations, and/or viewing flashcards briefly during each class students will give multiple practice hearing and seeing the words. Short but frequent explicit rehearsal and review of such material in a nonthreatening manner should be helpful for students with memory deficits. Allowing students to work in small groups may also be an effective technique; cooperative learning is recommended by the National Reading Panel to improve reading comprehension. Working in groups and getting an advance warning for the instructor that one might be called on may help reduce anxiety and increase motivation. Also, students with disabilities may benefit from following an established routine in class and from a well-organized syllabus (Swanson & Hoskyn, 2001). In general, being sensitive to students' affective states as well as their learning idiosyncrasies will help instructors be more effective in teaching foreign language to students who struggle.

Limitations and Need for Further Research

The study was conducted during a mini term and summer semester with college students at a major university in the southern United States. Research should be extended to different areas of the country, administered during the traditional academic year, and with students in various types of college/university settings (e.g., community college, private university) and with students of more varied ability. Analyses presented in this paper were restricted to the questions in the FLAPS survey, attitudes and perceptions portions. Additional research could address the effects of prior experiences with foreign language study, grades earned in foreign language classes, and history of learning disabilities and extent and type of remediation. In addition, measures of reading and reading-related skills with better item gradients and higher ceilings should be used. Examination of student's written (i.e., dictated) spelling might yield a more sensitive measure of spelling.

Importance of Study

This is the first study to examine dyslexia tendencies and attitudes and perceptions about learning a foreign language in a college population. Results extend findings with high school students and confirm a relationship; that is, students with weaker reading-related skills report more negative experiences when learning a foreign language. Consequently, results underscore the importance of effective intervention for college students with dyslexia or who are at-risk for dyslexia tendencies and the need for

sensitivity and awareness of the part of professors and instructors in an increasing multicultural world.

References

References

- Bell, S.M., McCallum, R.S., & Cox, E.A. (2003). Toward a research-based assessment of dyslexia: Using cognitive measures to identify reading disabilities. *Journal of Learning Disabilities*, 36, 505-16.
- British Dyslexia Association. Retrieved from April 11, 2005, from <http://www.bdadyslexia.org.uk/>
- Bruck, M. (1993). Component spelling skills of college students with childhood diagnoses of dyslexia. *Learning Disability Quarterly*, 16, 171-182.
- Bruck, M. (1982). Language impaired children's performance in an additive bilingual education program. *Applied Psycholinguistics*, 3, 45-60.
- Cline, T., & Frederickson, N. (1999). Identification and assessment of dyslexia in bi/multilingual children. *International Journal of Bilingual Education and Bilingualism*, 2(2), 81-93.
- Crombie, M.A. (2000). Dyslexia and the learning of a foreign language in school: Where are we going? *Dyslexia*, 6, 112-123.
- Crombie, M.A. (1997). The effects of specific learning difficulties (dyslexia) on the learning of a foreign language in school. *Dyslexia*, 3, 27-47.
- Cummins, J. (1979). Linguistic interdependence and the educational development of bilingual children. *Review of Educational Research*, 49(2), 222-251.
- Downey, D., & Snyder, L. (2000). College students with LLD: The phonological core as risk for failure in foreign language classes. *Topics in Language Disorders*, 21(1), 82-6992.

- Gathercole, S.E., & Baddeley, A.D. (1993). *Working Memory and Language*. Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.
- Gottardo, A. (2002). The Relationship between language and reading skill in bilingual Spanish- English speakers. *Topics in Language Disorders*, 22(5), 46-69.
- Grisseman, H. (1974). *Die Legasthenic als Deutungsschwache*. Bern, Switzerland: Hans Huber.
- Haseltine, E. (2000). Got dyslexia? If your mind ‘hears’ every word of this sentence, you’re probably okay. *Discover*, 21(4), 92.
- Honig, B. (1997). Reading the right way. *The School Administrator*, 54(8), 6-15.
- International Dyslexia Association. *Dyslexic Basics*. Retrieved February 18, 2004, from <http://www.interdys.org>
- Kline, R., (1995, August 11). Effect Size Indexes: Univariate/Multivariate. Concordia University: Montréal.
- Krieger, K. (2000). *The Relationship of Rapid Automatized Naming (RAN) and Word Reading in Normally Developing Readers*. Retrieved October 4, 2000, from <http://dldcec.org/Times151/rapidauto.html>
- Lambert, W.E. (1990). Persistent issues in bilingualism. In B. Harley (Ed.), *The Development of Second Language Proficiency* (p. 201-218). Cambridge University Press.
- Lundberg, I. (2002). Second language learning and reading with the additional load of dyslexia. *Annals of Dyslexia*, 52, 165-87.

- Lyon, G.R. (2003). Defining dyslexia, comorbidity, teachers' knowledge of language and reading: A definition of dyslexia. *Annals of Dyslexia*, 53, 1-14.
- Lyon, G.R. (1996). Towards a definition of dyslexia. *Annals of Dyslexia*, 45, 3-27.
- Mabbott, A. (1994). An exploration of reading comprehension, oral reading errors, and written errors by subjects labeled learning disabled. *Foreign Language Annals*, 27(3), 293-324.
- Majhanovich, S. (1993). The mainstreamed environment in Canada: Is there a place in French immersion for learning disabled students? *Canadian Journal of Learning Special Education*, 33(4), 67-72.
- Manis, F.R., Doi, L.M., & Bhadha, B. (2000). Naming speed, phonological awareness, and orthographic knowledge in second graders. *Journal of Learning Disabilities*, 33(4), 325-333.
- Martin, D. (1999). Bilingualism and literacies in primary school: Implications for professional development. *Educational Review*, 51(1), 67-79.
- McCane, S. (2006). An evaluation of the psychometric properties of the test of dyslexia: Rapid assessment profile. Dissertation in progress.
- McGrew, K., & Woodcock, R. (2001). Technical Manual: Woodcock-Johnson III. Itasca: Riverside Publishing.
- Miles, E. (2000). Dyslexic across languages. *Perspectives*, 26(4), 33-35.
- Miller-Guron, L., & Lundberg, I. (2000). Dyslexia and second language reading: A second bite at the apple? *Reading and Writing: An Interdisciplinary Journal*,

12, 41-61.

- National Institute of Child Health and Human Development. (2000). *Report of the National Reading Panel: Teaching Children to Read* (NIH Publication No. 00-4769). Washington, DC: U.S. Government Printing Office.
- National Institute of Neurological Disorders and Stroke [NINDS]. Retrieved April 10, 2005, from <http://www.ninds.nih.gov/disorders/dyslexia/dyslexia.htm>
- Rosenthal, J. (2001). *Statistics and data interpretation for the helping professions*. Belmont, CA: Wadsworth Thomson Learning.
- Sawicki, S. (1997). Understanding dyslexia. *People Weekly*, 48, 149-152.
- Sawyer, D., & Butler, K. (1991). Early language intervention: A deterrent to reading disability. *Annals of Dyslexia*, 41, 55-79.
- Shaywitz, S. (2003). *Overcoming Dyslexia: A New and Complete Science-Based Program for Reading Problems at Any Level*. New York: Alfred A. Knopf.
- Shaywitz, S. (1996). Dyslexia. *Scientific American*, 275(5), 78-84.
- Simon, C. (2000). Dyslexia and learning a foreign language: A personal experience. *Annals of Dyslexia*, 50, 155-187.
- Smythe, I., & Everatt, J. (2002). Dyslexia and the multilingual child: Policy into practice. *Topics in Language Disorders*, 22(5), 71-80.
- Sparks, R., Philips, L., & Javorsky, J. (2003). Students classified as LD who petitioned for or fulfilled the college foreign language requirement- Are they different? A replication study. *Journal of Learning Disabilities*, 36(4),

348-62.

- Sparks, R. (2001). Foreign language learning problems of students classified as learning disabled and non-learning disabled: Is there a difference? *Topics in Language Disorders*, 21(2), 38-54.
- Sparks, R., & Javorsky, J. (2000). Section 504 and the Americans with disabilities act: Accommodating the learning disabled student in the foreign language curriculum (An update). *Foreign Language Annals*, 33(6), 645-654.
- Sparks, R., & Ganschow, L. (1993). Perceptions of low and high risk students and students with learning disabilities about high school foreign language courses. *Foreign Language Annals*, 26(4), 491-508.
- Spencer, K. (2000). Is English a dyslexic language? *Dyslexia*, 6, 152-62.
- Spolsky, B. (1989). *Conditions for second language learning*. Oxford: Oxford University Press.
- Swanson, H.L., & Hoskyn, M. (2001). Instructing adolescents with learning disabilities: A component and composite analysis. *Learning Disabilities Research & Practice*, 16(2), 109-119.
- Trites, R.L., & Price, M.A. (1978-9). Specific learning disability in primary French Immersion. *Interchange*, 9(4), 73-85.
- Vetter, H.J. (1969). *Language behavior and communication: an introduction*. Itasca, IL: F. E. Peacock.
- Wertheimer, F. (1999, August 6). Uncovering dyslexia. *The London Times*, p. 44.

- Wimmer, H., Mayringer, H., & Landerl, K. (1998). Poor reading: A deficit in skill-automatization or a phonological deficit? *Scientific Studies of Reading*, 2(4), 321-340.
- Wimmer, H. (1996). The Early manifestation of development dyslexia: Evidence from German children. *Reading & Writing: An Interdisciplinary Journal*, 8, 171-188.
- Wiss, C. (1993). Crosslinguistic comparisons of learning disabilities in French immersion poor readers. *Canadian Journal of Special Education*, 9(2), 171-176.
- Wiss, C. (1986). Issues in the assessment of learning problems in children from French immersion programs: A case study illustration in support of Cummins. *The Canadian Modern Foreign Language Review*, 43(2), 302-313.
- Wolf, M., Bowers, P., & Biddle, K. (2000). Naming-speed processes, timing, and reading: A conceptual review. *Journal of Learning Disabilities*, 33(4), 387-407.
- Wolf, M. (1999). What time may tell: Towards a new conceptualization of developmental dyslexia. *Annals of Dyslexia*, 49, 3-28.
- Zavala, J., & Mims, J. (1983). Identification of learning disabled bilingual Hispanic students. *Learning Disabled Quarterly*, 6, 479-488.
- Zoccolotti, P., De Luca, M., Di Pace, E., Judica, A., Orlandi, M., & Spinelli, D. (1999). Markers of development surface dyslexia in a language (Italian) with high grapheme-phoneme correspondence. *Applied Psycholinguistics*, 20(2),

199-216.

Appendices

Appendix A

Foreign Language Survey

Demographics

- 1) Age: _____
- 2) Birthdate: _____
- 3) Gender: Male Female
- 4) Race: _____
- 5) College level:
Freshman Sophomore Junior Senior Graduate
- 6) Is English your first language? Yes No
- 7) Did you take a foreign language in high school? Yes No
- 8) How many credit courses? 0 1 2 3 4 or more
- 9) Is it the same language you are taking in college? Yes No
- 10) What foreign language(s) are you current taking?
French Spanish German Italian Other
- 11) Course Level(s) (you may fill in both): 100 200
- 12) Is your major or minor a foreign language? Yes No
- 13) How many hours a day do you study for your foreign language course(s)?
Less than 30 m 30 m to 1 hr. 1 hr. to 2 hrs. 2 hrs. to 3 hrs. 3 hrs. or more
- 14) Have you ever been diagnosed with a learning disability? Yes No
- 15) What type of learning disability? (You may fill in more than one)
None Dyslexia Reading Disabled Math Perception
- 16) Do you feel you have a learning disability or learning disability tendencies? Yes No
- 17) Have you received tutoring in a foreign language course? Yes No

Academic History

18) What is or was your grade in a foreign language course?

A B C D F

19) Describe your experience with learning a foreign language.

Very easy easy moderate difficult very difficult

Foreign Language Learning Attitudes

20) I feel I have spent too much time studying for my foreign language course.

Strongly Agree Agree Neutral Disagree Strongly Disagree

21) I feel I should have studied harder for my foreign language course.

Strongly Agree Agree Neutral Disagree Strongly Disagree

22) I do not worry about my foreign language course.

Strongly Agree Agree Neutral Disagree Strongly Disagree

23) I am more easily distracted when I study a foreign language course than my other courses.

Strongly Agree Agree Neutral Disagree Strongly Disagree

24) I feel nervous, anxious or afraid about participating in class discussion during my foreign language course.

Strongly Agree Agree Neutral Disagree Strongly Disagree

25) I feel that I am not in control of my grades in my foreign language course.

Strongly Agree Agree Neutral Disagree Strongly Disagree

26) I want to learn a foreign language.

Strongly Agree Agree Neutral Disagree Strongly Disagree

27) I define being successful in my foreign language course as a/an...

A B C D F

28) I will never be successful in a foreign language course.

Strongly Agree Agree Neutral Disagree Strongly Disagree

Foreign Language Academic Perceptions

29) I have difficulty learning vocabulary spelling in a foreign language course.

Strongly Agree Agree Neutral Disagree Strongly Disagree

30) I learn the rules of grammar in my foreign language course easily.

Strongly Agree Agree Neutral Disagree Strongly Disagree

31) I have difficulty in conversing/speaking in a foreign language.

Strongly Agree Agree Neutral Disagree Strongly Disagree

32) I write a foreign language easily.

Strongly Agree Agree Neutral Disagree Strongly Disagree

33) I have difficulty in translating a foreign language.

Strongly Agree Agree Neutral Disagree Strongly Disagree

34) I have difficulty listening to and understanding a foreign language as it is spoken.

Strongly Agree Agree Neutral Disagree Strongly Disagree

35) I read in my foreign language course easily.

Strongly Agree Agree Neutral Disagree Strongly Disagree

Appendix B

Study Information Sheet

Attitudes and Perceptions of Students with Dyslexia Tendencies who are Learning a
Second Language

Dear Participant,

I am a doctoral student at the University of Tennessee, Knoxville, College of Education, Health and Human Sciences. I am conducting a study to examine the experiences of people learning a second language and am particularly interested in those who have some difficulties with reading. Specifically, I will be comparing English-speaking students with dyslexia tendencies and English-speaking students with non-dyslexia tendencies who are studying a foreign language. As a dyslexia student myself, I experienced difficulty from time to time in many subjects. However, I received my bachelor's degree in French and Russian, and since that time, I have learned Spanish. I understand many of the problems students with dyslexia face. This is why I have dedicated my doctoral research to finding ways to better understand and help this student population.

You have been selected as a participant in this research project because you are currently enrolled in a foreign language course. You are asked to answer several questions and fill out a survey about your experiences while taking this foreign language course. The completion of each survey should require about 20 minutes. You will also be asked to complete six short (about 3 minutes each) measures of reading-related skills such as listening to a definition and circling the correct vocabulary word or scanning a row of words to find the one that is correctly spelled.

I do not anticipate you will encounter any risk or discomfort from participating in this research. Your survey and reading measure responses will be anonymous; your identity will not be indicated on any of the forms you are asked to complete.

Though I do not anticipate any direct benefits to you because of your participation, your participation will yield insights about students' learning difficulties and challenges in foreign language courses.

Data will be stored securely and no individual references will be made in oral or written reports, which could link participants to the study. All surveys will be filed for three years in Claxton Complex at the University of Tennessee, Knoxville, TN

Your participation in this research is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from this study at any time without penalty and without loss of benefits to which you are otherwise entitled. If you

withdraw from the study before data collection is completed your data will be returned to you or destroyed. Return of the completed survey constitutes your consent to participate.

If you have any questions at any time about the study or the procedures, you may contact the me, Katrinda Scott, at kwills1@utk.edu or (865) 974-3435. If you have questions about your rights as a participant, contact Research Compliance Services of the Office of Research at (865) 974-3466.

Thank you for your assistance in this study.

Sincerely,

Katrinda W. Scott

Appendix C

Tables

Table 1

Demographic Characteristics of Participants

		Male		Female		Group Total	
		<i>n</i>	Percent	<i>n</i>	Percent	<i>n</i>	Percent
Race	White	112	86.8	134	89.9	246	88.5
	African American	14	10.9	8	5.4	22	7.9
	Asian	1	.8	3	2.0	4	1.4
	Other	0	.0	3	2.0	3	1.1
	Unidentified	2	1.6	1	.7	3	1.1
Group Total		129	100.0	149	100.0	278	100.0

Table 2

Descriptive Statistics for Foreign Language Attitudes and Perceptions Survey (FLAPS), Attitudes and Perceptions and Total Score, Test of Dyslexia, Rapid Assessment Profile (TOD-RAP) and Woodcock-Johnson III Reading Fluency (WJ RF)

	<i>M</i>	<i>SD</i>	<i>n</i>
FLAPS			
Attitude	24.59	5.35	278
Perception	22.12	4.95	278
Total	46.71	9.50	278
TOD-RAP			
Listening Vocabulary Total	23.79	2.09	278
Phonological Decoding Total	28.13	1.46	278
Spelling Total	42.15	2.08	278
Rapid Letter Matching Total	53.02	7.63	278
Orthography Total	60.21	5.54	278
Total	207.30	12.92	278
WJ RF	103.84	12.59	278

Note. WJRF scores are reported as standard scores, population *M* of 100 and *SD* of 15.

Table 3

Intercorrelations between Foreign Language Attitudes and Perceptions Survey (FLAPS), Attitudes and Perceptions and Total Score, and Test of Dyslexia, Rapid Assessment Profile (TOD-RAP) and Woodcock-Johnson III Reading Fluency (WJ RF)

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Listening Vocabulary	—	.13(*)	.18 (**)	.03	.11	.27(**)	.20(**)	-.12	-.13(*)	-.14(*)
2. Phonological Decoding		—	.26(**)	.31(**)	.18(**)	.43(**)	.16(**)	-.08	-.05	-.07
3. Spelling			—	.23(**)	.46(**)	.55(**)	.34(**)	-.26(**)	-.17(**)	-.24(**)
4. Rapid Letter Matching				—	.38(**)	.83(**)	.42(**)	-.09	-.05	-.07
5. Orthography					—	.77(**)	.43(**)	-.19(**)	-.16(**)	-.19(**)
6. Test Of Dyslexia Total						—	.54(**)	-.20(**)	-.15(*)	-.19(**)
7. Woodcock-Johnson Reading Fluency Total							—	-.23(**)	-.15(*)	-.21(**)
8. FLAPS Attitude								—	.70(**)	.93(**)
9. FLAPS Perception									—	.92(**)
10. FLAPS Total										—

Note. $n = 278$

* $p < .05$; ** $p < .01$.

Table 4

Descriptive Statistics for Dyslexia Tendency Groups as Defined by Scores on Test of Dyslexia Rapid Assessment Profile (TOD-RAP) and Woodcock-Johnson III Reading Fluency (WJ RF)

	Dyslexia Tendencies	<i>M</i>	<i>SD</i>	<i>n</i>
TOD-RAP Spelling	High Dyslexia	49.81	7.91	96
	Middle Dyslexia	45.83	9.68	95
	Low Dyslexia	44.25	10.08	87
WJRF	High Dyslexia	98.63	9.82	96
	Middle Dyslexia	104.33	12.45	95
	Low Dyslexia	109.06	13.27	87

Table 5

Mean and Standard Deviation for Foreign Language Attitudes and Perceptions Survey (FLAPS) for High, Medium and Low Dyslexia Tendency Groups Based on Test of Dyslexia, Rapid Assessment Profile (TOD-Spelling) and Woodcock-Johnson III (WJ) Reading Fluency Test, and for Language Groups

	<i>M</i>	<i>SD</i>	<i>n</i>
Dyslexia Tendencies- Based On TOD			
High Dyslexia	48.13	8.73	93
Middle Dyslexia	48.19	8.83	93
Low Dyslexia	43.78	10.30	92
Dyslexia Tendencies- Based On WJ			
High Dyslexia	49.33	8.68	103
Middle Dyslexia	46.15	8.67	89
Low Dyslexia	44.16	10.53	86
Language			
French	46.84	10.02	90
Spanish	47.22	9.24	150
German	42.59	9.67	27

Table 6

Factorial Analysis of Variance (ANOVA) of Foreign Language Attitudes and Perceptions Survey (FLAPS) Total Means for Dyslexia Tendency Groups as Defined by Spelling Scores on Test of Dyslexia Rapid Assessment Profile (TOD-RAP) and Language (French, Spanish and German)

Source	Type III SS	df	MS	F	p	η^2
Dyslexia Tendency	728.82	2	364.41	4.18	.02	.02
Language	381.26	2	190.63	2.19	.11	.02
Dyslexia Tendency and Language	129.43	4	32.36	.37	.83	.01
Error	22478.83	258	87.13			
Total	605015.00	267				
Corrected Total	24574.55	266				

Table 7

Post Hoc Pairwise Comparisons Analysis Using Sidak Adjustment of Foreign Language Attitudes and Perceptions Survey (FLAPS) Total Means Scores for Dyslexia Tendency Groups as Defined by Spelling Scores on Test of Dyslexia Rapid Assessment Profile (TOD-RAP)

Dyslexia Tendency Groups		<i>SE</i>	<i>p</i>
High-risk (HR)	Medium-risk	1.88	.11
	Low-risk	1.90	.00
Medium-risk (MR)	High-risk	1.88	.11
	Low-risk	1.71	.14
Low-risk (LR)	High-risk	1.90	.00*
	Medium-risk	1.71	.14

* $p < .01$

Table 8

Factorial Analysis of Variance (ANOVA) of Foreign Language Attitudes and Perceptions Survey (FLAPS) Total Means, for Dyslexia Tendency Defined by Woodcock Johnson III Reading Fluency (WJ RF) and Language (French, Spanish and German)

Source	Type III SS	df	MS	F	p	η^2
Language	365.17	2	182.59	2.10	.12	.02
Dyslexia Tendency	488.69	2	244.35	2.81	.06	.02
Language and Dyslexia Tendency	366.22	4	91.56	1.05	.38	.02
Error	22424.55	258	86.92			
Total	605015.00	267				
Corrected Total	24574.55	266				

Table 9

Means for Foreign Language Attitudes and Perceptions Survey (FLAPS) Questions for High, Medium and Low Dyslexia Tendency Groups Based on the Combined Scores of Test of Dyslexia, Rapid Assessment Profile (TOD) and Woodcock-Johnson III (WJ) Reading Fluency Test

FLAPS Survey Questions	<i>M</i>			
	HR	MR	LR	Total
20) I feel I have spent too much time studying for my foreign language course.	2.88	2.55	2.51	2.65
21) I feel I should have studied harder for my foreign language course.	3.44	3.52	3.17	3.38
*22) I do not worry about my foreign language course.	3.72	3.58	3.26	3.53
23) I am more easily distracted when I study a foreign language course than my other courses.	3.38	2.84	2.92	3.05
24) I feel nervous, anxious or afraid about participating in class discussion during my foreign language course.	3.32	3.23	3.20	3.25
25) I feel that I am not in control of my grades in my foreign language course.	3.03	2.52	2.45	2.67
*26) I want to learn a foreign language.	2.32	2.20	2.01	2.18
27) I define being successful in my foreign language course as a/an... (A = 5, B = 4, C = 3, D = 2, F = 1)	1.89	1.74	1.48	1.71
28) I will never be successful in a foreign language course.	2.45	2.14	1.98	2.19
29) I have difficulty learning vocabulary spelling in a foreign language course.	3.21	2.74	2.61	2.86
*30) I learn the rules of grammar in my foreign language course easily.	3.48	3.11	3.14	3.24
31) I have difficulty in conversing/speaking in a foreign language.	3.70	3.55	3.35	3.54
*32) I write a foreign language easily.	3.33	3.16	3.10	3.20

Table 9 Continue

FLAPS Survey Questions	<i>M</i>			
	HR	MR	LR	Total
33) I have difficulty in translating a foreign language.	2.95	2.71	2.78	2.81
34) I have difficulty listening to and understanding a foreign language as it is spoken.	3.67	3.28	3.48	3.48
*35) I read in my foreign language course easily.	3.07	3.00	2.91	3.00

Note. Items marked with asterisk (*) were scored in reverse order to maintain consistency of meaning with the other items

Table 10

Factorial Analysis of Covariance (ANCOVA) for Foreign Language Attitudes and Perceptions Survey (FLAPS) Total Means of Language Groups (French, Spanish, and German) with Woodcock Johnson III Reading Fluency (WJ RF) and Test of Dyslexia Rapid Assessment Profile (TOD-RAP) as Covariates

Source	Type III SS	df	MS	F	p	η^2
TOD-RAP Total	209.72	1	209.72	2.41	.12	.01
WJ III Reading Fluency	349.77	1	349.77	4.02	.05	.02
Language	583.62	2	291.81	3.35	.04*	.03
Error	22825.77	262	87.12			
Total	605015.00	267				
Corrected Total	24574.55	266				

* $p < .05$.

Table 11

Post Hoc Pairwise Comparisons Analysis Using Sidak Adjustment of Foreign Language Attitudes and Perceptions Survey (FLAPS) Total Means with Woodcock Johnson III Reading Fluency (WJ RF) and Test of Dyslexia Rapid Assessment Profile (TOD-RAP) as Covariates

Language		SE	p
French	Spanish	1.26	1.000
	German	2.06	.06
Spanish	French	1.26	1.00
	German	1.95	.04*
German	French	2.06	.06
	Spanish	1.95	.04*

* $p < .05$

Vita

Katrinda Wills Scott was born in Fairfax, VA on September 10, 1973. She was raised overseas in Bamako, Mali and Bujumbura, Burundi. In Bamako, she attended Liberté A through fourth grade. In Bujumbura, she attended École Française for fifth and sixth grades. She moved to Nashville, TN and attended Goodlettsville Middle School. She graduated from Hunters Lane High School in 1991. From there, she went to the University of Tennessee, Knoxville and received a B.S. in French in 1995 and a M.S. in education with a concentration in multicultural education in 1997. She spent a year abroad at the Université de Caen, France in 1993-1994, and spent the summer of 1996 in Cuernavaca, Mexico at the Centro Bilingue.

Katrinda is currently living in Knoxville with her husband and daughter.