

THE EFFECTS OF USING FLASHCARDS TO DEVELOP AUTOMATICITY  
WITH KEY VOCABULARY WORDS FOR STUDENTS WITH AND  
WITHOUT LEARNING DISABILITIES ENROLLED IN  
A HIGH SCHOOL SPANISH COURSE

A DISSERTATION

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BY

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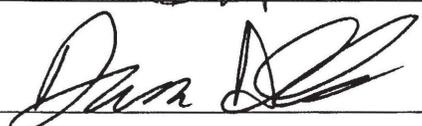
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To the Dean of the Graduate School:

I am submitting herewith a dissertation written by Phillip A. Stager entitled "The Effects of Using Flashcards to Develop Automaticity with Key Vocabulary Words for Students With and Without Learning Disabilities Enrolled In a High School Spanish Course." I have examined this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy with a major in Special Education.

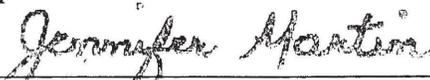
  
\_\_\_\_\_  
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We have read this dissertation and recommend its acceptance:

  
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Accepted:

  
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Dean of the Graduate School

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## ABSTRACT

PHILLIP A. STAGER

### THE EFFECTS OF USING FLASHCARDS TO DEVELOP AUTOMATICITY WITH KEY VOCABULARY WORDS FOR STUDENTS WITH AND WITHOUT LEARNING DISABILITIES ENROLLED IN A HIGH SCHOOL SPANISH COURSE

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The purpose of this study was to investigate the effects of using flashcards to develop automaticity (rapid word recognition) with key vocabulary words and phrases in order to improve fluency and reading comprehension skills for participants with and without diagnosed learning disabilities enrolled in a high school Spanish course. Eighty-seven students without learning disabilities and six students with learning disabilities ( $n = 93$ ), all between 16 and 18 years of age, (sample of convenience) were given single-word and phrase training within the context of the curriculum. Participants learned to decode key words and phrases quickly and accurately in Spanish using flashcards. Once training was determined to be sufficient, as measured through Curriculum-Based Measures (CBM's), reading comprehension scores were then obtained through end-of-unit exams. One-Way Within Subjects ANOVA/Mean analysis was conducted to explore the differences between rapid word decoding rates and reading comprehension scores. ANOVA ( $p < .05$ ) analyses comparing the CBM's of automaticity (administered just prior to the exams) with end-of-unit comprehension exams found no statistically significant difference

between the two. Results suggest that an emphasis on the development of automaticity (rapid word recognition), within the context of the curriculum, benefits all students of foreign language study. The findings indicated that students with learning disabilities were able to achieve comprehension rates comparable to students without learning disabilities as a result of the intervention.

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## CHAPTER I

### INTRODUCTION

The dramatic shift in ethnic and cultural diversity and the ever increasing need to prepare all students to meet the challenges of a more global economy have strongly established the practical value of learning to communicate in a foreign language. The myriad of social and economic benefits associated with the knowledge of a foreign language has been recognized in both the business and academic communities around the globe (<http://www.weboaal.com/benefitsofbilingualism.htm>) [Data from the North Carolina Department of Public Instruction their source was International Westinghouse Electric Corporation, American Institute for Foreign Study, and National Council on Foreign Language and International Studies] This in turn has greatly influenced the gradual emergence of foreign language (FL) study as one of the major components of both secondary and postsecondary curriculums nationwide (Ganschow, Sparks, Javorsky, 1998). Ganschow, Myer and Roeger (1989) surveyed colleges and universities to determine their foreign language (FL) requirements and found that 60% of the institutions required a FL in at least one program of study. Since then, an increasingly larger number of colleges and universities now require FL study to satisfy both their admission and graduation requirements (Schwarz, 1997). According to a 1999 survey by the Modern Languages Association, (Brod & Welles, 1999), foreign language study is now offered by 87% of all postsecondary institutions, including 63% of all 4 year institutions nationwide.

Today (2010), in Texas, all seven of the public university systems (e.g., Texas A & M University System, Texas State University System, Texas Tech University System, University of Texas System, etc...) recommend two consecutive years of FL study for entering freshmen prior to admission. As postsecondary admission requirements and enrollments steadily increase, so too does the need for secondary institutions to prepare *all* students to meet those demands. This preparation must also include the greater number of students with learning disabilities who are attempting to gain entrance into postsecondary institutions. More states have now added FL study to their growing list of public education secondary curriculum requirements (Ganschow, Myer, & Roeger, 1989; Ganschow & Sparks, 1987).

### **Learning Disability: A Brief Historical Perspective**

In 1963 Samuel Kirk, a professor of special education at the University of Illinois, was credited for “coining” the term “learning disabilities.” This term described a wide range of language-related disorders/difficulties and represented the life’s work of a very select and dedicated group of physicians, psychologists, educators, and researchers who were determined to deepen their understanding of this recurring phenomenon (Swanson, Harris, & Graham, 2006). Originally referred to as a “learning disorder,” the term “learning disability” was initially used by Kirk to describe “children who had disorders in development of language, speech, reading, and associated communication skills” (<http://www.audiblox2000.com/book2.htm>). This newly coined term spread like “wildfire” and by the end of the 1960s, children in many different parts of the world were

similarly classified as “learning disabled” (<http://www.audiblox2000.com/book2.htm>). Increased usage of this term spurred both researchers and practitioners to begin searching for a common set of definitional parameters. As a result, the attempt to establish a universal definition for LD became one of the most debated topics among researchers and practitioners alike throughout the 1970s (Wallach & Butler, 1995). In the 1980s, the definitional discussion broadened with the identification of the conceptual framework for the emerging field of “language learning disabilities” (Stark & Wallach, 1980). In spite of the many different attempts to formulate a definition that is acceptable to all, the definition of learning disabilities remains elusive (Ratner & Harris, 1994; Shapiro, Accardo, & Capute, 1998; Wallach & Butler, 1994, 1995). However, the most widely used definition of learning disabilities appears in the most recent federal legislation, Public Law 108-446, the Individuals with Disabilities Education Improvement Act (IDEIA 2004) (Lerner & Kline, 2006 p. 6). The following federal definition forms the basis for most state definitions, including the state of Texas, and is used by many schools:

The term “specific learning disability” means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which disorder may manifest itself in imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations. Such term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. Such term does not include a learning problem that is primarily the result of visual, hearing, or motor disabilities; of mental retardation; of emotional disturbance; or of environmental, cultural, or economic disadvantage (Lerner & Kline, 2006, p. 7).

According to Texas Administrative Code,

(B) A student with a learning disability is one who:

(i) has been determined through a variety of assessment tools and strategies to meet the criteria for a specific learning disability as stated in 34 CFR, §300.8(c)(10), in accordance with the provisions in 34 CFR, §§300.307-300.311; and

(ii) does not achieve adequately for the child's age or meet state-approved grade-level standards in oral expression, listening comprehension, written expression, basic reading skill, reading fluency skills, reading comprehension, mathematics calculation, or mathematics problem solving when provided appropriate instruction, as indicated by performance on multiple measures such as in-class tests; grade average over time (e.g. six weeks, semester); norm- or criterion-referenced tests; statewide assessments; or a process based on the child's response to scientific, research-based intervention; and

(I) does not make sufficient progress when provided a process based on the child's response to scientific, research-based intervention (as defined in 20 USC, §7801(37)), as indicated by the child's performance relative to the performance of the child's peers on repeated, curriculum-based assessments of achievement at reasonable intervals, reflecting student progress during classroom instruction; or

(II) exhibits a pattern of strengths and weaknesses in performance, achievement, or both relative to age, grade-level standards, or intellectual ability, as indicated by significant variance among specific areas of cognitive function, such as

working memory and verbal comprehension, or between specific areas of cognitive function and academic achievement ([http://www.sos.state.tx.us/http://info.sos.state.tx.us/pls/pub/readtac\\$ext.TacPage?sl=T&app=9&p\\_dir=N&prloc=85468&p\\_tloc=&p\\_ploc=1&pg=23&p\\_tac=&ti=19&pt=2&ch=89&rl=101](http://www.sos.state.tx.us/http://info.sos.state.tx.us/pls/pub/readtac$ext.TacPage?sl=T&app=9&p_dir=N&prloc=85468&p_tloc=&p_ploc=1&pg=23&p_tac=&ti=19&pt=2&ch=89&rl=101)).

Evidence of difficulties with learning has been consistently documented since the early 1800s when groundbreaking discoveries in neurology and reading were made.

Trends in learning and behavioral patterns revealed what experts agreed were typical characteristics associated with students with learning disabilities. Although considered “typical” or “common,” these characteristics are diverse and no one individual displays all of the traits. Some students have disabilities in reading, while others excel in mathematics. Furthermore, certain kinds of learning and behavioral characteristics of

students with learning disabilities tend to be age and gender specific. Understanding the identified learning and behavioral characteristics for students with learning disabilities is crucial for two reasons. First, it helps to define the pathology or nature of the learning disability and second, it can reveal the most effective and efficient classroom interventions.

Research in the field of learning disabilities has identified a core set of learning characteristics that are typically associated with students with learning disabilities. According to Lerner and Kline (2006), individuals with learning disabilities may display difficulties of attention, poor motor abilities, psychological processing deficits, lack of phonological awareness, poor cognitive strategies for learning, oral language, reading and writing, mathematics and with social skills. Swanson, Harris and Graham (2006) reported that individuals with learning disabilities may also have Dyslexia – specific deficit in reading, Dyscalculia – specific deficit in math, Language Deficits (e.g., pragmatics), social-emotional problems, attention-deficits and hyperactivity, memory deficits, cognition deficits, perceptual differences, motor skill and coordination problems. Students identified with LD comprise 51.2% of the total population of students receiving services in special education (Smith, Polloway, Patton, & Dowdy, 2004).

### **Students with a Learning Disability and Foreign Language Learning**

There have been numerous explanations as to why some students with learning disabilities perform well in some courses such as math, science and social studies, but do not succeed in foreign language (FL) courses (Ganschow, Sparks, & Javorsky, 1998).

Many years of intense research and study in the field of learning disabilities and FL study, has revealed a consistency in the areas of difficulties experienced by these learners. The research presented hereon represents what is currently known about individuals with learning disabilities enrolled in FL study.

Pimsleur and colleagues (Pimsleur, 1968; Pimsleur, Sundland, & McIntyre, 1964;) proposed that students with learning disabilities lack of success in FL courses, who experienced success in other courses, was often due to differences in “auditory ability” (the ability to deal with sounds and sound-symbol learning) rather than low motivation or intelligence. Dinklage (1971) reported similar findings. He documented students at Harvard who earned overall grade point averages (GPAs) of 3.5 or higher in their coursework yet failed in their attempts to fulfill the FL requirement (Ganschow, Sparks, & Javorsky, 1998). Dinklage suggested that these students’ learning difficulties in FL courses were not the result of a lack of motivation or poor attitude but seemed to be the result of learning difficulties similar to dyslexia (Ganschow, Sparks, & Javorsky 1998).

In the 1980s, a group of researchers began focusing on the etiology of FL learning difficulties and found no significant differences in intelligence between students with and without FL learning problems. They also found that “poor attitude and lack of motivation are the result of difficulties with language, rather than a cause of FL learning problems,” (Ganschow, Sparks, & Javorsky, 1998). Ganschow, Sparks, and Javorsky (1986) further suggested that students’ FL difficulties were related to their initial problems with native language learning. They stated that a “major premise underlying

our work is our hypothesis that the primary causal factors in successful or unsuccessful FL learning are linguistic; that is, students who exhibit FL learning problems have overt or subtle native language learning differences that affect their learning of a foreign language” (p. 249). The belief that learning difficulties in the native language affect the learning of a foreign language gave rise to Ganschow and Spark’s Linguistic Coding Differences Hypothesis (LCDH) as first proposed in 1989.

The Linguistic Coding Differences Hypothesis (LCDH) was derived from native language research and maintains that native language components such as the phonological/orthographic, syntactic, and semantic skills provide the initial linguistic framework for the learning of a foreign language (Ganschow, Sparks, & Javorsky, 1998). Thus, problems with one language component are likely to produce negative effects in the native and the foreign language. The underpinnings of the LCDH hypothesis are supported by the research of Carroll (1973) and Skehan (1986) who initially asserted that “basic language aptitude is a residue of first language skill” (Ganschow, Sparks, and Javorsky, p. 249). Since its introduction in 1991, researchers have provided strong empirical support for the LCDH hypothesis. Several studies at the secondary and postsecondary levels of education have confirmed that good FL learners tend to exhibit significantly stronger native language skills in both the written and oral domains than FL learners with learning difficulties (Ganschow, Sparks, & Javorsky, 1998). Each of these studies accounted for measures of native language skills and FL aptitude (as measured by the Modern Language Aptitude Test, or MLAT) across a myriad of variables (Carroll &

Sapon, 1959). These variables included native language skills and FL aptitude differences, FL grades, students' self-perceptions, and parents' perceptions of FL learning; anxiety and FL learning, FL proficiency and factor analysis.

Ganschow and Sparks (1991) administered measures of native language skills and FL aptitude (MLAT) to 15 postsecondary students who passed college FL courses with either an A or B and 15 students who received either a waiver or a substitution for the FL requirement. The results supported the LCDH and revealed that successful FL learners exhibited significantly stronger native language skills across several domains (phonological/orthographic processing but not semantics or word meaning) and stronger FL aptitude than FL learners who were unsuccessful in their endeavors to complete the FL requirement.

In another study, first-year high school FL learners were divided into two groups based on their first-quarter FL grade. One group consisted of 36 low-risk learners who achieved a grade of either an A or B while the second group consisted of 29 high-risk learners who achieved either a D or F in their FL course. Once again, the results supported the LCDH revealing that low-risk FL learners exhibited significantly stronger phonological/orthographic and syntactic (word order) skills and greater FL aptitude than did the high-risk FL learners.

In a related study (Sparks et al., 1992), 15 first-year FL students diagnosed with LD were compared to both the low- and high-risk learners on the same testing measures. Results revealed that the low-risk, non-LD FL learners exhibited significantly stronger

phonological/orthographic and syntactic, but not semantic skills and greater FL aptitude than the low-risk-LD FL learners. There were no significant differences found between native language and FL aptitude measures between the high-risk and LD FL groups.

Research conducted by FL educator Humes-Bartlo (1989) reported that learners who experience difficulties in FL courses typically show mild deficits in their native language skills when compared to learners who do not experience learning difficulties in FL courses. Skehan (1986) reported that students who “make more rapid progress in their first language tend to do better in foreign language learning at school” (p. 196).

According to Service (1992), phonological/orthographic tasks and the ability to compare syntactic-semantic structures can be used to predict skill in second language learning.

Ellis (1985) found that most researchers and practitioners in the field today agree that the rate and degree of success of second-language learning is significantly affected individual learner differences. Researchers also report that learner factors such as age, aptitude, motivation, personality, cognitive style, and preferred learning strategies need to be considered in any comprehensive theory of second-language learning (Omaggio 1993, p. 63).

Studies correlating FL grades with measures of native language skill and FL aptitude have also provided strong support for the LCDH. A study by Sparks and Ganschow (1996) found a significant correlation on measures of native language skill and FL aptitude among 154 students who achieved final grades of A, B, C, and D/F in first-year high school foreign language courses. Students who achieved A's scored significantly

higher on measures of native language skill and aptitude than students who achieved B's. Students who achieved a final grade of B scored significantly higher on these same measures than students who achieved a final grade of C and so on. Similar studies conducted by Ganschow and colleagues have consistently revealed that students who achieved higher FL grades scored significantly higher on both native language and FL aptitude measures.

The objective of two related studies by Sparks, Ganschow, and Patton (1995) was to determine the best predictors of FL grades in first-year high school FL courses. There were 154 female participants in one study and 100 co-ed participants in the other. In both studies, students' eighth grade English grade and their score on a particular FL aptitude measure (the MLAT) were found to be the most significant predictors of students' FL grade in a first-year high school FL course. Native language spelling was also found to be a significant predictor of FL grade in one of the studies. According to researchers, the appearance of spelling as a predictor of FL grades suggested the importance of the phonological/orthographic skill for FL learning. The decision by these researchers to examine students' English grades and MLAT scores was based on the "speculation" that these two variables require students to use a myriad of different language skills (e.g., oral, listening, speaking and writing skills) in order to achieve classroom success. All three predictors provided additional support for the LCDH and emphasize both the importance and role of native language components in FL learning.

Several qualitative studies involving FL learning and the perceptions of students', teachers', and parents' have yielded strong support for the importance and role of native language skills. These investigations measured students' self-perceptions about their FL learning, teachers' perceptions about their students' FL learning skills and affective characteristics, and parents' perceptions about the child's language learning skills (Ganschow, Sparks, & Javorsky, 1998). In one study, for example, Javorsky, Sparks, and Ganschow (1992) created and administered a self-report instrument designed to measure college students' perceptions about learning a foreign language to 60 college students with LD and 144 college students without LD enrolled in FL courses. They found that although both groups reported equal motivation to learn a foreign language, students with LD perceived themselves as less capable and as possessing fewer of the essential skills needed to successfully master the oral and written FL requirements. The students with LD also reported higher levels of anxiety when taking tests and when studying for their FL courses. Thus, the researchers concluded that the students' self reports reflected their weaker native language skills.

Ganschow and Sparks (1991) administered a self-report screening instrument to 373 college students to identify potential links between native and FL learning to identify students who were at risk for FL learning problems. The instrument asked students questions about specific aspects of native language learning such as grammar, spelling, writing and reading. The researchers concluded that the questions asked about native

language learning were the best discriminators of students at risk for FL learning difficulties.

In a similar study, (Sparks, Ganschow, & Javorsky, 1993) modified the same self-report questionnaire and administered it to 79 secondary FL learners. The instrument was designed to measure the self perceptions of low- and high-risk students and students diagnosed as LD enrolled in first-year FL courses regarding their academic skills and attitudes toward FL learning. Their results indicated that low-risk students reported significantly higher estimated FL grades than either the high-risk students or the students identified as LD. Low-risk learners expressed more positive attitudes about their language learning skills than either the students who were high-risk or identified as LD. The high-risk learners and students diagnosed as LD indicated that they perceived themselves lacking the necessary skills to “master” a foreign language. All three groups expressed the same levels of positive attitudes about wanting to learn a foreign language. Therefore, Sparks, Ganschow, and Javorsky (1993) speculated that the less positive perceptions of the high-risk and LD groups were the result of their significantly weaker native language skills and FL aptitude.

Ganschow and Sparks (1996) examined the relationship between the FL teachers’ perceptions of high school students’ FL academic skills and affective qualities and their performance on measures of native language skill and FL aptitude. FL teachers’ perceptions of students’ FL academic skills were generated from 168 students’ FL skills in the domains of listening, speaking, reading, and writing. The students’ affective

qualities included factors such as motivation, attitude, and anxiety. Students were divided into three categories, high, average, and low groups, based on their scores on each of the native language and FL aptitude tests. Researchers then compared students' scores to teachers' perceptions by group. The results of this study revealed that teachers perceived students, who scored lower on the testing measures, as having weaker FL academic skills and less positive affective characteristics such as higher anxiety, lower motivation, and less positive attitude than students with stronger native language skills and FL aptitude.

Sparks and Ganschow (1995) conducted another study on parents' perceptions of their child's language ability. These researchers used an author-designed self-report instrument that asked parents about their child's history of native language learning. A survey instrument consisted of native language skill, cognitive measures and FL aptitude test and was administered to 79 students enrolled in first-year high school FL courses. Based on scores obtained from the parent questionnaire, students were differentiated into low-risk, average-risk and high-risk groups. Group differences on the test battery were also considered for determining group differentiation. The results revealed group differences for the low- and average-risk groups over the high-risk group on all but one of the native language, FL aptitude, and cognitive measures. The researchers concluded that the previously discussed studies involving students', teachers' and parents' perceptions of FL learning provided empirical support for speculations that affective differences are the result rather than the cause of FL learning problems, and that language

aptitude differences account for differences in FL learning (Sparks, 1995a; Sparks & Ganschow, 1991, 1993b, 1995a).

Scientific research has repeatedly demonstrated that certain emotions can significantly alter an individual's cognitive and physical levels of performance. Regarding language learning, Krashen's Affective Filter Hypothesis posits that emotions such as motivation, self-confidence, and one's level of anxiety function as a "filter" between the speaker and the listener. The theory maintains that emotions can negatively impact the process of learning a second language by reducing the amount of language input the listener is able to understand. Therefore, effective language instruction should occur within a learning environment that lowers the affective filter (lowers anxiety) by minimizing the effects of these emotions.

Understanding the implications of Krashen's Theory, Ganschow and colleagues (1994) investigated the relationship between FL aptitude and native language skills and anxiety among 36 low-, moderate-, and high-anxious college FL learners. Participants were grouped by scores on the Foreign Language Classroom Anxiety Scale (Horwitz, Horwitz, & Cope 1986). The results indicated significant group differences by anxiety level on measures of native language phonology / orthography, overall reading, oral language, and FL aptitude. No significant differences were found, however, between the three groups on native language semantic and short-term verbal memory measures.

This study was replicated two years later with 154 postsecondary students (Ganschow & Sparks, 1996). The researchers found the same results. But, there were significant

group differences by anxiety level on measures of native language phonology / orthography, overall reading, oral language, and FL aptitude. Again, there were no significant differences found among the three groups on native language semantic and short-term verbal memory measures (Ganschow & Sparks, 1996). Sparks, Ganschow, Artzer, Siebenhar, and Plageman (1997) found that students with lower levels of anxiety about FL learning, stronger native language skills, and greater FL aptitude scored significantly higher on measures of FL proficiency than students with higher levels of anxiety about FL learning, lower native language skills, and less FL aptitude.

Studies on both oral and written proficiency levels have been conducted in order to ascertain the range of effects that these specific native language skills can have on the learning of a foreign language. Proficiency was defined by the American Council on the Teaching of Foreign Languages (ACTFL) as “what an individual may and cannot do [within an FL], regardless of where, when, or how the language has been learned or acquired” (ACTFL 1989). Sparks, Ganschow, Artzer, Siebenhar, et al., (1997) conducted two experiments in one study to investigate the differences in native language skill and FL aptitude among two groups of high school students (n = 60, n = 36 enrolled in their second year of FL study). The students in both experiments were divided into three groups, high-, average-, and low-proficiency groups based upon their scores of written and oral FL proficiency measures. All proficiency measures were designed in accordance with the ACTFL guidelines and were administered and scored by trained evaluators. The results of both experiments revealed differences among the three

proficiency groups on the native language and FL aptitude measures. The notable differences were between high- and low-proficiency FL learners. According to researchers, the results of the studies supported the LCDH, in that native language skill and FL aptitude differences were found among students who exhibited different levels of oral and written proficiency in a foreign language (Sparks, Ganschow, Artzer, Siebenhar, et al. 1997).

In a similar study, researchers (Sparks, Ganschow, Patton, et al. 1997) examined the best predictors of overall oral and written proficiency in a foreign language among two groups of high school students ( $n = 60$ ,  $n = 36$ ) completing their second year of FL study. Students were divided into high-, average-, and low-, proficiency groups. The results revealed that end-of-first-year FL grade and FL word recognition (a phonological / orthographic measure) were the best predictors of overall written and oral FL proficiency. According to researchers, the results reinforced their notion that basic language skills serve as the foundation for FL learning. Additional support for the role of native language skills and FL learning can be found in the research of Olshtain, Shohamy, Kemp, and Chatow's (1990) who maintain that academic proficiency in students' first language plays the most important role in predicting success in FL learning in the classroom. Koda (1992) reported the lower level verbal processing skills (e.g., word recognition) were important for FL proficiency (Ganschow, Sparks, & Javorsky, 1998).

There are also several factor analysis studies that support the underpinnings of the LCDH. In one study, Ganschow, Sparks, Patton, and Javorsky (1992) administered a

battery of native language measures and an FL aptitude test to 80 high- and low-risk FL learners and students identified as LD. The results of the study indicated three factors as important: Phonology / Syntax, FL aptitude, and Cognition / Semantics.

Sparks, et al (1995) used factor analysis to evaluate the differences between two high school's participants in foreign language progress. Participants from one school included 154 ninth- and tenth-grade female students while the other schools participants' were comprised of a class of 100 co-ed ninth graders. Both groups were administered a battery of native language measures and an FL aptitude test designed to predict FL grade (Ganschow, Sparks, & Javorsky, 1998). Once again, the results revealed the emergence of a three-factor solution which the authors labeled Phonology / Orthography, FL Aptitude and Cognition / Semantics. This study was slightly different from the aforementioned factor analysis study in that the authors replaced the factor label of Phonology / Syntax (word order) with Phonology and / Orthography meaning that the study did not include measures of syntax, but rather measures pertaining to the knowledge of spelling rules. According to researchers, all three factors contributed significantly to the variance in FL grade (Sparks, et al., 1995).

In a third factor analytic study, Sparks and Ganschow (1998) administered a test battery to 96 students which was designed to predict oral and written FL proficiency. Language Memory, Phonological Recording, and Spelling / Word Recognition emerged as a three-factor solution. The results indicated that the largest portion of variance was in FL proficiency resulting from The Language / Memory and Phonological Recording

factors. The authors indicated that, these were the only two factors which contributed significantly to the variance in overall FL proficiency. The authors hypothesized that the Language / Memory component in this study was similar to the Meaning and Cognition / Semantics factors in their two previous studies. They also hypothesized that the Phonological Recording and Spelling / Word Recognition factors (a factor composed of only native language phonological / orthographic measures) in this study were very similar to the Phonology / Syntax and Phonology / Orthography factors in the two previously-mentioned factor-analysis studies (Ganschow, Sparks, & Javorsky, 1998). The authors also maintained that, although the Phonological Recording factor was represented by measures of phonology / orthography, these measures comprised task to which the students had infrequent exposure (e.g., low-frequency words, unfamiliar words, pseudowords, FL words).

The authors of the three-factor analytic studies concluded that all components of language, including skills in phonology / orthography-a “lower level” language skill- are critical for both oral and written FL proficiency. The importance of lower level language skills is reflected in the underpinnings of Cummin’s theory of language type and function (e.g., Basic Interpersonal Language Skills or (BICS) and Cognitive Academic Language Proficiency or (CALP). A brief discussion of these concepts (BICS and CALP) will be provided in the beginning of Chapter 5.

Prior to the 1980s, research in learning disabilities and FL learning was not only scant, but included a broad range of studies that focused on the acknowledgement of the

problem rather than on the suspected etiology or the specific skills deficits. The sheer novelty and lack of research in this particular field made it very difficult to formulate a hypothesis or a generalization in the direction of improvement for at-risk FL learners. It was not until the plethora of investigational efforts by Ganschow and Sparks in the late 1980s that the actual findings of these studies could be used for purposes of educational improvement for learners who are at risk and identified as LD. By the early to mid-1990s, etiological patterns began to emerge from these studies which allowed researchers (Ganschow & Sparks) to expand their focus to investigations designed to determine more appropriate and successful instructional methods for at-risk FL learners.

There was now sufficient evidence to substantiate the researchers' hypothesis--that at-risk FL students have particular difficulties with the phonological / orthographic and syntactic codes of language-- and to employ the use of a teaching methodology that had proven to be successful in working with students who had native language learning difficulties in these same areas, the Orton-Gillingham method for teaching reading and spelling (Gillingham & Stillman, 1960). To test their hypothesis, researchers located two FL teachers at private high schools who had learned the Orton-Gillingham method in English and adapted it accordingly for teaching Spanish to their students with identified language problems (Ganschow, Sparks, & Javorsky, p. 252).

The Orton-Gillingham method is a special instructional approach for the teaching of language. It involves action-oriented teaching sessions that begin with the most basic elements of language, the sound-symbol system, and then proceeds to more complex and

intricate rule-based structures. For example, students would begin reading and writing the initial sounds of the target language in isolation. This would allow them the opportunity to learn the basic sounds of individual letters and the distinct sounds that only result from specific sequential letter groupings (e.g., consonant blending, diphthongs, and triphthongs). This increases the individual's exposure time to the target sound-symbol system. Numerous studies in reading research indicate that children with learning disabilities require significantly more exposure time in order to learn a single word than children without learning disabilities. The Orton-Gillingham method is structured, sequential, and cumulative and, it employs the use of a simultaneous multisensory input channel system. According to researchers, this method emphasizes "cracking" the language code via a structured, multisensory approach in which the students simultaneously hear, see, and write sounds / symbols and are directly taught rules for word endings, word order, subject-verb agreement, and declensions. The teaching of these principles involves careful sequencing of materials, controlled pacing, board drills, flash cards, and integration of reading, spelling, and writing activities (Ganschow, Sparks, & Javorsky, p. 252).

Researchers conducted a series of four studies to test the efficiency of the Orton-Gillingham approach. Their findings suggested (Ganschow, & Sparks, & Javorsky, 1998) that direct teaching of the sound and sound-symbol system of the FL significantly improves both the FL aptitude (on the MLAT) and the native language sound and sound-symbol performance of at-risk FL learners (Ganschow & Sparks, 1995; Sparks &

Ganschow, 1993a; Sparks, Ganschow, Artzer, & Patton, 1997; Sparks, Ganschow, Pohlman, Artzer, & Skinner, 1992). The findings of another longitudinal study (Sparks, Artzer, et al., 1998) indicated that direct teaching of the sound and sound-symbol system of the FL is effective in helping at-risk FL learners become as proficient as not-at-risk FL learners in reading, writing, spelling, and listening to a foreign language after 2 years of study.

The Orton-Gillingham method has generated support to be a potentially effective approach for the teaching of languages other than Spanish. In one study, on Latin for example, Sparks, Ganschow, Fluharty, and Little (1996) reported that students identified as LD made significant progress in both FL aptitude (on the MLAT) and native language sound-symbol system when taught the Latin sound-symbol system. Schneider (1997) conducted a pilot study in which she adapted the Orton-Gillingham approach into German and developed materials to teach reading, writing, spelling, and listening to at-risk students. Thus, researchers concluded that this approach has potential effectiveness in that language also.

Sparks and colleagues research strongly suggests that diagnosticians use an evaluation procedure that is comprehensive in nature for students with suspected FL learning problems (Ganschow & Sparks, 1993; Sparks, 1995; Sparks & Ganschow, 1993c; Sparks & Ganschow, & Javorsky, 1992). They concluded that this procedure should include the following four criteria: (a) a review of the student's developmental history; (b) a review of the student's academic learning history with focus on the native language; (c) a review

of the student's FL learning history; and (d) the administration of standardized measures of native language skill in the domains of reading, phonological / orthographic processing, grammar, spelling, writing, vocabulary, and oral languages. They suggested that a standard measure of FL aptitude be administered as well (e.g., the MLAT, the Pimsleur Language Aptitude Battery [PLAB]). In addition, the researchers also suggested that during the evaluation process assessment personnel should focus on determination of whether or not there is a history of documented accounts of and current difficulties with native language learning. Assessment personnel should also focus on any evidence of past failure in or current difficulties with FL courses. The research consistently suggests that diagnostic test results for individuals with learning difficulties enrolled in FL courses should reveal either overt or subtle difficulties in specific domains of native language learning. These domains include the phonological / orthographic, syntactic, and / or semantic areas and low FL aptitude as indicated by the MLAT. Finally, researchers maintain that students' records should clearly indicate grades that are well below average or failing (e.g., D's and F's).

Researchers assert that universities and colleges should exercise caution when granting course FL substitutions or waivers to individuals with diagnosed leaning disabilities. There are some colleges and universities that have reported to allow substitutions and waivers for the FL requirement based solely on the diagnosis of LD. Sparks, Philips, and Ganschow (1996) reported that less than half of the students who petitioned for either a course substitution or waiver met the minimum requirement for the

diagnosis of LD. Researchers maintain that multiple factors should be taken into consideration before granting either a course substitution or a waiver for the FL course requirement. Neither the diagnoses of a learning disability nor the failure of a FL course alone should be the basis for this decision. Researchers caution that a student's score on the MLAT should not be used as the sole criterion in determining whether or not a student should enroll or withdraw for an FL course. Additionally, it is not recommended that a discrepancy between a student's IQ and his or her score on the MLAT as either the basis for a diagnosis of LD or an indicator of a student's inability to learn a foreign language. Researchers suggest that a decision of this nature would prove to be psychometrically and theoretically "unsound" because both the MLAT and IQ tests are aptitude tests (Ganschow, Sparks, & Javorsky, 1998).

Ganschow, Sparks, and Javorsky (1998) recommended that when the policy of a university permits a waiver or course substitution of the FL requirement, then verifiable information documenting learning difficulties in the native language and the foreign language should be verified. They caution that an unverifiable history of learning difficulties should not be used as the basis for FL course substitutions or diagnoses for learning difficulties. The student who requests either the course substitution or the exemption should present a verifiable and recent testing record by a qualified member of the assessment team. The student should also meet the currently accepted criteria for the diagnosis of a learning disability. In addition, Ganschow, Sparks, and Javorsky (1998) maintain that a record of withdrawal or difficulty from previous foreign language courses

should not qualify as valid criteria for the diagnosis of a learning disability. Instead, they stated that it is important for the student to have open and honest communication with the instructor regarding the student's difficulties and the potential need for additional instruction or tutoring. Furthermore, they emphasize the importance of taking advantage of any classroom accommodations offered. If the student's difficulty still persists, the student should consider retaking the first semester course of the same language the student studied in high school at the college level.

According to Stern (1983), until recently, teaching the sound-symbol (phonological / orthographic) and grammatical rule systems was an integral component of most FL teaching approaches. In the last two decades, however, most FL educators have adopted the teaching of a foreign language through "natural communications" approaches to learning. These particular approaches emphasize the contextual and meaning aspects of FL learning and deemphasize the teaching of the sound, sound-symbol, and grammatical rule systems (Omaggio, 1986). Sparks et al., (1995) maintain that natural communications approaches to FL teaching are similar to the whole language approaches used in the native language education. Ganschow, Sparks, and Javorsky (1998) reported the following:

Research evidence has failed to demonstrate that whole language approaches to literacy are more effective than other approaches to the teaching of reading and writing; furthermore, the basic tenets of whole language methods of teaching reading (e.g., students learn to read "naturally," in the same way that they learn to speak) have been found to be demonstrably false (from Adams & Bruck, 1993; Foorman, 1995; Liberman & Liberman, 1990; Stahl & Kuhn, 1995; Vellutino, 1991). Likewise, FL educators have not generated evidence demonstrating that natural communications methodologies are more effective in teaching the written and oral aspects of an FL

than are other methodologies (e.g., the audiolingual method). Rather, studies seem to indicate that for poor FL learners, direct teaching of the phonological / orthographic (and grammatical rule) system is essential (p. 253).

In 1986, the first language proficiency guidelines were published by the American Council for the Teaching of Foreign Languages (ACTFL) for each of the four language skills: reading, writing, speaking and listening. The development of the ACTFL Guidelines was based on data collected from years of oral testing in governmental institutions and from the descriptions of language proficiency used by Interagency Language Roundtable (ILR). These Guidelines were developed for the use in academia in the United States and are currently used as the standards as a metric against which to measure learners' overall functional competency level in four different skill areas, reading, writing, speaking and listening. The ACTFL Guidelines establish four major proficiency levels with descriptions of each. These levels include: Novice, Intermediate, Advanced and Superior. There is a low, medium and high range for the first 3 levels of proficiency (e.g., Novice, Intermediate and Advanced) for each of the major skill areas (e.g., reading, writing, speaking and listening) with descriptions of each. The following descriptions represent the linguistic characteristics of typical Novice level second language learners and lend further support for this particular study ([http://www.actfltraining.org/actfl\\_certificate/actfl\\_novice.cfm](http://www.actfltraining.org/actfl_certificate/actfl_novice.cfm), 2010 ACTFL):

- “Speakers at the Novice Mid level communicate minimally and with difficulty by using a number of isolated words and memorized phrases limited by the particular context in which the language has been learned. When responding to direct

questions, they may utter only two or three words at a time or an occasional stock answer. They pause frequently as they search for simple vocabulary or attempt to recycle their own and their interlocutor's words. Because of hesitations, lack of vocabulary, inaccuracy, or failure to respond appropriately, Novice Mid speakers may be understood with great difficulty even by sympathetic interlocutors accustomed to dealing with non-natives. When called on to handle topics by performing functions associated with the Intermediate level, they frequently resort to repetition, words from their native language, or silence.

- Writers at the Novice Mid level are able to copy or transcribe familiar words or phrases, and reproduce from memory a modest number of isolated words and phrases in context. They can supply limited information on simple forms and documents, and other basic biographical information, such as names, numbers, and nationality. Novice Mid writers exhibit a high degree of accuracy when writing on well-practiced, familiar topics using limited formulaic language. With less familiar topics, there is a marked decrease in accuracy. Errors in spelling or in the representation of symbols may be frequent. There is little evidence of functional writing skills. At this level, the writing may be difficult to understand even by those accustomed to reading the texts of non-natives.
- Listeners are able to understand some short, learned utterances, particularly where context strongly supports understanding and speech is clearly audible.  
Comprehends some words and phrases from simple questions, statements, high-

frequency commands and courtesy formulae about topics that refer to basic personal information or the immediate physical setting. The listener requires long pauses for assimilation and periodically requests repetition and/or a slower rate of speech

- Readers are able to recognize the symbols of an alphabetic and/or syllabic writing system and/or a limited number of characters in a system that uses characters. The reader can identify an increasing number of highly contextualized words and/or phrases including cognates and borrowed words, where appropriate. Material understood rarely exceeds a single phrase at a time, and rereading may be required” [http://www.actfltraining.org/actfl\\_certificate/actfl\\_novice.cfm](http://www.actfltraining.org/actfl_certificate/actfl_novice.cfm), p.1).

Furthermore, second language learners at the Novice level of proficiency:

- Understand short, simple narratives, storylines, and/or events: variety of words and expressions on familiar topics
- Demonstrate increased comprehension when accompanied by visuals and context clues
- Use background experience and personal knowledge to anticipate story direction in highly predictable texts
- Rely heavily on visuals and familiar language to assist comprehension

The development of word decoding speed and accuracy (automaticity) of key vocabulary words and phrases via vocabulary flashcards clearly supports the linguistic needs of Novice level learners as described by the 2010 ACTFL Proficiency Levels. For

example, Novice level readers demonstrate increased comprehension when accompanied by visuals and context. The pictures and the key words and phrases on the flashcards serve as visual prompts. The use of flashcards to develop increased word decoding speed and accuracy (automaticity) also enhances the learner's background experience to facilitate the readers' ability to anticipate story direction in highly predictable texts. Furthermore, the development of automaticity via flashcards helps to satisfy Novice readers' heavily reliance on visuals and familiar text to assist with comprehension

### **Statement of the Problem**

As postsecondary admission requirements and enrollments steadily increase, so too does the need for secondary institutions to prepare *all* students to meet those demands. This preparation must also include the greater number of students with learning disabilities who are seeking to gain entrance into postsecondary institutions. More states have now added FL study to their growing list of public education secondary curriculum requirements (Ganschow, Myer, & Roeger, 1989; Ganschow & Sparks, 1987). The research presented in this paper has documented a consistent pattern of difficulties with the phonological / orthographic aspects (e.g., word recognition) of language for students with learning difficulties enrolled in FL study. Based on the review of the literature however, this particular instructional intervention (e.g., the development of rapid word recognition via flashcards) has never been applied to students with learning disabilities enrolled in FL study. Therefore, there is sufficient evidence to suggest a need to apply this instructional approach to students with learning disabilities enrolled in FL study.

Two out of three of the secondary graduation plans currently in place in Texas public schools require a minimum of two consecutive years of FL study (TEA website <http://www.tea.state.tx.us/graduation.aspx>). House Bill 3 (HB 3), passed in the 2009 Texas State legislative session, defines the curricular requirements that students must satisfy for each plan of study in order to earn a high school diploma (TEA website <http://www.tea.state.tx.us/graduation.aspx>). Currently, there are three plans of study that students may elect; the distinguished plan, the recommended plan and the minimum plan. Students participating in the distinguished plan must successfully complete three consecutive years, or 3 credits, of FL study. Students participating in the recommended plan must successfully complete only two consecutive years, or 2 credits of FL study, while students participating in the minimum plan are exempt from FL study altogether. According to HB 3, the minimum plan does require that students meet specific criteria before they can be allowed to elect the minimum plan of study (TEA website <http://www.tea.state.tx.us/graduation.aspx>). Students participating in the minimum plan must be 16 years of age, have 2 credits in math, science, English, and social studies or have failed the 9<sup>th</sup> grade one or more times. Due to the nature and specificity of the above-mentioned criteria required by the minimum plan of study, the recommended plan more closely represents the general education curricular requirements that the majority of all students must meet in order to earn a high school diploma in the state of Texas. The recommended plan of study is therefore, considered as the default plan by many public

school administrators and counselors for the majority of students including those with special needs and learning disabilities.

The successful completion of the FL requirement can be an enriching and rewarding experience for many students. It can, however, be a tremendously difficult hurdle for others. FL study typically requires moderate to high levels of cognitive effort. The unfamiliar mechanics and the abundance of new terminology require the simultaneous use of a very diverse range of cognitive resources. According to Perfetti and Hogaboam (1975), the attentional resources required to successfully perform these cognitive tasks may be more limited in range for some students. Their hypothesis posits that inefficiencies in lower-level decoding processes (e.g., word recognition) will take an excessive share of the attentional resources that are normally needed for higher-level skills (e.g., fluency and comprehension) and will thus produce less efficient comprehension. This limitation of attentional resources as proposed by Perfetti and Hogaboam (1975) may create a situation in which the student is simply overwhelmed and reaches his/her ceiling of frustration at a much quicker rate (unpublished pilot study, Stager, 2008). As a result, some students may find the routine FL tasks nearly impossible to complete. This in turn can create a very unpleasant situation, the opposite of what is intended.

The present challenge is to find an instructional approach that helps all students to free up more of their attentional resources for higher order tasks. Using flashcards to develop automaticity with key vocabulary words may allow students to devote more of their

attentional resources for more complex, higher-order linguistic tasks (e.g., auditory exercises and tasks involving the use of higher-order processing skills such as inferencing, prediction, etc...). It may also help to increase student motivation levels by helping students to avoid their ceiling of frustration so quickly. Thus, using flashcards to develop automaticity with key vocabulary words may provide all students with the opportunity to cope more efficiently with routine FL tasks and to reach higher levels of learning (e.g., increased reading comprehension).

Research specific to the development of automaticity with key vocabulary words and students with learning disabilities enrolled in FL study remains to be relatively limited; however, through extended research, the emergence of a potential methodology that seeks to increase the availability of attentional resources for these students would potentially provide all students with an opportunity to avoid their ceiling of frustration so quickly, and may also provide them with an opportunity to cope more efficiently with the FL tasks at hand. Using flashcards to develop automaticity with key vocabulary words may also assist FL instructors to improve the overall quality of meeting the needs of all learners.

### **Statement of Purpose**

The purpose of this study was to investigate the effects of using flashcards to develop automaticity with key vocabulary words and phrases in order to improve fluency and reading comprehension skills in Spanish. These effects were measured through progress

monitoring via curriculum-based measures for all students who were enrolled in a first and second-year high school Spanish course.

The growing demands to meet the challenges of a more global economy have ultimately translated into a sharp increase in the total number of students enrolled in foreign language study at both the secondary and post-secondary levels. Consequently, the total number of students enrolled in foreign language study with learning disabilities has also sharply increased. This sudden and dramatic increase has created a unique and equally challenging situation for both the teacher and the student. “Researchers and practitioners in high school and higher education settings have become increasingly aware of the difficulties students with language learning difficulties encounter as they learn a foreign language” (Schneider, 1996, p. 3). In order to fully understand the present situation, it is necessary to closely examine what research has identified as the typical learning characteristics of students with learning disabilities and the specific difficulties experienced by these same learners in FL study as previously described on pages 2 to 22 of this study. It is also essential to provide the reader with a brief historical description and the current definition of the term “learning disability” as found in the 2004 Individuals with Disabilities Education Improvement Act (IDEIA 2004) legislation.

### **Research Questions**

The research questions of the study were organized into two sections. Section one focused on the rates of acquisition of automaticity needed for the development of automaticity and the difference in these rates for students with and without the presence

of a learning disabilities. Section two inquired about the relationship between the establishment of automaticity and reading comprehension. Section three focused on the relationship between automaticity and acquisition/comprehension levels of a foreign language. The following research questions guided this study:

**Section One – Rate of Word Decoding Accuracy for Automaticity in Foreign Language**

1. What rate of word decoding accuracy (as measured by the CBM's) is sufficient for the establishment of automaticity of key words and phrases in Spanish?
2. Are participants with learning disabilities able to achieve the same word decoding accuracy rates with key vocabulary and phrases as their nondisabled peers?
3. At what word decoding accuracy rate (as measured by the rate of acquisition taken from CBM's) do participants with learning disabilities demonstrate automaticity of key vocabulary words and phrases in Spanish?

**Section Two – Rate of Word Decoding Accuracy and Reading Comprehension in Foreign Language**

4. What is the word decoding accuracy rate needed on CBM's for participants who met the eligibility criteria for learning disabilities to achieve a passing score (70%) on end-of-unit exams?

### **Section Three – Relationship between Automaticity and Acquisition/Comprehension Levels in Foreign Language**

5. What, if any, relationship exists between the achievement of automaticity and the acquisition of a foreign language (e.g., Spanish) for participants with a learning disability?

6. What impact did intervention B (flashcards) have on participants' level of comprehension on end-of-unit exams?

#### **Definition of Terms**

*Automaticity* is defined as the fast, accurate, and effortless word identification at the single word level (Lerner & Kline, 2006).

*Foreign language (FL) aptitude*, for the purpose of this dissertation, is defined as one's basic propensity for learning an FL in classroom settings (rather than via immersion in the culture). The majority of studies described herein measured FL aptitude using Carroll and Sapon's (1959) Modern Language Aptitude Test (MLAT). Researchers described MLAT as a test that measures FL aptitude via the administration of five subtests found through factor analytic studies to be important for FL learning: Number Learning, Phonetic Script, Spelling Cues, Words in Sentences, and Paired Associates.

*Foreign language (FL) proficiency* is defined by The American Council on the Teaching of Foreign Language (ACTFL) as "what an individual can and cannot do with an FL, regardless of where, when, or how the language has been learned or acquired" (ACTFL, 1989).

*Grammatical (syntactic) rules* are defined as the rules that govern the syntax of language such as word order, subject/verb agreement, different parts of speech and their functions (Ganschow, Sparks, & Javorsky, 1998).

*Language-related learning disability* is defined as a learning disability in skill areas of oral expression, listening comprehension, written expression, basic reading skill, and reading comprehension (Texas Education Agency, 2007).

*Morphological rules* are defined as the rules that govern the use of prefixes, infixes, suffixes, roots of words, individual or combinations of morphemes and units of meaning (Balmuth, 1992).

*Non-language related learning disability* is defined as a learning disability in skill areas of mathematics calculations and mathematics reasoning (Texas Education Agency, 2007).

*Orthography* is defined as the rules that govern one's language such as the permissible letters and letter sequences in words (Henry, 1988).

*Phonology* is defined as an individual sound, or phonemes, and sequences of phonemes that make up words (Balmuth, 1992).

*Phonological awareness* is defined as the ability to identify and manipulate larger parts of spoken language, such as words, syllables, and rhymes, as well as phonemes (Lerner & Kline, 2006).

*Phonological recoding “factor”* is defined as the ability to reflect on the sound-symbol system of the language; it includes such abilities as reading low-frequency FL words, native language pseudo words, and unfamiliar words by extrapolating the phonological “rule” from more familiar instances (Ganschow, Sparks, & Javorsky, 1998).

*Phonological/Orthographic rules* are defined as the rules that govern the sounds and their representation by letters and letter sequences in words (Ganschow, Sparks, & Javorsky, 1998).

*Rate of word decoding accuracy*, for the purpose of this dissertation, is defined as the percentage of words a reader can decode correctly at the single word level for a given period of time (Rasinski, 2004).

*Reading comprehension* is defined as an active process that requires an intentional and thoughtful interaction between the reader and the text (Lerner & Kline, 2006).

*Reading fluency* is defined as the ability to read connected text rapidly, effortlessly and automatically (Hook & Jones, 2004; Meyer, 2002; National Reading Panel, 2000).

*Semantic rules* are defined as the rules that govern the meaning aspects of language (Ganschow, Sparks, & Javorsky, 1998).

*Sight words*, often referred to as high-frequency words, are defined as words that beginning readers should instantly recognize. Depending on the list of sight words that one uses, sight words represent 50% to 75% of all English text.

*Special Education* is defined as individually planned specialized, intensive, outcome-directed instruction. When practiced most effectively and ethically, special education is

also characterized by the systematic use of research-based instructional methods, the application of which is guided by frequent measures of student performance” (Heward, 2006). The term “special education” refers to specially designed instruction, at no cost to the parent(s), that meets the unique needs of a child with a disability, including:

A) instruction conducted in the classroom, in the home, in hospitals and institutions, and in other settings; and

B) instruction in physical education (US Department of Education, 2004, Sec. 602).

*The Linguistic Coding Differences Hypothesis (LCDH)* is defined as the belief that learning difficulties in the native language affect the learning of a foreign language as first proposed by Ganschow and Sparks in 1989. Researchers Leonore Ganschow and Richard Sparks posit that students who exhibit FL learning problems have overt or subtle native language learning difficulties that affect their learning of a foreign language. Thus, the primary factors in successful or unsuccessful FL learning are thought to be linguistic, not affective (e.g., low motivation or high anxiety).

*Word decoding accuracy*, for the purpose of this dissertation, is defined as the number of words a reader can decode correctly at the single word level (Rasinski, 2004).

## CHAPTER II

### REVIEW OF THE LITERATURE

#### **Relationship between Automaticity and Reading Comprehension**

For the purpose of this dissertation, it is essential to define automaticity, the focus of this study, within the context of both reading fluency and reading comprehension.

Automaticity is a term that is used in the field of reading to describe the process of rapid, accurate word recognition at the single word level (Lerner & Kline, 2006). When printed words are read within one second (1s) of exposure time, their recognition becomes automatic (Tan & Nicholson, 1997). Automaticity is defined by Lerner and Kline (2006) as the “fast, accurate, and effortless word identification at the single word level” (p. 383).

Reading fluency is the “ability to read connected text rapidly, effortlessly and automatically” (Hook & Jones, 2004; Meyer, 2002; National Reading Panel, 2000).

Reading comprehension is an “active process that requires an intentional and thoughtful interaction between the reader and the text” (Lerner & Kline, 2006, p. 388). The National Reading Panel reported that students, who read with speed, accuracy, and proper expression, are more likely to comprehend and remember (reading comprehension) what they have read than students whose skills were inefficient in these domains.

(<http://www.nationalreadingpanel.org/>). Therefore, the effectiveness and efficiency of reading fluency and reading comprehension may hinge upon the rate and accuracy

(automaticity) at which students are able to recognize (decode) words at the single word level.

In his program, *Assessing Reading Fluency*, Rasinski (2004) provides readers with an excellent analogy for understanding the relationship that exists between the concepts of automaticity, reading fluency and comprehension. He views reading fluency as a bridge between the two major components of reading – word decoding (automaticity) and comprehension. At one end of this bridge, fluency connects to automaticity in decoding. At the other end, fluency connects to comprehension through prosody, or expressive interpretation. Automaticity is the fast, accurate, and effortless word identification at the single word level (Lerner, 2006). Automaticity is therefore determined by the number of words the reader is able to decode correctly at the single word level for a given period of time. The “sufficiency” of these decoding rates is supported by evidence from decades of native language informal reading inventories (IRIs) which used word decoding accuracy as a key measure for reading achievement (Johnson, Kress, & Pikulski, 1987; Pikulski, 1990). Fuchs, Fuchs, & Deno (1982) found that the accuracy of words the reader can read correctly is a valid measure of reading proficiency. Rasinski (2004) reported that various levels of word decoding accuracy reflected different levels (3) of reading proficiency. He found that readers who achieved a word decoding accuracy rate in the 97-100% range were able to read the assessment text or other text of similar difficulty without assistance. Their accuracy of word decoding described the independent level of reading performance. Readers who scored within the 90-96% range were able to read the

assessment text or other text of similar difficulty with some degree of assistance. Their performance described what Rasinski (2004) referred to as the instructional level. Readers who scored below 90% in word decoding accuracy typically found the assessment text or other texts of similar difficulty too challenging to read, even with assistance. Their word decoding accuracy described the frustration level of reading performance (Rasinski, 2004). This dissertation examined the effects of developing automaticity with key vocabulary words and phrases on the development of reading fluency and comprehension skills for students with learning disabilities enrolled in Spanish.

“If you don’t ride a bike fast enough, you fall off. Likewise, if the reader does not recognize words quickly enough, the meaning will be lost” (Lyon, 1997, p. 1). As previously stated, reading fluency is the ability to read connected text rapidly, effortlessly and automatically” (Lerner & Kline, 2006, p. 382). Harris and Hodges (1995) describe it as the freedom from word identification problems that might hinder comprehension. “Research suggests that reading fluency is a highly dynamic process that requires a combination of accuracy and automaticity in word-recognition skills working in tandem with knowledge about language syntax and prosody” (Grabe, 2004; Kuhn & Stahl, 2003; National Reading Panel, 2000”). Samuels (2002) reported that the most important attribute of reading fluency is the ability to perform two tasks simultaneously- the ability to identify words automatically and comprehend text. Experts maintain that readers “must first achieve reading fluency to make the bridge from word recognition to reading

comprehension” (Lerner & Kline, 2006, p.382). Therefore, neither reading fluency nor reading comprehension (higher-level skills) can be adequately achieved without the development of rapid word recognition or automaticity. The relationship between speed and accuracy with which single words are identified is a “key predictor of reading comprehension” (Lerner & Kline, 2006, p. 383). It is widely accepted that although automaticity is not the only skill needed to develop adequate rates of reading fluency and comprehension, it is a critical component that must be learned before successive skills can develop. Taguchi, Gorsuch, and Sasamoto (2006) reported the following:

Rapid and automatic lower-level reading processing such as word recognition seems to be critical for successful reading comprehension. It is likely, however that efficient processing of such lower-level skills is not the sole foundation of good reading comprehension. Background knowledge and higher-order comprehension skills, such as predicting, making inferences and monitoring ongoing understanding also influences readers’ comprehension performance (e.g., Anderson & Pearson, 1984; Carrell & Eisterhold, 1983). Still, building automaticity in lower-level processes of reading is essential because it is unlikely that good readers lack well-developed word recognition skills (p. 2).

When students develop a clear understanding of key vocabulary words or phrases at the single word level, rapid word recognition or automaticity can be achieved. This understanding is reflected in Chapter 110, subchapter C (high school) of the Texas Essential Knowledge and Skills (TEKS) for English Language Arts. The following is an

excerpt from Chapter 110, subchapter C (high school) of the TEKS for English Language

Arts:

(b) Knowledge and skills.

(1) Reading/Vocabulary Development. Students understand new vocabulary and use it when reading and writing. Students are expected to:

(A) determine the meaning of grade-level technical academic English words in multiple content areas (e.g., science, mathematics, social studies, the arts) derived from Latin, Greek, or other linguistic roots and affixes;

(B) analyze textual context (within a sentence and in larger sections of text) to distinguish between the denotative and connotative meanings of words;

(C) produce analogies that describe a function of an object or its description;

(D) describe the origins and meanings of foreign words or phrases used frequently in written English (e.g., *caveat emptor*, *carte blanche*, *tete a tete*, *pas de deux*, *bon appetit*, *quid pro quo*); and

(E) use a dictionary, a glossary, or a thesaurus (printed or electronic) to determine or confirm the meanings of words and phrases, including their connotations and denotations, and their etymology,

(<http://ritter.tea.state.tx.us/rules/tac/chapter110/ch110c.html>).

When word meaning is clear, students can develop the literacy skills necessary to meet the criteria in the TEKS for successful reading and writing proficiencies. Ambiguous words and phrases however, will never permit the development of the skills necessary (e.g., rapid word recognition to fluency) to meet the criteria of these reading and writing requirements.

Although the research in automaticity and FL study for students with LD is limited and the use of the term “automaticity” is practically nonexistent throughout the related

reading literature, there is evidence to support the use of a seemingly synonymous term to automaticity, “word recognition.” Word recognition is repeatedly used by researchers in the FL literature to describe one’s ability to recognize the meaning of a word. In two related studies, Sparks, Ganschow, Artzer, and Patton (1997) examined best predictors of overall oral and written proficiency among two groups of high school students who were completing their second year of FL study and found that end-of-first-year FL grade and FL word recognition (automaticity) were the best predictors of FL proficiency (in Ganschow, Sparks, Javorsky, 1998, p. 251).

Levy, Abello, and Lysynchuk (1997) and Tan & Nicholson (1997) suggested that “single word training does lead to improved decoding speed in isolated words and in connected text, and also improved reading comprehension” (Taguchi, Gorsuch, & Sasamoto, 2006, p. 7). Prior studies by Fleisher, Jenkins, & Pany (1979) and Spring, Blunden, & Gatheral (1981) found that “word recognition training significantly enhanced single word decoding speed, but there were no concomitant gains in reading comprehension” (Taguchi, Gorsuch, & Sasamoto, 2006, p. 7). “Using more intensive training and learner-appropriate level test passages,” Levy, Abello, & Lysynchuk (1997) and Tan & Nicholson (1997) replicated the initial studies by Fleisher et al. (1979) and found that “automatic word recognition skills seem to be associated with better comprehension” (Taguchi, Gorsuch, & Sasamoto, 2006, p. 7). “There has been no research to date that has shown a causal relationship between improved word recognition skills and enhanced reading comprehension” (Taguchi, Gorsuch, & Sasamoto, 2006, p. 7).

in Fukkink, Hulstijn, & Simis, 2005; Taguchi and Gorsuch, 2002; Taguchi, Takayasu-Maass, & Gorsuch, 2004).

Quite often, students with learning disabilities enrolled in foreign language courses struggle and find them difficult to complete (Arries, 1999; Schwarz, 1997). Equally difficult for the teacher of students with learning disabilities is finding an instructional approach and/or methodology that meets the student's needs and still manages to achieve the fundamental goals of the foreign language program. Therefore, when planning and implementing lessons for students with a learning disability, it is paramount that instructors understand and incorporate what research has identified as "best practices" including automaticity.

### **Categories of Research for Students with LD and FL Study**

A thorough review of the literature indicated that the "bulk" of the research regarding students with a learning disability and foreign language learning can be classified into three main categories. The first examines the linguistic "phenotype" or observed learning characteristics of students with a learning disability in the foreign language environment. This includes observable difficulties with the phonological and orthographical aspects of the target language (e.g., discrimination of sounds and syllables, and spelling/word recognition). Studies in this domain have consistently indicated that students with a learning disability enrolled in foreign language study experience similar phonological and orthographic patterns of difficulties as native language learners with a learning disability.

The second category of research focuses on the suspected range of etiological/causal factors of foreign language learning difficulties. This includes a widely supported theory that posits that difficulties with the target language stem from initial difficulties with the native language and serves as the foundation for the Linguistic Coding Differences Hypothesis (LCDH) proposed by Sparks, Ganschow, and Pohlman (1989). The hypothesis maintains that language difficulties in the foreign language are typically the result of language difficulties in the native language. The work in this area reinforces the importance of understanding native language reading research.

The research in the previous categories is also essential for understanding the research in the third and perhaps most important category for educators, the instructional/pedagogical approach. The plethora of unknowns in this area of study reveals an obvious dearth in the literature and clearly supports the need for the development of more effective instructional approaches. Furthermore, future research in this field should acknowledge previous findings and strive to target areas of identified linguistic weakness such as those skills related to automaticity. Taguchi, Gorsuch, and Sasamoto (2006) reported that lower-level processing skills are particularly needed for foreign language readers due to the inefficiency in these skills in the foreign language.

### **Curriculum-Based Measurement**

There is a wealth of evidence throughout the native-language reading literature to support the use of Curriculum-Based Measurement (CBM) as a valid, reliable and efficient indicator of a student's academic competence. Knutson and Shinn (1991)

defined Curriculum-Based Measurement (CBM) as an assessment tool composed of a set of standardized, specific procedures designed to quantify student performance in basic academic skills. Recently, Hintz and Silbergliitt (2005) defined CBM as a standardized set of measurement techniques used to index student academic performance in the basic skill areas of mathematics, spelling, reading, and writing. Deno (1985) found that CBM can be used to index student performance and progress over time (e.g., an individual's performance is compared to his/her own performance over time).

CBM is different from most forms of traditional classroom assessment. The major difference is that the focus of CBM is on broad, long-term goal objectives, rather than short-term objectives (Hintz & Silbergliitt, 2005). This type of focus allows CBM to attend to the assessment of more general integrated outcomes as they occur in context. This is in sharp contrast to the more traditional criterion-referenced approaches that focus on a set of ever-changing short-term objectives. Additionally, CBM utilizes core components from the student's actual curriculum to monitor the development of academic competence and to provide teachers with tangible feedback as to the effectiveness of their instruction. Scott and Weishaar (2003) described CBM as a series of informal mini-achievement tests that teachers can develop in the areas of reading, writing, spelling, and mathematics.

The development of CBM involves the use of standardized procedures to create short academic probes that are based on the school's curriculum. These probes require brief timed administration between 1 to 7 minutes (e.g., an oral reading fluency probe is

administered by using a reading passage and allowing the student to read for 1-minute while a written expression probe is administered allowing the student to develop a story for up to 7-minutes) and are frequently used to assess oral reading fluency, passage retell, math calculations, spelling, and written expression. The academic probes that were administered to the participants in this particular study were 3.33 minutes in length. Since data for this experiment was collected from participants' written responses, sufficient time was allowed during the administration of the probes for translation into written form. The effectiveness of using CBM for a variety of educational decisions is supported by over twenty years of research. CBM have been used for class-wide screenings (Shinn, 1989), pre-referral decision making, intervention development, evaluation of student academic progress, and the evaluation of educational programs; (Capizzi & Fuchs, 2005; Paulsen, 1997; Scott & Weishaar, 2003; Shinn, Knutson, & Rosenfield, 1989, VanDerHeyden, Witt, Naquin, & Noell, 2001). Researchers have reported additional uses of CBM (Deno, 2003) that include predicting performance on important criteria, enhancing teacher instructional planning, developing norms, increasing ease of communication, and recommending and evaluating inclusion programs. Researchers have also found that CBM probes for oral reading fluency (ORF) are effective predictors of student performance on high-stakes tests (Barger, 2003; Buck & Torgensen, 2003; Good, Simmons, & Kame'enui, 2001; McGlinchey & Hixson, 2004; Shaw & Shaw, 2002).

Shinn (1989) reported that one of the most distinctive features of CBM is progress monitoring. Progress monitoring is defined as a scientifically based practice that is used to assess students' academic performance and evaluate the effectiveness of instruction. Progress monitoring can be implemented with individual students or an entire class. The primary purpose of progress monitoring is to find out how students are progressing in basic academic areas such as math, reading, writing, and spelling. Student progress is monitored through the use of brief, timed academic probes (mini-tests that generally last from 1 to 7 minutes in length) based on the school's curriculum. Academic probes are administered multiple times (weekly, monthly, or quarterly) and the scores are then plotted on a graph to show student's performance rate as a slope. Scores are used to measure student progress towards meeting the curricular goals by comparing expected and actual rates of learning. A goal or "aim line" representing a desired rate of improvement can also be established by connecting the student's initial CBM score to the year-end-goal (e.g., AYP or an IEP goal).

Progress monitoring allows teachers to use the CBM results to make highly informed, data-supported instructional decisions. For example, if the student's performance rate falls above the established goal line (e.g., benchmark), there is evidence of academic progress. If however the student's performance rate falls below the established goal line, there is evidence to support the need for a change in instructional approach (Stephens, 2006). The teacher would use this data to identify both the type and amount of instruction the student needs to meet the academic goals. When used appropriately in

tandem, the use of progress monitoring and CBM enhances both student performance and instructional effectiveness.

### **Rationale for Research**

As enrollments in foreign language study increase, more and more teachers will find themselves asking similar questions. “What can be done to help students with a learning disability succeed in this course?” “How can the instructional needs for students with and without a learning disability be met while still achieving the objectives and goals of the curriculum?” The answers to these questions and many others can only be found by examining the native-language reading research and the research in foreign language study for individuals with a learning disability.

When coupled with the requirement to provide access to the general educational curriculum for students with disabilities, this situation presents challenges for parents, teachers, students and administrators alike. For teachers, the challenges arise from the myriad of decisions pertaining to the matching of instructional approaches to the diversity of learners, the planning of the foreign-language curriculum and the overall effectiveness of interventions implored. For students, the challenges involve identifying the most efficient learning strategies and then maintaining a level of consistency that yields academic success (Kinnison, Stephens, Stager, & Rueter, 2007). Finally, the challenge for parents and administrators is to provide students and teachers with the appropriate resources and supports to ensure that targeted levels of academic success are obtained.

The theoretical rationale for this study comes from the current need to explore an instructional approach that meets the academic needs for all learners enrolled in foreign-language study, in particular those learners who meet the criteria for a learning disability. The information presented in this dissertation draws heavily upon the research from three different areas: native language reading research, research in learning disabilities and research in FL study and learning disabilities. This is primarily due to the theory presented by Sparks, Ganschow, & Pohlman (1989) that the difficulties that students experience in FL study are related to one or more deficiencies in the student's native language skills. According to the literature, the difficulties that students with learning disabilities experience with FL study manifest themselves on both native and FL measures of phonology and orthography (e.g., word recognition, spelling, pseudo word meaning). Liberman, Shankweiler, and Liberman (1989) found that readers who are struggling are typically characterized as having a dysfunction "in the phonological component of their natural capacity for language" (p.1). This phenomenon can be partly explained by LaBerge and Samuels's (1974) model of automatic information processing and also in part by Perfetti and Hogaboam's (1975) research to explain the relationship between word recognition (e.g., decoding), speed of reading, and reading comprehension. Perfetti's Verbal Efficiency Theory (VET) (1985) posits that difficulties in these problem areas (phonology and orthography) are the result of the lack of efficiency in lower-level decoding processes (1985). His theory maintains that the more efficient that lower-level decoding skills are, the more attentional resources can be dedicated to higher-level

processes such as reading fluency and comprehension. Rasinski (2004) provides additional support with the following:

Fluent readers decode words accurately and automatically, without (or with minimal) use of their limited attention or conscious cognitive resources. The theory that supports this aspect of fluency begins with the notion that readers have limited attentional resources. If they have to use a large portion of those resources for word decoding, those resources will not be available for use in comprehension. The theory of automaticity in reading suggests that proficient word decoding occurs when readers move beyond conscious, accurate decoding to automatic, accurate decoding. At the automatic level, readers are able to decode words with minimal attention to the activity of decoding. Most adult readers are at this level of processing. They do not have to examine closely or sound out most of the words they encounter; they simply recognize the words instantly and accurately on sight. This type of processing frees the reader's conscious attention to comprehend or construct meaning from the text (p. 3).

According to Deshler, students who demonstrate poor reading skills at the high school level have the same/similar profile as students with LD (Woodruff, Schumaker, & Deshler, 2002). Therefore, according to the tenants of the VET theory, students who meet the criteria for a learning disability have less attentional resources for executing higher-level reading processes. The shortage of attentional resources often creates a learning situation that is overwhelming and unpleasant for these learners. During routine academic tasks in the FL classroom, students with learning disabilities can become easily frustrated and may simply give up. They lack the attentional resources to successfully perform the given tasks. Thus, increasing the efficiency in which students can accurately identify and process key terminology will increase the availability of these resources. Resources can then be devoted to the development of higher-level reading processes such

as reading fluency and comprehension. This in turn will create an abundance of opportunities for students with learning disabilities to achieve FL tasks of a higher cognitive nature (e.g., inferencing and prediction). The research in this particular area is scant; however, the developments of automaticity with key vocabulary words, as outlined in this dissertation, addresses students' levels of academic performance and seek to improve the overall quality of the FL learning experience for all participants.

Research reveals that the development of automaticity of key vocabulary words can be achieved best by using a multisensory instructional approach that appeals to the academic needs of all learners. An Orton-Gillingham method (1960) provides learners with the opportunity to simultaneously hear, see, and write sounds/symbols and receive direct explanations for grammar rules for word endings, word order, subject-verb agreement, and declensions. This method is responsive to learners' needs and can provide the ideal linguistic platform on which to scaffold skills of a higher nature. It can serve as the instructional vehicle to boost FL fluency and comprehension across multiple domains (e.g., reading, writing, listening and speaking) and ultimately yield more successful and efficient FL learners.

### **Purpose of Current Study**

The purpose of this study was to investigate the effects of using flashcards to develop automaticity with key vocabulary words and phrases in order to improve fluency and reading comprehension skills in Spanish. Specifically, the study was undertaken to determine whether the use of flashcards to develop automaticity was an effective and

efficient means for enhancing reading comprehension rates for all students. These effects were measured through progress monitoring via curriculum-based measures for all students who were enrolled in a first and second-year high school Spanish course. With the push towards increased academic accountability and the move towards the implementation of the Response-to-Intervention (RTI) model, teachers need a more efficient and effective means of enhancing student progress for *all* students (Stephens, 2006).

## CHAPTER III

### METHODOLOGY

The purpose of this research was to examine the effects of automaticity through the use of key vocabulary and phrases presented in a multi-model stimulus for students with and without learning disabilities. This chapter will first provide a description of the participants, the research design, the development and use of curriculum based measures (CBM), and the application of end-of-unit exams to assess students' acquisition and comprehension of the Spanish language. Finally, the proposed data analysis will be presented.

#### **Setting**

The participant training and data collection was conducted within four, eleventh- and twelfth-grade Spanish I and Spanish II classes within a senior high school in North Texas. The senior high school consisted of a total of 1889 eleventh and twelfth graders (1001 eleventh-graders; 888 twelfth-graders). The following percentages represented the social and economic status (SES) and ethnic distribution of the referenced senior high school for the 2009-2010 school year: African American 11%, Hispanic 8%, White 61%, Asian 19%, and economically disadvantaged 7%. Approximately 10% (200) of students received free or reduced lunch. The school consisted of approximately 155 students with disabilities (approximately 8% of the school population). Disabilities ranged from moderate to severe (<http://www.pisd.edu/about.us/documents/09-10-EthnicityReport-06->

04-2010.pdf). The instruction and the treatments/interventions that were provided to all participants in this study was the same for all participants.

### **Participants**

Participants in this study involved two samples; one sample of ( $n = 26$ ) eleventh- and twelfth-graders enrolled in a Spanish I class, and a second sample of ( $n = 61$ ) eleventh- and twelfth-graders enrolled in 3 different Spanish II classes. Participants were comprised of adolescents between the ages of 15 to 18, with and without learning disabilities who were rolled in Spanish 1 and Spanish 2 classes. The participants were all from one school, which is located in a high-income suburb of Dallas, Texas, and is attended by students from a range of cultural groups. In Spanish 1, there were 2 male participants enrolled in Spanish I with learning disabilities. In Spanish II, there were 36 male participants and 25 female participants. There were 2 male and 2 female participants enrolled in Spanish II with learning disabilities. Three intact classes were the participants. With the inclusion measures used in this high school, 6 participants with learning disabilities were included in the general education Spanish I and Spanish II classes. A description of the specific learning disability of participants is located in Appendix C.

### **Research Design**

“School districts often do not allow random assessment of learners to a classroom or to maintain a control group with no intervention. Therefore, single-subject or single-case study experimental designs replicated across participants may be a better fit when

evaluating some educational interventions” (Horner, Carr, Halle, McGee, Odom, & Wolery, 2005 p. 58).

The research design used for this study was a modified (A-B) single-subject design. Participants received classroom instruction using a combination of direct and learner-centered instructional strategies (e.g., cooperative and interpersonal learning experiences). All vocabulary and grammar was taught within the context of situations or topics in which the participants were communicating. Instruction was supported with guided and independent-practice activities that reinforced targeted vocabulary and grammar concepts as presented within the unit. Key vocabulary and phrases were discussed (e.g., teacher-student recital) with participants at the beginning of the unit in both English and Spanish. Participants were provided with opportunities to match what they heard with visual cues (e.g., pictures, video, or text) or experiences.

Intervention B was the used of flashcards. The intervention was in place for 8 weeks. Based upon the participants’ baseline performance on specifically developed Curriculum-Based Measures (e.g., Spanish Vocabulary), the participants were placed in one of four groups (high, medium, low, learning disabled). Thus, each group represented the single subject in the research design. Group medium scores were used to graph performance, while individual performance measures were also graphed. The baseline phase (A) was established using CBM progress monitoring documents. Three data points were used for this baseline. The intervention (B) was the use of flashcards. After the introduction of

the intervention (B), repeated measures of participants' performance and progress monitoring occurred.

The groups for this study were determined using CBM protocols. The High group was the top 50% of students based on performance. The Middle group involved participants whose percentage of word recognition was 20-49%. The Lower group included participants in the lower 19%. The LD group was composed of all participants who met the LD definition for the state of Texas and school district guidelines (Shapiro & Clemens, 2009).

### **Intervention (B)**

While vocabulary is not the only component of language, it can be successfully argued that increasing one's knowledge of vocabulary can increase one's linguistic proficiency at every level (e.g., oral fluency, listening and reading comprehension skills). According to native language reading research, the use of vocabulary flashcards has been found to be both an efficient and significantly effective method for the development of automaticity (rapid word recognition) for those with poor reading skills (Tan & Nicholson, 1997). The most recent native language research has documented that the development of rapid word recognition (automaticity) via flashcards significantly benefits poor readers' comprehension abilities perhaps by strengthening their phonological and orthographic skills.

Flashcards were developed from the district-adopted resource package that supplements the district-adopted curriculum. The resource package (Prentice-Hall

Realidades 1 and 2) for the district-adopted curriculum provided learners with a set of vocabulary flashcards specific for each of the nine thematically-based units. The pictures printed on the flashcards represented the key vocabulary words and phrases for that particular unit. They served as visual cues for key vocabulary words that appeared throughout the unit and on all practice, take-home and assessment activities (e.g., guided-practice, homework, quizzes and exams).

At the beginning of each unit participants received a copy of the vocabulary flashcards in sheet form. Each flashcard had a picture on one side that represented a single key word in the unit (e.g., one picture equals one flashcard). Participants cut out the flashcards. Participants received additional blank flashcards and made their own visual representations for those words that they did not know and that did not have a pre-determined visual cue or picture (e.g., some verbs, abstract words). When labeling the flashcards, participants wrote the corresponding English-Spanish word on the reverse or blank side of the card using the key vocabulary words of the units to assist them (one word per flashcard). This procedure permitted participants the opportunity to learn the meaning of the Spanish word or phrase in English and then to associate that Spanish word or phrase with its corresponding picture on the reverse side. Participants used the picture on one side of the flashcard to recognize/identify the target word in Spanish on the other side.

Participants were instructed how to use the flashcards. Participants were then taught to read the printed word on the flashcard aloud in Spanish. The instructor first modeled

saying the word and/or phrase in Spanish using the correct pronunciation and intonation (e.g., cadence). Participants were then required to repeat the Spanish word or phrase with the correct pronunciation. Participants spent approximately 10 minutes at both the beginning and the end of the next class period reviewing their flashcards individually. After the first 10 minutes of class, the teacher then displayed the identical computerized flashcard images on the overhead screen and conducted vocabulary practice for 10 additional minutes. During this practice, participants recited the Spanish word that corresponded with the correct visual cue. The teacher selected participants randomly to check for individual recognition using the same approach (e.g., show the picture and recited the Spanish word). For the remainder of the 50-minute class period, focus was placed on the spelling and pronunciation of the same key words. The flashcard training was implemented at both the beginning and the end of class for a total of 20 minutes, until all participants recited the Spanish words (from the visual cues) and provided the meaning of those words in English in approximately 2-3 s. After five 50 minute class periods of continual in-class practice, and as evidence of rapid word recognition or automaticity emerged, (as demonstrated by participant responses to in-class-practice activities), a shift in instruction occurred. It is important to note that the use of the flashcards remained constant throughout the unit even when the focus of the lesson changed. The focus of the lessons shifted from the learning of vocabulary to grammar and structure as presented in the unit. It is also important to note that intervention B (e.g., the use of the flashcards) remained constant throughout the unit even though the focus of

the lesson changes. Flashcard practice was maintained with 10-minute practice sessions at both the beginning and end of the class period (approximately 20 minutes total for each class period). Participants were strongly encouraged to study their flashcards on a daily basis, either at home or between classes, to ensure that automaticity was maintained throughout the unit. The intervention selected for this particular study was supported by research (Tan & Nicholson, 1997).

### **Curriculum Based Measurement (CBM)**

The CBM for this study consisted of a list of 60 randomly-selected key words and phrases taken from the vocabulary lists at the end of each unit. The words and phrases appeared on the CBM in random order and as they did on the vocabulary lists at the end of the unit in the textbook, in Spanish. Each 60 word CBM consisted of 20 new vocabulary words and phrases from the current unit and 20 words and phrases from the previous unit. The remainder (20) consisted of key words and phrases that were repeated from the previous units in the curriculum. Three alternate forms of the CBM were made. Each form contained the 60 words in random order. The CBM was administered at the beginning of the class period, prior to vocabulary practice as a measure of progress monitoring. Participants received a total of four seconds (4s) to recognize and to write the meaning of the vocabulary word or phrase in English. The four second (4s) response time allotted to participants was based on the one second (1s) criterion rates from native language reading studies on rapid word recognition suggested by Fleisher, Jenkins and Pany (1979) and Tan and Nicholson (1997). Both studies set a goal during their training

programs to have participants read each target word in less than a second at a rate of 90 words per minute or less, with at least 95% accuracy. An additional three seconds (3s) was allotted in this study to allow participants sufficient time to write their responses in English on the CBM. Participants were given approximately 200 seconds or 3.33 minutes to complete the CBM. At the end of the allotted time period, the CBM's were collected and scored. Participants received credit for the key vocabulary words and phrases if the English responses were mostly correct. If English responses were correct and distinguishable; participants received full credit for the words and/or phrases.

### **End-of-Unit Exams**

This study used end-of-unit exams to assess the students' application of vocabulary to produce reading comprehension of Spanish. The end-of-unit exams for this study aligned educationally with both state (e.g., Texas Essential Knowledge and Skills) and district curricular objectives. The end-of-unit exams consisted of approximately 25 multiple choice questions per unit. Each question had four possible answer choices denoted by the letters a, b, c, and d. Participants were to identify the letter(s) of the choice(s) that best completed the statement(s) or answered the question(s).

### **Data Collection Procedures**

Baseline data from the CBM's was collected once each week for three consecutive weeks during the baseline phase. During the intervention phase, data from the CBM's was collected once a week for five consecutive weeks and was used for progress monitoring for students with and without a learning disability. Participant performance

data is presented in histogram fashion. Data was charted to visually document the differences between and within the four different participant groups (e.g., High, Middle, Low and LD sub populations). The administration of the end-of-unit exams measured the effects of intervention B on reading comprehension.

### **Data Analysis**

A non-experimental research design was utilized within this study. Quantitative data was analyzed using descriptive statistics and repeated measures. The data was collected from CBM's and end-of-unit exams. Data analysis was generated from a comparison of the results on the CBM's from each of the four participant groups, High, Middle, Low and LD. Descriptive Statistics were used to describe and place participants into groups and used to measure the differences between these groups. The data was separated into two groups- students with learning disabilities and non-learning disabled students in order to demonstrate that automaticity worked equally as well for all students.

### **Significance**

The significance of this study is the possible identification of automaticity as a successful instructional intervention for students with and without a learning disability enrolled in a FL (Spanish) course. This study identified the potential use of a CBM as a successful Response-to-Intervention (RTI) tool and also revealed a possible difference in the acquisition rates of key vocabulary words and phrases between students with and without a learning disability.

### **Limitations**

Major limitations of this study included limitations associated with non-experimental research designs. In particular, non-experimental designs yield results that are difficult to establish a true cause-effect relationship for and extraneous variables are difficult to control. Non-experimental research is limited because it is based on information obtained at one point in time. Limitations of the study that may influence the generalizability of the results include the following: (a) there was no random assignment of groups and (b) there was only one location for this study.

### **Delimitations**

This research was limited to eleventh- and twelfth-grade students in Texas and was not generalized to other populations. There was a lack of random sampling (e.g., sample of convenience). Additionally, the sample was disproportionate with regards to gender, ethnicity, at risk, economically disadvantaged, and special education. The total number of LD participants was reduced at the end of this study due to attrition.

## CHAPTER IV

### RESULTS

The purpose of this study was to investigate the effects of using flashcards to develop automaticity with key vocabulary words and phrases in order to improve fluency and reading comprehension skills in Spanish. These effects were measured through progress monitoring via curriculum-based measures for all students who were enrolled in a first and second-year high school Spanish course. Specifically, the study was undertaken to determine whether the use of flashcards to develop automaticity was an effective and efficient means for enhancing reading comprehension rates for students with and without LD. These effects were measured through progress monitoring via curriculum-based measures for all students who were currently enrolled in a first and second-year high school Spanish course. With the push towards increased academic accountability and the move towards the implementation of the Response-to-Intervention (RTI) model, teachers need a more efficient and effective means of enhancing student progress for *all* students (Stephens, 2006). This section will provide a description of the research study findings. The demographic make-up of the study participants and a review of the definitive analysis of the research questions used to guide this study will be addressed. Additionally, brief explanations of the findings of each research question will be presented as well as a brief summary of the study results.

### **Demographic Information**

The participants used within this study were adolescents between the ages of 15 to 18, with and without learning disabilities who were enrolled in Spanish I and Spanish II classes. The participants were all from one high school, which is located in a high-income suburb of Dallas, Texas and is attended by pupils from a range of cultural groups. There were 87 participants, 6 participants with learning disabilities and 81 participants without learning disabilities, who were enrolled in Spanish I and II during the spring semester of 2010. The following percentages represented the social and economic status (SES) and ethnic distribution of the referenced senior high school for the 2009-2010 school year: African American 11%, Hispanic 8%, White 61%, Asian 19%, and economically disadvantaged 7%. Approximately 10% of students received free or reduced lunch. The school consisted of approximately 155 students with special needs (approximately 8% of the total school population). Disabilities ranged from moderate to severe. The instruction and the treatments that were provided to all participants in this study was the same. In Spanish I, there were 17 male and 9 female participants. There were 2 male participants with learning disabilities enrolled in Spanish I. In Spanish II, there were 36 male participants and 25 female participants. There were 2 male and 2 female participants with diagnosed learning disabilities enrolled in Spanish II. Three intact-classes were the participants. With the inclusion measures used in this high school, 6 participants with learning disabilities were included in the general education Spanish I

and Spanish II courses. A description of the specific learning disability of participants is located in Appendix C.

### Definitive Analysis

Research question #1. What rate of word decoding accuracy (as measured by the CBM's) is sufficient for the establishment of automaticity of key words and phrases in Spanish?

Based on visual inspection of CBM's 4 and 8 (see Figures 1 and 3), when intervention B was introduced, all but one (LD 6) of the participants' scores in both Spanish I and Spanish II met the sufficient rate (90%) of word decoding accuracy for the establishment of automaticity. Participant LD 4 (see Figure 3) scored an 87% word decoding accuracy rate in Spanish on CBM 4 perhaps due to the three classroom absences he/she incurred during the designated instructional period. For this reason, the score achieved on CBM 4 (see Figure 4) for participant LD 4 was considered an "outlier" in the data.

Table 1

Means for CBM's (Spanish 1)

CBM's	N (Non LD)	N (LD)	Mean	SD
CBM 1	26	2	53.96	22.424
CBM 2	26	2	68.00	23.898
CBM 3	26	2	75.44	24.444
(Intervention B)				
CBM 4	26	2	93.20	6.945
Exam 2A	26	2	88.76	8.238

*Note.* CBM's 1, 2, and 3 represent the baseline or pre-intervention phase of this study.

As may be seen in Table 1, the curriculum-based measure of word decoding accuracy indicates an increase in the number of words identified after the implementation of the intervention. The end-of-unit examination results provide data to suggest that the students' increase in word decoding accuracy rates resulted in improved comprehension and application.

Table 2

Means for CBM's (Spanish 2)

CBM's	N (Non LD)	N (LD)	Mean	SD
CBM 1	61	4	63.05	13.754
CBM 2	61	4	79.83	14.724
CBM 3	61	4	87.40	15.345
(Intervention B)				
CBM 4	61	4	96.88	.740
Exam 2A	61	4	90.43	7.942

*Note.* CBM's 1, 2, and 3 represent the baseline or pre-intervention phase of this study.

As may be seen in Table 2, students' performance on CBM's of word decoding accuracy (vocabulary recognition) increased significantly after the flashcard intervention was introduced. The end-of-unit examination results provide data to suggest that the students' increase in word decoding accuracy rates resulted in improved comprehension and application.

Table 3

Means after Intervention (Spanish 1)

CBM's	N (Non LD)	LD (LD)	Mean	SD
CBM 5	26	2	80.89	14.834
CBM 6	26	2	92.04	10.930
CBM 7	26	2	97.50	3.870
(Intervention B)				
CBM 8	26	2	98.52	1.089
Exam 2B	26	2	88.92	7.093

*Note.* CBM's 5, 6, and 7 represent the second baseline or pre-intervention phase of this study.

As seen in Table 3, student recognition of key vocabulary increased after the introduction of the flashcard intervention procedure. The end-of-unit examination results provide data to suggest that the students' increase in word decoding accuracy rates resulted in improved comprehension and application.

After the administration of Comprehensive Exam 2A, all participants' word decoding accuracy rates (shown by percentages) on CBM 5 dropped for both Spanish I and Spanish II due to the introduction of a new unit with a new set of key words and phrases (see Figures 2 and 4 and Tables 2 and 4). Based on the scores for CBM 8, when intervention B was introduced for the second time, all participants' scores in both Spanish I and

Spanish II met the rate of word decoding accuracy, for the establishment of automaticity (see Figure 1 and Figure 3).

Table 4

Means after Intervention (Spanish 2)

CBM's	N (Non LD)	LD (LD)	Mean	SD
CBM 5	61	4	43.51	3.457
CBM 6	61	4	52.57	4.197
CBM 7	61	4	57.31	2.992
(Intervention B)				
CBM 8	61	4	59.54	.886
Exam 2B	61	4	88.98	7.327

*Note.* CBM's 5, 6, and 7 represent the second baseline or pre-intervention phase of this study.

Table 4 presents the mean CBM performance measures after the intervention was implemented. The end-of-unit examination results provide data to suggest that the students' increase in word decoding accuracy rates resulted in improved comprehension and application.

Table 5

## LD vs. Non-LD Means Levels 1-4 (Spanish 1)

CBM's	N	Mean	SD	d-score
LD CBM 1	2	24.95	4.716	
NLD CBM 1	24	56.38	21.599	31.43
LD CBM 2	2	34.99	14.142	
NLD CBM 2	24	70.75	22.570	35.76
LD CBM 3	2	38.32	16.496	
NLD CBM 3	24	78.53	22.535	40.21
(Intervention B)				
LD CBM 4	2	94.15	1.180	
NLD CBM 4	24	93.12	7.231	1.03
LD Exam 2A	2	86	2.825	
NLD Exam 2A	24	89	8.526	3

*Note.* d-score represents the difference in the mean scores between LD and non-LD participants' CBM's. CBM's 1, 2, and 3 represent the second baseline or pre-intervention phase of this study.

As noted in Table 5, the non-LD participants' performance on CBM's 1, 2, and 3 was considerably higher than the LD participants due to unequal N's. No test of significance was calculated. The intervention, use of flashcards, increased both LD and non-LD participants' word recognition on CBM 4. After the introduction of the intervention, LD

participants' scores on CBM 4 were closer to the scores of their non-LD counterparts on CBM 4. The flashcard intervention increased the LD participants' CBM word recognition from 32.75 to 94.15 percent.

Table 6

LD vs. Non-LD Means Levels 5-8 (Spanish 1)

CBM's	N	Mean	SD	d-score
LD CBM 5	2	63.33	14.142	
NLD CBM 5	24	82.35	14.193	19.02
LD CBM 6	2	93.32	4.716	
NLD CBM 6	24	91.94	11.346	1.38
LD CBM 7	2	97.49	3.542	
NLD CBM 7	24	97.50	3.966	0.01
(Intervention B)				
LD CBM 8	2	98.34	0	
NLD CBM 8	24	98.54	1.134	0.20
LD Exam 2B	2	82	2.828	
NLD Exam 2B	24	89.5	7.058	7.50

*Note.* CBM's 5, 6, and 7 represent the second baseline or pre-intervention phase of this study.

As seen in Table 6, there was almost 20 words difference between the LD and non-LD participants' scores for CBM 5. This was due to the introduction of a new vocabulary list. CBM's 6 and 7 indicate the differences in word decoding accuracy rates between the LD and non-LD participants. For CBM 8, there was virtually no difference between the LD and non-LD participants' scores. Finally, the end-of-unit exam denotes that the LD and non-LD participant groups both had percentages of correct items in the 80 percent range.

Table 7

LD vs. Non-LD Means Levels 1-4 (Spanish 2)

CBM's	N	Mean	SD	d-score
LD CBM 1	4	50.82	20.115	
NLD CBM 1	57	63.91	13.022	13.09
LD CBM 2	4	59.16	12.948	
NLD CBM 2	57	51.27	13.807	7.89
LD CBM 3	4	62.07	12.572	
NLD CBM 3	57	89.17	13.956	27.1
(Intervention B)				
LD CBM 4	4	94.57	5.674	
NLD CBM 4	57	97.04	5.758	2.47
LD Exam 2A	4	87	6.913	
NLD Exam 2A	57	90.66	8.082	3.66

*Note.* CBM's 1, 2, and 3 represent the baseline or pre-intervention phase of this study.

As noted in Table 7, the non-LD participants' performance on CBM's 1, 2, and 3 was considerably higher than the LD participants due to unequal N's. No test of significance was calculated. The intervention, use of flashcards, increased both LD and non-LD participants' word recognition on CBM 4. After the introduction of the intervention, LD participants' scores on CBM 4 were closer to the scores of their non-LD counterparts on CBM 4. The flashcard intervention increased the LD participants' CBM word recognition mean from 57.35 to 94.57 percent.

Table 8  
LD vs. Non-LD Means Levels 5-8 (Spanish 2)

CBM's	N	Mean	SD	d-score
LD CBM 5	4	66.16	2.250	
NLD CBM 5	57	72.94	5.686	6.78
LD CBM 6	4	84.15	5.850	
NLD CBM 6	57	87.85	7.648	3.70
LD CBM 7	4	95.83	3.973	
NLD CBM 7	57	95.49	5.082	0.34
(Intervention B)				
LD CBM 8	4	98.33	1.928	
NLD CBM 8	57	99.29	1.442	0.96
LD Exam 2B	4	81	3.829	
NLD Exam 2B	57	89.54	7.201	8.54

*Note.* CBM's 5, 6, and 7 represent the second baseline or pre-intervention phase of this study.

As seen in Table 8, there was almost 20 words difference between the LD and non-LD participants' scores for CBM 5. This was due to the introduction of a new vocabulary list. CBM's 6 and 7 indicate the differences in word decoding accuracy rates between the LD and non-LD participants. For CBM 8, there was virtually no difference between the LD and non-LD participants' scores. Finally, the end-of-unit exam denotes that the LD and non-LD participant groups both had percentages of correct items in the 80 percentages.

Table 9

ANOVA: Spanish 1 – Intervention

Source	SS	df	Significance
Treatment/Time	SSA	23	.00

*Note.*  $p. \geq .05$

Table 10

ANOVA: Spanish 2 – Intervention

Source	SS	df	Significance
Treatment/Time	SSA	23	.00

*Note.*  $p. \geq .05$

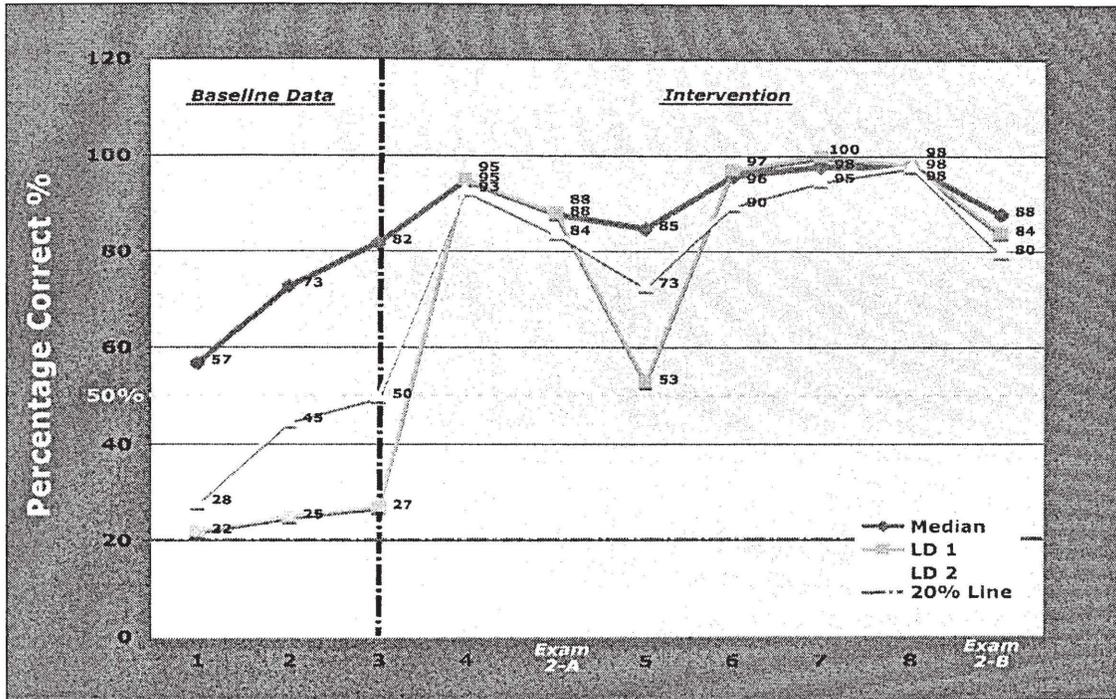


Figure 1: Curriculum-Based Measures (CBM's) Spanish 1, period 1

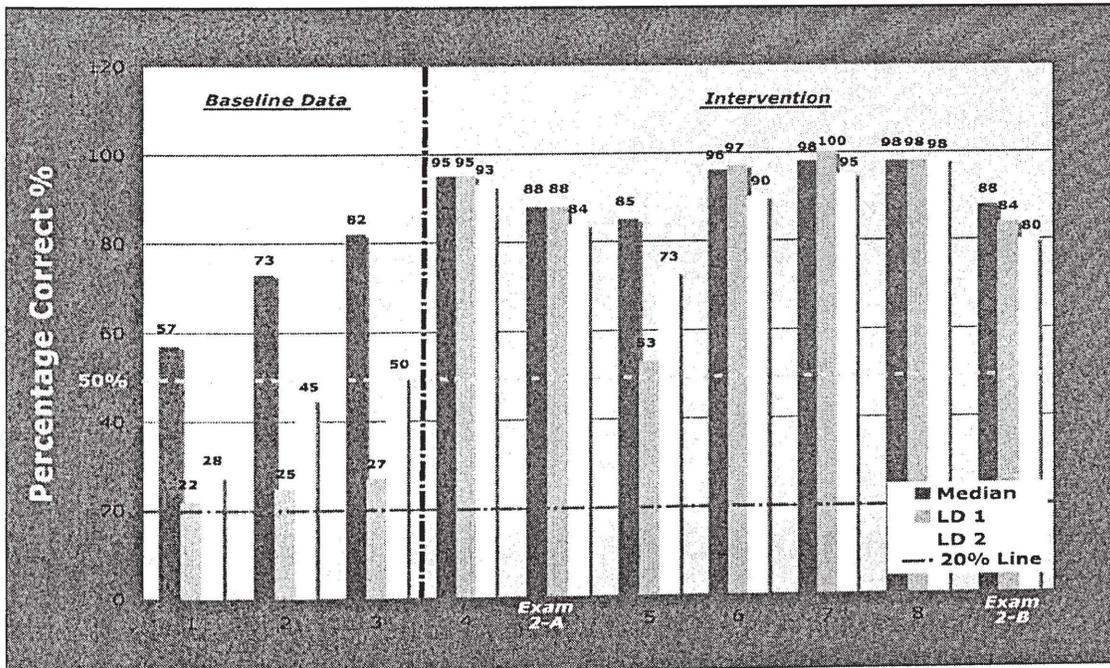


Figure 2: Curriculum-Based Measures (CBM's) Spanish 1, period 2

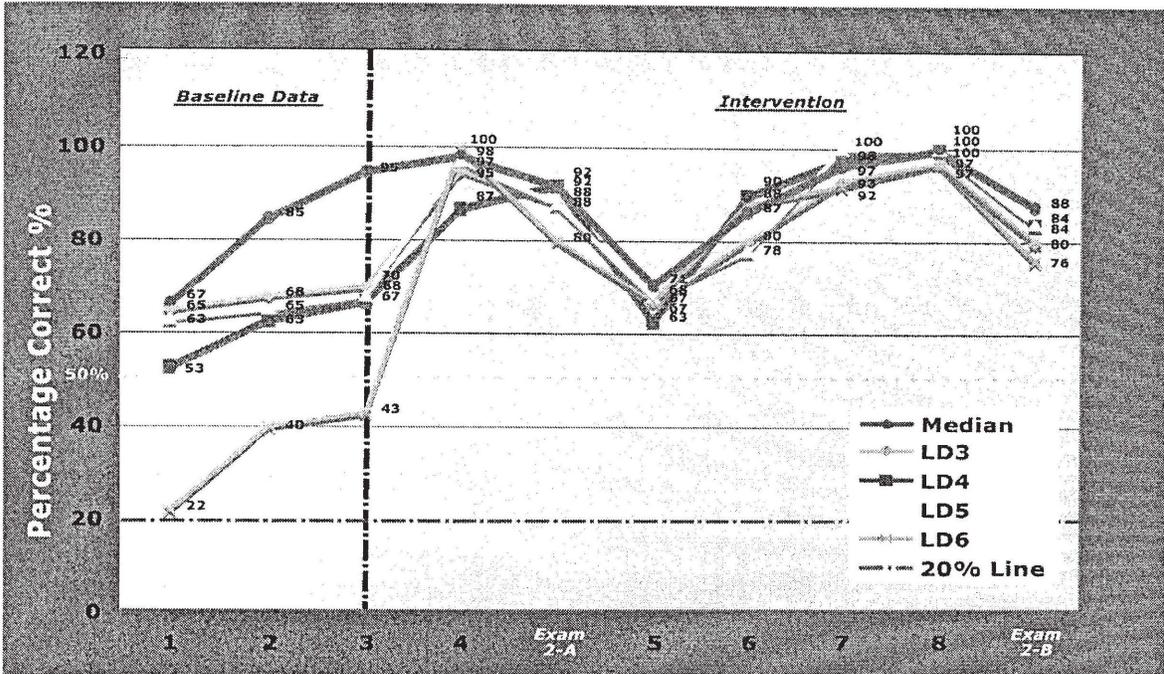


Figure 3: Curriculum-Based Measures (CBM's) Spanish 2, periods 2, 3 and 4

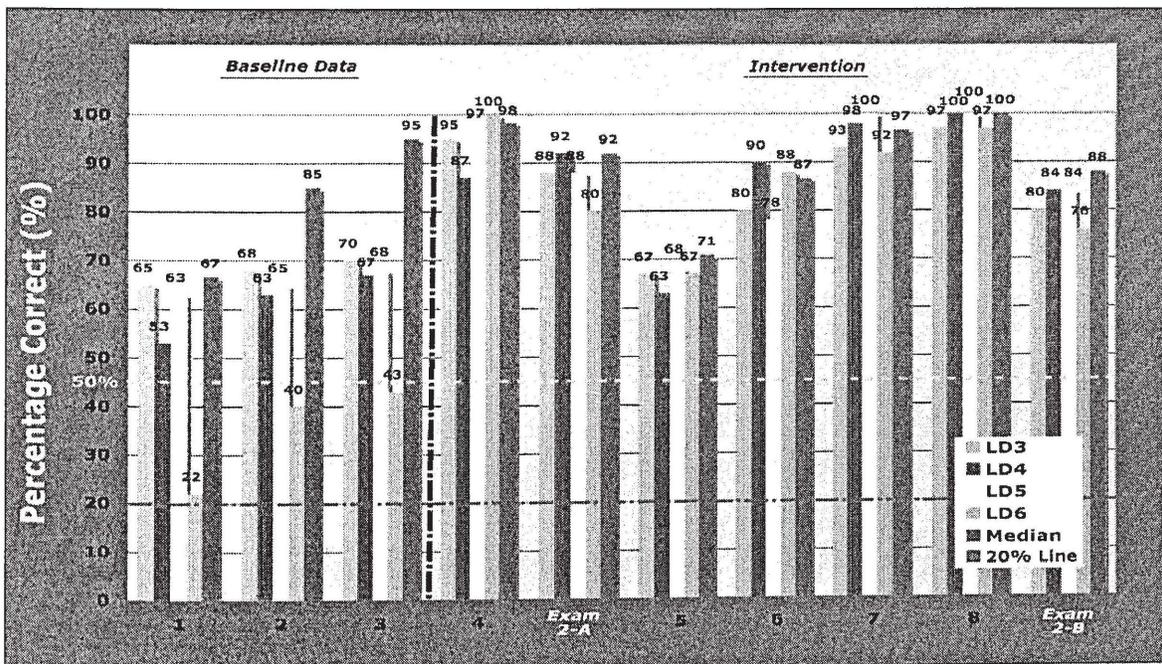


Figure 4: Curriculum-Based Measures (CBM's) Spanish 2, periods 2, 3 and 4

As seen in Tables 9 and 10, a one-way repeated measures ANOVA was used to compare scores on CBM 4 with Exam 2A at time 1 for both Spanish I and Spanish II classes following intervention B.

Research question #2. Are participants with LD able to achieve the same word decoding accuracy rates with key vocabulary and phrases as non LD participants?

Based on visual inspection of CBM's 4 and 8 (see Figures 1 and 3), when intervention B was introduced, all but one (LD 6) of the participants' scores in both Spanish I and Spanish II met the sufficient rate (90%) of word decoding accuracy for the establishment of automaticity. Participant LD 4 (see Figure 3) scored an 87% word decoding accuracy rate in Spanish on CBM 4 perhaps due to the three classroom absences he/she incurred during the designated instructional period. For this reason, the score achieved on CBM 4 (see Figure 3) for participant LD 4 was considered an "outlier" in the data. Participants enrolled in Spanish 1 with LD were able to achieve comparable word decoding accuracy rates as their non LD counterparts on CBM's 4, 6, 7, and 8 (see Figure 1). Participants enrolled in Spanish 2 with LD were able to achieve near identical comparative word decoding accuracy rates as their non LD counterparts on CBM's 4, 6, 7, and 8 (see Figure 3).

Research question #3. At what word decoding accuracy rate (as measured by the rate of acquisition taken from CBM's) do participants with learning disabilities demonstrate automaticity of key vocabulary words and phrases in Spanish?

Based on visual inspection of CBM's 4, 6, 7, and 8 (see Figure 1) and CBM's 4, 7, and 8 (see Figure 3) all but one of the participants with learning disabilities demonstrated automaticity of key vocabulary words and phrases in Spanish with a 90% word decoding accuracy rate. Participant LD 4 (see Figure 3) scored an 87% word decoding accuracy rate in Spanish on CBM 4 perhaps due to the three classroom absences he/she incurred during the designated instructional period. For this reason, the score achieved on CBM 4 (see Figure 4) for participant LD 4 was considered an "outlier" in the data. None of the participants with learning disabilities in either Spanish I or Spanish II met the 90% word decoding accuracy rates on CBM 5 (see Figures 1 and 3). This was perhaps due to the introduction of a new set of key vocabulary words and phrases in for the new unit.

Research question #4. What is the word decoding accuracy rate needed on CBM's for participants who met the eligibility criteria for learning disabilities to achieve a passing score (70%) on end-of-unit exams?

The word decoding accuracy rate needed on CBM's for participants who met the eligibility criteria for learning disabilities to achieve a passing score on end-of-unit exams was 90 to 100% as indicated by CBM's 4 and 8 (see Figures 1 and 3). All but one of the participants who met the eligibility criteria for learning disabilities achieved a 90 to 100% word decoding accuracy rate. Participant LD 4 (see Figure 3) scored an 87% word decoding accuracy rate in Spanish on CBM 4 perhaps due to the three classroom absences he/she incurred during the designated instructional period. For this reason, the

score achieved on CBM 4 (see Figure 3) for participant LD 4 was considered an “outlier” in the data.

Research question #5. What, if any, relationship exists between the achievement of automaticity and the acquisition of a foreign language (e.g., Spanish) for participants with a learning disability?

As seen in Figures 1 and 3, nearly every participant who achieved automaticity, as indicated by a 90% word decoding accuracy rate on CBM’s 4 and 8, achieved a passing score (70% and above) on the end-of-unit exams which was demonstrative of successful acquisition of Spanish for participants with a learning disability. Participant LD 4 (see Figure 3) scored an 87% word decoding accuracy rate in Spanish on CBM 4 perhaps due to the three classroom absences he/she incurred during the designated instructional period. For this reason, the score achieved on CBM 4 (see Figure 3) for participant LD 4 was considered an “outlier” in the data.

Research question #6. What impact did intervention B (flashcards) have on participants’ level of comprehension on end-of-unit exams?

As seen in Figures 1 and 4, nearly every student who met a 90% word decoding accuracy rate on CBM’s 4 and 8 achieved a passing score (70% and above) on the end-of-unit exams which was demonstrative of comprehension. Participant LD 4 (see Figure 3) scored an 87% word decoding accuracy rate in Spanish on CBM 4 perhaps due to the three classroom absences he/she incurred during the designated instructional period. For

this reason, the score achieved on CBM 4 (see Figure 3) for participant LD 4 was considered an “outlier” in the data.

CHAPTER V  
CONCLUSION

**Discussion of Findings**

The current study has demonstrated support for the establishment of automaticity via flashcards as an effective instructional approach for increasing reading fluency and comprehension skills in Spanish. The progression of students through the flashcard training activities under the researcher's direction, while using direct instruction techniques, enabled the researcher to collect reliable data for the comparison of word decoding accuracy rates (automaticity) on CBM's and reading fluency and comprehension skills in Spanish on end-of-unit exams. Through the utilization of this unique study, support was generated concluding that all students, including those who met the eligibility criteria for learning disabilities, can successfully and efficiently develop the fluency and comprehension skills needed to succeed in high school foreign language study.

1. What rate of word decoding accuracy (as measured by the CBM's) is sufficient for the establishment of automaticity of key words and phrases in Spanish?

Based on the review of the literature, the word decoding accuracy rates of 90-100% (e.g., as measured by the CBM's) that were established by Rasinski (2004) were sufficient for the establishment of automaticity of key words and phrases in Spanish. The "sufficiency" of these decoding rates is supported by evidence from decades of native

language informal reading inventories (IRIs) which used word decoding accuracy as a key measure for reading achievement (Johnson, Kress, & Pikulski, 1987; Pikulski, 1990). Fuchs, Fuchs, and Deno (1982) found that the accuracy of words the reader can read correctly is a valid measure of reading proficiency. Rasinski (2004) reported that various levels of word decoding accuracy reflect different levels (3) of native language reading proficiency. He found that readers who achieve a word decoding accuracy rate in the 97-100% range are able to read the assessment text or other text of similar difficulty without assistance. Their accuracy of word decoding describes the independent level of reading performance. Readers who score within the 90-96% range are able to read the assessment text or other text of similar difficulty with some degree of assistance. Their performance describes what Rasinski (2004) refers to as the instructional level. Readers who score below 90% in word decoding accuracy typically find the assessment text or other texts of similar difficulty too challenging to read, even with assistance. Their word decoding accuracy describes the frustration level of reading performance (Rasinski, 2004). The word decoding accuracy norms reported by Rasinski (2004) were therefore the same targeted word decoding accuracy rates used for the development of automaticity in this research.

2. Are participants with learning disabilities able to achieve the same word decoding accuracy rates with key vocabulary and phrases as their nondisabled peers?

Based on visual inspection of CBM's 4 and 8 (see Figures 1 and 3), all participants met 90% word decoding accuracy rates as defined in the literature (Rasinski, 2004).

Students enrolled in Spanish 1 with LD were able to achieve comparable word decoding accuracy rates as their non LD counterparts on CBM's 4, 6, 7, and 8. Students enrolled in Spanish 2 with LD were able to achieve near identical word decoding accuracy rates as their non LD counterparts on CBM's 4, 6, 7, and 8.

3. At what word decoding accuracy rate (as measured by the rate of acquisition taken from CBM's) do participants with learning disabilities demonstrate automaticity of key vocabulary words and phrases in Spanish? Based on visual inspection of CBM's 4, 6, 7, and 8 (see Figure 1) and CBM's 4, 7, and 8 (see Figure 3) all but one of the participants with learning disabilities demonstrated automaticity of key vocabulary words and phrases in Spanish with a 90% word decoding accuracy rate. Participant LD 4 (see Figure 3) scored an 87% word decoding accuracy rate in Spanish on CBM 4 perhaps due to the three classroom absences he/she incurred during the designated instructional period. For this reason, the score achieved on CBM 4 (see Figure 4) for participant LD 4 was considered an "outlier" in the data. None of the participants with learning disabilities in either Spanish I or Spanish II met the 90% word decoding accuracy rates on CBM 5 (see Figures 1 and 3). This was perhaps due to the introduction of a new set of key vocabulary words and phrases in for the new unit.

4. What is the word decoding accuracy rate needed on CBM's for participants who met the eligibility criteria for learning disabilities to achieve a passing score (70%) on end-of-unit exams?

The word decoding accuracy rate needed on CBM's for participants who met the eligibility criteria for learning disabilities to achieve a passing score on end-of-unit exams was 90 to 100% as indicated by CBM's 4 and 8 (see Figures 1 and 3). All but one of the participants who met the eligibility criteria for learning disabilities achieved a 90 to 100% word decoding accuracy rate. Participant LD 4 (see Figure 3) scored an 87% word decoding accuracy rate in Spanish on CBM 4 perhaps due to the three classroom absences he/she incurred during the designated instructional period. For this reason, the score achieved on CBM 4 (see Figure 3) for participant LD 4 was considered an "outlier" in the data. The word decoding accuracy rate used in this dissertation was supported by the findings of Rasinski (2004) who found that readers who achieve a word decoding accuracy rate in the 97-100% range are able to read the assessment text or other text of similar difficulty without assistance. Their accuracy of word decoding describes the independent level of reading performance. Readers who score within the 90-96% range are able to read the assessment text or other text of similar difficulty with some degree of assistance. Their performance describes what Rasinski (2004) refers to as the instructional level. Readers who score below 90% in word decoding accuracy typically find the assessment text or other texts of similar difficulty too challenging to read, even with assistance. Their word decoding accuracy describes the frustration level of reading performance (Rasinski, 2004). The "sufficiency" of these decoding rates is supported by evidence from decades of native language informal reading inventories (IRIs) which used word decoding accuracy as a key measure for reading achievement (Johnson, Kress, &

Pikulski, 1987; Pikulski, 1990). Fuchs, Fuchs, and Deno (1982) found that the accuracy of words the reader can read correctly is a valid measure of reading proficiency.

5. What, if any, relationship exists between the achievement of automaticity and the acquisition of a foreign language (e.g., Spanish) for participants with a learning disability?

As seen in Figures 1 and 3, nearly every participant who achieved automaticity, as indicated by a 90% word decoding accuracy rate on CBM's 4 and 8, achieved a passing score (70% and above) on the end-of-unit exams which was demonstrative of successful acquisition of Spanish for participants with a learning disability. Participant LD 4 (see Figure 3) scored an 87% word decoding accuracy rate in Spanish on CBM 4 perhaps due to the three classroom absences he/she incurred during the designated instructional period. For this reason, the score achieved on CBM 4 (see Figure 3) for participant LD 4 was considered an "outlier" in the data.

6. What impact did intervention B (flashcards) have on participants' level of comprehension on end-of-unit exams?

As seen in Figures 1 and 4, nearly every student who met a 90% word decoding accuracy rate on CBM's 4 and 8 achieved a passing score (70% and above) on the end-of-unit exams which was demonstrative of comprehension. Participant LD 4 (see Figure 3) scored an 87% word decoding accuracy rate in Spanish on CBM 4 perhaps due to the three classroom absences he/she incurred during the designated instructional period. For

this reason, the score achieved on CBM 4 (see Figure 3) for participant LD 4 was considered an “outlier” in the data.

Prior research related to automaticity was conducted in native language reading (here give studies). This research, using native language reading research as a base, confirms the same levels of automaticity are needed in order to establish sufficient fluency and comprehension skills for students enrolled in FL study.

Based on the review of literature, of word decoding accuracy in native-language reading research, this is the first application to foreign language study. The premise of this dissertation (automaticity-the development of a lower level language skill) is directly linked to the underlying theory of BICS and CALP as mentioned in the end of Chapter 1. The connection of BICS and CALP to the development of automaticity pertains to the natural order of language development. The connection between these two theories is conceptual. This is to say that students require a strong foundation with key vocabulary words and phrases in Spanish in order to fully achieve their abilities to perform higher-order language tasks (e.g., comparing, classifying, synthesizing, evaluating, and inferring information) similar to the comprehension exams in this study.

The idea of BICS and CALP first arose from a study (1976) conducted by Finnish researchers Skutnabb-Kangas and Toukoma which revealed that Finnish immigrant children in Sweden often appeared to educators to be fluent in both Finnish and Swedish, but still demonstrated levels of verbal academic performance in both languages that were considerably below grade/age expectations. Psychological assessments of language

minority students in the United States and Canada revealed similar results with students who were thought to have attained fluency and overcome all difficulties with English (Cummins, 1984). This led researchers to believe that there may be more than just one dimension to language. In 1981, Jim Cummins provided further evidence for the existence of two types of language. Language used for social purposes referred to as Basic Interpersonal Communication Skills or BICS and language used for academic tasks referred to as Cognitive Academic Language Proficiency or CALP. Although the concept of BICS and CALP has been traditionally associated with Bilingual Education, its potential application can be of tremendous value for all students especially for those students enrolled in FL study. Since the acquisition of BICS is believed to proceed and give rise to the acquisition of CALP, it is essential to use these terms in the same discussion regarding the acquisition of language. Linguistic experts Noam Chomsky and Jim Cummins maintain that the order of acquisition, BICS first and then CALP, reflects the general nature of language development and may also have a direct correlation with the manner in which we make sense of the world around us. Chomsky affirms that a major contribution regarding the study of language is the opportunity to understand the inherent character of mental processes. He reiterates this belief throughout his work stating that “language is a mirror of the mind” (Chomsky, 1968). It is imperative therefore, that teachers understand the impact that these two types of language have on one another, in particular, the social and academic skills associated with each. Further discussion of BICS and CALP can be found in Appendix A of this dissertation.

There are several pedagogical implications that can be derived from this study. First, the research findings provide evidence to support the need for the establishment of automaticity with key words and phrases in all content areas, especially for those academic areas that are considered “core subjects” (e.g., math, science, English and social studies). As previously discussed, native language research indicates that word decoding accuracy has been found to be a key measure for native language reading proficiency and achievement (Fuchs, Fuchs, & Deno, 1982; Johnson, Kress, & Pikulski, 1987; Pikulski, 1990). Instruction in all content areas should therefore emphasize the establishment of automaticity of key vocabulary and phrases in order to provide all students with the opportunity to develop the reading fluency and comprehension skills needed to succeed. The findings in this study also provide strong evidence for the need to replicate a similar study in other academic disciplines.

Second, the findings suggest that the time needed for the development of automaticity is different for all learners and should therefore be monitored frequently with CBM’s. Pre- and post-interventional findings indicate significant differences in the mean scores for participants with and without learning disabilities across time. Although nearly every participant with a learning disability achieved a word decoding accuracy rate of at least a 90%, prior to the administration of the end-of-unit exams, the time and the number of flashcard exposures needed to achieve this rate was different for each participant. Finally, and perhaps most important, the findings suggest that all participants, including those with diagnosed learning disabilities can succeed and benefit from FL study.

### **Future Directions**

Future research should explore the concepts of BICS and CALP as they apply to core academic skill areas. For example, in the study of science, if students with and without learning disabilities do not develop a sufficient level of automaticity with their key words and phrases, they will probably not establish a sufficient level of fluency and comprehension which in turn, may have severe repercussions in high-stakes testing (e.g., TAKS testing).

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## APPENDIX A

### Description of the Participants' Specific Disabilities

Participant # 1 met the criteria for LD eligibility in math calculation and problem solving. It was noted that the participant performed comparatively lower on verbal scores; received and was dismissed from speech services in 2006. The participant received and was dismissed from speech therapy services after the completion of the 9<sup>th</sup> grade year. According the Individualized Evaluation Plan (IEP), participant # 4 is allowed extra time on tests/quizzes (50%) when requested by the participant and assistance with note taking--a copy of the teacher's notes in exchange for participant's notes. The teacher should perform frequent checks for understanding and provide the participant with shortened instructions. Participant should also be allowed access to the alternate testing center (ATC) for test and quiz administration and be provided with a calculator for math computations.

Participant # 2 met the criteria for LD eligibility in reading comprehension and it was noted that past testing also shows that verbal scores are consistently below performance and full-scale scores (IQ). Participant received and was dismissed from speech therapy services after the completion of the 8<sup>th</sup> grade year. Participant # 5 is allowed extra time on tests/quizzes (50%) over a two day period when requested by the participant. Participant # 2 should receive individualized grading in general education English course based on the participant's Present Levels of Educational Performance and be provided with a calculator for math computations. Participant should also be provided with preferential seating near the front of the classroom for vision purposes.

Participant # 3 was diagnosed with a learning disability. According the Individualized Evaluation Plan (IEP), participant # 3 is allowed extra time on tests/quizzes when requested by the participant and assistance with note taking--a copy of the teacher's notes. Participant # 3 must attempt to take notes, be assigned preferential seating to accommodate learning difficulties, and be allowed utilization of the alternate testing center (ATC) for test and quiz administration. The teacher should check for understanding and organization and allow participant # 3 extra time for oral responses.

Participant # 4 met eligibility criteria for LD. According the Individualized Evaluation Plan (IEP), participant # 4 is allowed extra time on tests/quizzes (50%) when requested by the participant and assistance with note taking--a copy of the teacher's notes. Participant # 4 must attempt to take notes and be allowed utilization of the alternate testing center (ATC) for test and quiz administration and be provided with a calculator for math computations. Participant should receive individualized grading in general education math course based on participant's Present Levels of Educational Performance.

Participant # 5 met the criteria for LD eligibility. The diagnostician noted that the participant demonstrated weaknesses in the areas of Basic Word Reading, Reading Comprehension and Reading Fluency. The participant received and was dismissed from speech therapy services after the completion of the 9<sup>th</sup> grade year. According the Individualized Evaluation Plan (IEP), participant # 5 is allowed extra time on tests/quizzes (50%) over a two day period when requested by the participant and

assistance with note taking--a copy of the teacher's notes in exchange for participant's notes. The teacher should break down lengthy assignments and provide the participant with preferential seating to avoid distractions and be near the instructional area.

Participant should be allowed access to the alternate testing center (ATC) for test and quiz administration and be provided with a calculator for math computations. Participant # 5 should also receive individualized grading in general education social studies, science and English courses based on the participant's Present Levels of Educational Performance.

Participant # 6 met eligibility criteria for LD. Participant # 6's overall assessment by the licensed diagnostician revealed several areas of pronounced strength and weakness. Fluid reasoning and long-term retrieval skills are indicated as strengths. Fluid reasoning is the use of deliberate and controlled mental operations to solve novel, on-the-spot problems (e.g., tasks that cannot be performed automatically) while long-term retrieval is the ability to store and consolidate new information in long-term memory and later fluently retrieve the stored information (e.g., concepts, ideas, items, names) through association. The most pronounced area of weakness is in the area of Comprehension/Knowledge. The diagnostician noted that this is typically described as a person's wealth (breadth and depth) of acquired knowledge of the language, information and concepts of a specific culture, and/or the application of this knowledge. This is primarily a store of verbal or language-based declarative knowledge (knowing what?) and procedural knowledge (knowing how?) acquired through the investment of other

abilities during formal and informal educational and general life experiences. It is further noted that although participant # 6 has other processing deficits, it is most likely the deficit in Comprehension/Knowledge that is having the greatest impact on the participant's academic success. Participant # 6 demonstrated weakness in the areas of Processing Speed and Short-Term Memory. Processing Speed is the ability to automatically and fluently perform relatively easy and over-learned cognitive tasks, especially when high mental efficiency (e.g., attention and focused concentration) is required. The diagnostician noted that academically, participant # 6's most pronounced area of weakness are those that are related to the participant's processing deficit in the area of Comprehension/Knowledge. Those areas affected are reading comprehension, written and oral expression. According to the Individualized Evaluation Plan (IEP), participant # 6 is allowed extended time on tests/quizzes/essays when requested by the student. The teacher is required to break down lengthy assignments into smaller, sequential steps as arranged by the participant and the teacher and to provide the participant with assistance with note taking—a copy of the teacher's notes/power points prior to lecture. The participant must attempt to take notes and have access to the use of the alternate testing center (ATC) for test and quiz administration. Participant # 6 may request to write on tests instead of using a scantron-this would include semester exams. The participant may need help to transcribe answers to a scantron, and have adapted tests with more white space on the page with fewer questions on and fewer choices in a group of matching questions.

APPENDIX B  
BICS and CALP

The purpose of this discussion is to provide educators with a description of BICS and CALP within the context of language minority students to help educators understand the role of language in learning for students with mild mental retardation. In doing so, this paper will also provide a brief description of language development while describing the instructional and cultural implications associated with the assessment and promotion of each type of language. Finally, the author will conclude with a discussion regarding the implications of CALP when planning instruction for individuals with mild mental retardation.

### **Language acquisition**

Language acquisition impacts learning. Language, a vital and complex foundational skill needed for academic success (Mercer & Mercer, 1998), is defined as a socially shared code used to represent concepts through the use of random symbols and rules governing the combinations of symbols. Rosberry-McKibbin (2007) defines language as a means whereby we communicate with others. When considering language acquisition, language can be broken into two major domains: Basic Interpersonal Communication Skills (BICS) or social language and Cognitive Academic Language Proficiency (CALP) or academic language. This is a distinction which is often misunderstood by educators.

Traditionally, school personnel have focused on BICS and CALP when working with English language learners (ELLs). Although the acquisition of BICS and CALP is deemed to be a top priority when planning instruction for second language learners, some educators are unable to differentiate between these two types of language. In order for

classroom teachers to provide effective instruction to all students, educators need to understand how the two categories of learning differ. Experts such as Jim Cummins (1984) have provided research in an attempt to differentiate between BICS and CALP. Basic interpersonal communication skills (BICS)

BICS has been defined as language skills which are needed in social situations. BICS is often referred to as “playground language” (Cummins, 2006) because language-minority learners utilize BICS skills when they are on the playground, in the lunch room, at parties, on the school bus, or playing sports (e.g., high-frequency vocabulary). Social interactions occur in a meaningful social context and are therefore usually context imbedded. Furthermore, BICS are cognitively less demanding, does not require specialized language, and usually develops within six months to two years after arrival to the U.S. (Rosberry-McKibbin, 2007).

BICS generally develops quickly among immigrant second language learners because these forms of communication are supported by interpersonal and contextual cues and place relatively few cognitive demands on the individual (Cummins, 1984). However, although a student may demonstrate mastery in BICS, it should not be assumed that the student will also achieve this same degree of mastery in academic language skills. Unfortunately, a common misconception among educators is the assumption that a student who demonstrates success in expression in social situations will also be able to complete equivalent grade-level academic language tasks with similar success. This misunderstanding of BICS and CALP acquisition often results in an unusual

disproportionate number of minority referrals for special education services for what appears to be the result of poor academic performance when it is actually due to a lack of sufficient exposure to English and not a true learning disability (Rhodes, Ochoa, & Ortiz, 2005).

### **Cognitive academic language proficiency (CALP)**

While BICS addresses social language, CALP refers to formal academic learning (e.g., low-frequency vocabulary) which includes listening, speaking, reading, and writing about subject area material (Cummins, 2006; Rosberry-McKibbin, 2007). Students must demonstrate effectiveness in CALP proficiency in order to succeed in school.

Demonstrating proficiency in academic language acquisition takes longer to achieve than BICS; proficiency in CALP usually takes between five to seven years. However, research has found that it may take seven to ten years for English language learners (ELLs) to catch up to their peers if the child has no prior schooling or is simply not provided with the appropriate support system in native language development (Rosberry-McKibbin, 2007).

It is important for teachers to understand that academic language acquisition is more than just the understanding of content area vocabulary. CALP also includes skills involving comparing, classifying, synthesizing, evaluating, and inferring information (Cummins, 1984). Additionally, academic language tasks are context reduced; where information is read from textbooks or presented by the teacher. As a student gets older

and progresses through the grades, academic tasks become more cognitively demanding and more context-reduced (Cummins, 2006).

Differentiating between BICS and CALP is an important aspect of teaching diverse learners. Educators must understand that proficiency in BICS does not necessarily translate into proficiency in CALP. The results of a misinterpretation of this concept were demonstrated through research which found that in the U.S., language-minority students have frequently been assessed using IQ tests administered in English after only two or three years in the country; resulting in placement in special education classes based entirely on these test results. Moreover, research reported in the early 1980s in Texas revealed an alarming overrepresentation of Hispanic students in special education. More than three times as many Hispanic students were labeled as having learning disabilities when compared with the general school population (Ortiz & Yates, 1983).

Anderson (1997) provided considerations for evaluation of the second language student, among which is the statement that “The average student from the lower socio-economic area is below average compared to the general norm in oral language” (p.1). He also suggested that these students are functioning approximately one standard deviation below the average in the second language. Such a deficit acts as a barrier to grade level functioning. Anderson (1997) recommended that any assessment must consider regional variations in both the first and second language. Finally, Anderson (2004) outlined a series of steps to be taken to insure that cognitive or educational evaluations give full consideration to the differences in the students’ BICS and CALP

proficiencies. In this document, he outlined various specific assessment suggestions by grade levels to insure second language issues did not interfere with considerations for special education services.

### **Fostering the development of BICS and CALP for ELLs**

Educational, cultural and developmental considerations must be taken into account when applying the theory of BICS and CALP to classroom instruction for language minority children. These considerations should not be exclusively limited to the classroom, but should be implemented and reflected schoolwide. Perhaps the single most important concern is the schoolwide acceptance of a pedagogy that places value on the linguistic and cultural experiences that children bring with them to the classroom. A pedagogy that places value on prior experiences is “responsive” to the needs and the abilities of the learner. The promotion and acceptance of such pedagogy is based upon the understanding that knowledge about language, culture, and human values are constructed in home and community environments and that children’s development and learning is best understood as the interaction of past and present experiences and knowledge (García, 2001). Also, according to García (2001), educators, administrators, and diagnosticians alike must adopt the belief that learning occurs best when it is embedded in a context that is socioculturally, linguistically, and cognitively relevant for the child. A pedagogy that respects and values a student’s prior knowledge, including prior linguistic knowledge, will effectively assist the student in cognitive development in the second language.

As with culture, language is developed via family systems and the community. Language is a developmental process that usually begins at birth, is sequential, and builds upon itself (Ortiz & Dynda, 2005). In most cases, language is the primary means for establishing and negotiating meaning. It is intertwined with all prior communicative experiences and should therefore be accepted and utilized as a valid and valuable tool to promote the further development of the target language.

Expanding the theory of BICS and CALP to classroom instruction is based on the fundamental premise that students with limited English proficiency must first reach the “threshold” of native-language skills. Reaching the threshold of native-language proficiency in all domains, including listening, reading, writing and speaking, will equip the child with the language skills required to complete academic tasks with success and will promote the development of similar language-proficiency in English (Crawford, 1999). Cummins defines the threshold of native language proficiency as the level of linguistic competence that is sufficient to assist students in continuing their academic development. A child must obtain an adequate level of linguistic competence in his or her native language (L1) before a higher level of linguistic proficiency can be achieved in either the native language (L1) or the target language (L2) (MacSwan & Rolstad, 2005). Cummins maintains that children who are unable to reach the threshold level of development in the first language are likely to struggle academically in both languages (Crawford, 1999). What conditions and benchmarks must be present to reach the threshold level? If appropriately implemented, the following principals and their

practical implications form the pedagogical framework needed to obtain native-language proficiency (threshold level):

- The development of proficiencies in both the native language and English has a positive effect on academic achievement for bilingual students;
- Language proficiency is defined as the ability to use language for basic communicative tasks and academic purposes;
- For ELLs, reaching the “threshold” of native-language skills is “key” to developing similar proficiency skills in English;
- Comprehensible second-language instruction and a supportive environment provide the supports needed for the acquisition of basic communicative competency in a second language; and
- The perceived status of students affects the interaction among all members of the educational setting and thus affects student outcomes (Crawford, 1999).

Selected practical instructional implications for such pedagogy include the following:

- Instruction is provided in and through the native language;
- Initial reading classes and subjects requiring higher cognitive demands are taught in the native language;
- Students are provided with sufficient access to texts and supplementary materials in the native language;

- Instruction is provided by well-trained teachers with high levels of native-language proficiency; and
- Instruction is provided in the native language whenever possible rather than in a combination of the native language and English (Crawford, 1999).

#### Implications for individuals with special needs-mild mental retardation

So what does this all mean for students with special needs-mild mental retardation?

The potential application of BICS and CALP for individuals with mild mental retardation provides additional support for the many instructional practices already in place in a properly designed program. BICS and CALP can also help educators increase their understanding of the role of language in order to enhance the quality of their instruction for students with mild mental retardation. Since it is believed that CALP develops after BICS and is needed for skills involving formal academic learning, it can be inferred that increased proficiency in one (BICS), may lead to increased proficiency in the other (CALP). Increased CALP proficiencies may enhance additional cognitive processes such as the “storage” and “retrieval strengths” of memory function. Therefore by increasing CALP proficiencies, the teacher may be significantly increasing the child’s overall capacity to learn. The theoretical concept of BICS and CALP may also reveal the importance of using increased amounts of social language to facilitate the acquisition of academic language even after CALP has supposedly been acquired. Moreover, BICS and CALP reinforce the importance of using concepts to explain vocabulary and to model

logic. Finally, the application of BICS and CALP emphasizes the importance of using various levels of language to convey meaning. For example, there are co-notational learners and de-notational learners. Such a division may require a distinction between de-notational language and co-notational language. An example of this distinction would be teaching the description of a condition which we might call “dark.” Black is dark, brown is dark and grey can be dark. The word “dark” is a co-notational description of a particular condition. The de-notational description of the same condition requires more precision. In this instance, we might say that black is darkest; brown is the next most dark and grey is least dark. Such conditions are all described by the word “dark.” They are more accurately described by identification of the exact color that they represent. The learner with special needs can perhaps attain more precision of explanation by increasing the level of reification, through gradual associated of the relationship between the words. This effort enables the learner to bridge concepts with words of greater precision and clarity.

APPENDIX C

Letter of Permission from School Principal

**Plano West Senior High School**

Katherine King,  
Principal

5601 West Parker Road  
Plano, Texas 75093  
"Leading With Pride"

Phone: (469) 752-9600  
Fax: (469) 752-9601

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03/05/2010

To Whom It May Concern:

I am aware of the intervention (vocabulary flashcards) that Phillip Stager is using in his foreign language classroom here at Plano West Senior High School and he has my permission to continue with this intervention pending approval from the Plano Independent School District.

The Plano Independent School District will review this research for approval only after approval is first received from the Internal Review Board (IRB) of Texas Woman's University. Thank you for your consideration and please do not hesitate to let me know if you require further information.

Sincerely,



Carl G. Herrmann  
Associate Principal for Curriculum  
Plano West Senior High School

APPENDIX D

Letter from IRB



**Institutional Review Board**

Office of Research and Sponsored Programs  
P.O. Box 425619, Denton, TX 76204-5619  
940-898-3378 Fax: 940-898-3416  
e-mail: IRB@twu.edu.

April 1, 2010

Mr. Phillip Anthony Stager  
17951 Mary Margaret Street  
Dallas, TX 75287

Dear Mr. Stager:

*Re. The Effects of Using Flashcards to Develop Automaticity With Key Vocabulary Words for Students With and Without Learning Disabilities Enrolled in a High School Spanish Course*

The above referenced study has been reviewed by the TWU Institutional Review Board (IRB) and appears to meet our requirements for the protection of individuals' rights.

If applicable, agency approval letters must be submitted to the IRB upon receipt PRIOR to any data collection at that agency. A copy of the approved consent form with the IRB approval stamp and a copy of the annual/final report are enclosed. Please use the consent form with the most recent approval date stamp when obtaining consent from your participants. The signed consent forms and final report must be filed with the Institutional Review Board at the completion of the study.

This approval is valid one year from April 1, 2010. According to regulations from the Department of Health and Human Services, another review by the IRB is required if your project changes in any way, and the IRB must be notified immediately regarding any adverse events. If you have any questions, feel free to call the TWU Institutional Review Board.

Sincerely,

Dr. Kathy DeOrnellas, Chair  
Institutional Review Board - Denton

enc.

cc: Dr. Jane Pemberton, Department of Teacher Education  
Dr. Lloyd Kinnison, Department of Teacher Education  
Graduate School

APPENDIX D

Closing Letter from IRB





Institutional Review Board
Office of Research and Sponsored Programs
P.O. Box 425619, Denton, TX 76204-5619
940-898-3378 Fax 940-898-3416
e-mail: IRB@twu.edu

November 15, 2010

Mr. Phillip Anthony Stager

Dear Mr. Stager:

Re: The Effects of Using Flashcards to Develop Automaticity With Key Vocabulary Words for Students With and Without Learning Disabilities Enrolled in a High School Spanish Course (Protocol #: 16112)

The TWU Institutional Review Board (IRB) has received the materials necessary to complete the file for the above referenced study. As applicable, agency approval letter(s), the final report, and signatures of the participants have been placed on file. As of this date, this protocol file has been closed.

Sincerely,

[Handwritten signature of Kathy DeOrnellas]

Dr. Kathy DeOrnellas, Chair
Institutional Review Board - Denton

- cc. Dr. Jane Pemberton, Department of Teacher Education
Dr. Lloyd Kinnison, Department of Teacher Education
Graduate School