

**The Effects of Guided Visual Vocabulary Practice for Students with Learning
Disabilities on Learning Concrete Nouns in Spanish**

by

Joshua B. Tolbert

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Doctoral Committee:

Professor Belinda D. Lazarus, Chair
Associate Professor Martha A. Adler
Assistant Professor Francia E. Martinez Valencia

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Abstract

Inclusion of students with learning disabilities (LD) in foreign language courses has been challenging, particularly as educational institutions and statewide educational policies have included graduation requirements involving successful completion of foreign language courses. LD students experience individualized dysfunction of the central nervous system (CNS) which often creates obstacles to acquiring vocabulary in any language. CNS dysfunction and disruption of working memory often requires that multi-sensory strategies be employed to support students in academic content areas. Previous research has explored the impact of multi-sensory strategies to support LD students in foreign language courses and has often focused upon course completion, as opposed to the relationship of particular strategies to specific domains of language learning. Accordingly, the present study investigated the impact of a researcher-designed, multi-sensory instructional strategy called Guided Visual Vocabulary Practice (GVVP) on concrete Spanish nouns. Consistent with the individualized nature of special education, the study employed a single-subject, reversal design involving eight participants over a ten-week period. Student vocabulary learning was assessed by tabulating the number of Spanish words correctly identified from thematic groups and by examining performance on a comprehensive post-assessment. Individual performance was analyzed by visual inspection and comparison of mean for baseline and treatment periods. Overall effect size for the sample was computed using Cohen's *d*, which indicated a moderate effect

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size for the total sample. The greatest impact for GVVP occurred among the three middle school participants included in the sample. Suggestions for future replication studies and further research involving GVVP have been provided.

Keywords: learning disabilities, Spanish, vocabulary learning, single-subject design, multi-sensory

Chapter 1

Introduction

Individuals identified as having learning disabilities (LD) may experience difficulties related to language, resulting from dysfunction of the central nervous system (CNS). This CNS dysfunction often makes it especially challenging for students with learning disabilities to succeed with reading and the oral or written expression of language. Students with LD frequently experience anxiety and difficulty in learning a non-English language, as this may expose many of the same challenges of their native language, but without some of the benefits of consistent context or exposure. Students with LD have frequently been exempted from learning non-English languages (Schiff & Calif, 2004), but educational institutions and state agencies are increasingly requiring that all students gain proficiency in more than one language. According to the National State Council of Supervisors for Languages (2012), Michigan and at least 12 other states had instituted World Languages credit requirements for high school graduation by the year 2010, with other states considering similar requirements. These curricular expectations exist for all students pursuing a high school diploma, including LD students, who generally are intellectually capable of success when provided appropriate supports.

The challenges faced by students with LD in learning a non-English language have historically prompted reduced syllabi, waivers, and departures from traditional

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teaching to be utilized as possible accommodations (Amend, Whitney, Messuri, and Furukawa, 2009; Dal, 2008; Duvall, 2006; Ganschow & Schneider, 2006; Schwarz, 1997; Scott & Manglitz, 1997). Shaw (1999) emphasized that a minority of students with LD would likely never participate in the foreign language study required by many universities and college prep programs, though inclusion of the remaining majority of LD students should reasonably expect legitimate opportunities for success as part of an educational and ethical obligation.

Due to CNS dysfunction and limitations in working memory, multi-sensory instruction for LD students has often been integral to success in any academic area. Sparks and Ganschow (1993) determined that a multi-sensory approach to teaching phonological skills improved the phonemic awareness of students in both Spanish and English. Further studies have centered on multi-sensory instruction incorporating explicit phonological teaching (Ganschow & Sparks, 1995; Schwarz, 1997; Sparks & Ganschow, 1993) and indicated that LD students taught with multi-sensory strategies can achieve success comparable to peers receiving traditional instruction (Sparks et al., 1998). Recognizing the varied cognitive demands for LD students learning non-English languages (Kormos & Safar, 2008; Palladino & Cornoldi, 2004), multi-sensory approaches have also been promoted by Dal (2008) and Sousa (2001) and supported by the research of Amend et al. (2009). The existing body of research focused largely upon phonological skills, secondary and university students, and completion of courses. However, the need for more specific research on effective methods for acquiring foreign language vocabulary has been raised (Arries, 1999; Sparks & Javorsky, 1999). Research

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involving clear strategies for intervention can inform practice and more effectively address the specific needs of students with LD in inclusive foreign language learning.

Statement of the Problem

Successful inclusion of LD students in foreign language courses has become increasingly important, as has the need to better understand the relationship between instructional support strategies and specific areas of language study. Additional information about the learning of Spanish vocabulary by LD students of different ages concerning the impact of distinct multi-sensory approaches on identifiable aspects of language learning is necessary to continue developing methods to promote successful foreign language learning.

Purpose of the Study

This investigation examined the impact of Guided Visual Vocabulary Practice (GVVP) on Spanish vocabulary learning for LD students. GVVP is a method for teaching vocabulary and relies upon the use of templates (*Appendix D*) designed to engage students in listening, speaking, writing, and drawing. GVVP was developed by the researcher responsible for conducting the present study and no previous research or publications involving GVVP are known to exist.

A need for further research on effective strategies for acquiring vocabulary and attaining skills in English has been documented (Baker, Simmons, & Kame'nui, 1998; Snow, 2002), particularly as concerns students with LD (Jitendra, Edwards, Sacks, & Jacobson, 2004). The relevance of learning new vocabulary has been a crucial element of studies focused on Spanish-speaking students who are learning English (Gorman, 2012;

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Pollard-Durodola & Simmons, 2009). Despite the importance of vocabulary to students with LD and the process of learning a new language, studies directly addressing methods to teach foreign language vocabulary to students with LD were determined to be lacking. The present study collected information about the utility of GVVP as a strategy for students with LD to learn concrete nouns in Spanish.

Theoretical Perspective

The study proposed here is grounded in the theoretical perspective of disability inquiry, emphasizing the continual priority of appropriate inclusion for students identified with disabilities and all affiliated (Creswell, 2009). Both the research proposed and the relevant curricular expectations have been rooted in the need to include students with disabilities in the study of a non-English language to the greatest extent possible. Although the scope of the research is centered on LD students and one facet of the Spanish language, it should be understood that greater relevance is not necessarily sacrificed. As Anderson (2006) emphasized, “The experience of disability is relevant to all marginalized groups—*for all groups have people with disabilities in them*” [Italics in original] (p. 367).

Research Question

The focus of this single-subject, reversal design study was expressed with a single research question and a related directional hypothesis. The research question is expressed as follows:

What are the effects of Guided Visual Vocabulary Practice on the Spanish vocabulary learning of students with LD as compared to flashcards?

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The directional hypothesis relevant to the investigation is as follows:

The number of Spanish vocabulary words identified correctly will be higher during the GVVP conditions than during the Flashcards conditions.

Delimitations

1. The present research addressed the needs of a small population, namely students with specific language-based learning disabilities attending schools in Michigan. The specificity of the sites, the students involved, and the individual nature of learning disabilities would be difficult to replicate in other studies conducted in different contexts.
2. The present study centered on the language domain of vocabulary learning, specifically concrete Spanish nouns. Although data collected in the study may hold implications for reading comprehension or phonemic awareness, neither area was explicitly measured within the course of the study. The total amount of Spanish vocabulary relevant to the study consisted of 84 concrete Spanish nouns, organized into seven thematic units.
3. The investigation excluded students younger than the 4th grade level during the sample selection process. Younger students may not have possessed sufficient English vocabularies to participate meaningfully, or may have experienced greater interference from the introduction of an unfamiliar language. This criterion was also intended to acknowledge the meta-analyses conducted by Dexter and Hughes (2011) and Jitendra et al. (2004), which concerned research on students in grades 4 through 12. Wanzek, Wexler, Vaughn, and Ciullo (2010) further noted that there are limited studies on upper elementary students with reading disabilities, but that research involving students in

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grades 4 and 5 was deemed comparable to studies concerning students in grades in grades 6 through 12.

4. The distinction made by Krashen (1981) between second language acquisition and second language learning was considered in developing this study. As VanPatten and Benati (2010) detailed, second language learning often denotes a more explicit process of internalizing rules and information. For the purposes of this study, the *learning* of vocabulary is a more accurate description of the phenomenon being studied than language *acquisition*.

Chapter 2

Literature Review

The following review provides a summary of pertinent research on the relationship between CNS dysfunction, working memory, and learning of vocabulary for LD students. The use of this understanding to develop multi-sensory strategies, as well as the implementation of such strategies for foreign languages, led directly to the development of GVVP. Previous studies employing single-subject designs were also explored, emphasizing the applicability to both special education research and investigations of vocabulary learning. The synthesis of this body of work, including evident gaps in the research, informed the methodology of the present study.

Central Nervous System Dysfunction

Although students' struggles with learning or particular learning tasks are often evident, describing or understanding the disability is more complex. The Individuals with Disabilities Education Act Regulations (2006) defined a specific learning disability as "a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written" (§ 300.8[b] [10]), which may adversely impact a person's ability to read, speak, think, write, listen, or calculate. Since the earliest stages of parent advocacy and the passage of relevant legislation, there has

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been a sense of both urgency to recognize legitimate, intrinsic struggles with learning disabilities, and a difficulty in consistently defining or identifying the condition.

Presently, there is a general agreement that the definition of LD includes some form of persisting CNS dysfunction (Hammill, 1990; Morris, Schraufnagel, Chudnow, & Weinberg, 2009; National Joint Committee on Learning Disabilities, 1990; Rourke, 2005; Semrud-Clikeman, 2005). Contemporary efforts to meet the needs of LD students have built upon acknowledgement of fundamental neurological characteristics, as well as assessing specific challenges of individual students.

A Neurological Perspective: Working Memory

The present understanding of working memory may have major implications for the field of learning disabilities, particularly in different domains affecting reading. Willis (2008) indicated that current neurological imaging has demonstrated the multiple processes and neural regions involved in reading (beyond the left hemisphere), notably memory. An essential characteristic of LD is the inherent complexity and variation of individual cases, likely analogous to the complexity and variation which exists in individual brains. Kibby, Marks, Morgan, and Long (2004) illustrated this concept in discussing how children with a reading disability may capably perform individual reading tasks involving phonics and orthography, but experience difficulty when combining processes to execute the task of reading. This may be attributable to a dysfunction in the brain's central executive function, which organizes simultaneous tasks, and may incorporate both utilization of working memory and retrieval of information stored in long-term memory (Kibby et al., 2004).

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Semrud-Clikeman (2005) specifically cited working memory function as vital to gaining skills in reading because the ability to retain and manipulate information provides a foundation for other skills. A substantial body of research conducted by Swanson and others has explored the relationship of central executive functioning to learning disabilities, considering atypical coordination of cognitive operations as characteristic of students with learning disabilities (Swanson et al., 1996; Swanson et al., 1990; Swanson & Howell, 2001). Siegler (1988) posited that children who struggled with retrieval and memory attempted to compensate by employing a wider variety of strategies, often at the expense of fluency, and potentially at the expense of accuracy. Research conducted by Mabbott and Bisanz (2008) ultimately led to the conclusion that the performance of low-achieving students and LD students of similar age was largely identical, but the combination of diminished mastery and deficits in working memory distinguished students with learning disabilities from their peers.

In tandem with the complexity of the human brain and the myriad variations which can impact learning, the increasing demands in volume and detail of written language can also be problematic for students with learning disabilities (Berninger & May, 2011). Berninger and May (2011) corroborated the notion that students with learning disabilities were prone to atypical executive functioning, notably in the phonological or word form aspects of working memory. Berninger and May (2011) definitively stated, with clear implications for educational practice:

That is why many individuals with specific learning disabilities affecting word decoding and spelling may require and benefit from being taught self-regulation strategies and receiving continual teacher guidance for maintaining focus,

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sustaining work, switching between activities during reading and writing, and self-monitoring working memory over time. (p. 172)

Further emphasizing the importance of executive function and the multifaceted interactions throughout the brain, it was noted that interventions may aid a student in improving function in a specific process or region, while the dysfunctional connectivity or coordination among parts of the brain persists in causing difficulties (Berninger & May, 2011).

The use of brain imaging to examine and respond to learning disabilities has guided numerous studies concerning reading, allowing insights on the vast complexity of the brain when language is involved (Caylak, 2009; Joseph, Noble, & Eden, 2001; Ramus, 2004; Wandell, 2011; Ziegler, 2006). Joseph et al. (2001) emphasized the importance of recent advances in brain imaging technology in facilitating reading studies on children, allowing individual assessment instead of referencing previous, aggregated findings. The theory of specialized function in the brain was advanced by Zeki (2005), who frequently concentrated on the regions of the brain enlisted in visual processing. The specialization theory promoted by Zeki (2005) is related to, and potentially supported by, studies of reading dysfunction (Wandell, 2011). Wandell (2011) claimed that:

Both a task analysis of reading—see the word, hear the sound, understand the meaning—and the discovery of patients who see generally but do not see words efficiently—and must read them letter-by-letter—make the existence of circuitry specialized for seeing words possible. (p. 67)

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Accordingly, research concerning the visual recognition of words and the neurological relationship of the visual cortex with other regions of the brains indicates sensory considerations for the instruction and acquisition of reading skills and presents an area for further investigation (Wandell, 2011).

Dyslexia, as a specific learning disability, exemplifies the cognitive and sensory coordination which can be disrupted in an unpredictably individualized manner. Ramus (2004) purported that dyslexia could be described by three components: diminished phonological awareness, delayed retrieval of words, and deficiencies in short-term verbal memory. The relationship between memory and attention may also be a significant factor in language learning and pertinent to meeting the needs of students with LD. Robinson (2003) stated that working memory affected attention and the ability to organize actions, adding that less familiar or automatic tasks require heightened effort and attention. However, it was further argued that the capacity for attention is not inflexible and absolute, but rather that it may fluctuate based on arousal and stimuli (Robinson, 2003). When faced with novel and complicated tasks like learning new languages, individuals with dysfunctions of the central nervous system may have the capacity to devote memory and attention, but are arguably better served by heightened sensory engagement and mental arousal, such as that described by Medina (2008). Although neurological research has not produced a definitive answer, emerging research on memory and attention may contribute to the understanding of challenges faced by persons with learning disabilities in acquiring a foreign language. However, focused investigations remain to be conducted regarding the impact of multi-sensory experiences on learning, memory, and academic success.

Multi-sensory Approaches

The impact of multi-sensory approaches to learning can be particularly powerful for students with disabilities and may be correlated with aforementioned neurological processes, including memory. Medina (2008) unequivocally endorsed the use of multi-sensory presentation, citing research in which suggested enhanced retention of material and improved skills in solving problems. Moreno and Mayer (2007) examined the effects of interactive multimodal environments, which paired verbal and visual representations of content and relied upon the actions of learners, upon learning outcomes. The basic premise of interactive, multimodal learning relies on a cognitive-affective model in which varied information sources are selected, with the intention of being processed by the student's working memory, creating a more elaborate model in partial conjunction with knowledge stored in long-term memory (Moreno & Mayer, 2007). Medina (2008) was emphatic about both attention and memory, which decidedly relate to the multimodal learning examined by Moreno and Mayer (2007). Medina (2008) concluded that "The more elaborately we encode a memory during its initial moments, the stronger it will be" (p. 119).

The multimodal environments described by Moreno and Mayer could certainly be considered one example of this elaborate encoding which may promote learning. It has been suggested that interactive, multi-sensory environments can be beneficial to both instruction and assessment (Medina, 2008), as such situations can simulate authentic scenarios and can require increased repetition and interaction with peers and stimuli (Moreno & Mayer, 2007; Ridgway, Titterington, & McCann, 1999). Elaborate experiences and repetition are crucial to storage of new information and to the mental

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process of associating new input with previous knowledge (Gass & Selinker, 2001). As asserted by Gass and Selinker (2001), “Learning takes place as the network (i.e., the learner) is able to make associations and associations come through exposure to repeated patterns” (p. 216). The more frequent and vivid experiences which may occur in multi-sensory approaches may be particularly indispensable to individuals with dysfunctional central nervous system function, providing deeper encoding and increased opportunities for a learning process rooted in conceptual and experiential associations.

Multi-sensory approaches are generally considered to be indispensable to persons with learning disabilities in experiencing success with language, reading, and math, and participating appropriately in the standard curriculum. Additionally, several studies have explored the use of multi-sensory structured language (MSL) practices in Spanish courses and have resulted in positive learning outcomes (Ganschow & Sparks, 1986; Ganschow & Sparks, 1997; Sparks et al., 1992; Sparks et al., 1998; Sparks & Miller, 2000). Sparks and Miller (2000) summarized this body of research by asserting that multi-sensory instruction which systematically and explicitly used both English and Spanish could lead to significant gains in both native language and foreign language (FL) proficiency. Further, in implementing a multi-sensory approach to learn basic Spanish, which explicitly teaches phonology and promotes vocabulary practice for automaticity, research has indicated that LD students can meet course requirements and attain proficiency (Sparks & Miller, 2000).

Learning Disabilities and Foreign Language Study

The challenges faced by students with learning disabilities in the general curriculum may be paralleled by difficulty in more specialized content areas, with foreign language historically being considered an exceptional challenge. Barr (1993) stated that foreign language courses were particularly difficult for students with learning disabilities, and that success would be more difficult to attain beyond the introductory levels. Levine (1987) was even more emphatic, claiming that no other discipline was as threatening to individuals with learning disabilities as a foreign language. As noted by Scott and Manglitz (1997), these difficulties may arise because challenges faced in the native language will be carried over and possibly magnified. In addition to the cognitive demands of learning an unfamiliar language, increased anxiety and level of motivation have also been discussed as factors in the success of students with learning disabilities in a foreign language (Dal, 2008; Kormos & Safar, 2008; Scott & Manglitz, 1997). Ehrman (1996) similarly asserted, “I would add that difficulties in simultaneous processing and the various activities covered by the term *abstraction* [Italics in original], including ability to shift mental set, also affect language learning” (p. 268).

Related to the mental shifting described by Ehrman (1996), it is worth noting that the differing characteristics of two languages present inherent challenges, which may impact strategies for teaching and understanding. Spanish, for example, has more regular phoneme-grapheme correspondence than English. However, native speakers of Spanish with LD can still struggle with vocabulary acquisition because the phonetic consistency is not a substitute for exposure to print and oral language (Davies, Cuetos, and Rodriguez-Ferreiro, 2010). Jimenez, Siegel, and Lopez (2003) noted that difficulties faced by

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students with disabilities can be considered in the context of divergent language structures. English vocabulary acquisition may be improved by a visual-orthographic approach, whereas phonological processing can be more conducive to acquiring Spanish vocabulary (Jimenez, Siegel, and Lopez, 2003). Native English speakers with LD may therefore not only need to acquire new vocabulary, but also new strategies for learning Spanish words and aligning them with English words.

Because learning a foreign language presents complex obstacles, students with learning disabilities may benefit from a range of possible accommodations, including reduced syllabi, waivers, or deviations from more traditional teaching methods (Amend et al., 2009; Dal, 2008; Duvall, 2006; Ganschow & Schneider, 2006; Schwarz, 1997; Scott & Manglitz, 1997). Arries (1994) was emphatic about the urgency of developing university foreign language opportunities for LD students which transcended the reliance on course texts and relied upon multiple approaches or modalities. Although Sparks and Javorsky (1999) disputed some assertions of Arries (1999) regarding LD and foreign language study, there was ultimately no disagreement regarding the need to design courses and explore strategies to support students with disabilities.

While the challenges inherent to learning disabilities can certainly complicate the learning of a foreign language, accommodations and instructional strategies can be conducive to success. In one of the earliest documented investigations into students struggling with foreign languages, Dinklage (1971) determined that many of the Harvard students struggling with a foreign language were learning disabled persons who had previously utilized academic supports (and individual effort) to successfully surmount difficulties in English, while other students were likely persons with learning disabilities

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who had not previously been identified (Schwarz, 1997). O'Malley and Chamot (1990) cited studies involving elementary students who were able to be successful in learning a foreign language through explicit instruction in written expression, intensive vocabulary training, and use of multiple stimuli to build vocabulary and memory. In collaboration with a secondary Spanish teacher, Sparks and Ganschow (1993) utilized a multi-sensory approach rooted in the Orton-Gillingham philosophy and determined that this method of teaching phonological skills improved the phonemic awareness of students in both Spanish and English. Previous studies have concentrated on the importance of direct phonological instruction and multi-sensory approaches when teaching a foreign language to students with learning disabilities (Ganschow & Sparks, 1995; Schwarz, 1997; Sparks & Ganschow, 1993). Sparks et al. (1998) notably conducted a two-year study in which an at-risk group instructed with a multi-sensory approach was compared to a control group instructed with traditional methods. At the conclusion of the study, it was determined that the academic performance of the students taught with a multi-sensory approach was comparable to that of their high school peers taught with traditional methods. An implication of this particular study is that multi-sensory methods represent a valid intervention which can help students with LD to experience a level of success in a foreign language similar to that of peers without disabilities.

For students with learning disabilities, the presence of multi-sensory instruction is important in teaching any academic skill, and has been suggested to promote success in learning a foreign language. This may be partly attributable to the circumstances of learning a foreign language, as there is a need to mentally process differences in two languages, while retaining concepts inherent to one's first language (Ganschow &

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Schnieder, 2006). Ganschow and Schneider (2006) promoted the practice of multi-sensory instruction as a means of engaging multiple avenues of learning and enhancing memory, specifically by limiting the amount of material and explicitly presenting words or concepts. Dal (2008) posited the use of multi-sensory experiences and technologies as a natural fit with foreign language instruction and beneficial to LD students. The notion of enlisting technological aids and deliberately structuring experiences to aid students in traversing multiple languages can certainly be understood as a logical approach for any students of foreign languages, but it should be understood that structure, pacing, and sensory engagement are critical to the success of students with learning disabilities.

Current neurological research, specifically regarding working memory, has already begun to be integrated into practice in language learning for persons with learning disabilities. Amend et al. (2009) considered the previous findings of Dinklage (1971) and Ganschow and Sparks (1986) to explicitly address the needs of university students in foreign language learning, both with and without documented disabilities. Appropriately, learning strategies were devised which incorporated the multi-sensory enhancement of learning endorsed by Sousa (2001) and sequential strategies for vocabulary acquisition and studying which considered the limitations of working memory. The study conducted by Amend et al. (2009) was particularly notable in providing both accommodations (reduced scope) and implemented learning strategies (multi-sensory teaching with consideration of working memory). It was concluded that writing outcomes for these university students were not significantly different from students enrolled in Spanish courses without modifications, though the researchers did express caution about the possibility that reducing the scope of curriculum in a foreign

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language course could have the unintended consequence of sacrificing exposure to various facets of language for the sake of minimizing cognitive load (Amend et al., 2009).

Although recent research has identified connections between working memory and foreign language learning, Palladino and Cornoldi (2004) indicated that different studies have not consistently identified which functions or components of working memory might be most relevant to students considered to have foreign language learning disabilities (FLLD). By conducting two parallel experiments, Palladino and Cornoldi (2004) concluded that students with learning disabilities experience related problems in both native language and foreign language learning and that the difficulties experienced were not rooted specifically in visuospatial working memory. In summarizing the findings, it was stated that, “In conclusion, the present research offers further evidence of an impairment of the passive components of verbal working memory in FLLD children, typically associated with the phonological subsystem of working memory” (p. 149). Research conducted by Kormos and Safar (2008) reached similar conclusions in identifying that individualized variations in the relationship between working memory and phonological short-term memory may lie at the heart of learning disabilities which become evident in students learning a foreign language. Although general working memory and phonological short-term memory typically seem to work in tandem, Kormos and Safar (2008) asserted that “phonological short-term memory and working memory develop independently of each other in children and might cause different types of learning difficulties” (p. 267).

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Thinking or speaking in a foreign language has been proposed to demand a great deal of attention and limitations or dysfunctions in phonological short-term memory could also affect vocabulary acquisition, adversely impacting storage, retrieval, and fluency (Kormos & Safar, 2008). Ardilia (2003) also examined the notion of working memory as an intricate system which can experience adverse conditions for learning or cognition when individual parts or processes function atypically. Specifically, Ardilia (2003) concluded that working memory involved an executive function of the frontal lobe and a memory process related to the left temporal lobe, with a foreign language requiring heightened effort in dysfunctional systems for tasks of distinguishing or locating less familiar words. Essentially, Ardilia (2003) considered the heightened brain activation of bilinguals to be indicative of elevated demands in using more than one language, which may further illustrate why individuals with aberrant function of the central nervous system could experience elevated struggles when faced with an unfamiliar language.

Despite efforts to better understand the struggles of students with learning disabilities in foreign language courses and efforts to identify more effective approaches to instruction, wider recognition of this particular issue is frequently as elusive as any clear policy to promote success. Dal (2008) cited the results of a multinational survey exploring efforts to facilitate the participation of dyslexic students in foreign language classes. Although inclusion of students with disabilities was a popular practice, respondents in Austria, Denmark, and Iceland largely indicated that leadership or support for teachers and students was conspicuously absent (Dal, 2008). This is consistent with Abrams' (2008) determination that institutional practices to support students with disabilities in learning a foreign language may frequently be reactive or ill-defined,

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adding to uncertainty on the part of students and instructors. Duvall (2006) enumerated a multitude of accommodations, assessments, and instructional strategies which can be beneficial to individual teachers promoting true inclusion, while also acknowledging that all educators are equally cognizant or compassionate with respect to the issue of including individuals with learning disabilities in non-English language study. Dal (2008) reflected that schools have a general policy of including dyslexic students, but lack official strategies or policies for support.

Fortunately, research exists regarding how to teach students with learning disabilities, which can inform policies and efforts toward inclusion and successful learning. Ganschow and Schneider (2006) and Dal (2008) emphasized that many challenges faced by individuals with learning disabilities originate from difficulty with phonological awareness, which adversely impacts native and foreign language proficiency. Therefore, concerted efforts to improve phonological awareness may be considered essential to successful interventions, though Dal (2008) cautioned that students with disabilities may require additional time and repetition, along with explicit instruction of phonological awareness. In devising multi-sensory instruction, Ganschow and Schneider (2006) advised that sounds be taught with consideration of frequency of use, moving from simple to complex combinations and with numerous repetitions to promote memory encoding and automaticity.

The Keyword Method and Associations

Plass, Chun, Mayer, and Leutner (1998) posited that students learning a new language are operating with two distinct verbal systems, but a common system of visual

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imagery. Accordingly, translation was believed to support connections in the two verbal systems, with visual stimuli further serving to encode new words into memory (Plass et al., 1998). The research of Danan (1992) supported the dual-coding theory of Paivio (1990), leading Plass et al. (1998) to hypothesize that students acquire words in a foreign language efficiently by systematically connecting new vocabulary with words in their first language and with visual representations. A study conducted to test this hypothesis determined that student vocabulary achievement was maximized when both visual and verbal stimuli were present (Plass et al., 1998).

Drawing upon the classical use of mental imagery in learning, Raugh and Atkinson (1975) pioneered the use of the keyword method (KWM) to make auditory or conceptual associations between native language vocabulary and new words to be learned in a foreign language. The KWM initially relied mainly upon relationships of sounds and the fundamental idea of associating new words with a person's existing lexicon. KWM eventually expanded to include visual images and informed strategies used in attaining academic vocabulary beyond foreign language courses (Thomas & Wang, 1996). Mnemonic strategies involving keywords have also come to be viewed as effective vocabulary strategies for students with disabilities, particularly for learning concrete nouns (Bryant et al., 2003; Scruggs, Mastropieri, Berkeley, and Marshank, 2010).

Part of the applicability of mnemonic strategies like KWM for LD students, particularly in learning a foreign language, stems from the evident relationship to memory and retention. As previously noted, Gass and Selinker (2001) described the impact of repeated patterns and associations with existing knowledge upon the encoding of new information. Thomas and Wang (1996) generally endorsed mnemonic strategies

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as conducive to encoding memories and also provided support for mnemonic strategies involving images being employed with LD students. Shapiro and Waters (2005) implemented a keyword method to teach 30 Latin words to LD students and concluded that the approach was effective, particularly for younger students, though doubts existed about whether the approach promoted long-term retention. This is contrasted with a case study presented by Beaton, Gruneberg, and Ellis (1995) which indicated that an adult who learned foreign vocabulary with KWM was able to recall a significant amount of vocabulary ten years after instruction, and recalled additional vocabulary after minimal review. Wang, Thomas, and Oullette (1992) also addressed the role of KWM with retention of 22 French words, drawing attention to the possibility that vocabulary retention may be stronger when assessed immediately after instruction, as opposed to more delayed assessments.

One implication from research utilizing a mnemonic strategy like KWM in foreign language instruction is the suggested improvement in forward recall, or the production of an English word when provided with the equivalent in a foreign language (Pressley et al., 1980). Pressley et al. (1980) compared KWM to other methods of teaching 24 Spanish words to 6th graders, and determined that KWM was superior in facilitating forward recall. Crutcher and Ericsson (2000) similarly determined that a mediating agent, like a keyword, promoted success in recalling and producing the English equivalent of newly-introduced Spanish vocabulary. Lawson and Hogben (1998) and Wyra, Lawson, and Hungi (2007) documented studies with KWM, which indicated vocabulary growth and successful forward recall and addressed the existence of individual variance in the process of forming mental images.

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Mnemonic strategies may be considered part of a multi-sensory approach to vocabulary instruction for both native and foreign languages. Oullette's (2006) analysis of the role of vocabulary in reading skills considered that the relationship between text and oral language remains complicated and that research and instruction must account for a variety of skills and features of language. The interaction between sounds and symbols plays a crucial role, as does the notion of simultaneously expanding the number of vocabulary words and deepening comprehension of what words signify (Oullette, 2006). Research by Ransby and Swanson (2003) addressed the importance of recognizing words in order to promote comprehension for students with disabilities. Abbs, Gupta, and Khetarpal (2008) noted that vocabulary generally could still be learned without oral repetition, though repeating new words aloud promoted greater learning. Because LD students characteristically struggle to implicitly acquire vocabulary (Gersten et al., 2001; Jitendra et al., 2004), the use of strategies which make visual and verbal connections explicit is appropriate, particularly as concerns retention and connections to existing knowledge. Duyck et al. (2003) suggested that phonological codes, visual representations, and semantic representations all contributed to acquisition of language. Rosenthal and Ehri (2008) asserted that "The essence of vocabulary learning is linking pronunciations to meanings of new words in memory" (p. 187), a sentiment which was not exclusively descriptive of LD students, but certainly applicable.

Visual Strategies

In supporting LD students, the simultaneous presence of visual aids and vocabulary words is often essential as academic content becomes more specialized and dependent upon terminology. This is true of both foreign language and traditional

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academic subjects; Groves (1995) indicated that more new vocabulary and terms were introduced in a typical science unit than an analogous unit in a foreign language. A meta-analysis of special education interventions conducted by Scruggs, Mastropieri, Berkeley, and Graetz (2010) determined that strategies which relied upon visual organization were one of the evidence-based practices resulting in successful outcomes in a variety of settings and content areas. Bryant, Goodwin, Bryant, and Higgins (2003) emphasized not only the importance of vocabulary for LD students, but the necessity of interventions to employ strategies which engaged students in deeper meaning and recall. Mastropieri et al. (1985) concluded that a vocabulary strategy with a visual component had a larger effect size than direct instruction alone and Mastropieri, Scruggs, and Fulk (1990) determined that student performance was stronger for concrete nouns. Dexter and Hughes (2011) similarly noted that graphic organizers serve to make abstract or unfamiliar concepts more concrete by creating associations with pre-existing knowledge. Drawing on previous knowledge and promoting engagement are major themes of visual strategies, which Laufer and Osimo (1991) also noted could be achieved by using a cloze procedure, which relies upon a student providing missing words. A study attempting to teach 30 English vocabulary words to non-native speakers determined that manipulating the missing information of a cloze procedure promoted retention of new vocabulary.

The strategy of guided notes may benefit from student preference (Konrad et al., 2009), and can increase engagement while minimizing some of the challenges of memory and attention faced by LD students (Hammig & Orr, 2009; Patterson, 2005). Patterson (2005) demonstrated that guided notes can be effective for culturally diverse learners, as well as a plurality of disability categories. Implementing an explicit strategy of guided

note-taking has been demonstrated to benefit students of all ability levels, including persons with learning disabilities in inclusive settings (Lazarus, 1991; Lazarus, 1996). Heward (2001) suggested that guided note formats aid with allocation of memory and attention, by keeping students engaged and providing a way to access and anticipate the trajectory of a lecture. Konrad et al. (2009) were careful to note that guided notes can increase interest and can be adapted to course content and to teaching styles.

A meta-analysis of visually-oriented strategies for LD students conducted by Dexter and Hughes (2011) did not include foreign language courses, but did address a variety of traditional academic subjects. In numerous studies, a graphic strategy was used as the independent variable, with a researcher-generated measure serving as the dependent variable (Bos & Anders, 1990; Bos & Anders, 1992; Hudson, 1996; Ives, 2007; Reyes, Gallego, Duran, & Scanlon, 1989). Many of the aforementioned studies incorporated a visual strategy with explicit instruction or another component and the majority yielded moderate to high effect sizes.

Further Considerations for Visual Formats

McVicker (2007) indicated that the contemporary world makes both traditional literacy and visual literacy important for students. Comic strips, which are essentially hybrid texts containing both visual and verbal components, have provided support for struggling learners and a means of increasing student engagement (McVicker, 2007). Similarly, the vocabulary squares utilized by Hopkins and Bean (1998) employed a hybrid verbal-visual format to improve academic vocabulary, though without a narrative format like the comic strips used by McVicker (2007). The success noted by Hopkins

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and Bean (1998) for a visual-verbal hybrid correlated the findings of Plass et al. (1998), which indicated that learning new vocabulary with both visual and verbal elements was effective. Although neither Hopkins and Bean (1998) nor McVicker (2007) specifically addressed the needs of students with LD, the emphasis on alternative methods to support students not served by traditional approaches represented a parallel to the development of learning strategies for students with LD.

Because learning disabilities fundamentally derive from dysfunction of the central nervous system, including working memory, it is instructive to consider which forms and quantities of visual information might be most effectively used in designing research and instruction. Individuals with language based learning disabilities have been demonstrated to respond more positively to regularly spaced typefaces of the sans serif variety (Chodock & Dolinger, 2009; Evett & Brown, 2005; Hillier, 2008; McCarthy & Swierenga, 2010; Terepocki, Kruk, & Willows, 2002). Evett and Brown (2005) and McCarthy and Swierenga (2010) primarily addressed the matter of Web accessibility, concluding that lowercase fonts and the use of graphics were beneficial to individuals with disabilities. Hillier (2008) designed and tested two typefaces intended to help prevent visual confusion and letter reversals experienced by dyslexics, determining that familiarity and regularity of fonts were important characteristics.

Both Poncelas and Murphy (2007) and Terepocki, Kruk, and Willows (2002) investigated the role of visual perception in comprehension activities for individuals with disabilities. Poncelas and Murphy (2007) attempted a hybrid of sentences with explanatory symbols to support LD adults, though the minimal effectiveness uncovered should be qualified by noting that the sentences were abstracted from a political

manifesto and that no evident effort was made to systematically teach individual vocabulary words, instead embedding symbols in full sentences. Terepocki, Kruk, and Willows (2002) similarly employed full sentences, and concluded that children with LD may rely heavily on visual information to compensate for weaknesses in phonological processing.

Vocabulary Learning and LD

In the recent past, the teaching of vocabulary has been impacted by shifting priorities, and potentially has not been given sufficient emphasis (Sibold, 2011). Contrary to a tendency to view reading as the basis for building vocabulary, consideration is also being given to the role of vocabulary as a foundation for reading (Jimenez, Siegel, and Lopez, 2003; Rosenthal & Ehri, 2008). Reviews of research involving English language learners have demonstrated that visual aids, cognates, and explicit strategies incorporating prior knowledge are effective in teaching vocabulary (Blachowicz et al., 2006; Sibold, 2011). Amiryousefi and Ketabi (2011) noted the expanded attention to teaching vocabulary to learners with different needs, and the heightened emphasis on attention, engagement, and strategies like mnemonics which deepen experience with vocabulary. Folse (2004) endorsed the presentation of new vocabulary words in logical lists as a suitable introduction, with the understanding that continued elaboration would promote deeper associations and broader uses of new words.

Vocabulary is considered a domain of reading which is particularly problematic for LD students (Shamir, Korat, & Fellab, 2012; Simmons & Kameenui, 1990). In the process of reading, LD students typically do not learn words and meanings implicitly, nor

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employ effective strategies without being instructed (Gersten et al., 2001; Jitendra et al., 2004). Although English vocabulary can be identified as a specific area of difficulty, it does not exist in isolation from other aspects of language, or from vocabulary in other languages. Meschyan and Hernandez (2002) asserted that vocabulary is integral to establishing information in long-term memory, and that both phonological awareness and native-language vocabulary play a significant role in learning a foreign language. The pairing of English vocabulary and foreign language vocabulary has been deemed effective in previous research (Danan, 1992; Kaushanskaya & Marian, 2009, Plass et al., 1998), while a neurological study by McCandliss, Posner, and Givon (1997) indicated that words from an artificial language began to be processed by brain regions similar to those employed for English words after five weeks. In explaining their Natural Approach, Krashen and Terrell (1983) stated that recognizing and comprehending vocabulary was an integral component of learning a non-native language. Zimmerman (1997) observed that vocabulary generally was becoming an educational priority and unequivocally stated that vocabulary needed to be the focus of future research and practice in foreign language acquisition.

The learning of vocabulary has been deemed important for both struggling readers and students with identified disabilities (Jitendra et al., 2004) and continued research is needed on methods for improving vocabulary learning (Baker et al., 1998; Snow, 2002). Six studies reviewed by Jitendra et al. (2004) employed a combination of image and definition of target words and were deemed effective for helping LD students to learn vocabulary. Kinloch (2010) recommended deeper focus on a limited number of words as effective for all students, including those with disabilities.

The notion of concentrating on smaller quantities of crucial vocabulary words has been integrated into research using a select group of vocabulary as a dependent measure (Bos & Anders, 1990; Bos & Anders, 1992; Herbert & Murdock, 1994; Horton, Lovitt, & Givens, 1988; Koury, 1996; Mastropieri et al., 1985). This method is effective for both clearly defining dependent variables in research and the addressing the challenges of working memory faced by LD students. The practice of emphasizing and presenting clearly-defined groups of vocabulary words also parallels suggestions given by Blachowicz et al. (2006) and Folse (2004) that vocabulary words be organized into related groups. Gorman (2012) explicitly noted a unique interplay between vocabulary, working memory, and phonological awareness, further remarking a need for further research concerning children learning more than one language. Because vocabulary investigations for LD students require balance between unique student characteristics and interventions, Keel, Slaton, and Blackhurst (2001) utilized a single-subject research design.

Single-Subject Research

Like Keel et al. (2001), Meara (1995) endorsed the use of single-subject research to capture the more individual variations of vocabulary learning which might vanish in larger studies. Though traditionally used in native language studies, Meara (1995) noted that single-subject studies are comparatively rare in research involving foreign language acquisition, though sometimes utilized with bilingual children. Although single-subject design research has historically been a staple of behavioral studies, it has not typically been employed in educational research, though special education is a notable exception (Odom & Strain, 2002). Odom and Strain (2002) asserted that “The feature of single-

subject designs that makes them experimental is the demonstration of a functional relationship between the independent and dependent variable” (p. 154), which may support the use of single-subject designs for academic interventions. Reversal (ABAB) designs can promote claims of internal validity by way of collecting baseline data and ascribing changes in behavior to the introduction of an intervention (Tawney & Gast, 1984).

Scruggs et al. (1988) examined single-subject research specifically addressing language intervention, concluding that treatments which explicitly promoted generalization were more effective. Scruggs et al. (1988) identified several categories of interventions and documented that treatment effects were found in five of seven studies, which “employed a variation of the model-lead-test procedure found to be effective with handicapped children in a variety of instructional contexts” (p. 273). Although not all methods of generalization employed in previous research were identical or equally effective, “It was found that generalization training effects exceeded ‘train and hope’ methods at all levels of generalization type” (Scruggs et al., 1988, p. 277). The general themes of the research synthesized by Scruggs et al. (1988) provide both an early indication of the potential of single-subject designs and support for the utilization of direct instruction (Kamps et al., 2007; Martin et al., 2008) and language generalization (Allor et al., 2009; Cisero & Royer, 1995).

The utilization of a reversal (ABAB) design for single-subject research in special education has been attributable in part to Tawney and Gast’s (1984) assertion of valid conclusions rooted in clear delineations between baseline and treatment conditions.

Sideridis et al. (1997) employed an ABAB design to investigate the impact of class-wide

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peer tutoring on spelling performance, determining that peer tutoring in an inclusive environment promoted higher scores than working in self-contained settings. Hamilton, Seibert, Gardner, and Talbert-Johnson (2000) used an ABAB reversal design to examine the difference between student-generated notes and guided notes in terms of academic achievement. The study conducted by Hamilton et al. (2000) consisted of 22 total sessions, with baseline phases of five and six sessions, and treatment phases of eight and three sessions. McGrath, McLaughlin, Derby, and Bucknell (2012) utilized an ABAB design to analyze the impact of a visual strategy of practicing sight words for LD students. Visual inspection of the differences between baseline and intervention phases indicated a positive relationship between the teaching strategy implemented and improvements with sight words in the study conducted by McGrath et al (2012).

Typically, analysis of single-subject research has relied upon a process of graphic representation to illustrate the data and analyze the effectiveness of a treatment (German, 2002; Horner et al., 2005; Tankersley et al., 2008; Tawney & Gast, 1984). Maggin, Briesch, and Chafouleas (2012) analyzed the accountability-based standards of the What Works Clearinghouse regarding single-subject designs and concluded that:

The objective applications of various conventions of single-subject research such as design quality, visual evidence, and replication provides an empirically based and replicable method for determining whether a practice has sufficient support to warrant its use in schools and classrooms. (p. 10)

However, Beeson and Robey (2006) cautioned that “a visual analysis can be flawed, and the impression of a positive treatment effect may be false and lead to Type 1 error” (p.

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162), instead recommending a determination of effect size. The considerations of sample size and data analysis involved in single-subject research were evident in existing special education research, including studies on vocabulary acquisition, and were relevant to developing the methodology of the present study.

Chapter 3

Methods and Procedures

This investigation employed a single-subject, ABAB reversal design to examine the impact of Guided Visual Vocabulary Practice (GVVP) on the Spanish vocabulary learning of LD students. GVVP is a method for teaching vocabulary and relies upon the use of templates (*Appendix D*) designed to engage students in listening, speaking, writing, and drawing. GVVP was developed by the researcher responsible for conducting the present study and no previous research or publications involving GVVP are known to exist.

The total duration of the study was 10 weeks and eight students identified with specific language-based learning disabilities participated. The grade level of participants ranged from 5-12, representing all levels except the sixth and ninth grades. The relatively short span of the study was deemed appropriate for a trial of a novel instrument and instructional strategy, in consideration of evidence that vocabulary gains for LD students can be observable in a relatively short time, with regular and systematic practice (Bryant et al., 2003).

Participants

The eight participants were recruited from two different school districts in Michigan and a total of four different schools. Seven of the participants attended one of three schools within the same district, leaving one 7th grader recruited from a school in another district. Participants were enrolled in grades ranging from 5th through 12th and identified as LD. Efforts were made to select students reflecting the composition of the predominant school district in terms of gender and ethnicity. English was the first language of all participants and having little or no previous Spanish language experience was required to take part in the study. All but one participant were minors and signed assent forms (*Appendix H*) instead of consent forms. The signed consent forms from parents or guardians (*Appendix H*) were collected prior to beginning the study.

Student 1

Student 1 was a 10-year-old Caucasian male who was enrolled in the fifth grade at the time of this study. This participant was proud of his strength in mathematical computation, which he demonstrated to the researcher on several occasions. Based on limited information provided by the special education teacher, Student 1 was working through difficulty in reading fluency. After beginning the study, the researcher was informed that Student 1 had experienced the loss of a parent under tragic circumstances and that Student 1 sometimes was prone to conversational tangents of a morbid nature. During the course of the study, Student 1 tended to apologize profusely whenever getting distracted, and exhibited a tendency to rush or give up during assessments. However, he was observably enthusiastic about pronouncing Spanish words and illustrating them.

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Within the first month of the study, the paraprofessional who typically worked with Student 1 commented on the strong rapport he seemed to be developing with the researcher, as well as the effort Student 1 was making.

Student 2

Student 2 was a 10-year-old Caucasian male who was enrolled in the fifth grade class, attending the same elementary school as Student 1. Student 2's classroom teacher described him as highly cooperative and eager to please, a characterization the researcher observed to be accurate throughout the study. As with Student 1, the special education teacher provided limited information, but did convey that Student 2 was assessed with lower scores in reading comprehension. During sessions, Student 2 was consistently thoughtful about providing answers, and rarely rushed to guess a word. Early in the study, Student 2 demonstrated ineffective strategies, such as attempting to see through flashcards or trying to correlate Spanish words with English words beginning with the same letter.

Student 3

Student 3 was a 13-year old Caucasian male, and was currently enrolled in the seventh grade during the time of the study. Student 3 was agreeable and sometimes reserved; he often appeared particularly uncomfortable during the Flashcards One and Flashcards Two sessions. When presented with flashcards to practice independently, Student 3 rarely used the entire 10 minutes allotted, but typically looked through the cards and spent the remainder of the time curled forward with his arms crossed. The teacher of students with learning disabilities providing services conveyed that Student 3

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struggled to decode words in English and often had difficulty working on tasks independently. During sessions with GVVP, Student 3 seemed to be more engaged and cheerful, often volunteering observations and asking questions.

Student 4

Student 4 was a 13-year old female, and was enrolled in the seventh grade concurrent with the time of the study. Student 4 attended a different school district than the other seven students participating in the study, and sessions were conducted after the conclusion of the school day. Student 4 was of mixed ethnic background, born to a Caucasian mother and an American-born father of Mexican ancestry. Despite the heritage of her father, neither he nor any of his children spoke Spanish in the home, or had any formal experience studying the language. Student 4 expressed that she had an interest in learning Spanish, though she and her parents had concerns that Student 4's learning disability would impede the learning of another language. Specifically, Student 4 experienced mild difficulties with reading comprehension and more pronounced struggles with spelling and written expression. Student 4 appeared to be particularly adept at making observations and connections and frequently offered constructive feedback about the method and materials involved in the study.

Student 5

Student 5 was a 14-year old Caucasian female, and was currently enrolled in the eighth grade during the time of the study. The teacher of students with learning disabilities who worked most closely with Student 5 confided that despite being identified as LD, Student 5 was actually considered to be functioning more like a student

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with a cognitive impairment. Student 5 attended the same middle school as Student 3. Student 5 was unfailingly good-natured and often observably excited about learning new vocabulary words. When attempting to provide English equivalents of Spanish words, Student 5 would frequently think very hard and then make a statement like “I know it’s there, but it’s just not coming to me” or “It’s right on the tip of my tongue.”

Student 6

Student 6 was a 16-year old Caucasian female and was currently enrolled in the tenth grade during the time of the study. The special education teacher working with Student 6 provided a summary of her Individualized Education Program (IEP), which denoted comparatively low scores for both reading comprehension and written expression on the Woodcock-Johnson III Tests of Achievement. The IEP summary also noted that Student 6 was classified as having Attention Deficit Disorder (ADD). Student 6 attended the same high school as Student 7 and Student 8. Student 6 expressed a great interest in the visual aspect of working with GVVP and was perhaps more enthusiastic about an opportunity to draw than to learn Spanish words. Sessions with Student 6 occurred simultaneously with a second-year Spanish course taught by the researcher, and Student 6 quickly found a niche within the classroom; she often showed up and found her seat more promptly than students enrolled in the course. When working with Spanish words, Student 6 encountered the greatest difficulty in differentiating words with similar initial letters or sounds.

Student 7

Student 7 was a 17-year-old African-American female, enrolled in the 11th grade at the time the study was conducted. Notable areas of difficulty for Student 7 included reading fluency and written language; she expressed concerns about her spelling to the researcher on several occasions. Student 7 tended to be insightful and was possessed of a competitive personality, which manifested in both athletic success and high personal expectations. Throughout the sessions, Student 7 was vocal about her preference for the flashcards used in Flashcards One and Flashcards Two; she became frustrated and even obstinate when asked to work with GVVP. When the researcher inquired about this, Student 7 explained that she simply preferred her independence and compared the process to her athletic pursuits. As Student 7 described it, “I like running track better than basketball. When I succeed, it’s all about me, not the whole team.” Eventually, Student 7 further revealed that part of her frustration with GVVP stemmed from feeling that the drawings were a needless distraction and that the guided nature of the process activated academic insecurities. Student 7 expanded on her difficulties with writing and spelling during instances when the GVVP method required writing words in English, telling the researcher that “when you do it letter-by-letter, it makes me feel stupid.”

Student 8

Student 8 was an 18-year-old African-American male, enrolled in the 12th grade at the time of this study. The LD identification of Student 8 stemmed largely from difficulties with reading comprehension. Student 8 participated in this study during the final months of his high school career, completing his part in the research two weeks

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before graduation. Student 8 was highly committed to a leadership role in the school's ROTC program, and exuded a quiet confidence mixed with an unfailing respect for peers and teachers. Student 8 expressed a desire to enlist in the U.S. Marine Corps after graduation and related that he felt receptive to learning another language as part of his career goals. In the course of the study, Student 8 conveyed that his practice with memorizing ranks and procedures in ROTC may have contributed to his general ability to quickly and efficiently memorize vocabulary words.

Setting

Several settings were used in the present study. This variety of settings arose as a natural part of sampling participants from multiple grade levels. The daily schedule of the researcher, whose teaching duties were divided between a middle school and a high school, was also a factor in determining the location of sessions. A description of settings for students and grade levels is presented below.

Elementary School

Arrangements were made with school administration and the classroom teacher to work with Student 1 and Student 2 toward the end of their school day. When the researcher arrived, one of the two students would be called out of class to participate in a research session. Permission was granted to the researcher to conduct sessions in either the library or the speech therapist's office, as one of the two locations was almost always available during the latter part of the day.

Middle School

Student 3 and Student 5 attended the same school in which the researcher was employed teaching three middle school classes. Sessions with these two students were conducted in the classroom occupied by the researcher, during the last 30 minutes of the relevant class period. As a helpful coincidence, the classroom used by the researcher was adjacent to the special education classroom of Student 3 and Student 5 and shared a doorway. Arrangements were made for these students to come to the classroom of the researcher at a predetermined time and to travel with as little disruption as possible to both classes.

Student 4 attended a middle school in a different district than the other seven participants. Contact with Student 4 and her family had been initiated through professional networking on the part of the researcher and her participation in the study required meeting at a neutral site due to being unable to schedule meetings prior to the conclusion of the school day. For the sake of transportation and the safety of all parties involved, Student 4 was accompanied by either a parent or by her sibling who was over the age of 18.

High School

Sessions with the high school students were conducted in the classroom occupied by the researcher when providing instruction for two high school classes. Student 6 always attended during the final class of the day, and Student 7 always attended during the second-to-last class of the day. Both students preferred to work at a station in the back of the classroom, so as not to draw too much attention from the students enrolled in

the course. Student 8 had a more flexible schedule, and would usually participate in sessions at the end of the second-to-last class. On some occasions, he would participate in sessions during the final class of the day. Unlike the other two high school students, Student 8 preferred to work at the front of the room, next to where the researcher's desk was.

Research Design

Because the purpose of this study was to investigate the effects of a single, multi-sensory strategy on Spanish vocabulary learning for LD students, it was important to allow for individualized measures involving clearly-defined variables. A single-subject, ABAB reversal design was chosen as an appropriate means of comparing individual changes in academic behavior (Creswell, 2009; Tawney & Gast, 1984). The dependent variable, Spanish vocabulary learning, was defined as the number of Spanish words correctly translated from Spanish to English during oral assessments. A total of 84 concrete Spanish nouns were used in the study (*Appendix B*), comprising seven thematic groups. Students were continuously assessed on these thematic groups consisting of 12 Spanish words each, with different sets of words used in the baseline and treatment conditions. A cumulative post-assessment was administered during the final week of the study for the purpose of providing additional data on vocabulary retention and the ability of students to correctly recall translations in a generalized situation devoid of the aid of thematic groupings. Further data were collected through anecdotal notes and social validity questionnaires, intended to contribute elaborative details about the participants and their experiences, in addition to the measured performance of their abilities to

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correctly translate concrete Spanish nouns to English in relation to both GVVP and flashcards during oral assessments.

Experimental Conditions

Baseline. During baseline conditions (denoted as *Flashcards One and Flashcards Two*), students were presented with basic vocabulary flashcards, which contained the 12 words from one of the seven thematic units. The flashcards featured a Spanish word on one side, and the corresponding English word on the reverse (*Appendix G*). Flashcards were printed on sturdy cardstock paper to promote durability and opacity, with text printed in black 72-point Arial font. The researcher began each flashcard session by stating the thematic group and asking the participant to provide four examples of the theme in English. The researcher then showed the participant each of the 12 concrete nouns for the thematic group in and modeled the Spanish pronunciation.

Participants were then supplied with the flashcards and instructed to practice the vocabulary words independently for 10 minutes, timed by the researcher. During the independent practice, the researcher documented participant behavior and attended to the needs of the Spanish class in situations where research and instruction were occurring simultaneously. The researcher then retrieved the flashcards and asked participants to translate each of the 12 vocabulary words to English, as the Spanish words were read aloud from a randomized list (*Appendix F*). The total number of the 12 words correctly translated to English were tabulated and graphed. Students worked with each thematic vocabulary group for a total of five sessions; the fourth session was solely an assessment in which no flashcard review was conducted. When appropriate, anecdotal notes about

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participant responses and behaviors were made on both the margins of the randomized vocabulary lists (*Appendix F*) and in a small journal used for more detailed field notes.

Intervention with GVVP. The treatment or intervention phases (denoted as *GVVP One* and *GVVP Two*) involved the implementation of the GVVP strategy to introduce and practice Spanish vocabulary. This process is described in greater detail in the subsequent section entitled *Procedure* and detailed protocols for the completion of GVVP templates have been created (*Appendix E*). As with the baseline phases, students worked with each thematic vocabulary group for a total of five sessions; the fourth session was an assessment to determine what the student recalled from previous sessions during which no instruction with GVVP occurred.

Variables

The independent variable was considered to be the GVVP strategy, which uses an explicit approach to visually introduce and practice vocabulary. The GVVP template is a researcher-designed instrument of the variety described by Scammacca et al. (2007) and Wanzek et al. (2010) for studies intending to assess student achievement related to a set group of vocabulary words, rather than relying upon broader standardized measures which may not contain words learned by students. Each treatment session utilized a different version of the basic GVVP template (*Appendix A*), incorporating distinct and deliberate arrangements of words and images (*Appendix C*). In the process of completing each version of the GVVP form, individual participants received direct guidance in pronouncing and spelling Spanish words, spelling English words, and completing illustrations.

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The dependent variable is the measured vocabulary learning of students on a thematic list of 12 Spanish vocabulary words (*Appendix B*). Oral responses of participants were documented in reflection of the total number of the 12 relevant words accurately translated correctly to English. Responses were sought at the end of each GVVP session, with concrete Spanish nouns read aloud from a randomized list (*Appendix F*) to minimize the risk of results being skewed by order memorization.

The 84 Spanish vocabulary words serving as the dependent variable were chosen for a variety of factors. First, all of the Spanish vocabulary words chosen could be organized into seven categories of relevance to daily life: food, parts of a house, locations, school, body parts, clothing, and household objects. These thematic groupings were representative of categories of vocabulary outlined in the *Michigan World Languages Strategies and Benchmarks* (Michigan Department of Education, 2007) as necessary to achieve proficiency. Further, these words could be categorized as concrete nouns which are likely to be encountered frequently, a strategy endorsed in selecting vocabulary for instruction (Archer & Hughes, 2011; Gorman, 2012).

Additionally, these 84 words contained words of varying difficulty, ranging from Spanish-English cognates (words which are similar in both languages and have the same meaning) to Spanish words with no evident similarity to English. Explicit instruction involving cognates has been demonstrated to be beneficial to students traversing Spanish and English (Carlo et al, 2004; Gomez, 2010; Leafstedt & Gerber, 2005), and it was considered important to collect data related to student performance with both these similar Spanish words and with Spanish vocabulary which may potentially be more elusive. It should be noted that four of the words (11%) introduced with flashcards are

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considered cognates, while nine of the words (19%) introduced with GVVP are considered cognates. This discrepancy was considered in analyzing the results, particularly as concerns the post-assessment scores.

Instruments

GVVP templates. The GVVP template was designed to provide an elaborate experience conducive to memory and retention (Medina, 2008) and to allow for meaningful introductory experiences with novel vocabulary in thematic groups, as opposed to superficial recognition (Folse, 2004). The layout of a GVVP template relies upon a regular pattern and requires learners to provide crucial information as part of a guided process. This guided and focused approach has been determined to be effective when used with guided notes (Lazarus, 1991), which provide a standardized format, along with teacher cues and corrective feedback to support struggling learners (Hamilton et al, 2000). The GVVP template may also be seen as a more explicitly visual and structured version of the vocabulary squares employed by Hopkins and Bean (1998) and of mnemonic, associative methods like the keyword method (Raugh & Atkinson, 1975). However, while some associative methods may rely more heavily on learner-generated connections and memory, the GVVP template is designed to externalize and sequence that process and to additionally allow for the creation of a tangible record.

The basic GVVP template (*Appendix A*) is a simple, six-square grid in which each square provides space for a Spanish word, an illustration, and the equivalent English word. From this template, the thematic groups of 12 words were inserted into the template in two groups of six (*Appendix C*), with each square missing one of the three

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elements mentioned above. This instrument is the core of an instructional strategy informed by guided notes and other visual strategies intended to support LD students (Bryant et al., 2003; Dexter & Hughes, 2011; Heward, 2001; Lazarus, 1991; Lazarus, 1996). The instrument was designed by the researcher to examine a particular group of vocabulary words, keeping with conventions described by Scammacca et al. (2007) and Wanzek et al. (2010). The basic layout and any illustrations found in the GVVP templates were solely the work of the researcher. A previous version of GVVP was developed and informally implemented into practice with success during the 2011-2012 academic year, as part of the researcher's work in teaching Spanish in 65 elementary school classrooms. The first version of GVVP was well-received by students, but no systematic data collection occurred for that iteration of GVVP. The present study represents the first structured research on the method and its specific utility to students with LD.

The development of this instrument and the decision to employ it as part of strategy for vocabulary instruction stemmed from previous research which supported explicit instruction which incorporates multisensory components (Archer & Hughes, 2011; Bryant et al., 2003; Hopkins & Bean, 1998; Tomesen & Aarnoutse, 1998; White, Graves, & Slater, 1990). The GVVP template design was also intended to suggest the style of a comic strip, a format promoted by McVicker (2007) as an effective and visually appealing way to teach vocabulary to students.

The layout of the GVVP template emerged from consideration of common attributes of LD students as regards attention and working memory (Archer & Hughes, 2011; Shamir et al., 2012). The template revolves around a limited number of vocabulary

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words and facilitates guided completion as a participant moves left-to-right and top-to-bottom. In cases where Spanish or English words have already been provided by the researcher, lower-case letters have been employed as a means of more accurately representing printed words in a text or natural environment (Adams, 1990). Printed words in the GVVP template have been uniformly spaced using a sans serif font, as recommended for students with language-based disabilities (Chodock & Dolinger, 2009; Evett & Brown, 2005; Hillier, 2008; McCarthy & Swierenga, 2010; Terepocki, Kruk, & Willows, 2002). Sections of a template containing illustrations already provided by the researcher were intended as visually elaborate stimuli, recognizing that engaging experiences enhance attention and acquisition (Medina, 2008). However, efforts were made to create tonal differences so that the spaces for words and key figures in each section are lighter, creating contrast with the backgrounds. The borders of the GVVP template were printed in black with the intention of making the individual sections distinct and heightening the aforementioned sense of contrast.

Basic Spanish vocabulary flashcards. For the baseline sessions, basic Spanish vocabulary flashcards (*Appendix G*) were prepared and printed on white cardstock. Cardstock was selected for durability and for sufficient thickness to prevent students from looking through to the other side. The flashcards contained only text, with a Spanish word on one side of the cardstock paper and the English equivalent on the reverse. Text for all words was presented in an Arial font, conforming to the practice of using sans serif fonts to support students with dyslexia or other language-based learning disabilities (Chodock & Dolinger, 2009; Evett & Brown, 2005; Hillier, 2008; McCarthy & Swierenga, 2010; Terepocki, Kruk, & Willows, 2002).

Spanish vocabulary assessment forms. Forms for the assessment of Spanish vocabulary achievement consist of thematic groups of 12 Spanish words, derived from the 72 total Spanish vocabulary words used in the study (*Appendix F*). These forms were created by using and randomizing formula in Microsoft Excel to create different permutations of thematic vocabulary lists. Each of these forms was to be used only once during the study and with the option of using a different sequence of the forms with each of the eight participants. This instrument was designed to prohibit participants in the study from memorizing the order of vocabulary words.

Anecdotal information was collected on the assessment forms, as students' responses or behaviors during assessment were considered to be helpful in creating a more detailed impression of their performance. When students provided incorrect answers, the researcher would often write the answer given by the student in the right-hand margin of the assessment form. This practice revealed patterns, such as students answering with the same English words several times or answering with an English word that would suggest confusion with a similar Spanish word (i.e., saying *tie* for *camisa* instead of *corbata*). When students exhibited observable behaviors like fidgeting or answering very quickly, this was noted at the top of the assessment form. These annotations were not coded for specific themes, but the annotations were reviewed each week and significant trends were entered into the researcher's field notes.

Field notes. Throughout the study, the researcher kept field notes in a small journal with a section devoted to each student. This journal served not only as a tool to maintain a coherent record of the aforementioned observations from assessments, but also to record details which emerged during the study. For example, when students

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independently identified a strategy or connection between Spanish and English words, the details were documented. Any information obtained from contact with participants, teachers, and/or parents was recorded. Excerpts from the field notes were used both in providing descriptions of the students and contributing additional details to the presentation and discussion of research findings.

Interobserver agreement forms. Because the present study represents a field test of a teaching method developed and implemented by the researcher, collecting interobserver data was considered important. Interobserver agreement data were collected for participant responses and to indicate the fidelity with which research procedures were implemented. Participant responses were recorded on duplicate copies of the randomized vocabulary forms (*Appendix F*), which were supplied to observers. Implementation of research procedures was assessed using procedural compliance checklists (*Appendix K*), which listed the relevant criteria for a session. Separate forms were created for flashcards and GVVP sessions, as the procedures varied and depended upon the type of session being observed.

Four different individuals provided interobserver data and were selected on the basis of availability, willingness to participate, and being at least 18 years of age. Two observers were relatives of Student 4, as those sessions were held at a neutral site and an adult relative was present. The other observers were a teaching colleague of the researcher and a retired parent of the researcher. The researcher trained observers in the use of the forms and clarified procedures prior to collecting data. During the assessments of participant responses, observers were to use only the answer given by participants before moving to the next item; correct answers recalled later were noted but not counted.

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When determining procedural fidelity, any instances of doubt or deviation were to be documented on the forms.

Post-Assessment. One week after the completion of 35 sessions, each student completed an oral post-assessment in three parts. The 84 vocabulary words in the study were divided into three lists of 28 words (*Appendix H*), which had been randomized using a formula in Microsoft Excel. The groups of 28 words all contained 12 words covered in the Flashcards One or Flashcards Two conditions, as well as 16 words covered in either the GVVP One or GVVP Two conditions.

Social validity questionnaires. Questionnaires were created to gather information from major stakeholders in the study (*Appendix J*), which is considered social validity data. Social validity data in special education are intended to provide details about an intervention describing the perceptions of those to whom the intervention was most relevant (Thomas, 2007; Turan & Meadan, 2011). Specifically, social validity “assesses the viability of an intervention and not its effectiveness” (Thomas, 2007, p. 263). The researcher therefore drafted and distributed social validity questionnaires to assess the impressions of the study held by participants and their parents and teachers.

The format of the forms for stakeholders was directly adapted from materials developed and utilized in gathering social validity data for a dissertation in special education by Lo (2003). Some general items used by Lo (2003), such as “What did you like best about the program?” were employed in creating the questionnaires used in the present study. Frequently, the researcher included items specific to the present study, such as the degree of agreement with the statement “I am glad my child participated in

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this Spanish vocabulary program.” Items intended for students focused on their direct experiences with the methods and vocabulary used in the present study, whereas items intended for parents and teachers were intended to address their perceptions of the appropriateness of the present study for the participants involved.

The social validity questionnaires intended for students contained fewer questions and largely intended to discern what they liked or disliked about the study. The teachers of Student 1, Student 2, Student 3, and Student 5 allowed these participants to complete the questionnaires during class and agreed to offer assistance with reading the questions. The remaining participants were given the option of the researcher or another teacher clarifying any words or questions. The teachers were primarily asked to describe the appropriateness of the study, and instructed to respond “Neutral” to any question they didn’t feel they possessed sufficient information to answer. Like the parents, most of the pertinent teachers had been given a general overview of the study and methods, but were not intimately familiar with details of the study and methods. Both teachers and parents were asked to describe the degree to which students participating in the study had communicated specific information about the process. Parents were asked to provide perspectives on any impact the study may have had on their child’s attitude toward learning Spanish, as well as any changes in social or academic behaviors which might have coincided with the study. Although parents didn’t necessarily have expertise in the Spanish language, their impressions of the progress of their children in learning vocabulary were considered notable as admittedly limited opinions about what and how their children were learning.

Procedure

Due to the limiting criteria for participants in the study, it was necessary to seek more than one site for research. Written permission was sought and obtained from site administrators, who had been furnished with a detailed summary of the study and information relevant to IRB approval. Special education teachers were then contacted and informed of the details of the study as part of the process of recruiting participants. A total of five special education teachers agreed to assist with locating students who met the criteria for the study and facilitated contact between the researcher and the potential participants and families. Prospective participants were supplied information about the nature of the study and IRB approval in a face-to-face introduction and invited to participate. The parents of interested participants were contacted with relevant information about the study and were given the opportunity to ask questions. Parental consent forms were then collected, followed by student assent forms, allowing the study to formally commence.

Pre-assessments were conducted with all eight participants and it was ensured that they could recognize the English equivalents of the Spanish vocabulary words selected for the present study. All participants worked with the same set of 84 concrete nouns, divided evenly into seven thematic groups comprised of 12 words. The same sequence and procedure was followed with all eight participants; an overview of the general timeframe and structure appears in *Table 1*.

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Table 1

Overview of Sessions for the Study

Thematic Group	Sessions Allotted	Typical Sessions/Week	Instructional Method	Typical Duration
Foods	5	4	Flashcards	1.2 Weeks
Rooms in a House	5	4	Flashcards	1.2 Weeks
Locations	5	4	GVVP	1.2 Weeks
Classroom Words	5	4	GVVP	1.2 Weeks
Body Parts	5	4	Flashcards	1.2 Weeks
Clothing	5	4	GVVP	1.2 Weeks
Household Items & Pets	5	4	GVVP	1.2 Weeks
Totals	35			8.4 Weeks

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All sessions began with a common anticipatory set, regardless of whether flashcards or GVVP was being used. Each session began with the researcher telling the participant the thematic group for the words being covered. When beginning a new thematic group, students were asked to brainstorm four examples of English words which would fit that theme. Participants were told if any of their examples were among those selected by the researcher as part of the study. In sessions during which participants were continuing to work with a thematic group, the researcher initiated the session by asking the participant to recall four English words representing concrete Spanish nouns previously covered in that particular thematic group. This procedure allowed for all sessions to begin with a consistent pattern which could suitably be followed by practice with either flashcards or GVVP.

The first stage of the study was a 10-session baseline measurement of each participant's progress with Spanish vocabulary words. This stage was termed *Flashcards One* and consisted of the Spanish word groups for foods and parts of a house. The process involved was described previously in the *Baseline* section and centered on the students independently practicing vocabulary with flashcards for 10 minute intervals. Prior to independent practice, the researcher stated the thematic group and asked the student to brainstorm four English words relevant to the theme. Each Spanish word was subsequently shown to the participant and pronounced aloud by the researcher.

Following the independent flashcard practice, students were asked to orally translate each thematically-grouped Spanish vocabulary word to English, with the researcher recording the total number of correct responses. The researcher methodically proceeded through the list of words and did not confirm or praise correct answers, but did

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periodically offer students praise for observable efforts. Statements of praise were timely and specific, such as “You made good effort coming up with that answer.” Succinct praise related to effort has been demonstrated to be appropriate for students learning new material or skills (Mueller & Dweck, 1998). This practice of providing praise for effort was also intended to promote standardization of assessment and this format was explained to each participant prior beginning the first session in *Flashcards One*.

The GVVP strategy was introduced to each participant after the first 10-session baseline period using flashcards, or *Flashcards One*. This phase of the research was termed *GVVP One*, and involved the Spanish vocabulary for the thematic groups of locations and classroom words. Each participant received 10 individualized GVVP sessions, with each lasting approximately 30 minutes. *GVVP One* sessions utilized a different permutation of the relevant templates related to the thematic groups of locations and classroom vocabulary during four of the sessions, with one session as a simple assessment involving no treatment or review. During *GVVP One* sessions, the participant and researcher sat side-by-side to view the GVVP template in the same orientation. Oral assessments at the end of each session were conducted face-to-face.

In the first session pertaining a new thematic group, the researcher told the participant the theme (e.g., locations) and asked the participant to give four examples of English vocabulary words for the theme (e.g., house, airport, beach, and school). In the remaining sessions for each theme, participants were asked to recall four English equivalents of the Spanish vocabulary words covered in the previous sessions.

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During each *GVVP One* session, students moved through the grid one square at a time, with guidance from the researcher (as described in *Appendix E*). When a Spanish word was already present in the first box, the researcher pronounced each syllable aloud and then had the participant practice by repeating. This process of guided syllabic pronunciation was followed until the complete Spanish word was pronounced correctly. Then, the researcher pointed the participant to either an illustration or an English word connected to the Spanish word. If an illustration was missing, the participant was given a maximum of three minutes to draw their own representation of the noun already represented by Spanish and English words. If an English word was missing, the researcher ensured that the participant correctly spelled the English word letter-by-letter in the space below the illustration by dictating each letter aloud. In cases where the Spanish word was missing, the researcher instructed the participant in syllable-based spelling, and then modeled pronunciation for the participant to practice.

Every *GVVP One* session concluded with an oral assessment consisting of the 12 thematic Spanish vocabulary words covered during the session. The researcher read each Spanish word from a randomized list (see *Appendix F*) while facing the student. The student was asked to provide the English equivalent of each Spanish word, to assess recognition, with each item marked as correct or incorrect. Consistent with the established procedure, the researcher methodically proceeded through the list of words and did not confirm or praise correct answers, but did offer students praise for observable efforts to recall the English equivalents.

Following the first 10 *GVVP* sessions, the reversal to a five-session baseline phase with flashcards was introduced. This phase was termed *Flashcards Two*, and the

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thematic group selected for this reversal phase was vocabulary related to parts of the human body. These five sessions adhered to the same procedures as the *Flashcards One* sessions, but incorporated a different group of words.

After the five-session reversal to flashcards in *Flashcards Two*, students returned to the final 10-session GVVP phase. This phase of the study was termed *GVVP Two*, and five sessions each were devoted to the thematic vocabulary groups of clothing and household objects. The procedures for completing *GVVP Two* templates and assessing student performance were consistent with those employed in the *GVVP One* sessions.

Once the combined total of 35 flashcard and GVVP sessions had been completed, each student was given student and parent questionnaires (*Appendix J*) intended to provide social validity data. Social validity questionnaires for teachers (*Appendix J*) were distributed to the five relevant special education teachers and, in the case of the two elementary students, the regular classroom teacher. After a delay of approximately one week, students were asked to complete a comprehensive assessment consisting of all 84 study words organized into three randomized and evenly distributed lists consisting of both baseline and GVVP words (*Appendix H*). Data collected from this post-assessment were compared to each student's previous performance in the study as a means of further analyzing individual retention and ability to recall English meanings of the Spanish vocabulary in a more generalized format.

Data Analysis

Consistent with prior single-subject research, each assessment score for individual participants was plotted on a graph, with trends and changes examined and documented

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(German, 2002; Hapstak & Tracey, 2007; Saddler et al., 2008; Tankersley et al., 2008; Tawney & Gast, 1984). Visual inspections were conducted for each individual participant to identify and describe any observable differences between the two experimental conditions. A visual comparison of the collective set of participant graphs also was utilized to identify similarities and differences among the eight individuals.

Computation of individual and group means was determined to be a major component of data analysis. Individually, the mean scores for the treatment phase were compared to the mean for the baseline phase. The collective treatment and baseline means for all eight participants were used to calculate a total effect size for the study. Effect size was expressed by computing Cohen's *d*. Cohen's *d* was derived by subtracting the baseline mean from the treatment mean, and then dividing that difference by the standard deviation (Gravetter & Wallnau, 2011).

Item analyses were also be performed on the body of assessment forms collected for each participant. If patterns existed (e.g., proficiency with cognates, confusion of words with the same initial letter, or consistent challenges with the same words), the tendency of individual item analyses to provide richer detail on a particular case was considered informative. In order to examine the results of these post-assessments, summaries for each student were created (*Appendix L*). The summaries were arranged in descending order with the most recent words presented at the bottom of the page. Words were organized into two lists, one for flashcards words and one for GVVP words. Vocabulary words considered to be Spanish-English cognates were identified, and the number of times each word was correctly answered during sessions was given. Finally, words answered correctly on the post-assessment were marked with a "Y," in order to

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facilitate an understanding of the quantity of words answered and to visually represent correlations between correct answers and the time elapsed since introducing the words.

Finally, anecdotal notes from assessment forms and the researcher's field notes were utilized in contributing both biographical data and additional perspective on student performance. In some cases, direct quotes from the participants were used to provide additional details. Recurring patterns from the assessment forms were not coded, but the forms were examined weekly and themes were documented in the field notes. Relevant information from interactions with teachers or other professionals were documented in the field notes and have been integrated into the discussion in order to provide further details about the participants or the research process.

Ethical Considerations

The foremost ethical concern considered in the present study regarded the uncertain nature of the treatment and its relationship to the established needs of the students. Succinctly, the study sought the participation of students who already struggle with language and there was no assurance that the treatment will ultimately help them. Although the research represented a good faith effort to find new avenues for intervention, it cannot be claimed that the approach being taken was a tested, research-based strategy to improve students' abilities in their native language; there are existing options which are arguably more reliable. The population of interest is one which has experienced barriers to inclusion, representing some of the most vulnerable students possible. Because many of the participants' sessions occurred in classrooms with peers simultaneously involved in Spanish instruction, due focus was placed upon

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confidentiality regarding the specifics of the study and ensuring that participants did not experience negative social interactions or undue discomfort in the learning process.

The independent variable to be introduced in the treatment phase was a visually-oriented vocabulary strategy deemed to be largely benign and unlikely to cause harm. In furnishing informed consent forms to parents and in seeking assent from students, the potential risks or stressors involved were detailed, including the possibility of frustration or confusion with language. Institutional Review Board (IRB) approval was obtained, and assurance was given that participants could withdraw voluntarily at any stage of the research. Confidentiality was guaranteed and considered to be particularly important for a vulnerable population already assured legal protection and confidentiality under existing legislation, including IDEA-2004 and Section 504 of the Rehabilitation Act of 1973. All students who participated were assigned a signifier with a random sequence of two letters and three numbers. This signifier was used on all documents used in the study to further ensure confidentiality. Participants and guardians were informed in writing that all collected data, after analysis, will be kept for five years, and then destroyed as recommended by Sieber (1998).

Chapter 4

Presentation and Analysis of Results

In this chapter, the data collected to address the research question and related hypothesis are presented. For each student, data are presented in the forms of graphs, tables, and brief narratives. Individual student data are presented to facilitate comparison across the four treatment conditions: Flashcards One, GVVP One, Flashcards Two, and GVVP Two. Means and ranges for each condition, as well as totals for each condition, are presented as a basis for analysis. Data related to social validity questionnaires and anecdotal notes are also presented in this section.

Research Question

The research question guiding this study pertained to the impact of Guided Visual Vocabulary Practice upon the learning of Spanish vocabulary words, in contrast to the use of flashcards as an instructional strategy. Specifically, the research question was stated as:

What are the effects of Guided Visual Vocabulary Practice on the Spanish vocabulary learning of students with LD as compared to flashcards?

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Related to this research question, a directional hypothesis regarding the difference between the two conditions was selected. This hypothesis was stated as:

The number of Spanish vocabulary words identified correctly will be higher during the treatment conditions than during the Flashcards conditions.

Data were collected from each of eight individual students, during four to five sessions each week, over the course of eight weeks. One week after the completion of 35 sessions, students were asked to participate in a comprehensive post-assessment over the course of three separate sessions. The post-assessment covered all 84 words introduced to participants during the study, which had been randomized and grouped for equal proportions of words studied with Flashcards and GVVP. Students, parents, and both special and general education teachers were given an opportunity to complete questionnaires, which provided further data related to the social validity of this research.

All eight students completed the entirety of the study, including the eight weeks of Flashcards and GVVP sessions and the post-assessment. Data relevant to each student's scores for each session are graphed, with delineations between Flashcards and GVVP conditions to facilitate visual analysis of effect. Ranges and means for each discrete condition, as well as totals for Flashcards and GVVP conditions are presented in tabular form.

Student 1

Student 1 was a 10-year-old Caucasian male enrolled in the fifth grade. Data reflective of the performance of Student 1 in individual sessions are presented in Figure 1. Table 2 presents a summary of the ranges and means further describing Student 1's

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performance in associating Spanish words with their English equivalents. The data presented allow for comparisons between conditions with Flashcards and GVVP.

Anecdotal information has also been included, as to describe the performance of Student 1 in greater detail.

Session overview. Student 1 participated in all 10 of the Flashcards One sessions, and all five sessions for Flashcards Two. Student 1 participated in nine of the 10 GVVP One sessions, and all 10 sessions for GVVP Two. In the Flashcards Two condition, Student 1's scores ranged from 0-5 words correct (out of 12), with a mean score of 1.6 words correct. During the GVVP condition, Student 1's scores ranged from 0-4 words correct (out of 12), with a mean score of 1.42 words correct.

Visual and numerical comparison of Student 1's performance indicate that GVVP was not significantly more beneficial than flashcards in learning Spanish vocabulary; means and ranges for both conditions were very similar. Overall, Student 1's scores were consistently lower than what would be considered successful in a classroom environment. Results from the post-assessment showed Student 1 correctly translating only seven of the 84 Spanish vocabulary words, with all correct answers being categorized as strong Spanish-English cognates or words covered most recently.

Anecdotal information. During the course of the study, Student 1 demonstrated frequent distractibility, though he was also observably enthusiastic about pronouncing Spanish words and illustrating them. Within the first month of the study, the paraprofessional who typically worked with Student 1 commented on the strong rapport he seemed to be developing with the researcher, as well as the effort Student 1 was

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making. Unfortunately, this enthusiasm never manifested as anything beyond minimal progress with the Spanish vocabulary central to the study.

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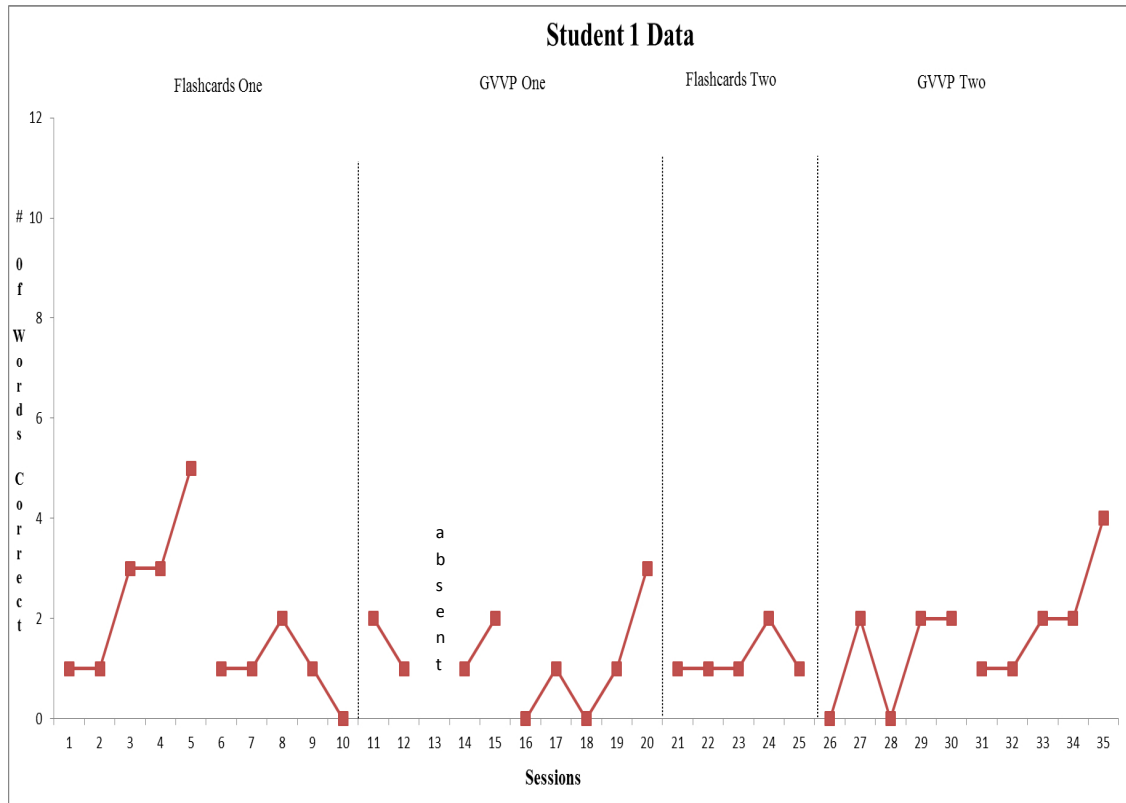


Figure 1. Number of Spanish vocabulary words correctly translated by Student 1 during sessions with flashcards as compared to sessions with GVVP.

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Table 2

Means and Ranges for Number of Spanish Vocabulary Words Correctly Translated to English by Student 1 for Flashcards and GVVP Sessions

Condition	Mean	Range
Flashcards 1	1.8	0-5
GVVP 1	1.22	0-3
Flashcards 2	1.2	1-2
GVVP 2	1.45	0-4
Total Flashcards	1.6	0-5
Total GVVP	1.42	0-4

Student 2

Student 2 was a 10-year-old Caucasian male enrolled in the fifth grade. Data reflective of the performance of Student 2 in individual sessions are presented in Figure 2. Table 3 presents a summary of the ranges and means further describing Student 2's performance in associating Spanish words with their English equivalents. The data presented allow for comparisons between conditions with Flashcards and GVVP. Anecdotal information has also been included, as to describe the performance of Student 2 in greater detail.

Session overview. Student 2 participated in all 10 of the Flashcards One sessions, and all five sessions for Flashcards Two. Student 2 participated in all of the 10 GVVP One sessions, and all 10 sessions for GVVP Two. In the Flashcards condition, Student 2's scores ranged from 0-6 words correct (out of 12), with a mean score of 3.06 words correct. During the GVVP condition, Student 2's scores ranged from 1-9 words correct (out of 12), with a mean score of 5.0 words correct.

Visual and numerical comparison of Student 2's performance would indicate that GVVP was slightly more effective than flashcards in promoting Spanish vocabulary learning. However, it should be noted that the mean score of five words correct (41.6 %) would still correlate with a score well below a passing grade in a classroom setting. Scores for Student 2 largely increased during the final sessions comprising the GVVP Two condition, which may indicate a gradual trend toward progress as Student 2 was becoming more familiar with the process and with elements of the Spanish language. Post-assessment performance indicated stronger performance on the material from the

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most recent GVVP Two sessions, as opposed to material from GVVP One. Although scores were typically higher during GVVP Two, recognition likely correlates to time elapsed given that GVVP Two words were correctly translated more than twice as often as GVVP One words. On the post-assessment, Student 2 correctly translated most of the 13 total Spanish-English cognates from both Flashcards and GVVP conditions; only *hamburguesa* and *aeropuerto* were translated incorrectly. Correct translation of Spanish words like *pelo*, *zapatos*, *dormitorio*, *biblioteca* could be indicative of deeper retention, as these words are not similar to their English equivalents.

Anecdotal information. Early in the study, Student 2 demonstrated ineffective strategies, such as attempting to see through flashcards or trying to correlate Spanish words with English words beginning with the same letter. He gradually began to independently develop more effective strategies, like saying words aloud while reviewing flashcards or identifying which words were Spanish-English cognates.

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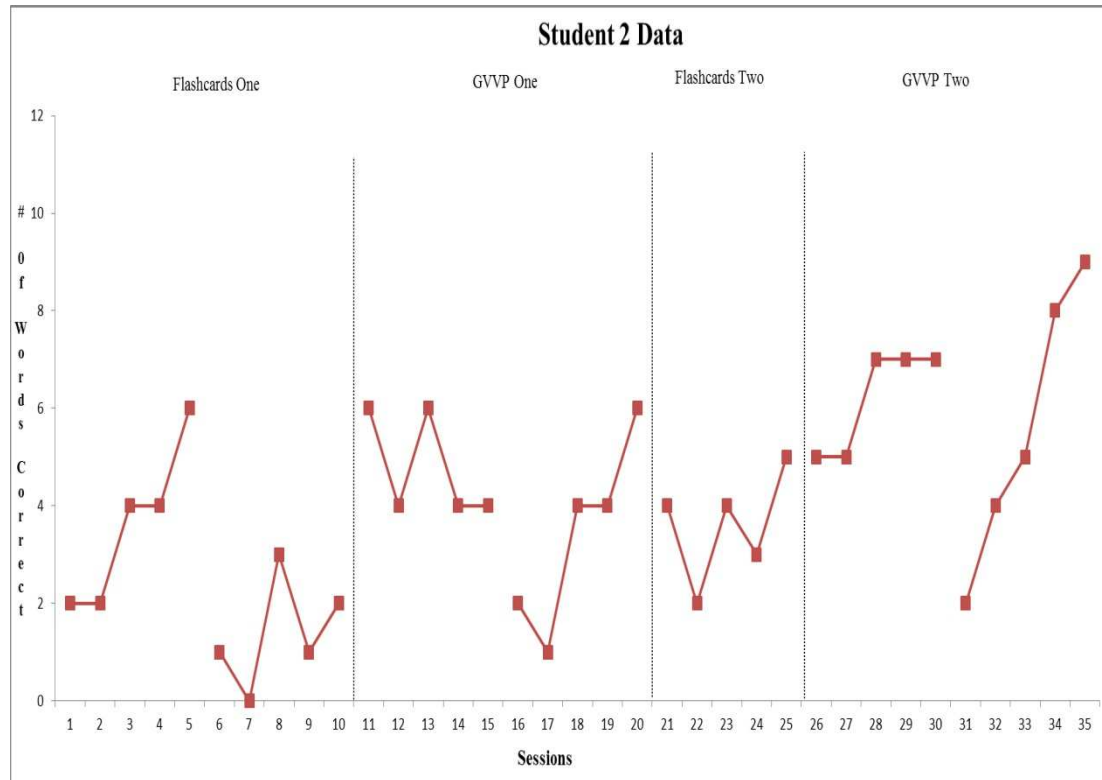


Figure 2. Number of Spanish vocabulary words correctly translated by Student 2 during sessions with flashcards as compared to sessions with GVVP.

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Table 3

Means and Ranges for Number of Spanish Vocabulary Words Correctly Translated to English by Student 2 for Flashcards and GVVP Sessions

Condition	Mean	Range
Flashcards 1	2.8	0-6
GVVP 1	4.1	1-6
Flashcards 2	3.6	2-5
GVVP 2	5.9	2-9
Total Flashcards	3.06	0-6
Total GVVP	5	1-9

Student 3

Student 3 was a 13-year old Caucasian male enrolled in the seventh grade. Data reflective of the performance of Student 3 in individual sessions are presented in Figure 3. Table 4 presents a summary of the ranges and means to further describe Student 3's performance in associating Spanish words with their English equivalents. The data presented allow for comparisons between conditions with Flashcards and GVVP. Anecdotal information has also been included, as to describe the performance of Student 3 in greater detail.

Session overview. Student 3 participated in all 10 of the Flashcards One sessions, and all five sessions for Flashcards Two. Student 3 participated in all of the 10 GVVP One sessions, and all 10 sessions for GVVP Two. In the Flashcards condition, Student 3's scores ranged from 0-3 words correct (out of 12), with a mean score of 1.53 words correct. During the GVVP condition, Student 3's scores ranged from 4-12 words correct (out of 12), with a mean score of 7.3 words correct.

Comparison of numerical and visual data describing the performance of Student 3 suggests a marked difference between GVVP and Flashcards conditions. The total mean difference between the two conditions was 5.77 words (48 %) higher with GVVP, making Student 3 the most evident beneficiary of a treatment effect. Scores for both GVVP conditions were consistently higher than the Flashcards conditions, and *Figure 3* demonstrates that the reversal to flashcards in Flashcards Two corresponded to an immediate drop in scores, which was followed by a resumed trend toward higher scores as soon as the GVVP condition was reintroduced.

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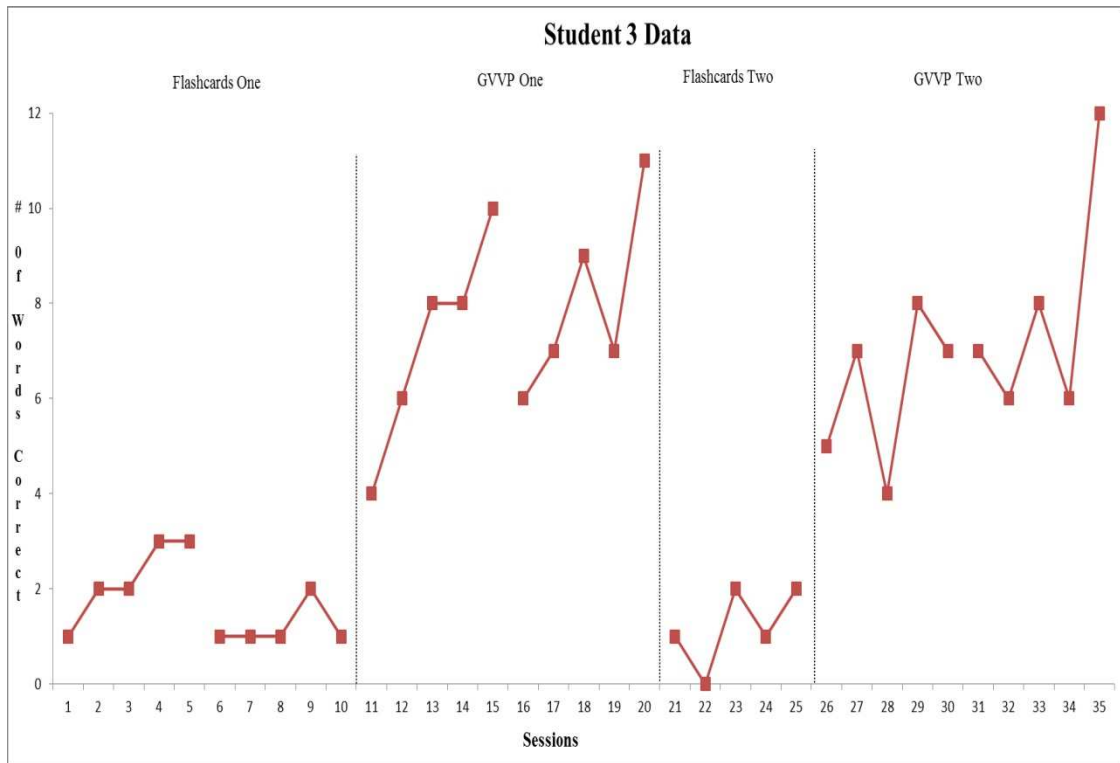


Figure 3. Number of Spanish vocabulary words correctly translated by Student 3 during sessions with flashcards as compared to sessions with GVVP.

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Table 4

Means and Ranges for Number of Spanish Vocabulary Words Correctly Translated to English by Student 3 for Flashcards and GVVP Sessions

Condition	Mean	Range
Flashcards 1	1.7	1-3
GVVP 1	7.6	4-12
Flashcards 2	1.2	0-2
GVVP 2	7	4-12
Total Flashcards	1.53	0-3
Total GVVP	7.3	4-12

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Post-assessment data demonstrated Student 3 correctly translating only two words from the Flashcards conditions correctly; both words were cognates with strong similarity resemble English words. Six such cognate words from the GVVP conditions were correctly translated, along with more distinct Spanish words (e.g., *lápiz*, *tina*, *bolsa*). While more recent words appeared to have been more frequently recognized, there was also evident retention of words studied more than a month prior to the post-assessment.

Anecdotal information. Student 3 was agreeable, but often appeared uncomfortable during the Flashcards One and Flashcards Two sessions. When presented with flashcards to practice independently, Student 3 rarely used the entire 10 minutes allotted to review the words. When presented with the more directed nature of GVVP, Student 3 appeared to be more engaged and able to self-generate strategies to recall the English meanings of Spanish words. Without prompting from the researcher, Student 3 shared that he could remember the word *mesa* (table) by thinking of a messy table, or that he could remember *biblioteca* (library) because the initial sound (*bee*) made him think that people need to *be* quiet in the library. While not all of these associations appear to have lasted until the post-assessment, these discoveries were very much in the spirit of the mnemonic strategies which informed the development of GVVP, and may partially account for the success of Student 3.

Student 4

Student 4 was a 13-year old female enrolled in the seventh grade. Data reflective of the performance of Student 4 in individual sessions are presented in Figure 4. Table 5 presents a summary of the ranges and means further describing Student 4's performance

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in associating Spanish words with their English equivalents. The data presented allow for comparisons between conditions with Flashcards and GVVP. Anecdotal information has also been included, as to describe the performance of Student 4 in greater detail.

Session overview. Student 4 participated in all 10 of the Flashcards One sessions, and all five sessions for Flashcards Two. Student 4 participated in all of the 10 GVVP One sessions, and all 10 sessions for GVVP Two. In the Flashcards condition, Student 4's scores ranged from 4-11 words correct (out of 12), with a mean score of 6.73 words correct. During the GVVP condition, Student 4's scores ranged from 5-12 words correct (out of 12), with a mean score of 8.25 words correct.

Comparison of numerical and visual data describing the performance of Student 4 suggests a slight difference between GVVP and Flashcards conditions. The total mean difference between the two conditions was 1.53 words (12.8 %) higher with GVVP, suggesting that Student 4 derived a small benefit from GVVP. Post-assessment data closely resembled the data gleaned from both Flashcards and GVVP conditions. During the post-assessment sessions, Student 4 correctly translated 19 of 36 words from the Flashcards conditions (53%) and 34 of 48 words from the GVVP conditions (71%). This closely resembles the overall Flashcards mean of 6.73 words (56.1%) and the overall GVVP mean of 8.25 words (69%) achieved by Student 4 during those sessions. In total, Student 4 correctly translated 53 of the 84 words (63%) from the post-assessment, earning the highest total score of the three intermediate students and potentially demonstrating the greatest retention of vocabulary. While Student 4 shared the characteristic of enhanced performance under the GVVP conditions, her overall mean

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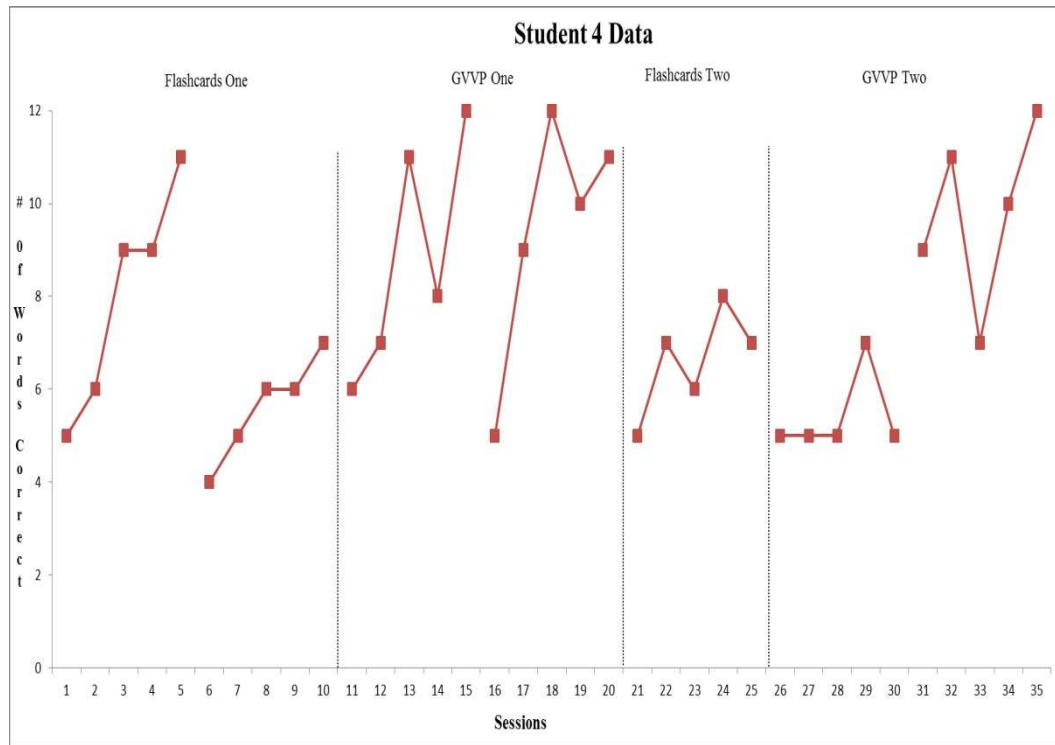


Figure 4. Number of Spanish vocabulary words correctly translated by Student 4 during sessions with flashcards as compared to sessions with GVVP.

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Table 5

Means and Ranges for Number of Spanish Vocabulary Words Correctly Translated to English by Student 4 for Flashcards and GVVP Sessions

Condition	Mean	Range
Flashcards 1	6.8	4-11
GVVP 1	8.9	5-12
Flashcards 2	6.6	5-8
GVVP 2	7.6	5-12
Total Flashcards	6.73	4-11
Total GVVP	8.25	5-12

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difference and post-assessment performance are arguably more similar to those of the older students who participated in the study.

Anecdotal information. Similar to Student 3, the ability of Student 4 to create meaningful connections and associations almost certainly contributed to her success. Student 4 independently identified connections between Spanish and English words (*dormitorio* → dormitory, *carne* → carnivore) owing to Latin roots. Additionally, more personal connections like the word *reloj* (clock) bringing to mind the English word *rejoice* (“You rejoice when the clock says it’s time to go home from school!”) undoubtedly promoted deeper encoding of the vocabulary in long-term memory. Unlike Student 3, Student 4 also exhibited effective strategies with flashcards during the Flashcards conditions, such as organizing the words by how much practice was needed. Although Student 4 explicitly noted a preference for GVVP over flashcards, there was evidence that some degree of success could be attained with either strategy.

Student 5

Student 5 was a 14-year old Caucasian female enrolled in the eighth grade. Data reflective of the performance of Student 5 in individual sessions are presented in Figure 5. Table 6 presents a summary of the ranges and means further describing Student 5’s performance in associating Spanish words with their English equivalents. The data presented allow for comparisons between conditions with Flashcards and GVVP. Anecdotal information has also been included, as to describe the performance of Student 5 in greater detail.

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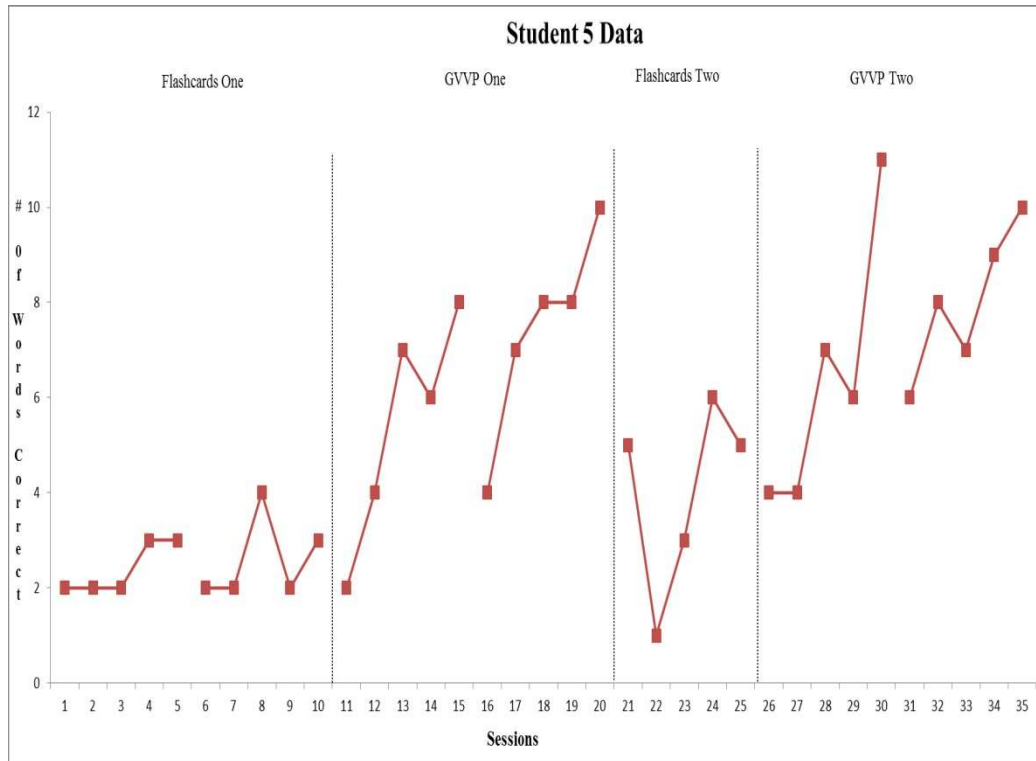


Figure 5. Number of Spanish vocabulary words correctly translated by Student 5 during sessions with flashcards as compared to sessions with GVVP.

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Table 6

Means and Ranges for Number of Spanish Vocabulary Words Correctly Translated to English by Student 5 for Flashcards and GVVP Sessions

Condition	Mean	Range
Flashcards 1	2.5	2-4
GVVP 1	6.4	2-10
Flashcards 2	4	1-6
GVVP 2	7	4-12
Total Flashcards	3	1-6
Total GVVP	6.7	2-12

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Session overview. Student 5 participated in all 10 of the Flashcards One sessions, and all five sessions for Flashcards Two. Student 5 participated in all of the 10 GVVP One sessions, and all 10 sessions for GVVP Two. In the Flashcards condition, Student 5's scores ranged from 1-6 words correct (out of 12), with a mean score of 3 words correct. During the GVVP condition, Student 4's scores ranged from 2-12 words correct (out of 12), with a mean score of 6.7 words correct.

Comparison of numerical and visual data describing the performance of Student 5 indicated a substantial difference between GVVP and Flashcards conditions. The total mean difference between the two conditions was 3.7 words (30.8 %) higher with GVVP, suggesting that Student 5 benefited from the GVVP strategy. Post-assessment data closely resembled the data gleaned from both Flashcards and GVVP conditions. During the post-assessment sessions, Student 5 correctly translated 3 of 36 words from the Flashcards conditions, possibly indicating difficulty with retaining words over time or outside of a thematic context. However, 27 of 48 GVVP words (56.7%) were answered correctly during the post-assessment, which strongly resembles the overall GVVP condition mean of 6.7 words (56%). When compared to the relative paucity of Flashcards words recalled correctly, the ability of Student 5 to correctly provide English equivalents of distinct Spanish words (*bolígrafo, sacapuntas, lápiz*) more than a month after studying them may support the hypothesis that a strategy like GVVP can promote long-term encoding of information in a student's memory.

Anecdotal information. Student 5 was unfailingly good-natured during sessions, and often observably excited about learning new vocabulary words. When attempting to provide English equivalents of Spanish words, Student 5 would frequently think very

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hard and then make a statement like “I know it’s there, but it’s just not coming to me.” During Flashcards One and Flashcards Two conditions, Student 5 consistently practiced quietly saying Spanish words aloud while practicing with the flashcards. During Flashcards Two, Student 5 independently generated a strategy of organizing the flashcards into groups, similar to what Student 2 and Student 4 did. The comparative improvement over Flashcards One that was experienced by Student 5 in the Flashcards Two condition may owe to this strategy, as well as to continued practice with Spanish.

Student 6

Student 6 was a 16-year old Caucasian female enrolled in the tenth grade. Data reflective of the performance of Student 6 in individual sessions are presented in Figure 6. Table 7 presents a summary of the ranges and means further describing Student 6’s performance in associating Spanish words with their English equivalents. The data presented allow for comparisons between conditions with Flashcards and GVVP. Anecdotal information has also been included, as to describe the performance of Student 6 in greater detail.

Session overview. Student 6 participated in all 10 of the Flashcards One sessions and all five sessions for Flashcards Two. Student 6 participated in all of the 10 GVVP One sessions and nine of the 10 sessions for GVVP Two. In the Flashcards condition, Student 6’s scores ranged from 2-12 words correct (out of 12), with a mean score of 6.73 words correct. During the GVVP condition, Student 6’s scores ranged from 3-12 words correct (out of 12), with a mean score of 8 words correct.

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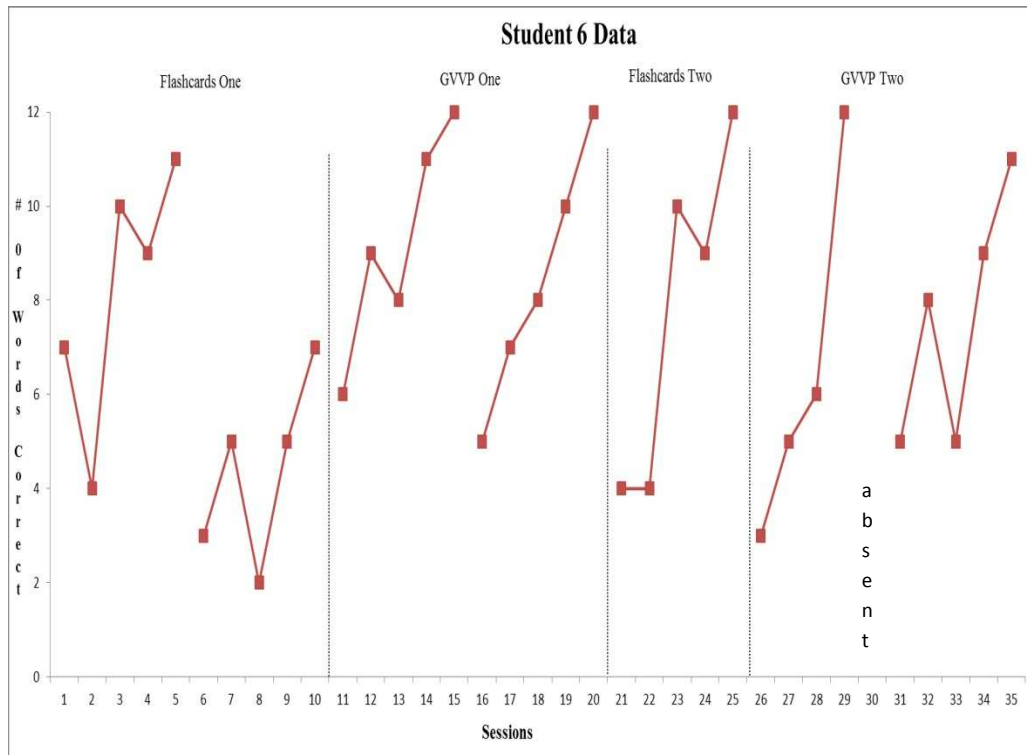


Figure 6. Number of Spanish vocabulary words correctly translated by Student 6 during sessions with flashcards as compared to sessions with GVVP.

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Table 7

Means and Ranges for Number of Spanish Vocabulary Words Correctly Translated to English by Student 6 for Flashcards and GVVP Sessions

Condition	Mean	Range
Flashcards 1	6.2	2-11
GVVP 1	8.8	5-12
Flashcards 2	7.8	4-12
GVVP 2	7.11	3-12
Total Flashcards	6.73	2-12
Total GVVP	8	3-12

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Comparison of numerical and visual data describing the performance of Student 6 indicated a slight difference between GVVP and Flashcards conditions. The total mean difference between the two conditions was 1.27 words (10.6 %) higher with GVVP, suggesting that Student 6 did derive some benefit from the GVVP strategy, but not dramatically more than working with flashcards. Post-assessment data indicated better recall with the food vocabulary words from Flashcards One than for other vocabulary words covered in both Flashcards One and Flashcards Two. Overall, Student 6 correctly translated words considered to be cognates in both Flashcards and GVVP conditions. Recall for words covered more recently was more evident, and a greater percentage of GVVP words were translated.

For Flashcards words, Student 6 correctly identified 11 of the 36 words (30.6%), while correctly identifying 26 of 48 GVVP words (54.2%). Although post-assessment data suggest that Student 6 either did not retain words, or that she struggled to recall them in a generalized format, there was evident retention of more distinct Spanish words (e.g., *lápiz, camisa, biblioteca, manzana*).

Anecdotal information. Student 6 expressed a great interest in the visual aspect of working with GVVP and quickly found a niche within the classroom; she often showed up and found her seat more promptly than students enrolled in the course.

Student 6 appeared to struggle most with thematic groups containing multiple words beginning with the letter *S* or the letter *C*, such as the parts of a house or articles of clothing. A notable difference was that Student 6 continued to struggle with the former (Flashcards One), yet trended toward mastery with the latter (GVVP Two). When working with GVVP, Student 6 appeared to become comfortable with the words more

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quickly. After the first GVVP session with a thematic group, Student 6 would often pronounce entire Spanish words aloud before being prompted by the researcher to pronounce syllables. The data indicate that Student 6 could potentially experience sufficient learning of Spanish concrete nouns with either flashcards or GVVP.

Student 7

Student 7 was a 17-year-old African-American female enrolled in the 11th grade. Data reflective of the performance of Student 7 in individual sessions are presented in Figure 7. Table 8 presents a summary of the ranges and means further describing Student 7's performance in associating Spanish words with their English equivalents. The data presented allow for comparisons between conditions with Flashcards and GVVP. Anecdotal information has also been included, as to describe the performance of Student 7 in greater detail.

Session overview. Student 7 participated in all 10 of the Flashcards One sessions, and all five sessions for Flashcards Two. Student 7 participated in all of the 10 GVVP One sessions, and all 10 sessions for GVVP Two. In the Flashcards condition, Student 7's scores ranged from 6-12 words correct (out of 12), with a mean score of 10.13 words correct. During the GVVP condition, Student 7's scores ranged from 3-12 words correct (out of 12), with a mean score of 7.3 words correct.

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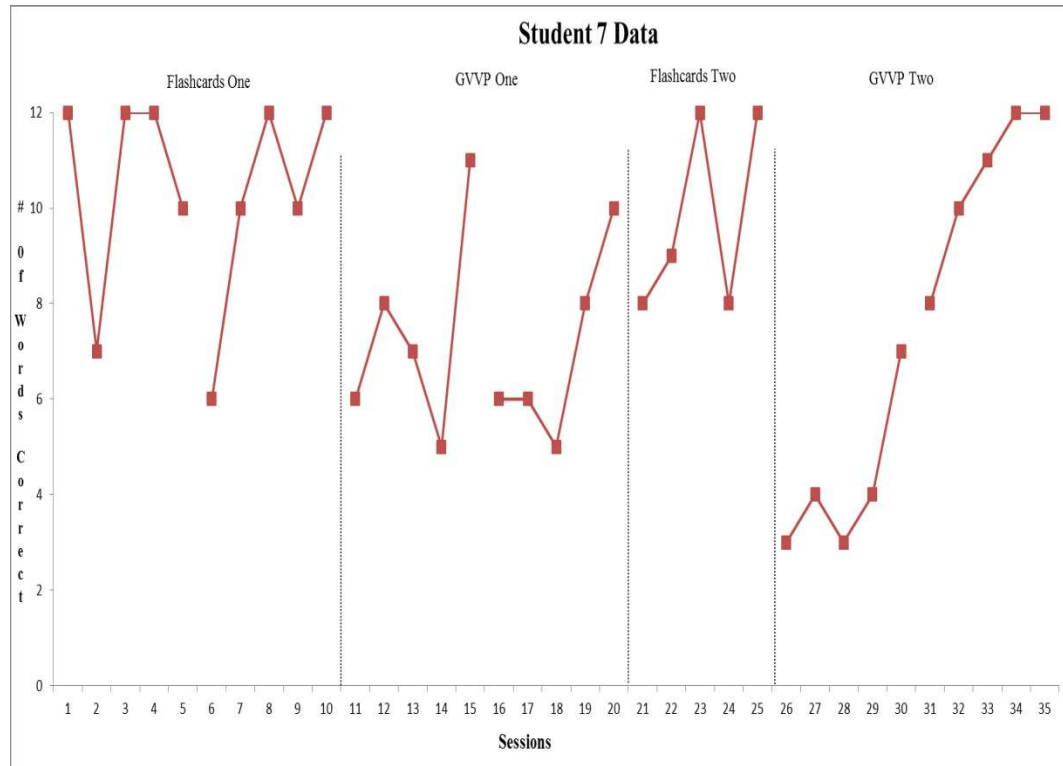


Figure 7. Number of Spanish vocabulary words correctly translated by Student 7 during sessions with flashcards as compared to sessions with GVVP.

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Table 8

Means and Ranges for Number of Spanish Vocabulary Words Correctly Translated to English by Student 7 for Flashcards and GVVP Sessions

Condition	Mean	Range
Flashcards 1	10.3	6-12
GVVP 1	7.2	5-12
Flashcards 2	9.8	8-12
GVVP 2	7.4	3-12
Total Flashcards	10.13	6-12
Total GVVP	7.3	3-12

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A comparison of numerical and visual data describing the performance of Student 7 described a substantial difference between GVVP and Flashcards conditions. The total mean difference between the two conditions was 2.83 words (23.6 %) higher in Flashcards One and Flashcards Two, indicating that flashcards were more beneficial to Student 7. Post-assessment data indicated that recall of Spanish-English cognates for both Flashcards and GVVP conditions was strong.

A higher number of food vocabulary words from Flashcards One appeared to have been retained, as compared to the words for parts of a house in Flashcards One and body parts vocabulary in Flashcards Two. This was unexpected, as recall from the Flashcards sessions was strongest for the least recent words and because the most recent words from the GVVP sessions were recalled accurately in post-assessment. Of the vocabulary words covered in GVVP One and GVVP Two, Student 7 recalled nearly all the words from the most recent thematic unit covered. With the possible exception of the food vocabulary from Flashcards One, recall of vocabulary appeared to diminish with time, though Student 7's recall of Spanish words with less similarity to English (e.g., *oreja, gafas, bandera*) may be indicative of encoding in long-term memory consistent with deeper learning. In total, Student 7 correctly translated 9 of 36 (25%) words from the Flashcards condition and 21 of 48 (43.75%) words from the GVVP condition. Although the evidence may suggest that GVVP was more effective in promoting retention, due consideration should be given to the percentage of the 21 correct words either considered to be cognates or words covered more recently.

Anecdotal information. Throughout the sessions, Student 7 was vocal about her preference for the flashcards used in Flashcards One and Flashcards Two; she became

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frustrated and noticeably disdainful when asked to work with GVVP. When the researcher inquired about this, Student 7 explained that she simply preferred her independence and compared the process to her athletic pursuits. Eventually, Student 7 further revealed that part of her frustration with GVVP stemmed from feeling that the drawings were superfluous and that the guided nature of the process activated academic insecurities. Student 7 expressed that she struggled with writing and spelling, informing the researcher that “when you do it letter-by-letter, it makes me feel stupid.” Although Student 7 did begin to experience late success with GVVP, her overall success with (and preference for) flashcards indicated that GVVP was not a necessary or appropriate strategy for this particular student.

Student 8

Student 8 was an 18-year-old African-American male enrolled in the 12th grade. Data reflective of the performance of Student 8 in individual sessions are presented in Figure 8. Table 9 presents a summary of the ranges and means further describing Student 8’s performance in associating Spanish words with their English equivalents. The data presented allow for comparisons between conditions with Flashcards and GVVP. Anecdotal information has also been included, as to describe the performance of Student 8 in greater detail.

Session overview. Student 8 participated in all 10 of the Flashcards One sessions and all five sessions for Flashcards Two. Student 8 participated in nine of the 10 GVVP One sessions and nine of 10 sessions for GVVP Two. In the Flashcards condition, Student 8’s scores ranged from 2-12 words correct (out of 12), with a mean score of 8.73

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words correct. During the GVVP condition, Student 8's scores ranged from 7-12 words correct (out of 12), with a mean score of 10.83 words correct.

A comparison of numerical and visual data describing the performance of Student 8 described a small difference between GVVP and Flashcards conditions. The total mean difference between the two conditions was 2.1 words (17.5 %) higher with GVVP than in Flashcards. Post-assessment data indicated that recall of Spanish-English cognates for both Flashcards and GVVP conditions was high, as was overall retention. During post-assessment, Student 8 correctly translated 32 of 36 words (88%) from the Flashcards condition and 44 of 48 words (91.6%) from the GVVP condition. In total, Student 8 correctly recalled the English equivalent of 76 of the 84 Spanish words (90%) involved in the study, which constituted the highest post-assessment among the eight participants.

A visual analysis of the general trend in sessions with Student 8 demonstrated that he typically spent a session or two becoming familiar with the words before achieving and maintaining success in both Flashcards and GVVP conditions. Student 8 was the oldest student to participate in the study and pertinent data indicated that his accuracy, speed, and retention of target vocabulary were considerably higher than the other participants.

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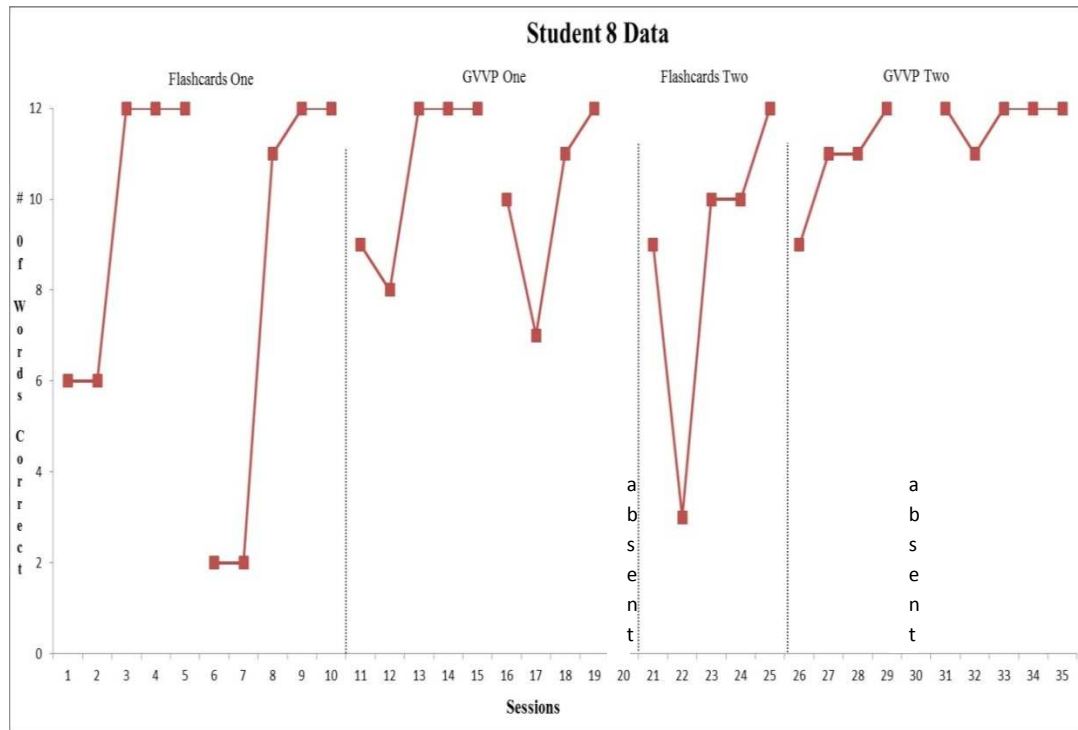


Figure 8. Number of Spanish vocabulary words correctly translated by Student 8 during sessions with flashcards as compared to sessions with GVVP.

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Table 9

Means and Ranges for Number of Spanish Vocabulary Words Correctly Translated to English by Student 8 for Flashcards and GVVP Sessions

Condition	Mean	Range
Flashcards 1	8.7	2-12
GVVP 1	10.3	7-12
Flashcards 2	8.8	3-12
GVVP 2	11.3	9-12
Total Flashcards	8.73	2-12
Total GVVP	10.83	7-12

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Anecdotal information. Student 8 participated in this study during the final months of his high school career, completing his part in the research two weeks before graduation. Student 8 expressed a desire to enlist in the U.S. Marine Corps after graduation, and related that he felt receptive to learning another language as part of his career goals. In the course of the study, Student 8 conveyed that his practice with memorizing ranks and procedures in ROTC may have contributed to his ability to quickly and efficiently memorize vocabulary words. Additionally, Student 8 was passionate about drawing, eventually sharing one of his sketchbooks with the researcher. The impact of the particular combination of age, intrinsic motivation, and personal background upon the evident success of Student 8 cannot be conveniently quantified, but should be considered as factors in his performance.

Comparison of Means for All Participants

A comparison of mean scores for all eight participants in both Flashcards and GVVP conditions has been presented in Table 10. The mean score for the group in the Flashcards condition was 5.18 words correct (out of 12). In the GVVP condition, the mean score for the group was 6.85 words correct (out of 12).

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Table 10

Comparison of Flashcards and GVVP Condition Means for All Participants with Total Mean Scores for Both Conditions

	Flashcards Mean	GVVP Mean
Student 1	1.6	1.42
Student 2	3.06	5
Student 3	1.53	7.3
Student 4	6.73	8.25
Student 5	3	6.7
Student 6	6.73	8
Student 7	10.13	7.3
Student 8	8.73	10.83
Total	5.18875	6.85

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Flashcards variance and standard deviation. Table 11 presents data related to the computation of variance and standard deviation for the Flashcards condition. The group mean of 5.18 was subtracted from the Flashcards mean for each participant to derive the mean difference. The mean difference for each participant was squared, and the sum of the squared difference was computed to be 77.29. The sum of squares was then divided by (n-1) to determine the variance:

$$77.29 \div 7 = 11.04$$

Finally, the standard deviation was computed by taking the square root of 11.04, resulting in a standard deviation of 3.32.

GVVP variance and standard deviation. Table 12 presents data related to the computation of variance and standard deviation for the GVVP condition. The group mean of 6.85 was subtracted from the GVVP mean for each participant to derive the mean difference. The mean difference for each participant was squared, and the sum of the squared difference was computed to be 52.46. The sum of squares was then divided by (n-1) to determine the variance:

$$\text{Variance} = 52.46 \div 7 = 7.49$$

Finally, the standard deviation was computed by taking the square root of 7.49, resulting in a standard deviation of 2.74.

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Table 11

Derivation of Sum of Squares, Variance, and Standard Deviation in Flashcards Condition for All Participants

	Flashcards Mean	Mean Difference	Squared Difference
Student 1	1.6	-3.58	12.87
Student 2	3.06	-2.12	4.53
Student 3	1.53	-3.65	13.38
Student 4	6.73	1.54	2.37
Student 5	3	-2.18	4.79
Student 6	6.73	1.54	2.37
Student 7	10.13	4.94	24.41
Student 8	8.73	3.54	12.54
Sum of Squares			77.29
Variance			11.04
Standard Deviation			3.32

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Table 12

Derivation of Sum of Squares, Variance, and Standard Deviation in GVVP Condition for All Participants

	GVVP Mean	Mean Difference	Squared Difference
Student 1	1.42	-5.43	29.48
Student 2	5	-1.85	3.42
Student 3	7.3	0.45	0.20
Student 4	8.25	1.4	1.96
Student 5	6.7	-0.15	0.022
Student 6	8	1.15	1.32
Student 7	7.3	0.45	0.20
Student 8	10.83	3.98	15.84
Sum of Squares			52.46
Variance			7.49
Standard Deviation			2.74

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Cohen's *d*. In order to illustrate the total effect size for GVVP related to the data collected, Cohen's *d* was calculated. Cohen's *d* was derived by computing the difference between the group mean for the GVVP condition and the Flashcards condition, and then dividing the difference by the total standard deviation:

$$\text{Total Mean Difference: } 6.85 - 5.18 = 1.66$$

$$\text{Total Standard Deviation: } 3.04$$

$$\text{Cohen's } d = 1.66 \div 3.04 = 0.54$$

The derived score of 0.54 for Cohen's *d* corresponds to a moderate effect size, indicating that the GVVP strategy resulted in a moderate treatment effect with regards to learning Spanish concrete nouns when compared to flashcards. Although the eight participants derived varying individual benefit, this statistical analysis indicated potential for students with LD learning Spanish vocabulary words with GVVP to experience positive outcomes.

Mean difference by grade level. The correlation between grade level and mean difference between the GVVP and Flashcards conditions was strongest for the participants enrolled in grades seven and eight. These three middle school students collectively demonstrated consistency in attaining higher mean scores in the GVVP condition; the group mean difference was 3.67 words, a 30.5% difference when the GVVP condition was present. Unlike the older students, none of the three middle school students consistently performed better with flashcards in the Flashcards condition. For Student 3 and Student 5, the difference between GVVP and Flashcards means was most dramatic. Data for Student 3 indicated a mean difference of 5.77 words (48%) under the

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GVVP condition, while data for Student 5 indicated a milder difference of 3.7 words (30.8%) under the GVVP condition. Data for Student 4 indicated the smallest mean difference of the middle school group, with a mean difference of 1.53 words (12.75%) in the GVVP condition. Although evidence suggested that Student 4 derived some benefit from GVVP, her scores were comparable to participants in high school, specifically Student 6 and Student 8.

The group mean difference for the three high school participants was computed to be 0.54 words (4.5%) favoring the GVVP condition. While Student 6 and Student 8 experienced slightly elevated mean scores under GVVP, the overall mean difference among the high school students was impacted by a mean difference for Student 7 of 2.83 words (23.6%) favoring the flashcards of the Flashcards condition. Regardless, the lack of evidence among the three high school participants indicating a mean difference under GVVP comparable to that of Student 3 or Student 5 highlighted a key distinction between these grade levels.

An analysis of group mean difference for the two elementary school participants was more comparable to the findings for the high school participants. Data for Student 1 demonstrated extremely similar means for Flashcards and GVVP conditions, with a difference of 0.18 words (1.5%) in favor of flashcards. Data for Student 2 indicated a mean difference of 1.94 words (16.1%) in favor of GVVP. Collectively, the two elementary students' mean difference was computed to be 1.15 words (9.5%) in favor of GVVP. When compared to the high school participants, the elementary participants experienced a similar, slight improvement in scores when the GVVP condition was present. However, computed mean differences for participants at the high school and

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elementary levels were found to be considerably lower than the collective 30.6% difference the middle school participants experienced under GVVP.

Social Validity

In order to examine the social validity of the present study, questionnaires were distributed to all eight participants, their parents, and both special and general education teachers. Completed questionnaires were returned by six of the eight participants, nine of the ten teachers surveyed, and five of the eight parents surveyed. A summary of responses provided by students is presented in Table 13. In Table 14, a summary of the responses by parents to weighted questions is provided. The responses to weighted questions provided by educators are summarized in Table 15. The primary goal of collecting subjective social validity data was to better understand the perceptions of major stakeholders involved in the study, particularly regarding satisfaction with methods and outcomes.

Student responses. Questionnaires were received from six of the eight participants, and a summary of their responses appears in Table 13. For each of the six closed-ended questions, students were asked to choose *Yes*, *Maybe*, or *No*. Student satisfaction with the study was high, as 100% of the responding participants indicated that they were glad to have participated. When asked if a different approach would have been more beneficial, four of the six students (66.67%) responded negatively. Regarding the use of flashcards, 50% of the participants indicated that they liked using flashcards, while 33.3% of the participants responded that they did not. With respect to GVVP, 50% of the participants indicated that they liked the process, while the other 50% selected *Maybe*.

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Table 13

Summary of Responses of Six Student Participants to Social Validity Questionnaires

	Yes	Maybe	No
1. I liked learning Spanish vocabulary by using flashcards.	50.00%	16.67%	33.33%
2. I liked learning Spanish vocabulary by drawing pictures and saying the words out loud.	50.00%	50.00%	
3. I feel confident about learning new words in Spanish.	83.33%	16.67%	
4. I am glad I participated in this program.	100.00%		
5. I would like to take a Spanish class in the future.	50.00%	50.00%	
6. I think a different program would have helped me learn more Spanish words.		33.33%	66.67%

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Because existing literature has documented that students with LD may experience anxiety or diminished confidence in learning a foreign language, students were asked to describe their attitudes about future study. Of the responding participants, 83.3% indicated that they were confident about learning new words in Spanish, and 50% indicated an interest in taking a Spanish class in the future.

Parent responses. Parents of all eight participants were invited to provide feedback and were distributed questionnaires and envelopes in which to seal and mail completed forms. The parent of Student 4 who served as an observer was among the parents to whom a questionnaire was provided. Six of the eight questionnaires were returned, and the results have been summarized in Table 14. The parent questionnaire consisted of 11 closed-ended questions to which parents could respond *Strongly Agree*, *Agree*, *Neutral*, *Disagree*, or *Strongly Disagree*. In addition, the questionnaires consisted of four open-ended questions to allow more individualized responses.

A primary focus of the parent questionnaires was to address the perceptions held by parents about their children's learning. For example, 83% percent of the parents surveyed selected either *Strongly Agree* or *Agree* when asked if they had felt their child would need additional support in learning Spanish. Additionally, 76% of the parents surveyed disagreed with the notion that their child generally learned well when given independence, while all parents agreed that individual guidance and attention was preferable.

Regarding the outcomes of the study, 66% of the parents surveyed indicated that participation in the study had helped their child to learn Spanish vocabulary, though this

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information is approached within the context of perception because parental expertise with the content area was likely to be limited. 83% of responding parents agreed with the statement that participation in the study had increased their child's confidence in learning another language. 66% of the responses indicated that participants had expressed enthusiasm and shared specific examples of what they had been learning. All six of the parents surveyed indicated that they were glad their child had participated in the study.

In responding to the open-ended questions, one parent indicated that the process would have been improved by sending materials home for the students to practice (which was deliberately not done to minimize confounding variables). Three parents expressed a desire to have the study continue for a longer period of time. One of these parents expressed a desire for longer sessions, but preferred that the sessions not coincide with their child's other classes. Overall, responses from the parents of participants were positive and conveyed enthusiasm on the part of both the parents and participants. Three of the six responding parents expressly thanked the researcher for the opportunity for their child to participate.

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Table 14

Summary of Responses of Six Parents of Participants to Social Validity Questionnaires

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. Prior to participating in this study, I felt that my child would need additional support to succeed in learning Spanish.	66.67%	16.67%		16.67%	
2. I feel that participating in this study has helped my child to increase their Spanish vocabulary.	33.33%	33.33%	33.33%		
3. I feel that participating in this study has improved my child's confidence in learning another language.	16.67%	66.67%	16.67%		
4. Participating in this program was a good opportunity for my child.	66.67%	33.33%			
5. I would feel positive about having my child continue learning Spanish vocabulary, or enrolling in a Spanish class.	16.67%	50.00%	33.33%		
6. My child was enthusiastic about their experience in this study, and shared specific examples of information they were learning.	33.33%	33.33%	16.67%	16.67%	
7. I would be interested in additional resources or materials to assist my child in learning Spanish.	50.00%	33.33%	16.67%		
8. I believe that my child learns well when given more independence.		16.67%	16.67%	50.00%	16.67%
9. I believe that my child learns well with direct guidance and individual attention.	83.33%	16.67%			
10. I feel the methods used in this study were appropriate for the age and ability level of my child.	16.67%	50.00%	33.33%		
11. I am glad my child participated in this Spanish vocabulary program.	66.67%	33.33%			

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Teacher responses. In gathering social validity data, all of the special education teachers with whom the researcher originally coordinated the process of recruiting participants were invited to provide feedback. The teacher who provided interobserver agreement data was not among the aforementioned group of special education teachers and did not complete a questionnaire. In the case of the two elementary students, who spent the majority of their day with the same fifth grade teacher, the classroom teacher was also considered a potential source of data and invited to participate. A summary of these responses can be found in Table 15.

The questionnaire provided to teachers consisted of nine closed-ended questions to which teachers could respond *Strongly Agree*, *Agree*, *Neutral*, *Disagree*, or *Strongly Disagree*. No open-ended questions were posed, though a space for additional comments was included on the form. Because of their familiarity with the participants and understanding of effective instruction, an objective in surveying the teachers was to collect data describing their perceptions of student outcomes and appropriateness of the methods utilized in the study.

Although nearly 78% of the responding teachers indicated that their students had conveyed enthusiasm about participating in the study, only 22% of the responses definitively indicated that specific information had been shared with the teachers. Although general information about the nature of the study had been shared by the researcher, it should be noted that the teachers surveyed did not necessarily possess a detailed understanding of the research conducted. Nevertheless, nearly 78% of the teachers surveyed indicated that participation in the study was a beneficial use of time for the students involved. The same percentage of teachers affirmatively responded that

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efforts made in the study to improve students' Spanish vocabulary were adequate and relevant; no negative responses to this question were provided. Again, teachers surveyed arguably did not possess sufficient information about specific aspects of the study to support these responses, but did convey a generally positive impression of what occurred during the study.

Summary of social validity data. Overall, the responses provided by students, parents, and teachers were indicative of participation in the study being a worthwhile, even positive, experience. Parents tended to favor more individualized instructional strategies for their children. Students expressed roughly equal preference for both flashcards and GVVP as methods of instruction, and teachers indicated comparable support for both flashcards and the general notion of multi-sensory approaches to help students learn vocabulary. The majority of teachers indicated that students expressed enthusiasm about participating in the study, and data collected from all three groups indicated satisfaction with having taken part. Information provided by parents and students showed positive impressions of student progress, and indicated confidence in further Spanish language study.

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Table 15

Summary of Responses of Nine Teachers of Participants to Social Validity Questionnaires

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. Efforts made to improve this student's Spanish vocabulary were adequate and relevant to their course of study.	44.44%	33.33%	22.22%		
2. Using flashcards as a strategy to learn vocabulary is effective for this student.	66.67%	22.22%	11.11%		
3. Using a guided, multisensory approach to learning vocabulary is effective for this student.	88.89%		11.11%		
4. The information gathered from participating in this program will be useful in the student's future academic efforts.	33.33%	22.22%	44.44%		
5. This student shared specific information with me about material being learned in this program.	11.11%	11.11%	22.22%	44.44%	11.11%
6. This student conveyed a sense of enthusiasm about participating in this program.	77.78%		22.22%		
7. I noticed changes in the student's social behaviors during the course of this program (April-June 2013).	22.22%		77.78%		
8. I observed changes in the student's academic behaviors during the course of this program (April-June 2013).	22.22%	22.22%	55.56%		
9. Overall, I believe that participating in this program was a good use of this student's time and energy.	66.67%	11.11%	22.22%		

Interobserver Agreement Data

Interobserver agreement data were collected for two different facets of the study. The first facet was the number of Spanish vocabulary words correctly translated from Spanish to English, in both the Flashcards and GVVP conditions. The second facet was the fidelity with which the researcher implemented the research procedures established in the methodology of the present study, also in both the Flashcards and GVVP conditions. Independent observers collected both types of data simultaneously, and a total of eight sessions were observed for each participant. Of the eight sessions observed for each participant, three were Flashcards sessions and five were GVVP sessions. The selection of sessions for interobserver agreement data was dictated primarily by availability and logistics, rather than random selection. Four individuals collected interobserver agreement data: one teacher employed by the school district, two relatives of participants, and one relative of the researcher. These individuals were provided copies of the relevant vocabulary forms (*Appendix F*) and instructed on the use of the checklists for collecting interobserver agreement data (*Appendix K*).

Participant responses. Interobserver agreement data related to student responses were collected in a total of 22.5% of the sessions. This total includes the collection of data during 20% of the sessions in the Flashcards condition and 25% of the sessions in the GVVP condition. During these sessions, the observer marked student responses as correct or incorrect. The researcher and observer forms were compared and the number of discrepancies tallied. The number of discrepancies was subtracted from the total number of responses and this difference was divided by the total number of responses to be expressed as a percentage. A summary of this information appears in Table 16. In the

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cases where discrepancies did occur, the observer had typically marked more responses correct than had the researcher.

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Table 16

Summary of Interobserver Agreement Data Concerning the Number of Correct Responses Given by Participants in the Flashcards and GVVP Conditions

	% of Agreement (Flashcards)	% of Agreement (GVVP)
Student 1	96.9	100
Student 2	100	100
Student 3	100	100
Student 4	100	100
Student 5	100	100
Student 6	100	100
Student 7	100	98
Student 8	100	100

Procedural fidelity. Interobserver agreement data related to procedural fidelity were collected in a total of 22.5% of the sessions. This total includes the collection of data during 20% of the sessions in the Flashcards condition and 25% of the sessions in the GVVP condition. In collecting this information, observers were furnished with a list of procedural criteria (*Appendix K*) and asked to select *Yes* or *No* to indicate whether each step in the research procedure had occurred consistently. In any case of deviation or doubt, researchers were asked to select *No*. The number of documented discrepancies was subtracted from the total number of possible observer responses, and this difference was divided by the total number of possible responses to produce a percentage. A summary of this information is presented in Table 17.

In the Flashcards condition, there were noted instances in which the observer indicated that more than 10 minutes had been given to review flashcards, or in which there was uncertainty that all 12 Spanish words had been pronounced for the student. The most frequent procedural deviation in the GVVP condition was the researcher failing to guide the students to write English words letter-by-letter. This occurred more commonly with older students, who sometimes went ahead and filled in the English word in the appropriate section without waiting for the researcher to prompt them. Although this example of independence was not unexpected with high school students and corrective feedback was provided when necessary, the occurrence was documented as a deviation from the standard procedure established for the present study.

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Table 17

Summary of Interobserver Agreement Data Describing the Fidelity of Research Procedures in the Flashcards and GVVP Conditions

	% of Procedural Fidelity (Flashcards)	% of Procedural Fidelity (GVVP)
Student 1	100	94
Student 2	95	100
Student 3	100	100
Student 4	100	100
Student 5	90	100
Student 6	100	91
Student 7	100	88
Student 8	100	94

Chapter 5

Discussion

The current study investigated the impact of the GVVP strategy on the learning of concrete Spanish nouns, as compared to the use of traditional flashcards. The GVVP strategy consisted of a series of templates designed to provide participants with directed experiences in associating Spanish vocabulary with both images and English equivalents by requiring the participants to engage in speaking, writing, and illustrating throughout the process. The study employed a single-subject reversal design (ABAB), in order to examine the data collected from each of the eight participants. As described by Tawney and Gast (1984), the utilization of a reversal design allowed for a visual analysis of any difference between the baseline and treatment phases indicative of the effectiveness of the GVVP strategy. The use of a single-subject reversal design promoted not only intrasubject comparisons, but also promoted analysis based upon concurrent replications of the process among a total of eight participants. Appropriate to single-subject research, the research question was addressed largely by visual inspection of graphs created for all participants depicting trends in the Flashcards and GVVP conditions. Additionally, mean scores for each condition were computed on the basis of the individual, grade level, and group. These mean scores were ultimately used to more fully answer the research question by derivation of effect size, expressed by Cohen's *d*.

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In order to provide further context and answer the research question in greater detail, additional data were collected by participants completing a comprehensive post-assessment and by surveying stakeholders to gather social validity information. The post-assessment data provided some indication of maintenance of the Spanish vocabulary words introduced during the study. Social validity data largely indicated that participants, their parents, and their teachers considered the study to be a worthwhile experience for the LD students involved, and potentially one which contributed to a positive attitude about learning vocabulary words in Spanish.

The Research Question

The study summarized herein endeavored to explore the impact of the GVVP strategy on the learning of concrete Spanish nouns. Accordingly, the relevant research question was stated as:

What are the effects of Guided Visual Vocabulary Practice on the Spanish vocabulary learning of students with LD as compared to flashcards?

Specifically, a directional hypothesis regarding the difference between the two conditions was posited. This hypothesis was stated as:

The number of Spanish vocabulary words identified correctly will be higher during the GVVP conditions than during the Flashcards conditions.

In order to substantively address the research question and related hypothesis, this section presents a summary of the impact of GVVP level first on the basis of individual participants. Because of trends evident in the data, a brief discussion of the relationship

of grade level to the research question and hypothesis was also deemed relevant. Finally, a statement of the overall findings in response to the research question and directional hypothesis concludes the section.

Individual Participants

As detailed in Chapter 4, each individual participant responded differently to the GVVP strategy. A visual analysis of the individual graphs demonstrated that Student 1 exhibited similar behavior in translating Spanish words to English in both the Flashcards and GVVP conditions. Conversely, data for Student 3 indicated an unmistakable difference between the two conditions, with a visual analysis indicating no overlap between scores in the Flashcards and GVVP conditions. However, a visual analysis of the data collected for Student 7 demonstrated noticeably higher scores in the Flashcards condition than in the GVVP condition. Because students identified with specific learning disabilities characteristically document unexpected and individualized patterns of strengths and weaknesses, it was particularly important to document and analyze the impact of GVVP on the basis of individual participants.

As previously noted, visual analysis and comparison of mean scores for Student 1 indicated that there was a minimal difference in Spanish vocabulary learning in either the Flashcards or GVVP conditions. Student 2 exhibited higher scores under GVVP, with more overlap of scores found between conditions, and with fluctuation trending upward in both conditions as the study progressed. The hypothesis that GVVP would result in greater word identification was supported by the data for Student 2, but not for Student 1.

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Student 3 has been documented as experiencing the most observable difference between the GVVP and Flashcards conditions, with the data showing a 48% difference in translating Spanish words under the GVVP condition. Student 4 experienced a far less dramatic difference between the two conditions, with some overlap in scores between Flashcards and GVVP and a 12.8% greater success rate using GVVP. The data collected for Student 5 depicted higher scores under GVVP, though with some overlap and later upward fluctuation similar to that of Student 2. Overall, the mean difference between the conditions for Student 5 was 30.8% higher under GVVP. The general effect of GVVP for Student 3, Student 4, and Student 5 could be described as promoting success with correctly translating concrete Spanish nouns, lending support to the hypothesis.

The data collected for Student 6 indicated slight differences between the two conditions, but also a great deal of overlap in scores. Visually, the shapes of the clusters of data for each group of words exhibited some similarity, potentially indicating consistency in Student 6's learning process under both the Flashcards and GVVP conditions. A small difference in favor of GVVP was found in analyzing the data for Student 6. Visual inspection and comparison of means for Student 7 demonstrated quite the opposite; GVVP undoubtedly had the least positive impact for this participant. Under the Flashcards condition, scores for Student 7 were 23.6% higher than under GVVP. The data for Student 8 indicated similarly high degrees of success under both conditions, with a 17.5% difference in mean scores when GVVP was present. Ultimately, the data for Student 6 and Student 8 supported the hypothesis and demonstrated positive outcomes for GVVP; data for Student 7 did not.

Grade Level

As noted above, Student 1 experienced no significant difference between the two conditions, while GVVP appeared to confer a small benefit on Student 2. The combined data for these two elementary students indicated a slight difference in the number of words translated correctly when GVVP was present, which might be considered evidence of GVVP being marginally more effective than flashcards. This difference technically demonstrated higher incidences of the target behavior (correct translation of Spanish nouns) under GVVP, but should be interpreted with caution. Bluntly, a collective difference amounting to approximately one additional word correctly translated cannot be stated as compelling evidence of the effectiveness of GVVP in learning concrete Spanish nouns for elementary students.

As stated in the individual analyses and as detailed in Chapter 4, the three middle school students (Student 3, Student 4, and Student 5) experienced the greatest increases in mean scores under GVVP. The magnitude of the differences for Student 3 and Student 5 is particularly high and will be discussed further in relation to implications of the study and suggestions for future research. Although the difference in mean scores was not as pronounced for Student 4, the consistency of improvement between these three students under GVVP was not found among the elementary or high school students. As a group, the data for the middle school students most clearly supported the hypothesis that the correct translation of concrete Spanish nouns would increase when GVVP was present, providing some evidence that the strategy had a positive impact on learning this specific part of Spanish vocabulary.

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Student 6 and Student 8 demonstrated comparable performance under both conditions, and were similar in producing data indicative of slightly higher performance under GVVP. The other high school participant, Student 7, unmistakably performed the target behavior of correctly providing English equivalents of Spanish words when working in the Flashcards condition. Collectively, the data for the high school participants did suggest a marginally higher outcome for GVVP, with a total mean difference of 4.5%. However, this slim difference and a close analysis of the individual performances would make it irresponsible to claim any definitive advantage for high school participants using GVVP. While Student 6 and Student 8 did experience some benefit, a reasonable interpretation of the data would be that the Flashcards and GVVP conditions resulted in largely comparable outcomes. As a group, there is some evidence that GVVP can benefit high school students in learning concrete Spanish nouns, but the data did not lend significant support to the hypothesis or to the notion that GVVP was necessarily an effective strategy for this age group.

Overall Findings

As previously stated, the response of individual participants to the GVVP strategy varied. Further, the evidence indicated that the effectiveness of GVVP for elementary and high school students was limited, while the positive impact for the middle school students was significant. Essentially, two of the participants experienced higher scores in the Flashcards condition, while four of the participants had moderately higher scores under GVVP and the remaining two scored dramatically higher under GVVP. As detailed in Chapter 4, a computation of the group means for both conditions led to the

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computation of an effect size for the total sample of eight participants. The effect size was computed using Cohen's *d*, resulting in a derived score of 0.54.

The score of 0.54 denoted a moderate effect size for the total sample participating in this study. As stated by Gravetter and Wallnau (2011), this moderate effect size can be understood as indicating that the GVVP treatment increased the mean by slightly more than half of a standard deviation. Because the present study concerned a small sample, the application of Cohen's *d* to describe the absolute effect size (Gravetter & Wallnau, 2011) was deemed appropriate. Importantly, an advantage of single-subject research is that students essentially serve as their own controls, as opposed to reliance upon a control group. In consideration of these factors, the collective finding of a moderate effect size generally lends support to the hypothesis that LD students would experience improved outcomes when using GVVP.

Summary of Findings

Individually and collectively, the data collected in the present study have suggested that the GVVP strategy can be of moderately greater benefit to students in learning Spanish concrete nouns than using flashcards. GVVP is characterized as a multi-sensory strategy, and the evident utility of GVVP corroborates an existing body of scholarship demonstrating that multi-sensory strategies can promote meaningful inclusion of LD students in foreign language learning (Ganschow & Sparks, 1995; Schwarz, 1997; Sparks & Ganschow, 1993). Sparks et al. (1998) concluded that a multi-sensory framework enabled at-risk and LD students to experience achievement comparable to grade-level peers. GVVP may be considered to be a multi-sensory instrument with

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explicit application and purpose, and the scores of several of the older students would equate to passing grades on a vocabulary assessment concerning concrete nouns such as a test or quiz. In other words, the measured performance of the older participants correlated to scores which would likely be similar to test or quiz scores for the majority of students enrolled in a Spanish course, if given vocabulary assessments solely focused on concrete nouns. This investigation of GVVP fits with the largely positive findings of previous research indicating that multi-sensory approaches can benefit students with LD in foreign language learning (Henry, 2009; Sparks & Ganschow, 1993; Stager, 2010), but with a narrower focus on concrete Spanish nouns. This focus on concrete nouns may contribute further information addressing the documented need to develop additional, specific strategies which provide additional options for LD students (Arries, 1999; Javorsky, 1999).

Although the present study did not focus on maintenance of correctly pairing Spanish words with their English equivalents, the comprehensive post-assessments completed by students did offer some evidence of retention. Student 8, for example experienced success under both the Flashcards and GVVP conditions and was able to correctly recall the English translations of 90% of the 84 words presented in the post-assessment. The performance of other participants largely indicated that the words most recently studied and most often recalled correctly during sessions, were more likely to be correctly translated on the post-assessment. However, the post-assessment performance of Student 3, Student 4, Student 5, and Student 6 notably provided evidence of retention for concrete Spanish nouns with little or no resemblance to English, often from much earlier sessions. In many cases, these non-cognate Spanish words were included in one

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of the GVVP conditions. Additionally, the aforementioned participants all exhibited varying degrees of ability to observably generate memorable visual and/or verbal associations between Spanish and English vocabulary.

The process of creating meaningful associations between native language vocabulary and that of a foreign language was integral to the development of GVVP, and the post-assessment performance of some students may be related to this. Plass et al. (1998) suggested that systematic connections relying on visual stimuli to bridge the distance between two languages could improve vocabulary learning, based upon research intended to test this hypothesis. Mnemonic strategies involving keywords have been demonstrated to be effective in learning concrete nouns (Bryant et al., 2003; Scruggs et al., 2010), with some research indicating such strategies to promote retention (Beaton et al., 1995; Wang et al., 1992). Although the procedure for using GVVP did not explicitly require students to invent or use mnemonic strategies, the method and templates were designed to facilitate associations. The connection between the students with the greatest rates of success using GVVP and their evident retention of concrete Spanish nouns with little or no resemblance to English may be considered further evidence of the impact of associative methods of learning concrete nouns in a non-native language.

As described in Chapter 4, social validity data gathered from the participants in the study, their parents, and their teachers generally expressed satisfaction with the methods and outcomes pertinent to the present study. The overall attitude toward the study was positive, with some evidence that both parents and participants would have preferred the study to continue. Further, many of the students and parents surveyed responded positively when asked about confidence in learning Spanish vocabulary or the

prospect of enrolling in a Spanish course. The difficulty experienced by LD students in learning another language has been documented (Barr, 1993; Levine, 1987; Scott & Manglitz, 1997), along with the related problems of student anxiety and imperfect policies for inclusion (Arries, 1999; Dal, 2008). Within this context, the evidence that many of the participants and other stakeholders concluded the study with a positive impression about learning concrete Spanish nouns is particularly important.

Ultimately, the information acquired from the present study indicated that GVVP, like previous multi-sensory strategies, can benefit LD students in foreign language learning. The specific goal of the GVVP strategy is to facilitate the learning of concrete Spanish nouns and the moderate effect size derived for these eight participants suggested that GVVP was generally a more effective method than flashcards. Further, limited evidence regarding retention and generalization suggested that students who experienced success with GVVP were more likely to recall non-cognate Spanish vocabulary words in post-assessment. The data obtained from surveying major stakeholders also provided indications that participation in the study had contributed to positive attitudes about learning concrete Spanish nouns.

Implications of the Study

The results of the present study largely indicated that the implementation of GVVP as a strategy might contribute to increased learning of Spanish vocabulary for LD students. Anecdotal and survey evidence further suggested that the process of working with GVVP was engaging and that participation in the study generally promoted positive attitudes about learning concrete Spanish nouns. Analysis of the data indicated that

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GVVP might be useful as an additional strategy to assist LD students in learning concrete Spanish nouns. It should be clearly understood that evidence that GVVP was moderately effective in meeting its intended goal of aiding the learning of concrete Spanish nouns does not imply effectiveness of the strategy for other aspects of the Spanish language, nor for wider success with the content area. Succinctly, the findings of the study implied that most LD students using GVVP as a learning strategy could expect to see some increase in the target behavior of correctly pairing Spanish nouns with the equivalents in English.

Further, survey information collected from participants indicated that the GVVP strategy was at least as engaging as flashcards, with some evidence suggesting a slightly stronger preference for GVVP. The belief expressed by parents that their children would need extra support to learn Spanish and that the students would benefit from direct and individualized attention, which participants received in varying degrees with both flashcards and GVVP. The evident similarity among all stakeholders in supporting a multi-sensory approach and deeming the study to be worthwhile, though strictly considered opinions, might have implied a positive impression of GVVP during what was ostensibly a field test of the utility of the method in helping students with LD to learn concrete Spanish nouns.

Data collected from the elementary level specifically indicated that the impact of GVVP on learning concrete Spanish nouns was not considerably higher than in the Flashcards condition. However, a closer analysis of the means scores for the two elementary students showed that the highest level of achievement was slightly below 50%. Although data for these students was suggestive of both gradual improvement and slightly favorable outcomes under GVVP, the generally low range of scores was still well

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below what would be necessary to translate to success in a classroom setting. Essentially, the implication was that GVVP was marginally more effective for the elementary students than flashcards, but that neither strategy necessarily promoted achievement which correlated with desirable outcomes within the context of a typical Spanish course.

Similarly, the data representing the high school students largely implied that GVVP and flashcards prompted comparable outcomes. Much like the elementary students, the overall impact of GVVP on the target behavior was higher, but by an even slimmer margin. Unlike the elementary school participants, the mean scores for high school participants were generally above 75% in both the Flashcards and GVVP conditions. In other words, both strategies resulted in comparable levels of success, and the overall scores in both conditions could correlate to at least a passing grade on an assessment of concrete nouns in a typical Spanish course.

Although evidence from surveys and anecdotal notes did suggest that the high school students were receptive to using GVVP, the appropriateness of the strategy is debatable for older students. The difference in scores for high school students between the GVVP and Flashcards conditions did not demonstrate GVVP to be significantly more effective than flashcards. Based on the data, there was an implication that GVVP could result in learning of Spanish vocabulary words. However, the data also demonstrated that flashcards could also be effective in meeting the same objectives for high school students. Student 7 and Student 8 exhibited particularly high rates of success with flashcards and Student 7 frequently and explicitly stated a preference for the more independent process of working with flashcards. A conclusion to be drawn from this information is that although GVVP and flashcards resulted in analogous outcomes, an explicit strategy like

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GVVP may not ultimately be more effective or preferable as a method to support secondary LD students.

The most evident implication resulting from the present study was that GVVP attained maximum impact with middle school students. As previously described, data from these three students indicated both consistency of positive outcomes, but also the most observable differences between the GVVP and Flashcards conditions. While the findings for elementary and high school students required caveats about inter-group discrepancies and transferability to a classroom setting, the findings for the middle school students represented a trend which may indicate a more consistent impact for the GVVP strategy. All three students experienced progress under GVVP, with a collective mean difference of 30.5% as compared to the Flashcards condition. Further, the mean scores for middle school participants during the GVVP condition were typically between 50% and 75%. Although these scores would still not be considered optimal when translated to a classroom context, they are close enough to passing grades on a test or quiz to imply potential success for this age group.

The feedback received from middle school participants, as well as their parents and teachers, consistently suggested positive outcomes in both Spanish vocabulary learning and the experience of learning. Collectively, the middle school students exhibited more observable enthusiasm for GVVP and consistently appeared more engaged with the material. As a group, the middle school students were unique in their ability to independently find connections between Spanish and English words and exhibited creativity in their illustrations and discussions. In view of both the statistical and qualitative data collected for the middle school group, there was an indication that

GVVP provided the most beneficial experience for this age group when compared to the other participants.

Limitations of the Study

Several limitations of the study should be noted and are essential to the discussion of the findings and the suggestion of future research involving GVVP and flashcards. First, the present study sought to examine the degree to which GVVP impacted the learning of concrete Spanish nouns. Although some effort was made to describe retention and generalization of the Spanish vocabulary learned, maintenance probes concerning the target behavior were not integrated into the study. As a result, the conclusions are limited by insufficient data from which to draw conclusions regarding retention and generalization.

Because this study represented the first documented research conducted on the impact of GVVP, the duration of the study was limited. Although the deliberately brief and intensive nature of this study undoubtedly yielded necessary information about the GVVP strategy, the duration and focus of the study could be considered as different conditions than the instructional schedule and agenda existing in a typical classroom. Generalization of the conclusions of this study to the broader temporal and curricular demands of a Spanish classroom setting should be understood within the context of these limitations.

A further limitation in generalizing the findings of the present study to classroom settings concerns the role of the researcher. First, the GVVP strategy was designed by the researcher, who also devised and conducted the study. Also, the design and

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implementation mentioned above derived from the researcher's unusual combination of qualifications in Spanish, the visual arts, and teaching students with learning disabilities. Although efforts were made to standardize the procedures involving GVVP, as well as to document procedural integrity, the role of this particular researcher is also a variable to be considered. While it is possible that GVVP can be successfully implemented by teachers qualified in Spanish or certified to teach students with LD, data from this study cannot directly describe the utility of GVVP for any practitioner beyond the researcher involved in this study. Any effort to generalize the findings of this study to the classroom environment hinges upon this limitation.

Limitations also exist regarding the sample of students selected to participate in the present study. The sample was composed of a total of eight students, which can be considered an adequate sample size for single-subject research in the field of learning disabilities. Regardless, it cannot be overstated that the present study involved a small sample drawn from a population of students characterized by highly individualized strengths and weaknesses related to learning processes. Naturally, attempts to generalize the results of this research to even the wider population of students identified with specific learning disabilities must be mitigated by an understanding of the inherent challenges and individualized needs which exist for any student with a learning disability.

Further, it should be noted that seven of the eight participants in the sample were drawn from the same school district. While the selection of a middle school student from a different district was relevant in diversifying the sample and drawing conclusions, the majority of the participants were rooted in a specific district and region of southeastern Michigan. When considering the data and implications of the study, it should be

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understood that the greatest applicability of the findings pertains to the particular students involved and the specific school district in southeastern Michigan in which they attend school.

In selecting participants, efforts were made to select students reflecting the composition of the relevant district in terms of gender and ethnicity. The gender of the students was divided evenly, with four males and four females participating. Five of the participants were Caucasian, two African-American, and one participant was of partial Hispanic heritage. Overall, the participants were somewhat representative of the diversity found in the larger population of the relevant district. However, the distribution of these identifying characteristics should be noted and may be considered a limitation for the purposes of discussing the present study. The two elementary students who participated were both males, both Caucasian, and both experiencing varying degrees of familial upheaval. While the data presented accurately describe the experience of these particular students, the limitations inherent in the sample are significant in any attempts to discuss or generalize findings pertinent to elementary students. The two oldest students in the study also happened to be the two African-American students, and the lack of information about the impact of GVVP for African-American students below the 11th grade could be considered a limitation of the present study.

Suggestions for Future Research

After considering the findings of the present study, several avenues for future research are pertinent. These suggestions for future research have been determined by consideration of both the implications of the study and the attendant limitations.

Middle School Replication

In this initial trial of the GVVP strategy, the magnitude and consistency of positive learning outcomes for the three middle school students was suggestive of a greater impact among this age group. The present study included middle school students in grades seven and eight and selected participants from two different school districts. As previously noted, the data suggested that these students experienced both heightened learning of Spanish vocabulary words and elevated levels of engagement and satisfaction among stakeholders.

The findings of the present study indicate a need for future GVVP research with middle school students. Accordingly, a systematic replication of the present study should be conducted with middle school students. Participants from the 7th and 8th grade should be LD students with various levels of academic skills, ideally recruited from a wider variety of school districts and socio-economic backgrounds. This systematic replication would utilize the same 84 words, with the same groupings of words among the Flashcards and GVVP conditions, in order to promote comparisons with the present study and contribute to the base of knowledge regarding students with LD learning concrete Spanish nouns.

Additional Elementary School Sampling

The sample of elementary students in the present study was limited to two 5th grade males. Both students were of comparable ethnic and socio-economic backgrounds, and both were experiencing similar instability in their households. Because of the pronounced limitations described, a systematic replication of the present study involving a wider sample of elementary students is recommended. The elementary sample would continue to be limited to students enrolled in grades 4-6 and would necessarily seek to include a more diverse array of gender, age, socio-economic status, and social or academic functioning than was possible in the present study. Data obtained from this research may lend detail to the findings of the present study regarding elementary students, but might benefit from comparison to the findings regarding the slightly older middle school students.

Additional Research with High School Students

The present study indicated that high school students attained largely equivalent degrees of Spanish vocabulary learning with both flashcards and GVVP. The scores in both conditions were suggestive of the potential for learning a quantity of words needed to be successful in a typical Spanish course. However, data collected in the present study that the older students may have preferred independence not adequately provided by GVVP. Additionally, the present study did not adequately measure retention and generalization of vocabulary, which is particularly important for the high school students. In considering this information, two possible directions for future research involving high school students are proposed.

Electronic GVVP. While the data from the present study indicated that GVVP and flashcards resulted in similar outcomes for high school students, a possible drawback to the GVVP strategy was the lack of independence it often provided the older students. In order for GVVP to become a viable learning strategy for older students, the development and testing of an electronic version of the strategy is a logical evolution. Ideally, the strategy would be translated to an application suitable for a tablet or smartphone. The multi-sensory nature of GVVP could be preserved by use of elements like audio and manipulation of a touch-screen, and the strategy could arguably be improved by randomizing the order and quantity of words, or by a design providing immediate corrective feedback. In order to draw meaningful comparisons to the present study, initial research with the electronic version of GVVP would involve the same 84 Spanish words, and would again be examined in comparison to the strategy of using flashcards.

Retention and generalization of vocabulary. Although the present study addressed the accuracy of Spanish vocabulary words being learned successfully with GVVP, the dimension of time was not represented adequately. A major consideration in meaningful language learning is retention and generalization of information learned. The introduction of maintenance probes and a focus on retaining Spanish vocabulary could be important for future research at any grade level, but is particularly urgent for high school students who are likelier to benefit from the ability to independently utilize what they learn in academic and social settings.

Along similar lines, the relationship between accuracy and speed is crucial to the process of learning vocabulary in any language. High school students enrolled in Spanish

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courses need to not only learn and maintain vocabulary accurately, but also must learn quickly to facilitate the encoding of other information in the target language. Within the context of a Spanish classroom, it would be considered positive if an LD student could learn eight of 12 vocabulary words, but not if attaining that degree of accuracy takes two weeks. The importance of speed and accuracy, the performance of high school students in the present study and the notion of meaningful repetitions (Gass & Selinker, 2001) can all inform future research. One avenue for future research would be to combine GVVP and flashcards and to compare the speed and accuracy of Spanish vocabulary learning to the use of flashcards alone. Participants would use flashcards in the baseline condition, and the treatment condition would involve structured practice with GVVP during brief classroom sessions and independent practice at home with flashcards of the same words.

Additional Practitioners

An admitted limitation of the present study involving GVVP was the role of the researcher as the designer of the strategy and the person responsible for planning and conducting research. The format of GVVP was designed to be accessible and the present study relied upon a detailed, systematic process. In order to better understand the impact of GVVP in a classroom context, future research should allow the implementation of GVVP by a classroom Spanish teacher or teacher or students with learning disabilities. A study in which other practitioners utilize the GVVP strategy would provide further data for comparison and would be important in addressing the applicability of GVVP to classroom practice.

General Summary

The present study can be best characterized as an evaluation of the impact of GVVP as a strategy for LD students to learn concrete Spanish nouns. After considering previous research addressing meaningful support for LD students in learning foreign languages, the present study similarly attempted to examine the effectiveness of a learning strategy based in the use of multiple senses. Major themes in the existing body of research, namely the need for additional strategies for LD students and the impact of visual and mnemonic methods, informed the development of GVVP. GVVP was designed to promote the learning of concrete Spanish nouns and the vocabulary words selected for the study derived directly from the expectations of the World Languages curriculum for students in Michigan.

In the first systematic research conducted on GVVP, the strategy was determined to be of moderate benefit to the majority of the eight participants in the study. The greatest observable impact for GVVP was discovered among middle school students, who experienced the most consistent and most pronounced increase in successful translation of concrete Spanish nouns when using the GVVP strategy. Further research involving this age group is considered essential to any continued development and implementation of GVVP.

Although data did not indicate that GVVP was as effective for the elementary and high school students, the process of conducting the present study did provide useful information with implications for additional research. First, collected data and researcher observations emerging from the present study have suggested that both GVVP and

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flashcards may be useful resources LD students in foreign language courses. However, this utility may hinge upon alterations to GVVP, or combination with additional strategies to promote the learning of Spanish vocabulary.

More importantly, experiences with GVVP and participation in the present study were evidenced to be well-received by participants and other stakeholders. Several participants experienced success with learning concrete Spanish nouns and were part of a new opportunity deemed worthwhile by the majority of the parties involved. The objectives of the present study were quite specific, and the pertinent limitations have been addressed. The findings of the research do not indicate that GVVP consistently correlates with definitive success in translating concrete Spanish nouns, or that the method alone would be an integral factor in larger success with foreign language learning or classroom experiences. However, the apparent academic and attitudinal outcomes of participants documented in the present study may be considered as further evidence that specific strategies to support LD students in learning Spanish can be developed and implemented. Further, the potential to continue developing new options for inclusion in foreign language study represents an opportunity for new insights in the less-explored intersection of LD and Spanish language learning.

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Appendix A

Basic Template for GVVP

Appendix B

Master List of Spanish Vocabulary Words

I. Food

- | | |
|---------------------|----------------------------|
| 1. Pizza (pizza) | 7. Hamburguesa (hamburger) |
| 2. Leche (milk) | 8. Queso (cheese) |
| 3. Pan (bread) | 9. Huevo (egg) |
| 4. Manzana (apple) | 10. Carne (meat) |
| 5. Galleta (cookie) | 11. Plátano (banana) |
| 6. Ensalada (salad) | 12. Pollo (chicken) |

II. Parts of a House

- | | |
|--------------------------|--------------------------|
| 1. Cocina (kitchen) | 7. Suelo (floor) |
| 2. Sala (living room) | 8. Baño (bathroom) |
| 3. Comedor (dining room) | 9. Ducha (shower) |
| 4. Sótano (basement) | 10. Dormitorio (Bedroom) |
| 5. Garaje (garage) | 11. Cama (bed) |
| 6. Techo (ceiling) | 12. Pared (wall) |

III. Places

- | | |
|-------------------------|-----------------------------|
| 1. Parque (park) | 7. Escuela (school) |
| 2. Casa (house) | 8. Restaurante (restaurant) |
| 3. Biblioteca (library) | 9. Tienda (store) |
| 4. Aeropuerto (airport) | 10. Panadería (bakery) |
| 5. Piscina (pool) | 11. Correo (post office) |
| 6. Playa (beach) | 12. Cine (movie theater) |

IV. School

- | | |
|--------------------------------|-----------------------------------|
| 1. Profesora (teacher –female) | 7. Carpeta (folder) |
| 2. Lápiz (pencil) | 8. Bolígrafo (pen) |
| 3. Papel (paper) | 9. Bandera (flag) |
| 4. Escritorio (desk) | 10. Ventana (window) |
| 5. Estudiante (student) | 11. Sacapuntas (pencil sharpener) |
| 6. Libro (book) | 12. Reloj (clock) |

V. Body Parts

- | | |
|--------------------|---------------------|
| 1. Ojo (eye) | 7. Nariz (nose) |
| 2. Boca (mouth) | 8. Mano (hand) |
| 3. Pie (foot) | 9. Pelo (hair) |
| 4. Pierna (leg) | 10. Lengua (tongue) |
| 5. Dientes (teeth) | 11. Brazo (arm) |
| 6. Oreja (ear) | 12. Espalda (back) |

VI. Clothing

- | | |
|-----------------------|------------------------|
| 1. Pantalones (pants) | 7. Camisa (shirt) |
| 2. Zapatos (shoes) | 8. Falda (skirt) |
| 3. Sombrero (hat) | 9. Chaqueta (jacket) |
| 4. Corbata (tie) | 10. Guantes (gloves) |
| 5. Gafas (glasses) | 11. Cadena (chain) |
| 6. Bolso (purse) | 12. Calcetines (socks) |

VII. Household Objects & Pets

- | | |
|--------------------|----------------------|
| 1. alfombra (rug) | 7. silla (chair) |
| 2. tenedor (fork) | 8. lámpara (lamp) |
| 3. sofá (couch) | 9. tina (bathtub) |
| 4. mesa (table) | 10. cuchillo (knife) |
| 5. vaso (glass) | 11. gato (cat) |
| 6. cuchara (spoon) | 12. perro (dog) |

Appendix C

Overview of Weekly Instruction

Weeks 1-3:

During the first 10 sessions, baseline data will be gathered. This phase is termed Flashcards One.

1. Words will be presented to students as part of a thematic group involving food. Participants will be supplied with a set of 12 flashcards containing the vocabulary for the thematic unit. Flashcards will contain Spanish words on one side, and English equivalents on the reverse. After independently practicing with the flashcards for 10 minutes, the researcher will assess participants' ability to produce the English equivalent of each Spanish word read from a randomized list. The total number of correct words will be recorded and charted on a graph.
2. Words will be presented to students as part of a thematic group involving parts of a house. Participants will be supplied with a set of 12 flashcards containing the vocabulary for the thematic unit. Flashcards will contain Spanish words on one side, and English equivalents on the reverse. After independently practicing with the flashcards for 10 minutes, the researcher will assess participants' ability to produce the English equivalent of each Spanish word read from a randomized list. The total number of correct words will be recorded and charted on a graph.

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Anticipated Student Outcomes:

1. Students will independently practice the food words *pizza, hamburguesa, pan, leche, galleta, manzana, plátano, queso, ensalada, huevo, pollo, and carne.*
2. Students will independently practice the household words *sótano, comedor, techo, suelo, cocina, dormitorio, pared, ducha, baño, cama, sala, and garaje.*
3. Students' vocabulary learning will reflect their ability in rote memorization of new words.

Weeks 4-6:

During this portion of the study, participants will be introduced to thematically-grouped vocabulary using the GVVP strategy. This phase is termed GVVP One and will be comprised of 10 sessions.

1. Teacher will introduce the words in thematic groups for school vocabulary and clothing vocabulary. This will be done by first asking students to brainstorm four examples of English words in each category in the first session with each set of words, and to subsequently recall four English words covered in the previous sessions. The thematic groups will be locations and classroom vocabulary.

2. Teacher will guide students through the completion of GVVP Template 1.1A, Template 1.1B, Template 1.2A, Template 1.2B, Template 1.3A, Template 1.3B, Template 1.4A, Template 1.4B, Template 2.1A, Template 2.1B, Template 2.2A, Template 2.2B, Template 2.3A, Template 2.3B, Template 2.4A, and Template 2.4B (*Appendix D*).

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

3. Teacher will guide students through the syllabic pronunciation of vocabulary words, as well as how to pronounce whole words, during completion of the three GVVP templates as described in the appropriate protocol (*Appendix E*).
4. Teacher will provide students with time to create visual representations of the 24 vocabulary words covered this week.

Anticipated Student Outcomes:

1. Students will correctly pronounce the words *aeropuerto, piscina, correo, playa, cine, escuela, parque, restaurante, casa, biblioteca, tienda, panadería, lápiz, papel, bolígrafo, escritorio, carpeta, sacapuntas, bandera, reloj*, and *ventana* when provided modeling.
2. Students will create a visual image to represent each word once during the sessions.
3. Students will correctly write each of the target vocabulary words in Spanish, with guidance, using syllables.
4. Students will write the corresponding English word for each Spanish word, with guidance.

Week 8:

During these sessions, baseline data will be gathered. This phase is termed Flashcards Two, and will last 5 sessions.

1. Words will be presented to students as part of a thematic group involving body parts. Participants will be supplied with a set of 12 flashcards containing the

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vocabulary for the thematic unit. Flashcards will contain Spanish words on one side, and English equivalents on the reverse. After independently practicing with the flashcards for 10 minutes, the researcher will assess participants' ability to produce the English equivalent of each Spanish word read from a randomized list.

The total number of correct words will be recorded and charted on a graph.

Anticipated Student Outcomes:

1. Students will independently practice the body part words *ojo, pierna, dientes, oreja, espalda, lengua, brazo, mano, pie, nariz, pelo, and boca*.
2. Students' vocabulary learning will reflect their ability in rote memorization of new words.

Week 9-10:

During this portion of the study, participants will be introduced to thematically-grouped vocabulary using the GVVP strategy. This phase is termed GVVP Two, and will last 10 sessions.

1. Teacher will introduce the words in thematic groups for clothing and household objects/pets. This will be done by first asking students to brainstorm four examples of English words in each category in the first session with each set of words, and to subsequently recall four English words covered in the previous sessions.

2. Teacher will guide students through the completion of GVVP Template 3.1A, Template 3.1B, Template 3.2A, Template 3.3A, Template 3.3B, Template 3.4A, Template 3.4B, Template 4.1A, Template 4.1B, Template 4.2A, Template 4.2B, Template 4.3A, Template 4.3B, Template 4.4A, and Template 4.4B (*Appendix D*).

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

3. Teacher will guide students through the syllabic pronunciation of vocabulary words, as well as how to pronounce whole words, during completion of the three GVVP templates as described in the appropriate protocol (*Appendix E*).

4. Teacher will provide students with time to create visual representations of the 24 vocabulary words covered during this phase.

Anticipated Student Outcomes:

1. Students will correctly pronounce the words, *zapatos, chaqueta, camisa, falda, pantalones, sombrero, corbata, calcetines, gafas, bolso, cadena, and guantes*, when provided modeling.

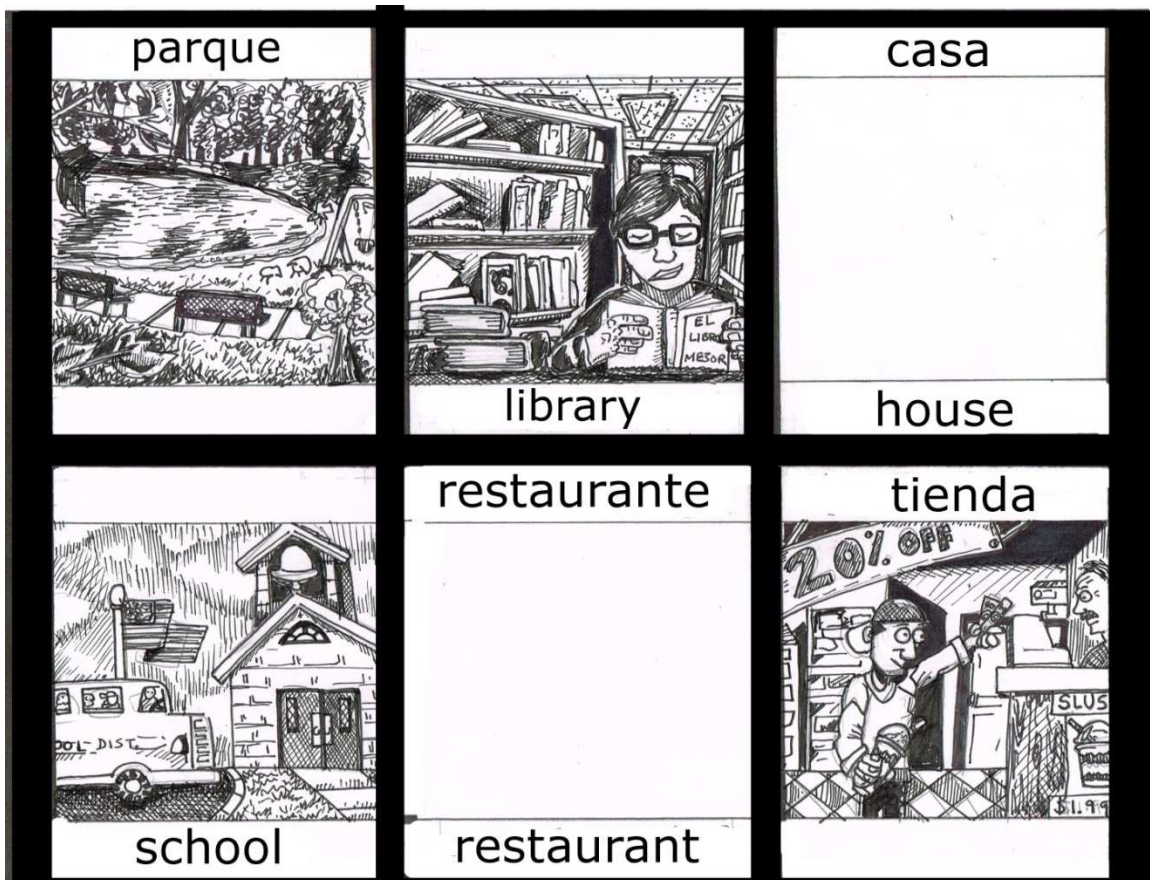
2. Students will create a visual image to represent each word once during the week.

3. Students will correctly write each of the target vocabulary words in Spanish, with guidance, using syllables.

4. Students will write the corresponding English word for each Spanish word, with guidance.

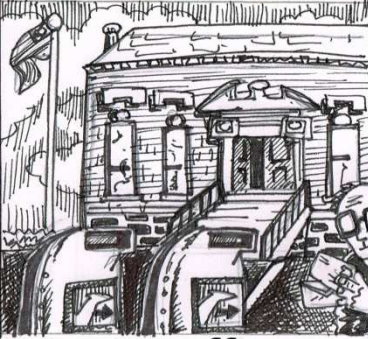

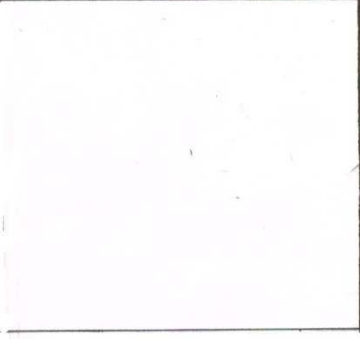
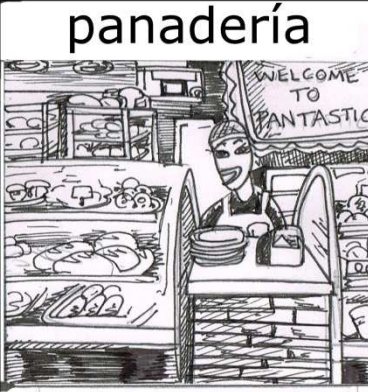
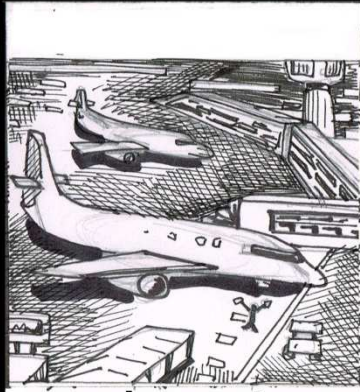
Appendix D

Participant GVVP Templates




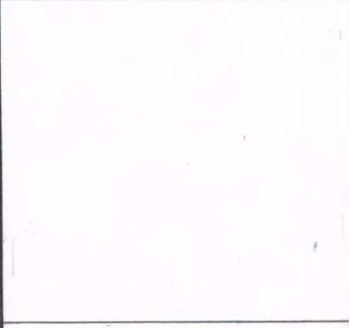




Template 1.1A

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<p>piscina</p>		<p>playa</p>
	<p>post office</p>	
<p>cine</p>		
<p>movie theater</p>	<p>panadería</p>	<p>airport</p>

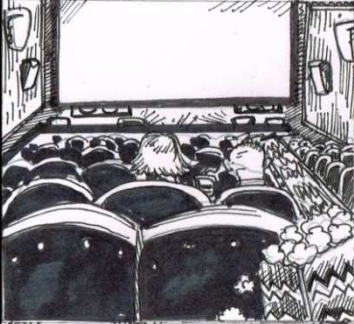
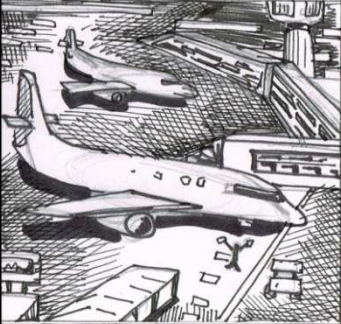
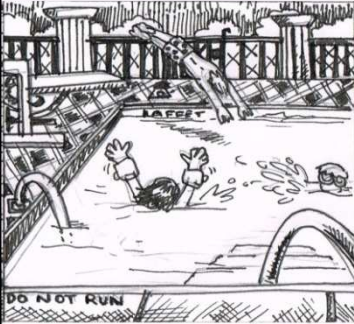
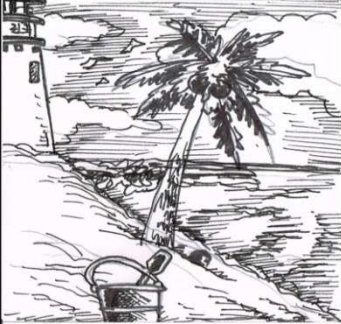
Template 1.1B

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS





<p>restaurante</p>  <p>store</p>	<p>tienda</p>  <p>library</p>	<p>biblioteca</p>  <p>library</p>
 <p>park</p>	<p>escuela</p>  <p>house</p>	 <p>house</p>

Template 1.2A

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS



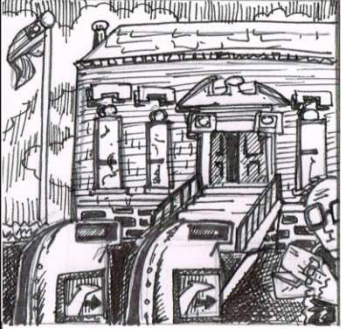
<p>panadería</p>		<p>aeropuerto</p>
<p>bakery</p>	<p>movie theater</p>	
<p>playa</p>		<p>correo</p>
	<p>pool</p>	<p>post office</p>

Template 1.2B

escuela	casa	
		
school		restaurant
	biblioteca	parque
		
store		park


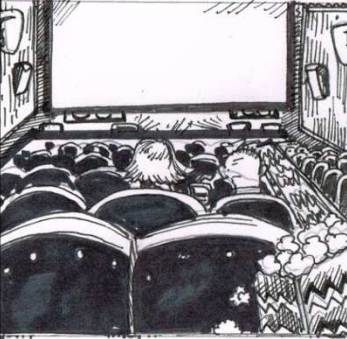


Template 1.3A

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

	aeropuerto	piscina
beach	airport	pool
correo		cine
	bakery	

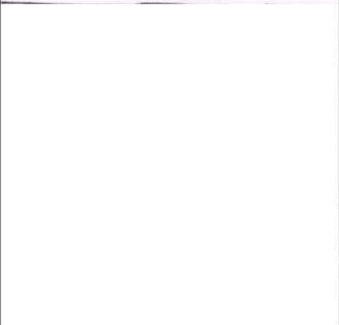


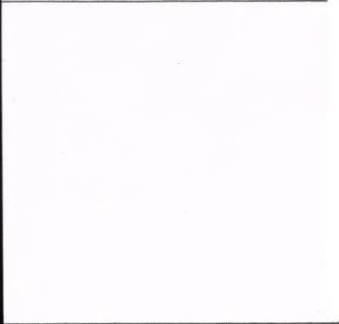


Template 1.3B

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

 <p>library</p>	 <p>movie theater</p>	<p>restaurante</p> <p>restaurant</p>
<p>playa</p> 	<p>casa</p> <p>house</p>	<p>panadería</p> 



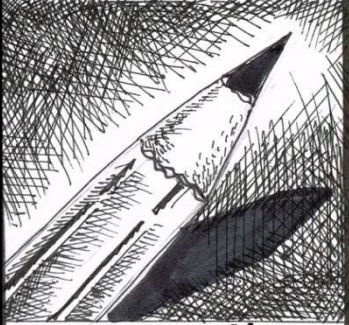

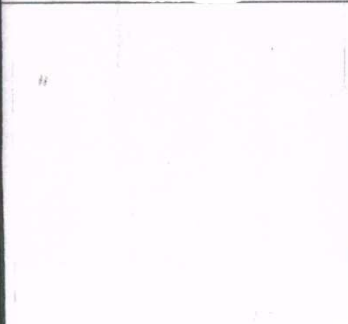
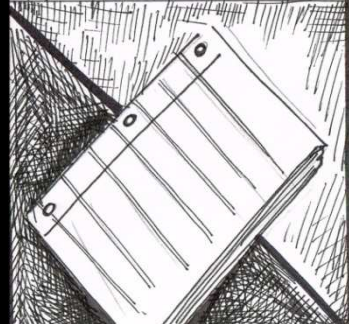
Template 1.4A

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

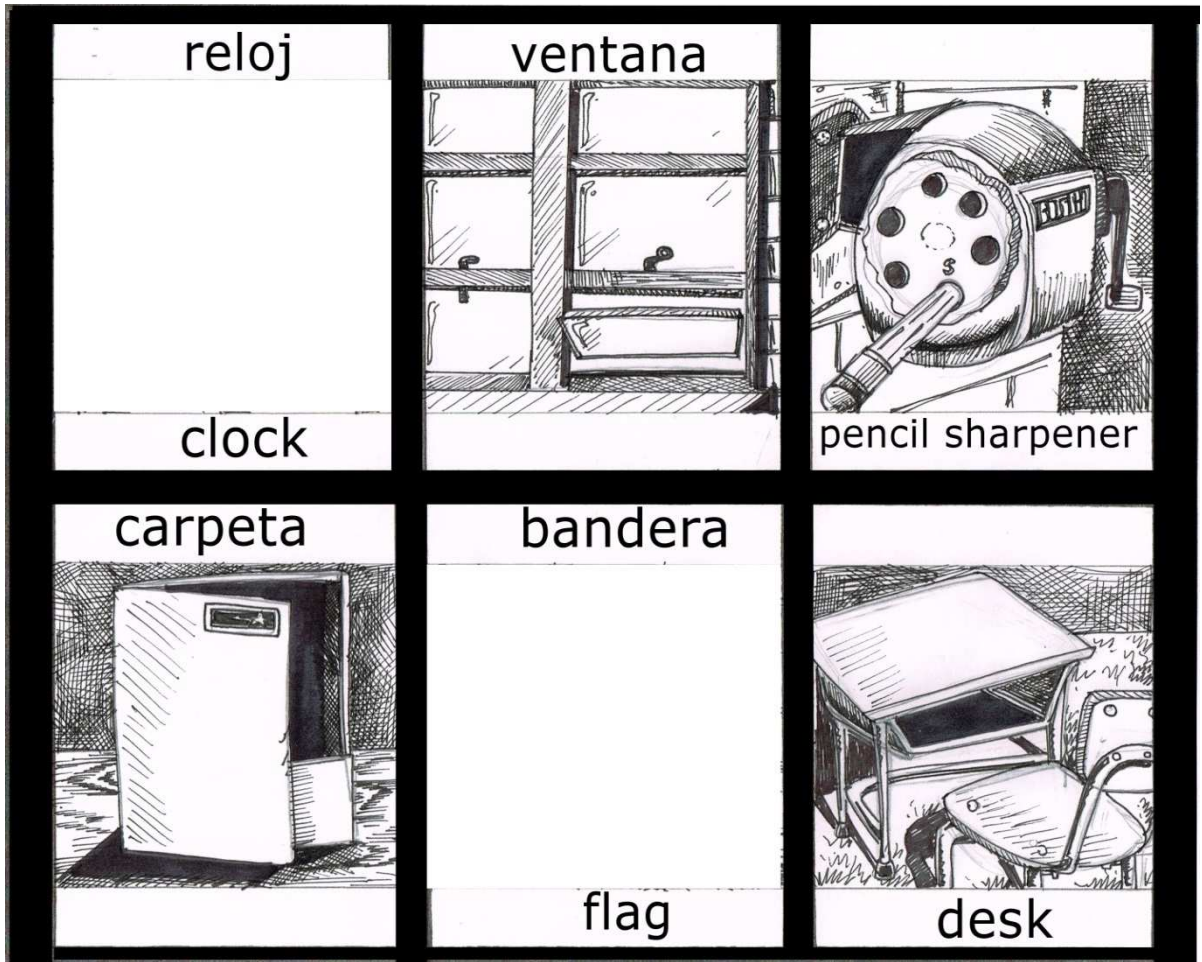
correo	piscina	tienda
		
post office		
parque		
		
park	airport	school

Template 1.4B

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

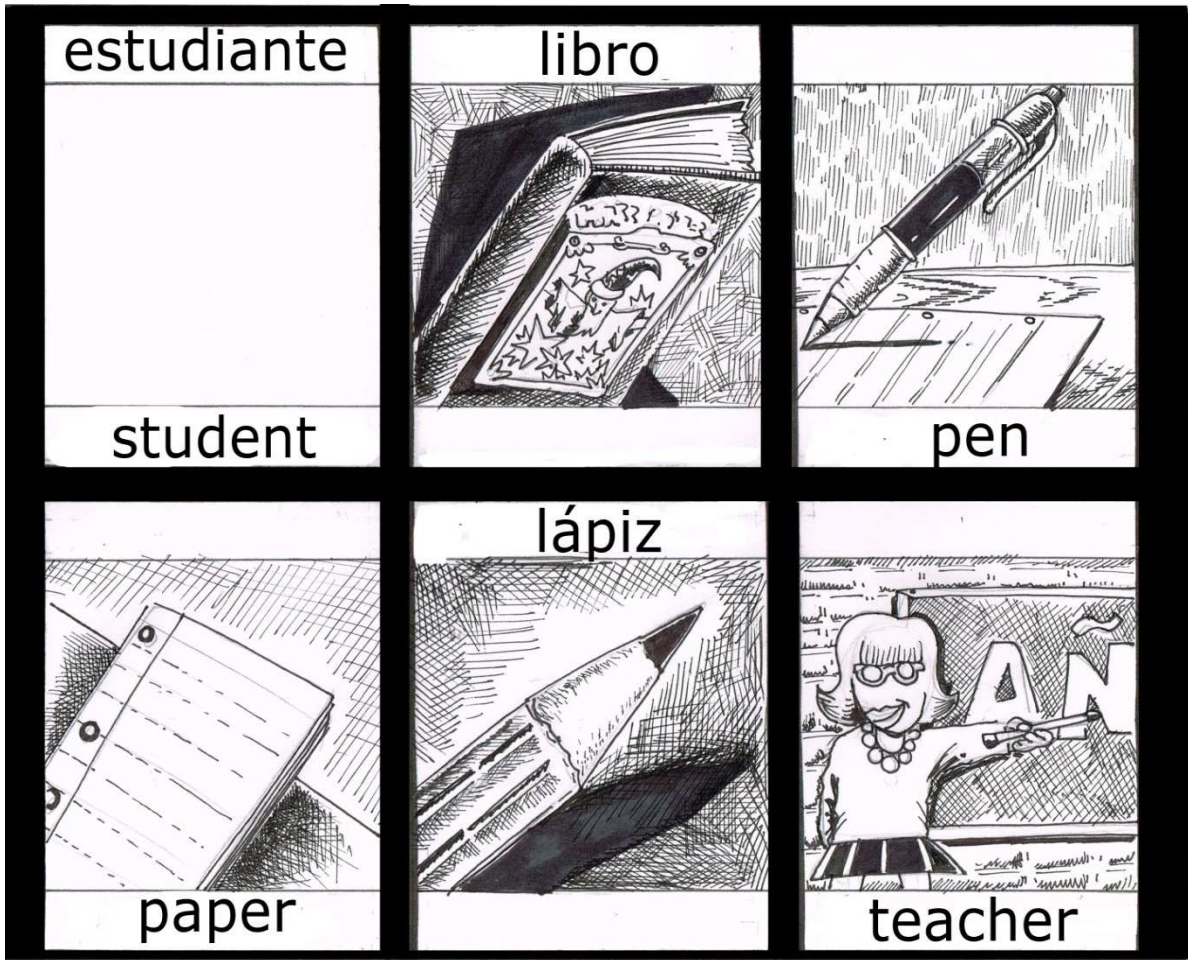
<p>profesora</p> 	<p>libro</p> 	
	<p>bolígrafo</p> 	
<p>student</p>	<p>pen</p>	<p>paper</p>

Template 2.1A



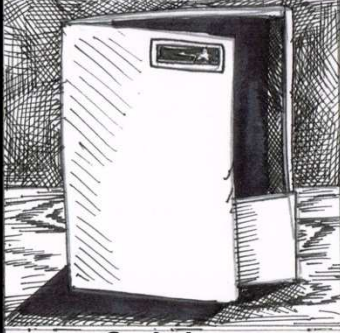
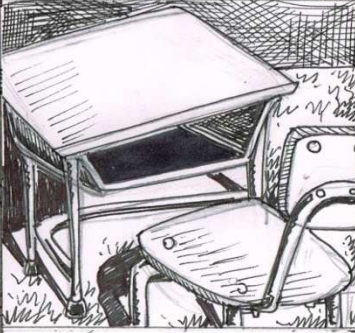
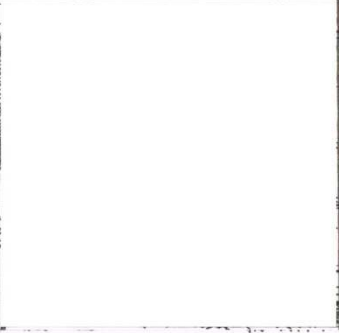
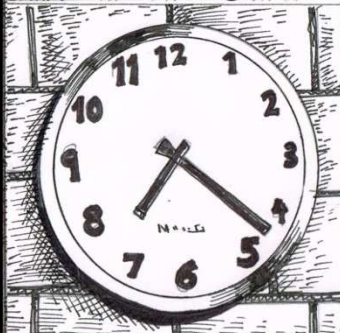
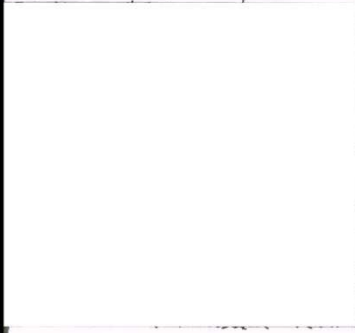
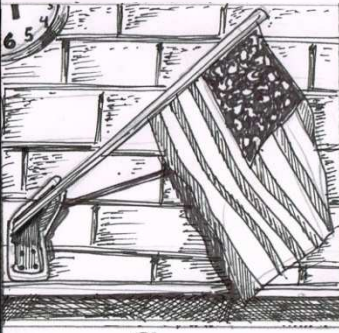
Template 2.1B

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS






Template 2.2A

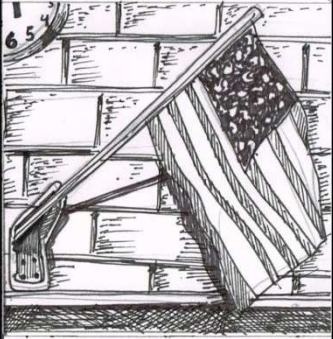
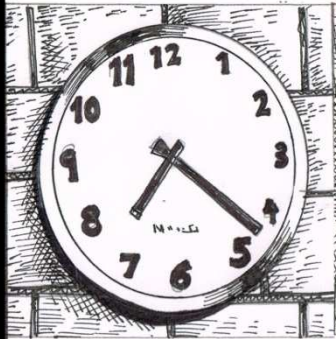
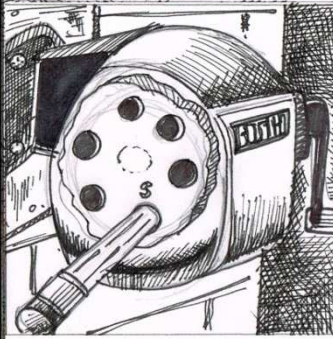
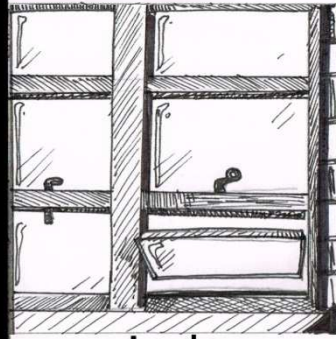
GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

 <p>folder</p>	<p>escritorio</p> 	<p>ventana</p>  <p>window</p>
<p>reloj</p> 	<p>sacapuntas</p>  <p>pencil sharpener</p>	 <p>flag</p>

Template 2.2B

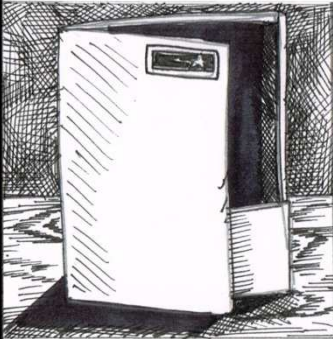
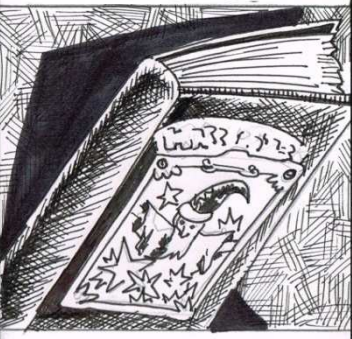
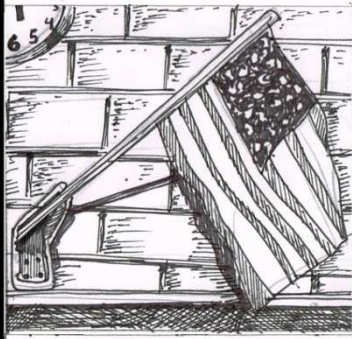

lápiz	estudiante	papel
		
pencil		paper
profesora		bolígrafo
		
teacher	book	

Template 2.3A

<p>bandera</p> 	<p>carpeta</p> <p>folder</p>	 <p>clock</p>
<p>sacapuntas</p> 	<p>escritorio</p> <p>desk</p>	 <p>window</p>

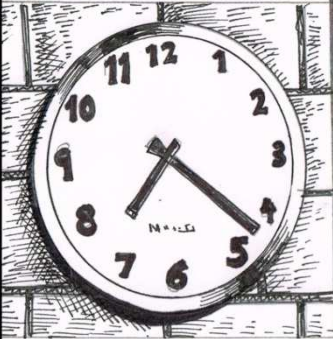
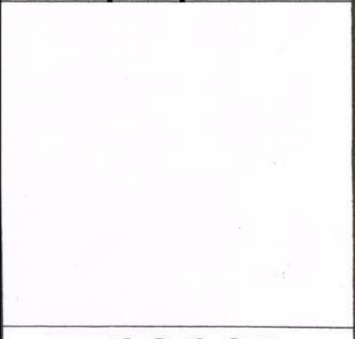
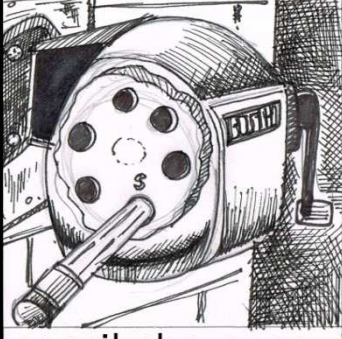


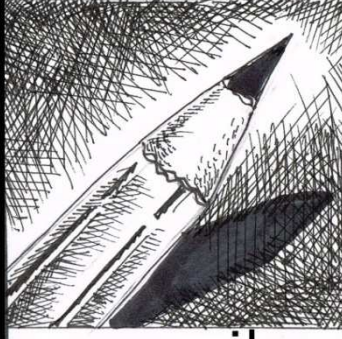
Template 2.3B

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

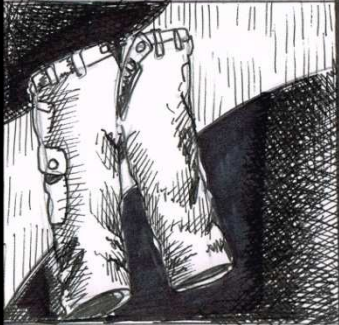


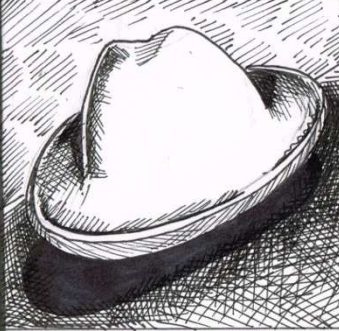
 <p>folder</p>	<p>libro</p> 	<p>escritorio</p> <p>desk</p>
<p>profesora</p> <p>teacher</p>	<p>bandera</p> 	 <p>pen</p>

Template 2.4A

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS


reloj 	papel 	
ventana 	estudiante 	
window		pencil

Template 2.4B

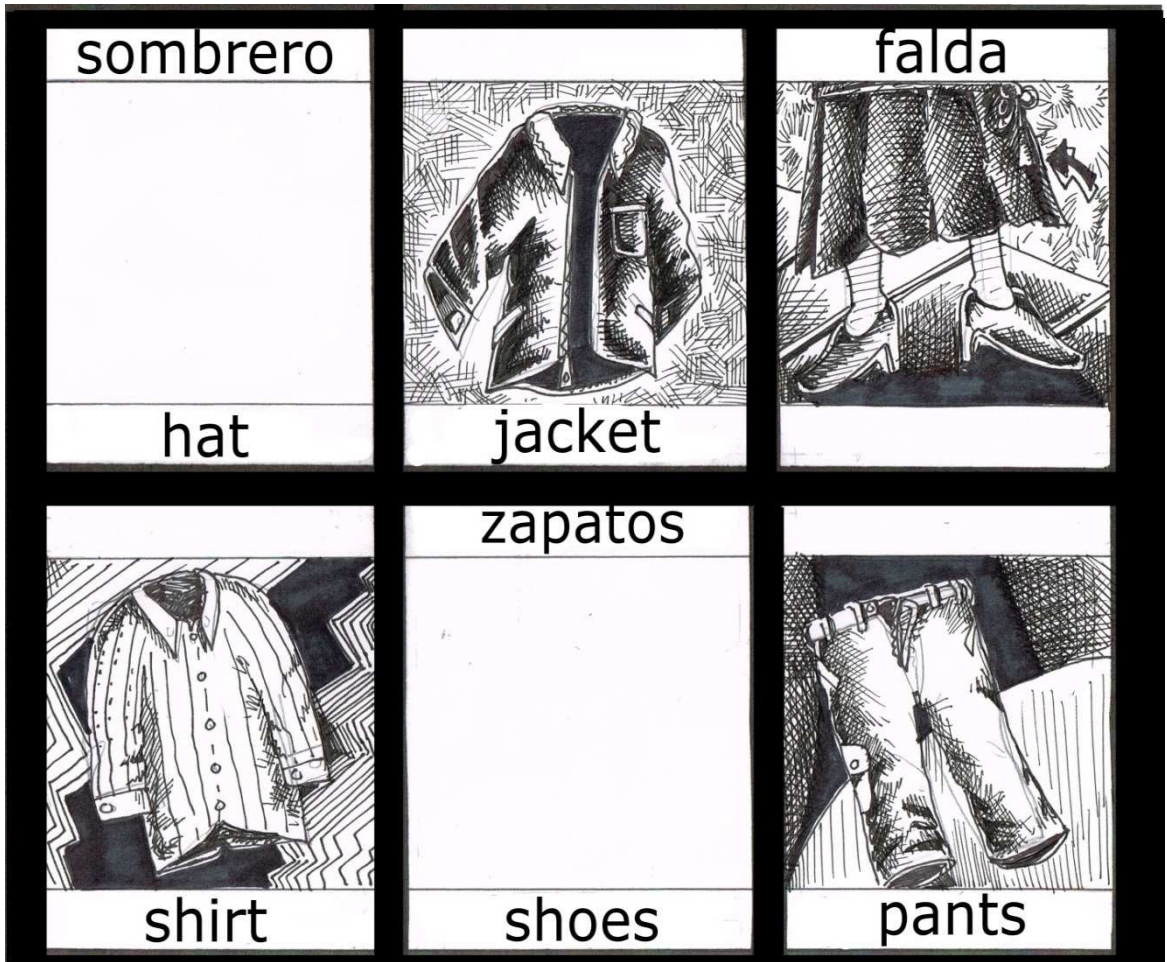
pantalones	camisa	
		
	shirt	shoes
chaqueta		falda
		
	hat	skirt

Template 3.1A



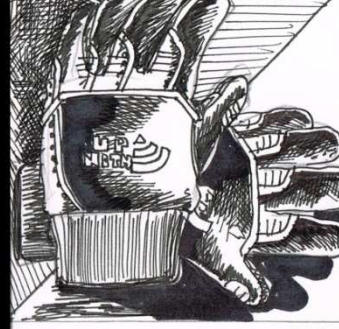

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

cadena		guantes
		
	purse	gloves
gafas		calcetines
	socks	
		tie



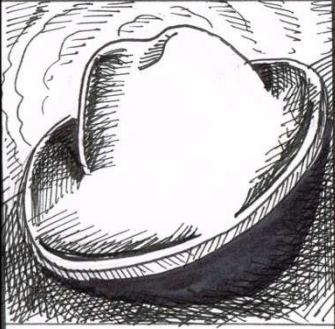



Template 3.1B



Template 3.2A



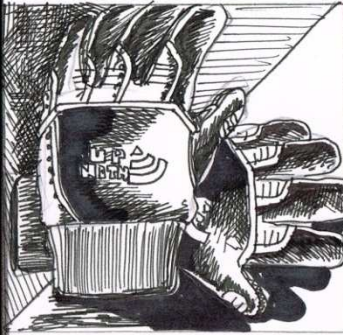

calcetines	bolsa	
		
	purse	glasses
corbata	guantes	
		
tie		chain

Template 3.2B

<p>zapatos</p> 	 <p>skirt</p>	<p>sombrero</p> 
<p>camisa</p> 	<p>chaqueta</p>  <p>jacket</p>	<p>pantalones</p>  <p>pants</p>

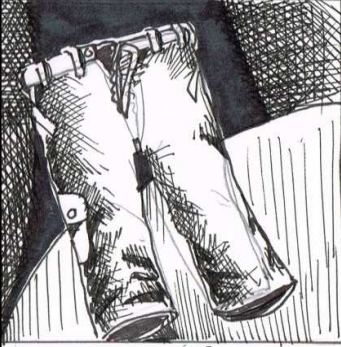



Template 3.3A

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

<p>bolsa</p>	<p>cadena</p>	
		
	<p>chain</p>	<p>socks</p>
	<p>corbata</p>	<p>gafas</p>
		
<p>gloves</p>		<p>glasses</p>

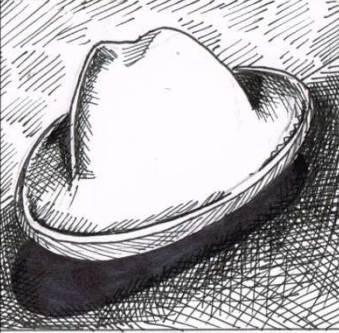


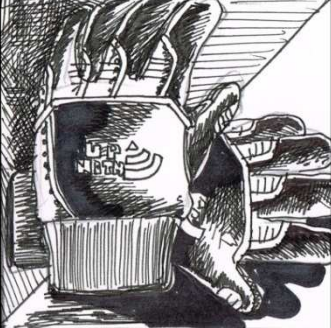
Template 3.3B

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

<p>cadena</p>		<p>calcetines</p>
	<p>pants</p>	
	<p>socks</p>	
<p>zapatos</p>		<p>camisa</p>
	<p>glasses</p>	
	<p>shirt</p>	


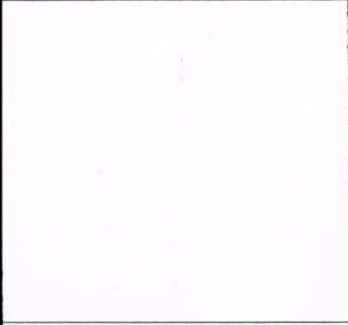

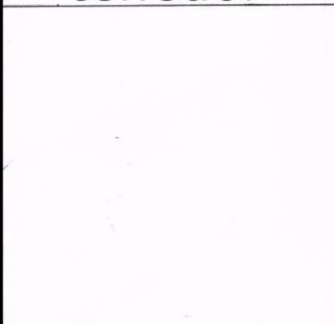
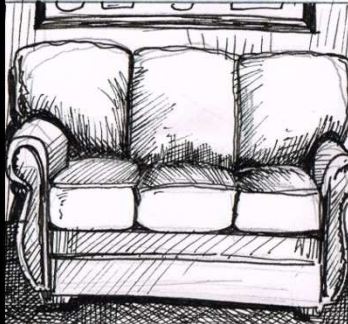

Template 3.4A

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

 <p>hat</p>	<p>corbata</p> <p>tie</p>	<p>falda</p> <p>skirt</p>
<p>bolsa</p> 	<p>chaqueta</p> 	 <p>gloves</p>

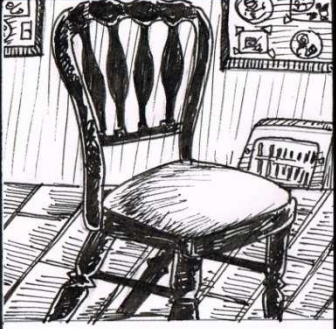
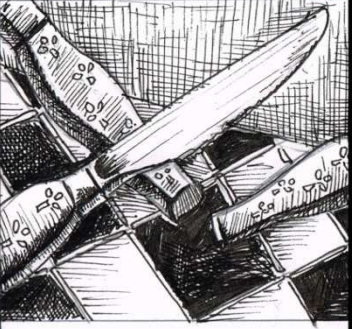


Template 3.4B

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

<p>lámpara</p> 	<p>gato</p> 	 <p>spoon</p>
<p>tenedor</p> 	<p>sofá</p> 	 <p>rug</p>

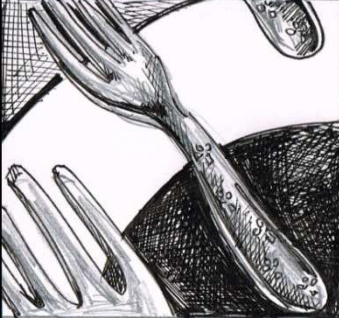


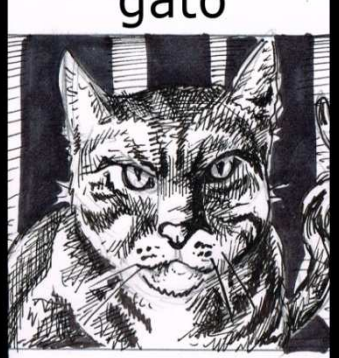
Template 4.1A

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

<p>silla</p> 	 <p>knife</p>	<p>tina</p> <p>bathtub</p>
 <p>glass</p>	<p>mesa</p> <p>table</p>	<p>perro</p> 


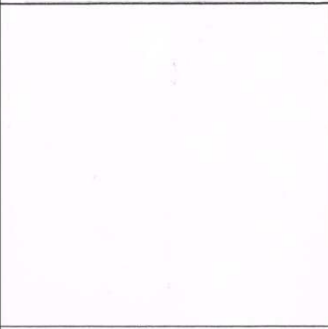
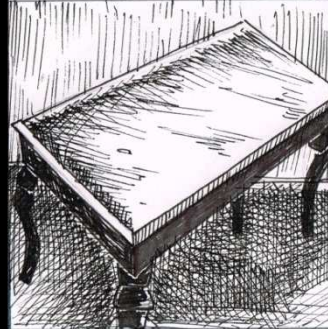



Template 4.1B

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

alfombra		sofá
	fork	
	cuchara	couch
		gato
lamp	spoon	

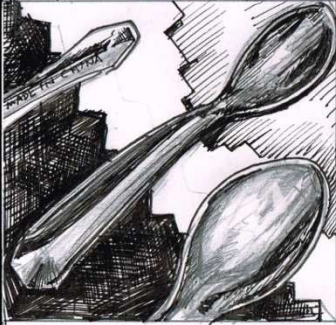
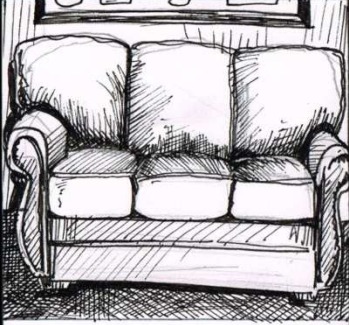
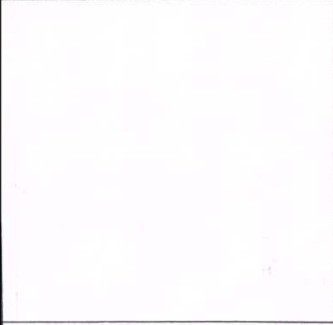
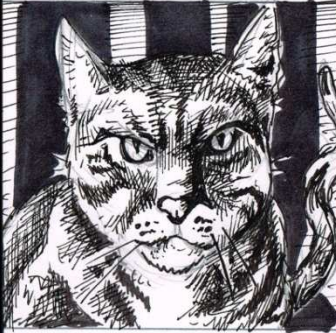


Template 4.2A

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

 <p>bathtub</p>	<p>vaso</p>  <p>glass</p>	<p>mesa</p> 
<p>perro</p>  <p>dog</p>	<p>cuchillo</p> 	 <p>chair</p>


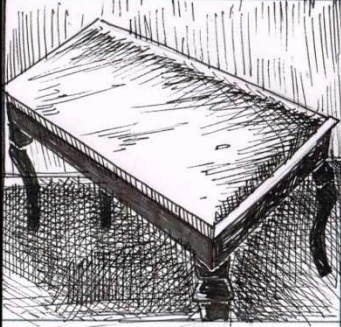


Template 4.2B

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

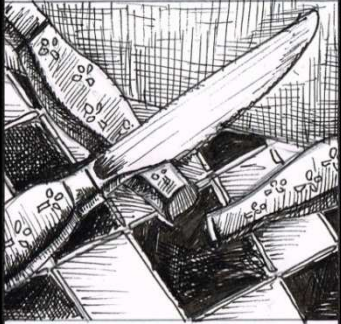
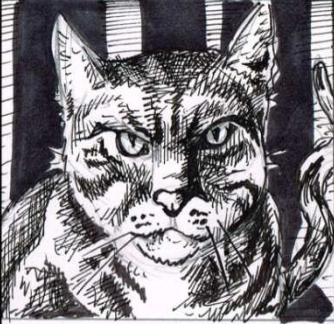


<p>cuchara</p> 		<p>alfombra</p> 
	<p>lámpara</p> 	<p>tenedor</p> 
<p>cat</p>	<p>lamp</p>	

Template 4.3A

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

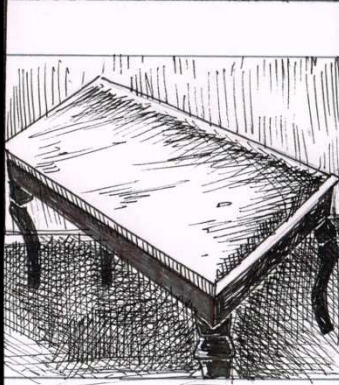
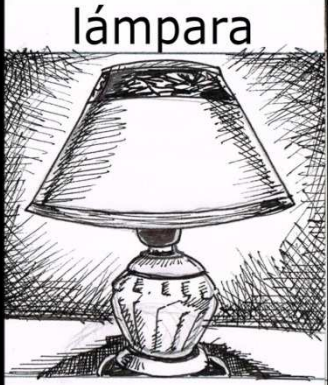

 <p>dog</p>	 <p>table</p>	<p>silla</p> <p>chair</p>
<p>tina</p> 	<p>cuchillo</p> <p>knife</p>	<p>vaso</p> 

Template 4.3B

	tenedor	vaso
knife	fork	glass
alfombra	silla	
		cat

Template 4.4A

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

sofá		lámpara
couch	table	
perro		tina
	spoon	bathtub

Template 4.4B

Appendix E

Sample Protocols for Individual GVVP Templates

Template 1.1A:

Section 1

1. Teacher points to the word “parque” in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the letters p-a-r, and has the student repeat “pah;” runs finger under the q-u-e, and has the student repeat “keh.” Student then repeats back the entire word parque.
2. Teacher points to the picture underneath the word parque, and says, “This is a parque. What do you think this is a picture of?” (A parque is a park).
3. Teacher points to the space underneath the picture and says, “I want you to write the word park in this box. Let’s go one letter at a time: p-a-r-k.”

Section 2

1. Teacher points to the blank space at the top of the section and says, “This word is missing. First, let’s figure out what the word is going to mean. What English word and picture do you see here?” (Student should answer “library”).
2. Teacher points to the space at the top and says, “Let’s write in the Spanish word for library, one syllable at a time: b-i...b-l-i...o...t-e...c-a.”
3. Teacher points to the word biblioteca, and says, “Let’s sound out this word now.” Teacher runs a finger under the b-i, and has student repeat “bee;” teacher runs a

finger under the b-l-i, and has student repeat “(/blee/);” teacher runs a finger under the o, and has student repeat “oh;” teacher runs a finger under the t-e, and has student repeat “tay;” teacher runs a finger under the c-a, and has student repeat “kah.” Teacher then has student repeat the entire word biblioteca.

Section 3

1. Teacher points at the word in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the c-a, and has student repeat “(/kah/);” teacher runs a finger under the s-a, and has student repeat “(/sah/).” Finally, the student repeats the entire word casa.
2. Teacher points to the English word in the bottom space and says, “This is what casa means in English. Can you read this word for me?” (Student should read the word “house,” teacher can model if needed).
3. Teacher points to the blank space in the middle of this section and says, “I want you to draw a picture of a casa for me. Draw the best casa you can make in three minutes.”

Section 4

1. Teacher points to the blank space at the top of the section and says, “This word is missing. First, let’s figure out what the word is going to mean. What English word and picture do you see here?” (Student should answer “school”).
2. Teacher points to the space at the top and says, “Let’s write in the Spanish word for school, one syllable at a time: e-s...c-u...e...l-a.”
3. Teacher points to the word escuela, and says, “Let’s sound out this word now.” Teacher runs a finger under the e-s, and has student repeat “(/ehs/);” teacher runs a

finger under the c-u, and has student repeat “/coo/;” teacher runs a finger under the e, and has student repeat “eh;” teacher runs a finger under the l-a, and has student repeat “lah.” Teacher then has student repeat the entire word escuela.

Section 5

1. Teacher points at the word restaurante in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the r-e-s, and has student repeat “(/rehs/);” teacher runs a finger under the t- a-u, and has student repeat “(/tauw/);” teacher runs a finger under the r-a-n, and has student repeat “(/rahn/);” teacher runs a finger under the t-e, and has student repeat “(/tay/).” Finally, the student repeats the entire word restaurante.
2. Teacher points to the English word in the bottom space and says, “This is what restaurante means in English. Can you read this word for me?” (Student should read the word “restaurant,” teacher can model if needed).
3. Teacher points to the blank space in the middle of this section and says, “I want you to draw a picture of a restaurante for me. Draw the best restaurante you can make in three minutes.”

Section 6

1. Teacher points to the word tienda in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the letters t-i , and has the student repeat “/tee/;” runs finger under the e-n, and has the student repeat “/ehn/;” runs finger under the d-a, and has student repeat “/thah/.” Student then repeats back the entire word tienda.

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

2. Teacher points to the picture underneath the word tienda, and says, “This is a tienda. What do you think this is a picture of?” (A tienda is a store).
3. Teacher points to the space underneath the picture and says, “I want you to write the word store in this box. Let’s go one letter at a time: s-t-o-r-e.”

Template 1.2A:

Section 1

1. Teacher points at the word restaurante in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the r-e-s, and has student repeat “(/rehs/);” teacher runs a finger under the t- a-u, and has student repeat “(/tauw/);” teacher runs a finger under the r-a-n, and has student repeat “(/rahn/);” teacher runs a finger under the t-e, and has student repeat “(/tay/).” Finally, the student repeats the entire word restaurante.
2. Teacher points to the picture underneath the word restaurante, and says, “This is a restaurante. What do you think this is a picture of?” (A restaurante is a restaurant).
3. Teacher points to the space underneath the picture and says, “I want you to write the word restaurant in this box. Let’s go one letter at a time: r-e-s-t-a-u-r-a-n-t.”

Section 2

1. Teacher points to the word tienda in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the letters t-i , and has the student repeat “/tee/;” runs finger under the e-n, and has the student repeat “/ehn/;” runs

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

finger under the d-a, and has student repeat “/thah/.” Student then repeats back the entire word tienda.

2. Teacher points to the English word in the bottom space and says, “This is what tienda means in English. Can you read this word for me?” (Student should read the word “store,” teacher can model if needed).
3. Teacher points to the blank space in the middle of this section and says, “I want you to draw a picture of a tienda for me. Draw the best tienda you can make in three minutes.”

Section 3

1. Teacher points to the word “biblioteca” in the first space and says, “Let’s sound out this word now.” Teacher runs a finger under the b-i, and has student repeat “bee;” teacher runs a finger under the b-l-i, and has student repeat “(/blee/);” teacher runs a finger under the o, and has student repeat “oh;” teacher runs a finger under the t-e, and has student repeat “tay;” teacher runs a finger under the c-a, and has student repeat “kah.” Teacher then has student repeat the entire word biblioteca.
2. Teacher points to the English word in the bottom space and says, “This is what biblioteca means in English. Can you read this word for me?” (Student should read the word “library,” teacher can model if needed).
3. Teacher points to the blank space in the middle of this section and says, “I want you to draw a picture of a biblioteca for me. Draw the best biblioteca you can make in three minutes.”

Section 4

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

1. Teacher points to the blank space at the top of the section and says, “This word is missing. First, let’s figure out what the word is going to mean. What English word and picture do you see here?” (Student should answer “park”).
2. Teacher points to the space at the top and says, “Let’s write in the Spanish word for park, one syllable at a time: p-a-r...q-u-e.”
3. Teacher points to the word “parque” in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the letters p-a-r, and has the student repeat “pah;” runs finger under the q-u-e, and has the student repeat “keh.” Student then repeats back the entire word parque.

Section 5

1. Teacher points to the word escuela in the first space, and says, “Let’s sound out this word now.” Teacher runs a finger under the e-s, and has student repeat “/ehs/;” teacher runs a finger under the c-u, and has student repeat “/coo/;” teacher runs a finger under the e, and has student repeat “eh;” teacher runs a finger under the l-a, and has student repeat “lah.” Teacher then has student repeat the entire word escuela.
2. Teacher points to the picture underneath the word escuela, and says, “This is an escuela. What do you think this is a picture of?” (An escuela is a school).
3. Teacher points to the space underneath the picture and says, “I want you to write the word school in this box. Let’s go one letter at a time: s-c-h-o-o-l.”

Section 6

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

1. Teacher points to the blank space at the top of the section and says, “This word is missing. First, let’s figure out what the word is going to mean. What English word and picture do you see here?” (Student should answer “house”).
2. Teacher points to the space at the top and says, “Let’s write in the Spanish word for pencil, one syllable at a time: c-a...s-a.”
3. Teacher points at the word in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the c-a, and has student repeat “(/kah/);” teacher runs a finger under the s-a, and has student repeat “(/sah/).” Finally, the student repeats the entire word casa.

Template 1.3A:

Section 1

1. Teacher points to the word escuela in the first space, and says, “Let’s sound out this word now.” Teacher runs a finger under the e-s, and has student repeat “/ehs/;” teacher runs a finger under the c-u, and has student repeat “/coo/;” teacher runs a finger under the e, and has student repeat “eh;” teacher runs a finger under the l-a, and has student repeat “lah.” Teacher then has student repeat the entire word escuela.
2. Teacher points to the English word in the bottom space and says, “This is what escuela means in English. Can you read this word for me?” (Student should read the word “school,” teacher can model if needed).

3. Teacher points to the blank space in the middle of this section and says, “I want you to draw a picture of an escuela for me. Draw the best escuela you can make in three minutes.”

Section 2

1. Teacher points at the word in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the c-a, and has student repeat “(/kah/);” teacher runs a finger under the s-a, and has student repeat “(/sah/).” Finally, the student repeats the entire word casa.
2. Teacher points to the picture underneath the word casa, and says, “This is a casa. What do you think this is a picture of?” (A casa is a house).
3. Teacher points to the space underneath the picture and says, “I want you to write the word house in this box. Let’s go one letter at a time: h-o-u-s-e.”

Section 3

1. Teacher points to the blank space at the top of the section and says, “This word is missing. First, let’s figure out what the word is going to mean. What English word and picture do you see here?” (Student should answer “restuarant”).
2. Teacher points to the space at the top and says, “Let’s write in the Spanish word for restaurant, one syllable at a time: r-e-s-t...a-u...r-a-n...t-e.”
3. Teacher points at the word restaurante in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the r-e-s, and has student repeat “(/rehs/);” teacher runs a finger under the t- a-u, and has student repeat “(/tauw/);” teacher runs a finger under the r-a-n, and has student repeat

“(/rahn/);” teacher runs a finger under the t-e, and has student repeat “(/tay/).”

Finally, the student repeats the entire word restaurante.

Section 4

1. Teacher points to the blank space at the top of the section and says, “This word is missing. First, let’s figure out what the word is going to mean. What English word and picture do you see here?” (Student should answer “store”).
2. Teacher points to the space at the top and says, “Let’s write in the Spanish word for store, one syllable at a time: t-i...e-n...d-a.”
3. Teacher points to the word tienda in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the letters t-i , and has the student repeat “/tee/;” runs finger under the e-n, and has the student repeat “/ehn/;” runs finger under the d-a, and has student repeat “/thah/.” Student then repeats back the entire word tienda.

Section 5

1. Teacher points to the word “biblioteca” in the first space and says, “Let’s sound out this word now.” Teacher runs a finger under the b-i, and has student repeat “bee;” teacher runs a finger under the b-l-i, and has student repeat “(/blee/);” teacher runs a finger under the o, and has student repeat “oh;” teacher runs a finger under the t-e, and has student repeat “tay;” teacher runs a finger under the c-a, and has student repeat “kah.” Teacher then has student repeat the entire word biblioteca.
2. Teacher points to the picture underneath the word biblioteca, and says, “This is a biblioteca. What do you think this is a picture of?” (A biblioteca is a library).

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3. Teacher points to the space underneath the picture and says, “I want you to write the word library in this box. Let’s go one letter at a time: l-i-b-r-a-r-y.”

Section 6

1. Teacher points to the word “parque” in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the letters p-a-r, and has the student repeat “pahr;” runs finger under the q-u-e, and has the student repeat “keh.” Student then repeats back the entire word parque.
2. Teacher points to the English word in the bottom space and says, “This is what parquet means in English. Can you read this word for me?” (Student should read the word “park,” teacher can model if needed).
3. Teacher points to the blank space in the middle of this section and says, “I want you to draw a picture of a parque for me. Draw the best parque you can make in three minutes.”

Template 2.1A:

Section 1

1. Teacher points to the word *profesora* in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the letters p-r-o, and has the student repeat “pro;” runs finger under the f-e, and has the student repeat “fe” (/fey/); runs finger under the s-o, and has the student repeat “so” (/soh/), runs finger under the r-a, and has student repeat “ra” (/rah). Student then repeats back the entire word *profesora*.

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2. Teacher points to the picture underneath the word *profesora*, and says, “This is a *profesora*. What do you think this is a picture of?” (A *profesora* is a teacher, specifically a female.)
3. Teacher points to the space underneath the picture and says, “I want you to write the word teacher in this box. Let’s go one letter at a time: t-e-a-c-h-e-r.”

Section 2

1. Teacher points to the word *libro* in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the letters l-i, and has student repeat “li” (/lee/); runs a finger under b-r-o, and has student repeat “bro.” Student then repeats back the entire word *libro*.
2. Teacher points to the word “book” in the bottom space, and says, “This is what *libro* means in English. Can you read this word for me?” (If the student struggles, teacher can model).
3. Teacher points to the blank space in the middle of this section and says, “I want you to draw a picture of a *libro* for me. Draw the best *libro* you can make in three minutes.”

Section 3

1. Teacher points to the blank space at the top of the section and says, “This word is missing. First, let’s figure out what the word is going to mean. What English word and picture do you see here?” (Student should answer “pencil.”)
2. Teacher points to the space at the top and says, “Let’s write in the Spanish word for pencil, one syllable at a time: l-a...p-i-z. Now, we have to make a special

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accent mark over the letter “a,” and it goes like this (teacher gestures with finger, making a diagonal dash over the letter “a”). Go ahead and write the accent mark.”

3. Teacher points to the word *lápiz*, and says, “Let’s sound out this word now.”
Teacher runs a finger under the l-a, and has student repeat “la;” teacher runs a finger under the p-i-z, and has student repeat “(/peez/).” Teacher then has student repeat the entire word *lápiz*.

Section 4

1. Teacher points to the blank space at the top of this section and says, “There is a word missing. First, let’s figure out what the word is going to mean. What English word and picture do you see here?” (Student should answer “student.”)
2. Teacher points to the space at the top and says, “Let’s write in the Spanish word for student, one syllable at a time: e-s...t-u...d-i...a-n...t-e.”
3. Teacher points to the word *estudiante* and says, “Let’s sound out this word now.”
Teacher runs a finger under the e-s, and has student say “(/ehs/);” teacher runs a finger under the t-u, and has student say “(/too/);” teacher runs a finger under the d-i, and has student repeat “(/dee/);” teacher runs a finger under the a-n, and has student repeat “(/ahn/);” teacher runs a finger under the t-e, and has student repeat “(/tay/).” Finally, the student repeats the entire word *estudiante*.

Section 5

1. Teacher points at the word in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the b-o, and has student repeat “(/boh/);”

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teacher runs a finger under the l-i, and has student repeat “(/lee/);” teacher runs a finger under the g-r-a, and has student repeat “(/grah/);” teacher runs a finger under the f-o, and has student repeat “(/foh/).” Finally, the student repeats the entire word *bolígrafo*.

2. Teacher points to the English word in the bottom space and says, “This is what *bolígrafo* means in English. Can you read this word for me?” (Student should read the word “pen,” teacher can model if needed.)
3. Teacher points to the blank space in the middle of this section and says, “I want you to draw a picture of a *bolígrafo* for me. Draw the best *bolígrafo* you can make in three minutes.”

Section 6

1. Teacher points to the word in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the p-a, and has student repeat “(/pah/);” teacher runs a finger under the p-e-l, and has student repeat “(/pehl/).” Finally, the student repeats the word *papel*.
2. Teacher points to the picture underneath the word *papel*, and says, “This is *papel*. What do you think this is a picture of?” (A *papel* is paper.)
3. Teacher says, “Let’s write in the word paper, one letter at a time: p-a-p-e-r.”

Template 2.2A:

Section 1

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1. Teacher points at the word in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the e-s, and has student say “(/ehs/);” teacher runs a finger under the t-u, and has student say “(/too/);” teacher runs a finger under the d-i, and has student repeat “(/dee/);” teacher runs a finger under the a-n, and has student repeat “(/ahn/);” teacher runs a finger under the t-e, and has student repeat “(/tay/).” Finally, the student repeats the entire word *estudiante*.
2. Teacher points to the English word in the bottom space and says, “This is what *estudiante* means in English. Can you read this word for me?” (Student should read the word “student,” teacher can model if needed.)
3. Teacher points to the blank space in the middle of this section and says, “I want you to draw a picture of an *estudiante* for me. Draw the best *estudiante* you can make in three minutes.”

Section 2

1. Teacher points to the word *libro* in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the letters l-i, and has student repeat “li” (/lee/); runs a finger under b-r-o, and has student repeat “bro.” Student then repeats back the entire word *libro*.
2. Teacher points to the picture underneath the word *libro* and says, “This is a *libro*. What do you think this is a picture of?” (A *libro* is a book.)
3. Teacher points to the space underneath the picture and says, “I want you to write the word “book” in this box. Let’s go one letter at a time: b-o-o-k.”

Section 3

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1. Teacher points to the blank space at the top of this section and says, “There is a word missing. First, let’s figure out what the word is going to mean. What English word and picture do you see here?” (Student should answer “pen.”)
2. Teacher points to the space at the top and says, “Let’s write in the Spanish word for “pen,” one syllable at a time: b-o...l-i...g-r-a...f-o. Now, we have to make a special accent mark over the letter “i,” and it goes like this (teacher gestures with finger, making a diagonal dash over the letter “i”). Go ahead and write the accent mark.”
3. Teacher points to the word *bolígrafo*, and says, “Let’s sound out this word now.” Teacher runs a finger under the b-o, and has student repeat “(/boh/);” teacher runs a finger under the l-i, and has student repeat “(/lee/);” teacher runs a finger under the g-r-a, and has student repeat “(/grah/);” teacher runs a finger under the f-o, and has student repeat “(/fo/).” Teacher then has student repeat the entire word *bolígrafo*.

Section 4

1. Teacher points to the blank space at the top of this section and says, “There is a word missing. First, let’s figure out what the word is going to mean. What English word and picture do you see here?” (Student should answer “paper.”)
2. Teacher points to the space at the top and says, “Let’s write in the Spanish word for paper, one syllable at a time: p-a...p-e-l.”
3. Teacher points to the word *papel* and says, “Let’s sound out this word now.” Teacher runs a finger under the p-a, and has student repeat “(/pah/);” teacher runs

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a finger under the p-e-l, and has student repeat “(/pehl/).” Student then repeats the entire word *papel*.

Section 5

1. Teacher points to the word in the first space, and says, “Let’s sound out this word together.” Teacher runs a finger under the l-a, and has student repeat “la;” teacher runs a finger under the p-i-z, and has student repeat “(/peez/).” Teacher then has student repeat the entire word *lápiz*.
2. Teacher points to the picture underneath the word *lápiz* and says, “This is a *lápiz*. What do you think this is a picture of?” (A *lápiz* is a pencil.)
3. Teacher points to the space underneath the picture and says, “I want you to write the word “pencil” in this box. Let’s go one letter at a time: p-e-n-c-i-l.”

Section 6

1. Teacher points to the blank space at the top of this section and says, “There is a word missing. First, let’s figure out what the word is going to mean. What English word and picture do you see here?” (Student should answer “teacher.”)
2. Teacher points to the space at the top and says, “Let’s write in the Spanish word for teacher, one syllable at a time: p-r-o...f-e...s-o...r-a.”
3. Teacher points to the word *profesora* in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the letters p-r-o, and has the student repeat “pro;” runs finger under the f-e-s, and has the student repeat “fes” (/face/); runs finger under the o-r-a, and has student repeat “ora.” Student then repeats back the entire word *profesora*.

Template 2.3A:

Section 1

1. Teacher points to the word in the first space, and says, “Let’s sound out this word together.” Teacher runs a finger under the l-a, and has student repeat “la;” teacher runs a finger under the p-i-z, and has student repeat “(/peez/).” Teacher then has student repeat the entire word *lápiz*.
2. Teacher points to the English word in the bottom space and says, “This is what *lápiz* means in English. Can you read this word for me?” (Student should read the word “pencil,” teacher can model if needed.)
3. Teacher points to the blank space in the middle of this section and says, “I want you to draw a picture of a *lápiz* for me. Draw the best *lápiz* you can make in three minutes.”

Section 2

1. Teacher points to the word in the first space, and says, “Let’s sound out this word together.” Teacher runs a finger under the e-s, and has student say “(/ehs/);” teacher runs a finger under the t-u, and has student say “(/too/);” teacher runs a finger under the d-i, and has student repeat “(/dee/);” teacher runs a finger under the a-n, and has student repeat “(/ahn/);” teacher runs a finger under the t-e, and has student repeat “(/tay/).” Finally, the student repeats the entire word *estudiante*.
2. Teacher points to the picture underneath the word *estudiante* and says, “This is an *estudiante*. What do you think this is a picture of?” (An *estudiante* is a pencil.)

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3. Teacher points to the space underneath the picture and says, “I want you to write the word “student” in this box. Let’s go one letter at a time: s-t-u-d-e-n-t.”

Section 3

1. Teacher points to the word in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the p-a, and has student repeat “(/pah/);” teacher runs a finger under the p-e-l, and has student repeat “(/pehl/).” Finally, the student repeats the word *papel*.
2. Teacher points to the English word in the bottom space and says, “This is what *papel* means in English. Can you read this word for me?” (Student should read the word “paper,” teacher can model if needed.)
3. Teacher points to the blank space in the middle of this section and says, “I want you to draw a picture of *papel* for me. Draw the best *papel* you can make in three minutes.”

Section 4

1. Teacher points to the word *profesora* in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the letters p-r-o, and has the student repeat “pro;” runs finger under the f-e-s, and has the student repeat “fes” (/face/); runs finger under the o-r-a, and has student repeat “ora.” Student then repeats back the entire word *profesora*.
2. Teacher points to the English word in the bottom space and says, “This is what *profesora* means in English. Can you read this word for me?” (Student should read the word “teacher,” teacher can model if needed.)

3. Teacher points to the blank space in the middle of this section and says, “I want you to draw a picture of a *profesora* for me. Draw the best *profesora* you can make in three minutes.”

Section 5

1. Teacher points to the blank space at the top of this section and says, “There is a word missing. First, let’s figure out what the word is going to mean. What English word and picture do you see here?” (Student should answer “book.”)
2. Teacher points to the space at the top and says, “Let’s write in the Spanish word for book, one syllable at a time: l-i...b-r-o.”
3. Teacher points to the word *libro* in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the letters l-i, and has student repeat “li” (/lee/); runs a finger under b-r-o, and has student repeat “bro.” Student then repeats back the entire word *libro*.

Section 6

1. Teacher points at the word in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the b-o, and has student repeat “(/boh/);” teacher runs a finger under the l-i, and has student repeat “(/lee/);” teacher runs a finger under the g-r-a, and has student repeat “(/grah/);” teacher runs a finger under the f-o, and has student repeat “(/foh/).” Finally, the student repeats the entire word *bolígrafo*.
2. Teacher points to the picture underneath the word *bolígrafo* and says, “This is a *bolígrafo*. What do you think this is a picture of?” (A *bolígrafo* is a pen.)

3. Teacher points to the space underneath the picture and says, “I want you to write the word “pen” in this box. Let’s go one letter at a time: p-e-n.”

Template 3.1A:

Section 1

1. Teacher points to the word “pantalones” in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the letters p-a-n, and has the student repeat “/pahn’;” runs finger under the t-a, and has the student repeat “/tah/ ;” runs finger under the l-o, and has student repeat “/loh/;” runs finger under the n-e-s, and has student repeat “/nase/.” Student then repeats back the entire word pantalones.
2. Teacher points to the picture underneath the word pantalones, and says, “These are pantalones. What do you think this is a picture of?” (Pantalones are a pair of pants).
3. Teacher points to the space underneath the picture and says, “I want you to write the word pants in this box. Let’s go one letter at a time: p-a-n-t-s.”

Section 2

1. Teacher points to the word “camisa” in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the letters c-a, and has the student repeat “/cah/’;” runs finger under the m-i, and has the student repeat “/mee/ ;” runs finger under the s-a, and has student repeat “/sah/.” Student then repeats back the entire word camisa.

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2. Teacher points to the English word in the bottom space and says, “This is what *camisa* means in English. Can you read this word for me?” (Student should read the word “shirt,” teacher can model if needed.)
3. Teacher points to the blank space in the middle of this section and says, “I want you to draw a picture of a *camisa* for me. Draw the best *camisa* you can make in three minutes.”

Section 3

1. Teacher points to the blank space at the top of the section and says, “This word is missing. First, let’s figure out what the word is going to mean. What English word and picture do you see here?” (Student should answer “shoes”).
2. Teacher points to the space at the top and says, “Let’s write in the Spanish word for shoes, one syllable at a time: z-a...p-a...t-o-s.”
3. Teacher points to the word *zapatos*, and says, “Let’s sound out this word now.” Teacher runs a finger under the z-a, and has student repeat “/zah/;” teacher runs a finger under the p-a, and has student repeat “(/pah/);” teacher runs a finger under the t-o-s, and has student repeat “/tohs/.” Teacher then has student repeat the entire word *zapatos*.

Section 4

1. Teacher points to the word “*chaqueta*” in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the letters c-h-a, and has the student repeat “/cha/;” runs finger under the q-u-e, and has the student repeat “/keh/;” runs finger under the t-a, and has student repeat “/tah/.” Student then repeats back the entire word *chaqueta*.

2. Teacher points to the picture underneath the word chaqueta, and says, “This is a chaqueta. What do you think this is a picture of?” (A chaqueta is jacket).
3. Teacher points to the space underneath the picture and says, “I want you to write the word jacket in this box. Let’s go one letter at a time: j-a-c-k-e-t.”

Section 5

1. Teacher points to the blank space at the top of the section and says, “This word is missing. First, let’s figure out what the word is going to mean. What English word and picture do you see here?” (Student should answer “hat”).
2. Teacher points to the space at the top and says, “Let’s write in the Spanish word for hat, one syllable at a time: s-o-m...b-r-e...r-o.”
3. Teacher points to the word sombrero, and says, “Let’s sound out this word now.”
Teacher runs a finger under the s-o-m, and has student repeat “/sohm/;” teacher runs a finger under the b-r-e, and has student repeat “(/bray/);” teacher runs a finger under the r-o, and has student repeat “/roh/.” Teacher then has student repeat the entire word sombrero.

Section 6

1. Teacher points at the word in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the f-a-l, and has student repeat “(/fahl/);” teacher runs a finger under the d-a, and has student repeat “(/dah/).” Finally, the student repeats the entire word falda.
2. Teacher points to the English word in the bottom space and says, “This is what falda means in English. Can you read this word for me?” (Student should read the word “skirt,” teacher can model if needed).

3. Teacher points to the blank space in the middle of this section and says, “I want you to draw a picture of a falda for me. Draw the best falda you can make in three minutes.”

Template 3.2A:

Section 1

1. Teacher points to the word sombrero in the first space, and says, “Let’s sound out this word now.” Teacher runs a finger under the s-o-m, and has student repeat “/sohm/;” teacher runs a finger under the b-r-e, and has student repeat “(/bray/);” teacher runs a finger under the r-o, and has student repeat “/roh/.” Teacher then has student repeat the entire word sombrero.
2. Teacher points to the English word in the bottom space and says, “This is what sombrero means in English. Can you read this word for me?” (Student should read the word “hat,” teacher can model if needed).
3. Teacher points to the blank space in the middle of this section and says, “I want you to draw a picture of a sombrero for me. Draw the best sombrero you can make in three minutes.”

Section 2

1. Teacher points to the blank space at the top of the section and says, “This word is missing. First, let’s figure out what the word is going to mean. What English word and picture do you see here?” (Student should answer “jacket”).

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2. Teacher points to the space at the top and says, “Let’s write in the Spanish word for jacket, one syllable at a time: c-h-a...q-u-e...t-a.”
3. Teacher points to the word “chaqueta” in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the letters c-h-a, and has the student repeat “/cha/;” runs finger under the q-u-e, and has the student repeat “/keh/ ;” runs finger under the t-a, and has student repeat “/tah/.” Student then repeats back the entire word chaqueta.

Section 3

1. Teacher points at the word in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the f-a-l, and has student repeat “(/fahl/);” teacher runs a finger under the d-a, and has student repeat “(/dah/).” Finally, the student repeats the entire word falda.
2. Teacher points to the picture underneath the word falda, and says, “This is a falda. What do you think this is a picture of?” (A falda is a skirt).
3. Teacher points to the space underneath the picture and says, “I want you to write the word skirt in this box. Let’s go one letter at a time: s-k-i-r-t.”

Section 4

1. Teacher points to the blank space at the top of the section and says, “This word is missing. First, let’s figure out what the word is going to mean. What English word and picture do you see here?” (Student should answer “shirt”).
2. Teacher points to the space at the top and says, “Let’s write in the Spanish word for shirt, one syllable at a time: c-a...m-i...s-a.”

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3. Teacher points to the word “camisa” in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the letters c-a, and has the student repeat “/cah/;” runs finger under the m-i, and has the student repeat “/mee/ ;” runs finger under the s-a, and has student repeat “/sah/.” Student then repeats back the entire word camisa.

Section 5

1. Teacher points to the word zapatos, and says, “Let’s sound out this word now.” Teacher runs a finger under the z-a, and has student repeat “/zah/;” teacher runs a finger under the p-a, and has student repeat “(/pah/);” teacher runs a finger under the t-o-s, and has student repeat “/tohs/.” Teacher then has student repeat the entire word zapatos.
2. Teacher points to the English word in the bottom space and says, “This is what zapatos means in English. Can you read this word for me?” (Student should read the word “shoes,” teacher can model if needed).
3. Teacher points to the blank space in the middle of this section and says, “I want you to draw a picture of zapatos for me. Draw the best zapatos you can make in three minutes.”

Section 6

1. Teacher points to the blank space at the top of the section and says, “This word is missing. First, let’s figure out what the word is going to mean. What English word and picture do you see here?” (Student should answer “pants”).
2. Teacher points to the space at the top and says, “Let’s write in the Spanish word for pants, one syllable at a time: p-a-n...t-a...l-o...n-e-s.”

3. Teacher points to the word “pantalones” in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the letters p-a-n, and has the student repeat “/pah/;” runs finger under the t-a, and has the student repeat “/tah/;” runs finger under the l-o, and has student repeat “/loh/;” runs finger under the e-s, and has student repeat “/nase/.” Student then repeats back the entire word pantalones.

Template 3.3A:

Section 1

1. Teacher points to the word zapatos, and says, “Let’s sound out this word now.” Teacher runs a finger under the z-a, and has student repeat “/zah/;” teacher runs a finger under the p-a, and has student repeat “(/pah/);” teacher runs a finger under the t-o-s, and has student repeat “/tohs/.” Teacher then has student repeat the entire word zapatos.
2. Teacher points to the picture underneath the word zapatos, and says, “These are zapatos. What do you think this is a picture of?” (Zapatos are shoes).
3. Teacher points to the space underneath the picture and says, “I want you to write the word shoes in this box. Let’s go one letter at a time: s-h-o-e-s.”

Section 2

1. Teacher points to the blank space at the top of the section and says, “This word is missing. First, let’s figure out what the word is going to mean. What English word and picture do you see here?” (Student should answer “skirt”).

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

2. Teacher points to the space at the top and says, “Let’s write in the Spanish word for skirt, one syllable at a time: f-a-l...d-a.”
3. Teacher points at the word in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the f-a-l, and has student repeat “(/fahl/);” teacher runs a finger under the d-a, and has student repeat “(/dah/).” Finally, the student repeats the entire word falda.

Section 3

1. Teacher points to the word sombrero in the first space, and says, “Let’s sound out this word now.” Teacher runs a finger under the s-o-m, and has student repeat “/sohm/;” teacher runs a finger under the b-r-e, and has student repeat “(/bray/);” teacher runs a finger under the r-o, and has student repeat “/roh/.” Teacher then has student repeat the entire word sombrero.
2. Teacher points to the picture underneath the word sombrero, and says, “This is a sombrero. What do you think this is a picture of?” (A sombrero is a hat).
3. Teacher points to the space underneath the picture and says, “I want you to write the word hat in this box. Let’s go one letter at a time: h-a-t.”

Section 4

1. Teacher points to the word “camisa” in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the letters c-a, and has the student repeat “/cah/;” runs finger under the m-i, and has the student repeat “/mee/ ;” runs finger under the s-a, and has student repeat “/sah/.” Student then repeats back the entire word camisa.

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2. Teacher points to the picture underneath the word *camisa*, and says, “This is a *camisa*. What do you think this is a picture of?” (A *camisa* is a shirt).
3. Teacher points to the space underneath the picture and says, “I want you to write the word *shirt* in this box. Let’s go one letter at a time: s-h-i-r-t.”

Section 5

1. Teacher points to the word “*chaqueta*” in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the letters c-h-a, and has the student repeat “/cha/;” runs finger under the q-u-e, and has the student repeat “/keh/ ;” runs finger under the t-a, and has student repeat “/tah/.” Student then repeats back the entire word *chaqueta*.
2. Teacher points to the English word in the bottom space and says, “This is what *chaqueta* means in English. Can you read this word for me?” (Student should read the word “jacket,” teacher can model if needed).
3. Teacher points to the blank space in the middle of this section and says, “I want you to draw a picture of a *chaqueta* for me. Draw the best *chaqueta* you can make in three minutes.”

Section 6

1. Teacher points to the word “*pantalones*” in the first space and says, “Let’s sound out this word together.” Teacher runs a finger under the letters p-a-n, and has the student repeat “/pahn’;” runs finger under the t-a, and has the student repeat “/tah/ ;” runs finger under the l-o, and has student repeat “/loh/;” runs finger under the n-e-s, and has student repeat “/nase/.” Student then repeats back the entire word *pantalones*.

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2. Teacher points to the English word in the bottom space and says, “This is what pantalones means in English. Can you read this word for me?” (Student should read the word “pants,” teacher can model if needed).
3. Teacher points to the blank space in the middle of this section and says, “I want you to draw a picture of pantalones for me. Draw the best pantalones you can make in three minutes.”

Appendix F

Randomized Vocabulary Forms for Participant Assessment

	Correct	Incorrect
Pizza (pizza)		
Leche (milk)		
Pan (bread)		
Manzana (apple)		
Galleta (cookie)		
Ensalada (salad)		
Hamburguesa (hamburger)		
Queso (cheese)		
Huevo (egg)		
Carne (meat)		
Plátano (banana)		
Pollo (chicken)		
	Total Correct	Total Incorrect

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

	Correct	Incorrect
Plátano (banana)		
Huevo (egg)		
Pollo (chicken)		
Pizza (pizza)		
Ensalada (salad)		
Hamburguesa (hamburger)		
Queso (cheese)		
Manzana (apple)		
Galleta (cookie)		
Pan (bread)		
Carne (meat)		
Leche (milk)		
	Total Correct	Total Incorrect

	Correct	Incorrect
Carne (meat)		
Ensalada (salad)		
Galleta (cookie)		
Pan (bread)		
Leche (milk)		
Pizza (pizza)		
Plátano (banana)		
Manzana (apple)		
Hamburguesa (hamburger)		
Pollo (chicken)		
Queso (cheese)		
Huevo (egg)		
	Total Correct	Total Incorrect

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

	Correct	Incorrect
Garaje (garage)		
Sótano (basement)		
Ducha (shower)		
Dormitorio (Bedroom)		
Baño (bathroom)		
Comedor (dining room)		
Cocina (kitchen)		
Sala (living room)		
Cama (bed)		
Suelo (floor)		
Techo (ceiling)		
Pared (wall)		
	Total Correct	Total Incorrect

	Correct	Incorrect
Pared (wall)		
Garaje (garage)		
Ducha (shower)		
Suelo (floor)		
Cocina (kitchen)		
Sótano (basement)		
Sala (living room)		
Comedor (dining room)		
Baño (bathroom)		
Techo (ceiling)		
Dormitorio (Bedroom)		
Cama (bed)		
	Total Correct	Total Incorrect

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

	Correct	Incorrect
Ducha (shower)		
Sótano (basement)		
Pared (wall)		
Cocina (kitchen)		
Comedor (dining room)		
Sala (living room)		
Cama (bed)		
Dormitorio (Bedroom)		
Suelo (floor)		
Baño (bathroom)		
Techo (ceiling)		
Garaje (garage)		
	Total Correct	Total Incorrect

	Correct	Incorrect
Garaje (garage)		
Techo (ceiling)		
Sótano (basement)		
Pared (wall)		
Cocina (kitchen)		
Comedor (dining room)		
Dormitorio (Bedroom)		
Sala (living room)		
Suelo (floor)		
Ducha (shower)		
Baño (bathroom)		
Cama (bed)		
	Total Correct	Total Incorrect

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

	Correct	Incorrect
Cama (bed)		
Pared (wall)		
Baño (bathroom)		
Comedor (dining room)		
Sala (living room)		
Ducha (shower)		
Garaje (garage)		
Techo (ceiling)		
Dormitorio (Bedroom)		
Suelo (floor)		
Sótano (basement)		
Cocina (kitchen)		
	Total Correct	Total Incorrect

	Correct	Incorrect
Sacapuntas (pencil sharpener)		
Ventana (window)		
Papel (paper)		
Bolígrafo (pen)		
Profesora (teacher –female)		
Escritorio (desk)		
Carpeta (folder)		
Estudiante (student)		
Bandera (flag)		
Lápiz (pencil)		
Reloj (clock)		
Libro (book)		
	Total Correct	Total Incorrect

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

	Correct	Incorrect
Escritorio (desk)		
Sacapuntas (pencil sharpener)		
Reloj (clock)		
Libro (book)		
Ventana (window)		
Profesora (teacher –female)		
Lápiz (pencil)		
Carpeta (folder)		
Estudiante (student)		
Bandera (flag)		
Papel (paper)		
Bolígrafo (pen)		
	Total Correct	Total Incorrect

	Correct	Incorrect
Papel (paper)		
Bandera (flag)		
Libro (book)		
Lápiz (pencil)		
Carpeta (folder)		
Ventana (window)		
Bolígrafo (pen)		
Escritorio (desk)		
Sacapuntas (pencil sharpener)		
Reloj (clock)		
Profesora (teacher –female)		
Estudiante (student)		
	Total Correct	Total Incorrect

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

	Correct	Incorrect
Escritorio (desk)		
Libro (book)		
Lápiz (pencil)		
Bandera (flag)		
Sacapuntas (pencil sharpener)		
Profesora (teacher –female)		
Reloj (clock)		
Ventana (window)		
Bolígrafo (pen)		
Papel (paper)		
Carpeta (folder)		
Estudiante (student)		
	Total Correct	Total Incorrect

	Correct	Incorrect
Escritorio (desk)		
Reloj (clock)		
Ventana (window)		
Libro (book)		
Profesora (teacher –female)		
Bandera (flag)		
Estudiante (student)		
Lápiz (pencil)		
Papel (paper)		
Carpeta (folder)		
Sacapuntas (pencil sharpener)		
Bolígrafo (pen)		
	Total Correct	Total Incorrect

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

	Correct	Incorrect
Cadena (chain)		
Guantes (gloves)		
Calcetines (socks)		
Camisa (shirt)		
Corbata (tie)		
Bolsa (purse)		
Gafas (glasses)		
Falda (skirt)		
Chaqueta (jacket)		
Pantalones (pants)		
Sombrero (hat)		
Zapatos (shoes)		
	Total Correct	Total Incorrect

	Correct	Incorrect
Guantes (gloves)		
Calcetines (socks)		
Cadena (chain)		
Zapatos (shoes)		
Sombrero (hat)		
Bolsa (purse)		
Corbata (tie)		
Camisa (shirt)		
Pantalones (pants)		
Gafas (glasses)		
Falda (skirt)		
Chaqueta (jacket)		
	Total Correct	Total Incorrect

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

	Correct	Incorrect
Sombrero (hat)		
Gafas (glasses)		
Bolsa (purse)		
Pantalones (pants)		
Corbata (tie)		
Zapatos (shoes)		
Camisa (shirt)		
Calcetines (socks)		
Cadena (chain)		
Chaqueta (jacket)		
Falda (skirt)		
Guantes (gloves)		
	Total Correct	Total Incorrect

	Correct	Incorrect
Camisa (shirt)		
Zapatos (shoes)		
Falda (skirt)		
Sombrero (hat)		
Calcetines (socks)		
Chaqueta (jacket)		
Bolsa (purse)		
Cadena (chain)		
Corbata (tie)		
Guantes (gloves)		
Gafas (glasses)		
Pantalones (pants)		
	Total Correct	Total Incorrect

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

	Correct	Incorrect
Corbata (tie)		
Gafas (glasses)		
Zapatos (shoes)		
Pantalones (pants)		
Calcetines (socks)		
Falda (skirt)		
Camisa (shirt)		
Bolsa (purse)		
Chaqueta (jacket)		
Guantes (gloves)		
Sombrero (hat)		
Cadena (chain)		
	Total Correct	Total Incorrect

	Correct	Incorrect
Mano (hand)		
Dientes (teeth)		
Boca (mouth)		
Nariz (nose)		
Oreja (ear)		
Ojo (eye)		
Pelo (hair)		
Espalda (back)		
Pie (foot)		
Brazo (arm)		
Pierna (leg)		
Lengua (tongue)		
	Total Correct	Total Incorrect

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

	Correct	Incorrect
Pelo (hair)		
Pierna (leg)		
Brazo (arm)		
Pie (foot)		
Oreja (ear)		
Espalda (back)		
Boca (mouth)		
Lengua (tongue)		
Dientes (teeth)		
Mano (hand)		
Nariz (nose)		
Ojo (eye)		
	Total Correct	Total Incorrect

	Correct	Incorrect
Pierna (leg)		
Lengua (tongue)		
Boca (mouth)		
Espalda (back)		
Pie (foot)		
Ojo (eye)		
Brazo (arm)		
Nariz (nose)		
Oreja (ear)		
Dientes (teeth)		
Mano (hand)		
Pelo (hair)		
	Total Correct	Total Incorrect

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

	Correct	Incorrect
Pie (foot)		
Dientes (teeth)		
Lengua (tongue)		
Brazo (arm)		
Boca (mouth)		
Espalda (back)		
Mano (hand)		
Pierna (leg)		
Nariz (nose)		
Ojo (eye)		
Pelo (hair)		
Oreja (ear)		
	Total Correct	Total Incorrect

	Correct	Incorrect
Boca (mouth)		
Espalda (back)		
Dientes (teeth)		
Pie (foot)		
Pierna (leg)		
Lengua (tongue)		
Ojo (eye)		
Pelo (hair)		
Oreja (ear)		
Nariz (nose)		
Mano (hand)		
Brazo (arm)		
	Total Correct	Total Incorrect

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

	Correct	Incorrect
Panadería (bakery)		
Restaurante (restaurant)		
Correo (post office)		
Tienda (store)		
Escuela (school)		
Cine (movie theater)		
Playa (beach)		
Biblioteca (library)		
Parque (park)		
Aeropuerto (airport)		
Piscina (pool)		
Casa (house)		
	Total Correct	Total Incorrect

	Correct	Incorrect
Restaurante (restaurant)		
Aeropuerto (airport)		
Casa (house)		
Correo (post office)		
Playa (beach)		
Tienda (store)		
Parque (park)		
Biblioteca (library)		
Escuela (school)		
Panadería (bakery)		
Cine (movie theater)		
Piscina (pool)		
	Total Correct	Total Incorrect

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

	Correct	Incorrect
Escuela (school)		
Parque (park)		
Biblioteca (library)		
Restaurante (restaurant)		
Aeropuerto (airport)		
Correo (post office)		
Tienda (store)		
Casa (house)		
Playa (beach)		
Piscina (pool)		
Panadería (bakery)		
Cine (movie theater)		
	Total Correct	Total Incorrect

	Correct	Incorrect
Tienda (store)		
Piscina (pool)		
Casa (house)		
Escuela (school)		
Parque (park)		
Panadería (bakery)		
Biblioteca (library)		
Playa (beach)		
Correo (post office)		
Aeropuerto (airport)		
Restaurante (restaurant)		
Cine (movie theater)		
	Total Correct	Total Incorrect

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

	Correct	Incorrect
Piscina (pool)		
Tienda (store)		
Panadería (bakery)		
Cine (movie theater)		
Casa (house)		
Escuela (school)		
Aeropuerto (airport)		
Playa (beach)		
Biblioteca (library)		
Correo (post office)		
Restaurante (restaurant)		
Parque (park)		
	Total Correct	Total Incorrect

lámpara (lamp)		
sofá (couch)		
gato (cat)		
mesa (table)		
alfombra (rug)		
silla (chair)		
tenedor (fork)		
cuchillo (knife)		
cuchara (spoon)		
tina (bathtub)		
vaso (glass)		
perro (dog)		
	Total Correct	Total Incorrect

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

perro (dog)		
sofá (couch)		
gato (cat)		
cuchillo (knife)		
tenedor (fork)		
vaso (glass)		
lámpara (lamp)		
silla (chair)		
cuchara (spoon)		
tina (bathtub)		
alfombra (rug)		
mesa (table)		
	Total Correct	Total Incorrect

alfombra (rug)		
silla (chair)		
tenedor (fork)		
lámpara (lamp)		
sofá (couch)		
tina (bathtub)		
mesa (table)		
cuchillo (knife)		
vaso (glass)		
gato (cat)		
cuchara (spoon)		
perro (dog)		
	Total Correct	Total Incorrect

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

tina (bathtub)		
cuchillo (knife)		
alfombra (rug)		
vaso (glass)		
gato (cat)		
tenedor (fork)		
perro (dog)		
silla (chair)		
lámpara (lamp)		
sofá (couch)		
cuchara (spoon)		
mesa (table)		
	Total Correct	Total Incorrect

tenedor (fork)		
perro (dog)		
lámpara (lamp)		
mesa (table)		
cuchara (spoon)		
gato (cat)		
alfombra (rug)		
silla (chair)		
sofá (couch)		
cuchillo (knife)		
tina (bathtub)		
vaso (glass)		
	Total Correct	Total Incorrect

Appendix G

Basic Spanish Vocabulary Flashcard Format

cocina

kitchen

sala

living room

garaje

garage

dormitorio

bedroom

comedor

dining room

sótano

basement

pared

wall

baño

bathroom

cama

bed

ducha

shower

techo

ceiling

suelo

floor

pizza

pizza

hamburguesa

hamburger

pan

bread

leche

milk

galleta

cookie

ensalada

salad

plátano

banana

queso

cheese

carne

meat

huevo

egg

pollo

chicken

manzana

apple

ojo

eye

mano

hand

pelo

hair

nariz

nose

boca

mouth

pie

foot

pierna

leg

espalda

back

oreja

ear

dientes

teeth

lengua

tongue

brazo

arm

Appendix H

Student Vocabulary Post-Assessment Forms

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

		Correct	Incorrect
F	Pizza (pizza)		
G	Tienda (store)		
F	Mano (hand)		
F	Leche (milk)		
G	alfombra (rug)		
F	Garaje (garage)		
G	Pantalones (pants)		
F	Ducha (shower)		
G	Libro (book)		
F	Oreja (ear)		
F	Pared (wall)		
G	cuchara (spoon)		
F	Galleta (cookie)		
F	Comedor (dining room)		
G	silla (chair)		
G	Escritorio (desk)		
F	Lengua (tongue)		
G	Panadería (bakery)		
G	Guantes (gloves)		
G	cuchillo (knife)		
F	Suelo (floor)		
G	lámpara (lamp)		
G	Corbata (tie)		
G	Playa (beach)		
G	Cine (movie theater)		
F	Carne (meat)		
G	Profesora (teacher – female)		
G	Bolsa (purse)		
	Total F		
	Total G		

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

		Correct	Incorrect
F	Huevo (egg)		
G	Sacapuntas (pencil sharpener)		
G	vaso (glass)		
G	Carpeta (folder)		
F	Pierna (leg)		
G	Biblioteca (library)		
F	Baño (bathroom)		
G	Aeropuerto (airport)		
G	Gafas (glasses)		
G	Sombrero (hat)		
F	Brazo (arm)		
G	Cadena (chain)		
F	Dientes (teeth)		
G	Chaqueta (jacket)		
F	Plátano (banana)		
F	Cama (bed)		
G	gato (cat)		
G	perro (dog)		
G	Casa (house)		
F	Dormitorio (Bedroom)		
F	Nariz (nose)		
G	Calcetines (socks)		
G	Lápiz (pencil)		
G	tenedor (fork)		
F	Techo (ceiling)		
G	mesa (table)		
F	Cocina (kitchen)		
F	Pelo (hair)		
	Total F		
	Total G		

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

		Correct	Incorrect
G	Parque (park)		
F	Sala (living room)		
G	Piscina (pool)		
G	Restaurante (restaurant)		
G	Ventana (window)		
F	Queso (cheese)		
G	Zapatos (shoes)		
G	Reloj (clock)		
F	Pollo (chicken)		
G	Estudiante (student)		
G	Bandera (flag)		
F	Ensalada (salad)		
F	Boca (mouth)		
F	Ojo (eye)		
G	Papel (paper)		
F	Espalda (back)		
G	Correo (post office)		
G	sofá (couch)		
G	tina (bathtub)		
F	Hamburguesa (hamburger)		
G	Falda (skirt)		
F	Manzana (apple)		
G	Camisa (shirt)		
F	Pan (bread)		
G	Escuela (school)		
F	Pie (foot)		
G	Bolígrafo (pen)		
F	Sótano (basement)		
	Total F		
	Total G		

Appendix I

Sample Parent Consent and Student Assent Forms

Parent Consent to Participate in a Research Study

“The Impact of Guided Visual Vocabulary Practice on Spanish Vocabulary Achievement for Students with Learning Disabilities”

Principal Investigator: Joshua B. Tolbert, Ed.D student, University of Michigan-Dearborn

Faculty Advisor: Belinda Davis Lazarus, Ph.D., University of Michigan-Dearborn

STUDY INVITATION AND GOALS

My name is Joshua B. Tolbert and I am a doctoral student at the University of Michigan-Dearborn. I invite your child to participate in a research study exploring the impact of a guided and visual strategy on Spanish vocabulary acquisition for students with learning disabilities. The effectiveness of this method will be measured in order to continue to design and implement meaningful approaches to supporting LD students in learning foreign languages.

Description of Participant Involvement

Participation in the study is voluntary, and is open to students in Grades 4-12. Participants will be recruited from schools at which administrators have provided consent. Students who participate in the study will be asked to engage in three individual sessions of instruction each week, with sessions lasting approximately one hour. During these sessions, students will receive guided practice with Spanish vocabulary words through speaking, writing, and drawing. The sessions will last for 8 weeks.

Benefits

Students who participate in this study may directly benefit by improving their vocabulary in Spanish.

Risks and discomforts

Although efforts have been made to minimize risk, it cannot be guaranteed that practicing Spanish will not create confusion with English. Participants are free to withdraw and return to their previous course of study with traditional learning methods.

Confidentiality

We plan to publish the results of this study, but will not include any information which could identify students who participated. During the study, students will be assigned an identification number which will be used on all documentation in place of the student’s name. There are some reasons why people other than the researchers may need to see information provided by students during the study. This includes organizations responsible for making sure the research is done safely and properly, including the University of Michigan or government offices.

Also, if students tell us something that makes us believe that they or others have been or may be physically harmed, we may report that information to the appropriate agencies.

Storage and future use of data

To keep your information safe, data will be kept in a locked safe deposit box. Data may include examples of student work. All data will be destroyed five years after the conclusion of the study.

Voluntary nature of the study

Participation in this study is completely voluntary. Even if you decide to allow your child to participate now, you may change your mind and stop at any time. If a student withdraws early, the data provided will not be used in the study.

Contact information

If you have any questions about this research, please contact:

Joshua B. Tolbert, Ed. D student

Belinda Davis Lazarus, Ph.D.

(313) 530-8545

(313) 436-9136

jbtolber@umd.umich.edu

blazarus@umd.umich.edu

Consent

By signing this document, you are agreeing for your child to participate in this study. You will be given a copy of this document for your records, and one copy will be kept with the study records. Be sure that questions you have about the study have been answered and that you understand what your student is being asked to do. You may contact the researcher if you think of a question later.

I agree for my child to participate in the study.

Printed Name

Signature

Date

Principal Investigator

Date

Student Assent to Participate in a Research Study

“The Impact of Guided Visual Vocabulary Practice on Spanish Vocabulary Achievement for Students with Learning Disabilities”

Principal Investigator: Joshua B. Tolbert, Ed.D student, University of Michigan-Dearborn

Faculty Advisor: Belinda Davis Lazarus, Ph.D., University of Michigan-Dearborn

I am doing a research study to find out more about how people learn Spanish vocabulary. If you decide you want to be a part of this study, you should know that:

1. You will be learning Spanish words by connecting them with English words, and with pictures.
2. The study will last about eight weeks. We will meet three times each week, and each meeting will last about one hour.
3. Your privacy will be protected. All papers will use a random number instead of your name. Your name and personal information will not be shared or published. All papers collected will be kept in a safe deposit box for five years, and then destroyed.
4. By participating, it is possible that you will benefit, meaning something good will happen. I think this might include you improving your vocabulary in Spanish.
5. With any study, there are possible risks. In this study, that might mean that you start confusing Spanish and English, feel frustrated, or find that learning Spanish vocabulary happens slowly or is difficult.
6. Being a part of the study is voluntary. If you decide you want to stop after the study has started, you have the right to do that.
7. If you decide not to participate, you will continue with your regular Spanish class. If you aren't taking a Spanish class at the time of the study, you will return to your regular academic program.

If you decide you want to be in this study, please sign your name.

I, _____, want to be in this research study.

(Print your name here)

_____ Date: _____

(Sign your name here)

_____ Date: _____

(Principal Investigator)

Appendix J

Social Validity Questionnaires for Teachers, Parents, and Participants

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

Social Validity Questionnaire (Teacher Form)

This questionnaire consists of 9 items. For each item, you need to indicate the extent to which you agree or disagree with each statement. Please indicate your response to each item by circling one of the five responses to the right.

Questions		Responses				
1.	Efforts made to improve this student’s Spanish vocabulary were adequate and relevant to their course of study.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
2.	Using flashcards as a strategy to learn vocabulary is effective for this student.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
3.	Using a guided, multisensory approach to learning vocabulary is effective for this student.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
4.	The information gathered from participating in this program will be useful in the student’s future academic efforts.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
5.	This student shared specific information with me about material being learned in this program.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
6.	This student conveyed a sense of enthusiasm about participating in this program.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
7.	I noticed changes in the student’s social behaviors during the course of this program (April-June 2013).	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
8.	I observed changes in the student’s academic behaviors during the course of this program (April-June 2013).	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
9.	Overall, I believe that participating in this program was a good use of this student’s time and energy.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

Additional Comments:

Thank you for your time and cooperation in providing feedback!

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

Social Validity Questionnaire (Parent Form)

INSTRUCTIONS: This questionnaire consists of 11 items. For items 1 through 11, you need to indicate how much you agree or disagree with each statement. Please give your response to each item by circling one of the five options to the right. For items 13 through 15, please share any additional responses you might have.

Questions		Responses				
1.	Prior to participating in this study, I felt that my child would need additional support to succeed in learning Spanish.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
2.	I feel that participating in this study has helped my child to increase their Spanish vocabulary.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
3.	I feel that participating in this study has improved my child's confidence in learning another language.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
4.	Participating in this program was a good opportunity for my child.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
5.	I would feel positive about having my child continue learning Spanish vocabulary, or enrolling in a Spanish class.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
6.	My child was enthusiastic about their experience in this study, and shared specific examples of information they were learning.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
7.	I would be interested in additional resources or materials to assist my child in learning Spanish.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
8.	I believe that my child learns well when given more independence.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
9.	I believe that my child learns well with direct guidance and individual attention.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
10	I feel the methods used in this study were appropriate for the age and ability level of my child.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
11	I am glad my child participated in this Spanish vocabulary program.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

Social Validity Questionnaire (Parent Form)

Page 2

13. Did you observe any behavioral or academic changes the past few months (March-June 2013) which may be related to this study?

14. What changes would you suggest to the program (i.e., length of time, method)?

15. Additional comments:

Thank you for your feedback, and for allowing your child to participate in this study!

Social Validity Questionnaire (Student Form)

Thank you for helping with more information about this Spanish vocabulary program. For Questions 1-6, please circle the option that best describes your feelings. For Questions 7-11, please give any information or suggestions that you can share.

Questions

- | | | | |
|---|-----|-------|----|
| 1. I liked learning Spanish vocabulary by using flashcards. | Yes | Maybe | No |
| 2. I liked learning Spanish vocabulary by drawing pictures and saying the words out loud. | Yes | Maybe | No |
| 3. I feel confident about learning new words in Spanish. | Yes | Maybe | No |
| 4. I am glad I participated in this program. | Yes | Maybe | No |
| 5. I would like to take a Spanish class in the future. | Yes | Maybe | No |
| 6. I think a different program would have helped me learn more Spanish words. | Yes | Maybe | No |
| 7. What did you learn from this program? | | | |
| 8. What did you like best about the program? | | | |
| 9. What did you not like about the program? | | | |
| 10. If you were in charge, what would have you changed about the program? | | | |

Appendix K

Interobserver Agreement Data Checklists

Procedural Fidelity Checklist

Flashcards (A) Session

Category	(Please circle)	Comments/Examples
1. Researcher began by stating the theme for this group of words.	Yes No	
2. Researcher gave student an opportunity to say 4 examples of English words related to the theme.	Yes No	
3. Researcher pronounced 12 Spanish vocabulary words for the student.	Yes No	
4. Researcher furnished student with 12 flashcards.	Yes No	
5. Researcher accurately timed 10 minutes for student to independently review flashcards.	Yes No	

Signature: _____

Date: _____

Procedural Fidelity Checklist

GVVP (B) Session

Category	(Please circle)	Comments/Examples
1. Researcher began by stating the theme for this group of words.	Yes No	
2. Researcher gave student an opportunity to say 4 examples of English words related to the theme.	Yes No	
3. Researcher furnished student with 2 GVVP templates.	Yes No	
4. Researcher modeled pronunciation of Spanish words by syllables.	Yes No	
5. Researcher modeled correct pronunciation of whole Spanish words, and gave corrective feedback where needed.	Yes No	
6. Researcher guided student to write English words one letter at a time.	Yes No	
7. Researcher allowed a maximum of 3 minutes for students to draw pictures illustrating vocabulary words.	Yes No	

Signature: _____

Date: _____

Appendix L

Post-Assessment Summaries for Individual Participants*Student 1 Item Analysis for Spanish Vocabulary Learned in Flashcard Sessions*

Spanish Vocabulary Word	# of Times Correct (Out of 5)	Cognate (Y/N)	Correct on Post-test (Y/N)
Pizza (pizza)	5	Y	Y
Leche (milk)	1	N	
Pan (bread)	0	N	
Manzana (apple)	1	N	
Galleta (cookie)	1	N	
Ensalada (salad)	0	N	
Hamburguesa (hamburger)	3	Y	
Queso (cheese)	0	N	
Huevo (egg)	0	N	
Carne (meat)	0	N	
Plátano (banana)	1	N	
Pollo (chicken)	1	N	
Garaje (garage)	0	Y	
Sótano (basement)	0	N	
Ducha (shower)	0	N	
Dormitorio (Bedroom)	1	N	
Baño (bathroom)	1	N	
Comedor (dining room)	0	N	
Cocina (kitchen)	2	N	
Sala (living room)	0	N	
Cama (bed)	1	N	
Suelo (floor)	0	N	
Techo (ceiling)	0	N	
Pared (wall)	0	N	
Boca (mouth)	0	N	
Espalda (back)	0	N	
Dientes (teeth)	0	Y	
Pie (foot)	2	N	
Pierna (leg)	0	N	
Lengua (tongue)	0	N	
Ojo (eye)	4	N	
Pelo (hair)	0	N	
Oreja (ear)	0	N	
Nariz (nose)	0	N	
Mano (hand)	0	N	
Brazo (arm)	0	N	

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

Student 1 Item Analysis for Spanish Vocabulary Learned in GVVP Sessions

Spanish Vocabulary Word	# of Times Correct (Out of 5)	Cognate (Y/N)	Correct on Post-test (Y/N)
Panadería (bakery)	0	N	
Restaurante (restaurant)	4	Y	Y
Correo (post office)	0	N	
Tienda (store)	0	N	
Escuela (school)	0	N	
Cine (movie theater)	0	N	
Playa (beach)	0	N	
Biblioteca (library)	1	N	
Parque (park)	1	Y	Y
Aeropuerto (airport)	0	Y	
Piscina (pool)	0	N	
Casa (house)	0	N	
Sacapuntas (pencil sharpener)	1	N	
Ventana (window)	0	N	
Papel (paper)	2	Y	
Bolígrafo (pen)	0	N	
Profesora (teacher –female)	1	Y	
Escritorio (desk)	0	N	
Carpeta (folder)	0	N	
Estudiante (student)	1	Y	Y
Bandera (flag)	0	N	
Lápiz (pencil)	0	N	
Reloj (clock)	0	N	
Libro (book)	0	N	
Cadena (chain)	0	N	
Guantes (gloves)	0	N	
Calcetines (socks)	0	N	
Camisa (shirt)	1	N	
Corbata (tie)	1	N	
Bolsa (purse)	0	N	
Gafas (glasses)	2	N	
Falda (skirt)	1	N	
Chaqueta (jacket)	0	N	
Pantalones (pants)	0	Y	
Sombrero (hat)	1	N	
Zapatos (shoes)	0	N	
lámpara (lamp)	1	Y	Y
sofá (couch)	1	Y	Y
gato (cat)	2	N	Y
mesa (table)	0	N	
alfombra (rug)	1	N	
silla (chair)	0	N	
tenedor (fork)	1	N	
cuchillo (knife)	0	N	
cuchara (spoon)	0	N	
tina (bathtub)	1	N	
vaso (glass)	1	N	
perro (dog)	2	N	

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

Student 2 Item Analysis for Spanish Vocabulary Learned in Flashcard Sessions

Spanish Vocabulary Word	# of Times Correct (Out of 5)	Cognate (Y/N)	Correct on Post-test
Pizza (pizza)	5	Y	Y
Leche (milk)	3	N	
Pan (bread)	2	N	
Manzana (apple)	2	N	
Galleta (cookie)	0	N	
Ensalada (salad)	4	N	
Hamburguesa (hamburger)	1	Y	
Queso (cheese)	0	N	
Huevo (egg)	0	N	
Carne (meat)	0	N	
Plátano (banana)	1	N	
Pollo (chicken)	2	N	
Garaje (garage)	5	Y	Y
Sótano (basement)	0	N	
Ducha (shower)	0	N	
Dormitorio (Bedroom)	1	N	Y
Baño (bathroom)	0	N	
Comedor (dining room)	0	N	
Cocina (kitchen)	0	N	
Sala (living room)	0	N	
Cama (bed)	1	N	
Suelo (floor)	0	N	
Techo (ceiling)	1	N	
Pared (wall)	0	N	
Boca (mouth)	2	N	
Espalda (back)	0	N	
Dientes (teeth)	5	Y	Y
Pie (foot)	0	N	
Pierna (leg)	1	N	
Lengua (tongue)	1	N	Y
Ojo (eye)	3	N	
Pelo (hair)	1	N	Y
Oreja (ear)	0	N	
Nariz (nose)	5	N	
Mano (hand)	0	N	
Brazo (arm)	0	N	

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

Student 2 Item Analysis for Spanish Vocabulary Learned in GVVP Sessions

Spanish Vocabulary Word	# of Times Correct (Out of 5)	Cognate (Y/N)	Correct on Post-test (Y/N)
Panadería (bakery)	0	N	
Restaurante (restaurant)	5	Y	Y
Correo (post office)	0	N	
Tienda (store)	0	N	
Escuela (school)	4	N	Y
Cine (movie theater)	3	N	
Playa (beach)	0	N	
Biblioteca (library)	5	N	Y
Parque (park)	5	Y	Y
Aeropuerto (airport)	1	Y	
Piscina (pool)	2	N	
Casa (house)	0	N	
Sacapuntas (pencil sharpener)	1	N	
Ventana (window)	0	N	
Papel (paper)	2	Y	
Bolígrafo (pen)	0	N	
Profesora (teacher –female)	0	Y	Y
Escritorio (desk)	0	N	
Carpeta (folder)	2	N	
Estudiante (student)	5	Y	Y
Bandera (flag)	1	N	
Lápiz (pencil)	0	N	
Reloj (clock)	3	N	
Libro (book)	3	N	
Cadena (chain)	3	N	
Guantes (gloves)	1	N	
Calcetines (socks)	1	N	
Camisa (shirt)	1	N	
Corbata (tie)	0	N	
Bolsa (purse)	1	N	
Gafas (glasses)	5	N	Y
Falda (skirt)	5	N	Y
Chaqueta (jacket)	0	N	
Pantalones (pants)	5	Y	Y
Sombrero (hat)	5	N	Y
Zapatos (shoes)	4	N	Y
lámpara (lamp)	4	Y	Y
sofá (couch)	5	Y	Y
gato (cat)	3	N	Y
mesa (table)	4	N	Y
alfombra (rug)	1	N	Y
silla (chair)	1	N	Y
tenedor (fork)	2	N	Y
cuchillo (knife)	0	N	
cuchara (spoon)	0	N	
tina (bathtub)	1	N	
vaso (glass)	2	N	Y
perro (dog)	5	N	Y

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

Student 3 Item Analysis for Spanish Vocabulary Learned in Flashcard Sessions

Spanish Vocabulary Word	# of Times Correct (Out of 5)	Cognate (Y/N)	Correct on Post- test (Y/N)
Pizza (pizza)	5	Y	Y
Leche (milk)	0	N	
Pan (bread)	0	N	
Manzana (apple)	0	N	
Galleta (cookie)	0	N	
Ensalada (salad)	0	N	
Hamburguesa (hamburger)	2	Y	
Queso (cheese)	0	N	
Huevo (egg)	0	N	
Carne (meat)	0	N	
Plátano (banana)	1	N	
Pollo (chicken)	3	N	
Garaje (garage)	4	Y	Y
Sótano (basement)	0	N	
Ducha (shower)	0	N	
Dormitorio (Bedroom)	1	N	
Baño (bathroom)	0	N	
Comedor (dining room)	0	N	
Cocina (kitchen)	1	N	
Sala (living room)	0	N	
Cama (bed)	0	N	
Suelo (floor)	0	N	
Techo (ceiling)	0	N	
Pared (wall)	0	N	
Boca (mouth)	1	N	
Espalda (back)	0	N	
Dientes (teeth)	0	Y	
Pie (foot)	2	N	
Pierna (leg)	0	N	
Lengua (tongue)	0	N	
Ojo (eye)	0	N	
Pelo (hair)	0	N	
Oreja (ear)	0	N	
Nariz (nose)	0	N	
Mano (hand)	3	N	
Brazo (arm)	0	N	

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

Student 3 *Item Analysis for Spanish Vocabulary Learned in GVVP Sessions*

Spanish Vocabulary Word	# of Times Correct (Out of 5)	Cognate (Y/N)	Correct on Post-test (Y/N)
Panadería (bakery)	2	N	
Restaurante (restaurant)	5	Y	Y
Correo (post office)	0	N	
Tienda (store)	3	N	
Escuela (school)	1	N	
Cine (movie theater)	4	N	Y
Playa (beach)	1	N	
Biblioteca (library)	4	N	
Parque (park)	5	Y	Y
Aeropuerto (airport)	3	Y	
Piscina (pool)	4	N	
Casa (house)	4	N	
Sacapuntas (pencil sharpener)	5	N	Y
Ventana (window)	3	N	
Papel (paper)	5	Y	Y
Bolígrafo (pen)	1	N	
Profesora (teacher –female)	4	Y	Y
Escritorio (desk)	2	N	
Carpeta (folder)	5	N	Y
Estudiante (student)	5	Y	Y
Bandera (flag)	1	N	
Lápiz (pencil)	3	N	Y
Reloj (clock)	2	N	
Libro (book)	4	N	
Cadena (chain)	0	N	
Guantes (gloves)	4	N	
Calcetines (socks)	1	N	
Camisa (shirt)	0	N	
Corbata (tie)	1	N	
Bolsa (purse)	5	N	Y
Gafas (glasses)	1	N	
Falda (skirt)	2	N	
Chaqueta (jacket)	3	N	
Pantalones (pants)	5	Y	Y
Sombrero (hat)	5	N	Y
Zapatos (shoes)	4	N	Y
lámpara (lamp)	5	Y	Y
sofá (couch)	5	Y	Y
gato (cat)	3	N	
mesa (table)	3	N	Y
alfombra (rug)	2	N	
silla (chair)	1	N	
tenedor (fork)	2	N	
cuchillo (knife)	4	N	
cuchara (spoon)	3	N	
tina (bathtub)	5	N	Y
vaso (glass)	2	N	
perro (dog)	4	N	Y

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

Student 4 Item Analysis for Spanish Vocabulary Learned in Flashcard Sessions

Spanish Vocabulary Word	# of Times Correct (Out of 5)	Cognate (Y/N)	Correct on Post- test (Y/N)
Pizza (pizza)	5	Y	Y
Leche (milk)	5	N	Y
Pan (bread)	5	N	Y
Manzana (apple)	5	N	Y
Galleta (cookie)	5	N	Y
Ensalada (salad)	0	N	
Hamburguesa (hamburger)	3	Y	Y
Queso (cheese)	3	N	Y
Huevo (egg)	3	N	Y
Carne (meat)	3	N	
Plátano (banana)	1	N	
Pollo (chicken)	2	N	Y
Garaje (garage)	5	Y	Y
Sótano (basement)	2	N	
Ducha (shower)	5	N	Y
Dormitorio (Bedroom)	5	N	Y
Baño (bathroom)	1	N	
Comedor (dining room)	0	N	
Cocina (kitchen)	0	N	Y
Sala (living room)	1	N	
Cama (bed)	3	N	
Suelo (floor)	1	N	Y
Techo (ceiling)	5	N	
Pared (wall)	0	N	
Boca (mouth)	1	N	
Espalda (back)	4	N	
Dientes (teeth)	5	Y	Y
Pie (foot)	2	N	Y
Pierna (leg)	4	N	
Lengua (tongue)	5	N	Y
Ojo (eye)	4	N	Y
Pelo (hair)	1	N	
Oreja (ear)	0	N	
Nariz (nose)	5	N	Y
Mano (hand)	2	N	
Brazo (arm)	0	N	

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

Student 4 Item Analysis for Spanish Vocabulary Learned in GVVP Sessions

Spanish Vocabulary Word	# of Times Correct (Out of 5)	Cognate (Y/N)	Correct on Post-test (Y/N)
Panadería (bakery)	5	N	Y
Restaurante (restaurant)	5	Y	Y
Correo (post office)	2	N	
Tienda (store)	2	N	Y
Escuela (school)	2	N	Y
Cine (movie theater)	5	N	Y
Playa (beach)	4	N	Y
Biblioteca (library)	5	N	Y
Parque (park)	5	Y	Y
Aeropuerto (airport)	5	Y	Y
Piscina (pool)	4	N	
Casa (house)	2	N	
Sacapuntas (pencil sharpener)	5	N	Y
Ventana (window)	3	N	Y
Papel (paper)	5	Y	Y
Bolígrafo (pen)	3	N	Y
Profesora (teacher –female)	5	Y	Y
Escritorio (desk)	4	N	
Carpeta (folder)	5	N	Y
Estudiante (student)	5	Y	Y
Bandera (flag)	2	N	Y
Lápiz (pencil)	3	N	
Reloj (clock)	3	N	Y
Libro (book)	4	N	
Cadena (chain)	1	N	
Guantes (gloves)	0	N	
Calcetines (socks)	1	N	
Camisa (shirt)	3	N	Y
Corbata (tie)	1	N	
Bolsa (purse)	1	N	
Gafas (glasses)	3	N	
Falda (skirt)	2	N	
Chaqueta (jacket)	1	N	Y
Pantalones (pants)	5	Y	Y
Sombrero (hat)	5	N	Y
Zapatos (shoes)	4	N	Y
lámpara (lamp)	5	Y	Y
sofá (couch)	5	Y	Y
gato (cat)	5	N	Y
mesa (table)	4	N	Y
alfombra (rug)	5	N	Y
silla (chair)	4	N	Y
tenedor (fork)	3	N	Y
cuchillo (knife)	3	N	
cuchara (spoon)	2	N	Y
tina (bathtub)	5	N	Y
vaso (glass)	3	N	Y
perro (dog)	5	N	Y

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

Student 5 Item Analysis for Spanish Vocabulary Learned in Flashcard Sessions

Spanish Vocabulary Word	# of Times Correct (Out of 5)	Cognate (Y/N)	Correct on Post-test (Y/N)
Pizza (pizza)	5	Y	Y
Leche (milk)	1	N	
Pan (bread)	0	N	
Manzana (apple)	0	N	
Galleta (cookie)	0	N	
Ensalada (salad)	0	N	
Hamburguesa (hamburger)	0	Y	
Queso (cheese)	0	N	
Huevo (egg)	0	N	
Carne (meat)	1	N	
Plátano (banana)	5	N	Y
Pollo (chicken)	0	N	
Garaje (garage)	5	Y	Y
Sótano (basement)	0	N	
Ducha (shower)	0	N	
Dormitorio (Bedroom)	0	N	
Baño (bathroom)	5	N	
Comedor (dining room)	0	N	
Cocina (kitchen)	2	N	
Sala (living room)	0	N	
Cama (bed)	1	N	
Suelo (floor)	0	N	
Techo (ceiling)	0	N	
Pared (wall)	0	N	
Boca (mouth)	0	N	
Espalda (back)	3	N	
Dientes (teeth)	4	Y	
Pie (foot)	3	N	
Pierna (leg)	0	N	
Lengua (tongue)	4	N	
Ojo (eye)	0	N	
Pelo (hair)	0	N	
Oreja (ear)	0	N	
Nariz (nose)	5	N	
Mano (hand)	1	N	
Brazo (arm)	0	N	

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

Student 5 Item Analysis for Spanish Vocabulary Learned in GVVP Sessions

Spanish Vocabulary Word	# of Times Correct (Out of 5)	Cognate (Y/N)	Correct on Post-test (Y/N)
Panadería (bakery)	1	N	
Restaurante (restaurant)	5	Y	Y
Correo (post office)	0	N	
Tienda (store)	0	N	
Escuela (school)	4	N	
Cine (movie theater)	2	N	Y
Playa (beach)	3	N	Y
Biblioteca (library)	2	N	
Parque (park)	5	Y	Y
Aeropuerto (airport)	1	Y	
Piscina (pool)	0	N	
Casa (house)	4	N	Y
Sacapuntas (pencil sharpener)	4	N	Y
Ventana (window)	1	N	
Papel (paper)	4	Y	Y
Bolígrafo (pen)	3	N	Y
Profesora (teacher –female)	5	Y	Y
Escritorio (desk)	0	N	
Carpeta (folder)	0	N	
Estudiante (student)	5	Y	Y
Bandera (flag)	3	N	
Lápiz (pencil)	5	N	Y
Reloj (clock)	2	N	Y
Libro (book)	5	N	
Cadena (chain)	1	N	
Guantes (gloves)	3	N	Y
Calcetines (socks)	0	N	
Camisa (shirt)	4	N	Y
Corbata (tie)	1	N	
Bolsa (purse)	1	N	
Gafas (glasses)	5	N	Y
Falda (skirt)	4	N	Y
Chaqueta (jacket)	1	N	
Pantalones (pants)	5	Y	Y
Sombrero (hat)	5	N	Y
Zapatos (shoes)	3	N	Y
lámpara (lamp)	5	Y	Y
sofá (couch)	5	Y	Y
gato (cat)	5	N	Y
mesa (table)	3	N	
alfombra (rug)	4	N	Y
silla (chair)	3	N	Y
tenedor (fork)	0	N	
cuchillo (knife)	1	N	Y
cuchara (spoon)	0	N	
tina (bathtub)	5	N	Y
vaso (glass)	4	N	
perro (dog)	5	N	Y

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

Student 6 Item Analysis for Spanish Vocabulary Learned in Flashcard Sessions

Spanish Vocabulary Word	# of Times Correct (Out of 5)	Cognate (Y/N)	Correct on Post-test (Y/N)
Pizza (pizza)	5	Y	Y
Leche (milk)	4	N	Y
Pan (bread)	5	N	Y
Manzana (apple)	5	N	Y
Galleta (cookie)	2	N	
Ensalada (salad)	3	N	Y
Hamburguesa (hamburger)	2	Y	Y
Queso (cheese)	3	N	
Huevo (egg)	2	N	
Carne (meat)	3	N	
Plátano (banana)	5	N	
Pollo (chicken)	2	N	
Garaje (garage)	5	Y	Y
Sótano (basement)	1	N	
Ducha (shower)	1	N	
Dormitorio (Bedroom)	2	N	Y
Baño (bathroom)	1	N	
Comedor (dining room)	3	N	
Cocina (kitchen)	0	N	
Sala (living room)	0	N	
Cama (bed)	3	N	
Suelo (floor)	2	N	
Techo (ceiling)	0	N	
Pared (wall)	4	N	
Boca (mouth)	4	N	
Espalda (back)	4	N	
Dientes (teeth)	5	Y	Y
Pie (foot)	2	N	
Pierna (leg)	2	N	
Lengua (tongue)	5	N	Y
Ojo (eye)	5	N	Y
Pelo (hair)	2	N	
Oreja (ear)	1	N	
Nariz (nose)	3	N	
Mano (hand)	3	N	
Brazo (arm)	3	N	

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

Student 6 Item Analysis for Spanish Vocabulary Learned in GVVP Sessions

Spanish Vocabulary Word	# of Times Correct (Out of 5)	Cognate (Y/N)	Correct on Post-test (Y/N)
Panadería (bakery)	5	N	Y
Restaurante (restaurant)	5	Y	Y
Correo (post office)	1	N	
Tienda (store)	4	N	Y
Escuela (school)	4	N	Y
Cine (movie theater)	5	N	
Playa (beach)	3	N	
Biblioteca (library)	4	N	Y
Parque (park)	5	Y	Y
Aeropuerto (airport)	4	Y	
Piscina (pool)	2	N	
Casa (house)	4	N	Y
Sacapuntas (pencil sharpener)	5	N	Y
Ventana (window)	2	N	
Papel (paper)	4	Y	Y
Bolígrafo (pen)	2	N	
Profesora (teacher –female)	5	Y	Y
Escritorio (desk)	5	N	
Carpeta (folder)	1	N	
Estudiante (student)	5	Y	Y
Bandera (flag)	3	N	
Lápiz (pencil)	4	N	Y
Reloj (clock)	1	N	
Libro (book)	5	N	
Cadena (chain)	1	N	
Guantes (gloves)	1	N	
Calcetines (socks)	1	N	
Camisa (shirt)	3	N	Y
Corbata (tie)	2	N	
Bolsa (purse)	3	N	
Gafas (glasses)	2	N	Y
Falda (skirt)	1	N	
Chaqueta (jacket)	2	N	
Pantalones (pants)	4	Y	Y
Sombrero (hat)	4	N	Y
Zapatos (shoes)	2	N	
lámpara (lamp)	5	Y	Y
sofá (couch)	5	Y	Y
gato (cat)	2	N	Y
mesa (table)	4	N	Y
alfombra (rug)	2	N	Y
silla (chair)	1	N	
tenedor (fork)	0	N	
cuchillo (knife)	5	N	Y
cuchara (spoon)	4	N	Y
tina (bathtub)	3	N	Y
vaso (glass)	3	N	Y
perro (dog)	4	N	Y

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

Student 7 Item Analysis for Spanish Vocabulary Learned in Flashcard Sessions

Spanish Vocabulary Word	# of Times Correct (Out of 5)	Cognate (Y/N)	Correct on Post- test (Y/N)
Pizza (pizza)	5	Y	Y
Leche (milk)	5	N	Y
Pan (bread)	5	N	Y
Manzana (apple)	5	N	
Galleta (cookie)	3	N	
Ensalada (salad)	5	N	Y
Hamburguesa (hamburger)	5	Y	Y
Queso (cheese)	3	N	
Huevo (egg)	4	N	
Carne (meat)	5	N	
Plátano (banana)	4	N	
Pollo (chicken)	4	N	
Garaje (garage)	5	Y	Y
Sótano (basement)	4	N	
Ducha (shower)	4	N	
Dormitorio (Bedroom)	5	N	
Baño (bathroom)	5	N	
Comedor (dining room)	5	N	
Cocina (kitchen)	3	N	
Sala (living room)	3	N	Y
Cama (bed)	4	N	
Suelo (floor)	3	N	
Techo (ceiling)	4	N	
Pared (wall)	5	N	
Boca (mouth)	3	N	
Espalda (back)	5	N	
Dientes (teeth)	5	Y	
Pie (foot)	2	N	
Pierna (leg)	4	N	
Lengua (tongue)	5	N	
Ojo (eye)	5	N	Y
Pelo (hair)	3	N	
Oreja (ear)	5	N	Y
Nariz (nose)	4	N	
Mano (hand)	4	N	
Brazo (arm)	2	N	

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

Student 7 Item Analysis for Spanish Vocabulary Learned in GVVP Sessions

Spanish Vocabulary Word	# of Times Correct (Out of 5)	Cognate (Y/N)	Correct on Post-test (Y/N)
Panadería (bakery)	5	N	Y
Restaurante (restaurant)	5	Y	Y
Correo (post office)	5	N	
Tienda (store)	2	N	
Escuela (school)	3	N	
Cine (movie theater)	2	N	
Playa (beach)	3	N	
Biblioteca (library)	4	N	
Parque (park)	5	Y	Y
Aeropuerto (airport)	2	Y	
Piscina (pool)	1	N	
Casa (house)	1	N	
Sacapuntas (pencil sharpener)	3	N	
Ventana (window)	0	N	
Papel (paper)	5	Y	Y
Bolígrafo (pen)	4	N	
Profesora (teacher –female)	5	Y	Y
Escritorio (desk)	0	N	Y
Carpeta (folder)	3	N	
Estudiante (student)	5	Y	
Bandera (flag)	5	N	Y
Lápiz (pencil)	1	N	
Reloj (clock)	3	N	
Libro (book)	1	N	
Cadena (chain)	0	N	
Guantes (gloves)	0	N	
Calcetines (socks)	1	N	
Camisa (shirt)	0	N	
Corbata (tie)	1	N	
Bolsa (purse)	0	N	
Gafas (glasses)	5	N	Y
Falda (skirt)	1	N	
Chaqueta (jacket)	2	N	
Pantalones (pants)	5	Y	Y
Sombrero (hat)	5	N	Y
Zapatos (shoes)	1	N	
lámpara (lamp)	5	Y	Y
sofá (couch)	5	Y	Y
gato (cat)	4	N	
mesa (table)	5	N	Y
alfombra (rug)	3	N	Y
silla (chair)	5	N	Y
tenedor (fork)	5	N	Y
cuchillo (knife)	5	N	Y
cuchara (spoon)	5	N	Y
tina (bathtub)	4	N	Y
vaso (glass)	2	N	Y
perro (dog)	5	N	Y

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

Student 8 Item Analysis for Spanish Vocabulary Learned in Flashcard Sessions

Spanish Vocabulary Word	# of Times Correct (Out of 5)	Cognate (Y/N)	Correct on Post-test (Y/N)
Pizza (pizza)	5	Y	Y
Leche (milk)	3	N	Y
Pan (bread)	5	N	Y
Manzana (apple)	4	N	Y
Galleta (cookie)	3	N	Y
Ensalada (salad)	5	N	Y
Hamburguesa (hamburger)	4	Y	Y
Queso (cheese)	5	N	Y
Huevo (egg)	3	N	Y
Carne (meat)	3	N	Y
Plátano (banana)	4	N	Y
Pollo (chicken)	4	N	Y
Garaje (garage)	5	Y	Y
Sótano (basement)	3	N	Y
Ducha (shower)	4	N	Y
Dormitorio (Bedroom)	3	N	Y
Baño (bathroom)	3	N	Y
Comedor (dining room)	4	N	Y
Cocina (kitchen)	4	N	Y
Sala (living room)	3	N	Y
Cama (bed)	3	N	Y
Suelo (floor)	3	N	
Techo (ceiling)	3	N	
Pared (wall)	3	N	Y
Boca (mouth)	3	N	Y
Espalda (back)	1	N	Y
Dientes (teeth)	3	N	Y
Pie (foot)	3	Y	Y
Pierna (leg)	5	N	Y
Lengua (tongue)	4	N	Y
Ojo (eye)	4	N	Y
Pelo (hair)	5	N	Y
Oreja (ear)	4	N	
Nariz (nose)	3	N	Y
Mano (hand)	5	N	Y
Brazo (arm)	3	N	Y

GVVP AND CONCRETE SPANISH NOUNS FOR LD STUDENTS

Student 8 Item Analysis for Spanish Vocabulary Learned in GVVP Sessions

Spanish Vocabulary Word	# of Times Correct (Out of 5)	Cognate (Y/N)	Correct on Post-test (Y/N)
Panadería (bakery)			
Restaurante (restaurant)	5	N	Y
Correo (post office)	5	Y	Y
Tienda (store)	3	N	Y
Escuela (school)	3	N	Y
Cine (movie theater)	5	N	Y
Playa (beach)	4	N	Y
Biblioteca (library)	4	N	Y
Parque (park)	5	N	Y
Aeropuerto (airport)	5	Y	Y
Piscina (pool)	5	Y	Y
Casa (house)	4	N	Y
Sacapuntas (pencil sharpener)	5	N	Y
Ventana (window)	4	N	Y
Papel (paper)	3	N	Y
Bolígrafo (pen)	4	Y	Y
Profesora (teacher –female)	3	N	Y
Escritorio (desk)	4	Y	Y
Carpeta (folder)	3	N	Y
Estudiante (student)	3	N	
Bandera (flag)	4	Y	Y
Lápiz (pencil)	2	N	Y
Reloj (clock)	4	N	
Libro (book)	3	N	Y
Cadena (chain)	4	N	
Guantes (gloves)	3	N	Y
Calcetines (socks)	3	N	Y
Camisa (shirt)	4	N	Y
Corbata (tie)	4	N	
Bolsa (purse)	3	N	
Gafas (glasses)	2	N	Y
Falda (skirt)	4	N	Y
Chaqueta (jacket)	4	N	Y
Pantalones (pants)	4	N	Y
Sombrero (hat)	4	Y	Y
Zapatos (shoes)	4	N	Y
lámpara (lamp)	4	N	Y
sofá (couch)	5	Y	Y
gato (cat)	5	Y	Y
mesa (table)	5	N	Y
alfombra (rug)	5	N	Y
silla (chair)	5	N	Y
tenedor (fork)	5	N	Y
cuchillo (knife)	5	N	Y
cuchara (spoon)	4	N	Y
tina (bathtub)	5	N	Y
vaso (glass)	5	N	Y
perro (dog)	5	N	Y
	5	N	Y