The Implementation of the Keyword Method to Increase Foreign Language Vocabulary Recall with First year Spanish Students

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Abstract

Thirteen first year Spanish students enrolled in a rural Midwest school participated in the study. The purpose of the study was to determine if the implementation of a specific mnemonic technique would increase foreign language vocabulary recall. The mnemonic technique that was implemented was the Keyword method. Students' foreign language recall data was analyzed from archival assessments and compared to post-assessments following the implementation of the Keyword method. Results indicated that students demonstrated an increase in vocabulary recall, especially when the keyword and the foreign language word were visualized interacting together.
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CHAPTER 1: INTRODUCTION

After 17 years as a teacher of foreign language, it became apparent that there was a need to find a strategy to assist first year students with vocabulary recall. Through a review of the professional literature the teacher investigated various direct teaching methods, and found a strategy known as the Keyword method. Atkinson, (1975) who developed the Keyword method stated that foreign language students increased vocabulary recall when using his method, which involved a mnemonic technique. Furthermore, Campos, Amor, and González (2004) as well as Sagarra and Alba (2006) found similar results with the Keyword method. The teacher sought a strategy, such as the Keyword method, to implement and provide students with an alternative method for vocabulary acquisition.

Statement of Problem

The purpose of the project was to determine if the use of the Keyword method improved vocabulary recall of high school foreign language students. The research questions were: (1) How did the professional literature reviewed define the Keyword method? (2) According to the professional literature reviewed, what were the benefits of the implementation of the Keyword method? (3) How was the Keyword method implemented according to the professional literature reviewed? (4) How did the Keyword method improve vocabulary recall of high school foreign language students?
Justification

The teacher/researcher found that first year Spanish language students were having difficulty recalling vocabulary, which enabled their ability to communicate in the foreign language. The teacher/researcher desired a change in her instructional technique for vocabulary acquisition, from rote memorization to the information processing technique Keyword method. The first year Spanish language students were not acquiring the vocabulary needed using traditional rote rehearsal because of insufficient class time. Consequently, they were not remembering vocabulary from chapter to chapter. The use of the Keyword method assisted students with vocabulary recall and improved their vocabulary retention. As a result, this method provided students with the ability to recall vocabulary at an increased rate that enhanced communication in the second language. It was also important that the benefits of using an information processing method in the foreign language classroom were investigated for other foreign language teachers who desired to change their teaching instruction and improve students’ vocabulary recall.

Definition of Terms

1. **Keyword method**: Keyword method was mnemonic, information processing technique consisting of a two-step process for vocabulary recall, the first verbal and the second visual.

2. **Recall**: Recall was the processing of retrieving vocabulary from memory.

3. **Rote rehearsal**: was a practice of repeating the vocabulary word numerous times with no variations.
Limitations and Appropriate Use of Results

The limitations of the research were the length of research time, number of participants, proficiency level of participants, limited student and teacher experience with method, application of the method, and geographical location. The research was conducted over a two-week period, using two different vocabulary sections in a particular chapter. Learning vocabulary in a particular chapter takes one week per section. The participants in the project were less than half of the Spanish level I students, therefore, not all first year students participated. The proficiency level of students who participated in the project was also a limitation because of true level of experience with learning a foreign language. Some of the students had taken an exploratory program for a semester while they were in eighth grade. The teacher had limited experience with the Keyword method and in instructing students to use the method to learn vocabulary, which influenced the reliability of the method. The research was implemented in a rural Northwest Ohio district. Thus, due to these limitations, results cannot be generalized to other settings, levels of foreign language learners, and number of students.
CHAPTER II: REVIEW OF LITERATURE

Introduction

The purpose of the project was to determine if the use of the Keyword method improved vocabulary recall of high school foreign language students. The research questions were: (1) How did the professional literature reviewed define the Keyword method? (2) According to the professional literature reviewed, what were the benefits of the implementation of the Keyword method? (3) How was the Keyword method implemented according to the professional literature reviewed? (4) How did the Keyword method improve vocabulary recall of high school foreign language students?

Research question (1): How did the professional literature reviewed define the Keyword method?

In order to answer research question one, a review of the professional literature was conducted. Atkinson (1975) developed and honed the keyword method to assist learners with foreign language vocabulary acquisition. He defined this method as selecting an English word that sounded like some part of the foreign language word, without a relationship to the foreign language word, except the sound. He also explained the technique as a two-stage process. The first stage required learners to associate the spoken foreign language word with the Keyword, acoustically. The second stage required learners to form a mental image of the Keyword interacting with the English translation. The Keyword method was as a mnemonic technique that provided learners with a word in their native English
language that created a link to the foreign language vocabulary word (Atkinson, 1975; Raugh & Atkinson, 1975).

Hogben and Lawson’s (1994) definition of Keyword method was similar to Atkinson’s definition, in that they agreed it was a two-stage process for vocabulary acquisition. However, their description of the first stage differed slightly. Hogben and Lawson described the first stage as choosing a keyword that sounded similar to and looked like, part or all of the foreign language word. The second stage however, did not differ from Atkinson’s second stage. Learners were still required to visualize the keyword interrelating with the foreign language word.

van Hell and Mahn (1997) also agreed with Atkinson’s definition of the Keyword method as a two-step process, although their explanation was similar to that of Hogben and Lawson’s. van Hell and Mahn explained the method as linking the keyword or first language word phonologically and/or orthographically to resemble the foreign language word. Their definition of the method involved selecting a keyword that also resembled the foreign language word or target word in appearance not only in sound. Atkinson, Hogben and Lawson, and van Hell and Mahn did not differ in their definition of the second stage of the Keyword method.

Additionally, Sagarra and Alba (2006) defined the Keyword method as a more complex cognitive process than rote memorization, in which learners proceeded through a multiple-step process to acquire vocabulary. They described the initial process as linking the foreign language word to a keyword and then creating an image to connect the two words together as Atkinson explained the method however, the cognitive complexity emerged in the recall process. When learners were presented
with the foreign language word, they had to recall the keyword, which led to the image, and then finally the translation. This process required learners to recall vocabulary both receptively and productively, as well as conceptualizing the foreign language word through the link between the keyword and its translation.

According to the literature reviewed, Atkinson (1975) developed the Keyword method as a two-stage mnemonic technique to assist learners with foreign language vocabulary acquisition. Throughout the literature reviewed, there were slight variations of the two-stage process. These variations entailed adding the element of orthography with phonology to the first stage of the Keyword method. Nevertheless all definitions entailed linking of the English word to the foreign language word through a keyword. In addition to Atkinson’s definition, the Keyword method was also described as a cognitive process involving multiple steps for vocabulary recall (Sagarra and Alba, 2006). All of the researchers reviewed agreed that the definition of the second stage of the Keyword method was creating a mental image of the interaction between the link word and the foreign language word.

Research question (2): What were the benefits of the implementation of the Keyword method?

To obtain the answer to research question two, a review of the professional literature was conducted. Following a review the professional literature, the most significant benefit found when implementing the Keyword method was increased vocabulary acquisition (Atkinson, 1975; Raugh and Atkinson, 1975; Campos, Amor, and González, 2004; Sagarra and Alba, 2006). Atkinson stated that learners who used the Keyword method initially recalled more vocabulary words at a faster rate than
learners using rote memorization. Campos et al., as well as Sagarra and Alba, supported Atkinson's findings; they also concluded that learners using the Keyword method recalled more foreign language vocabulary than those learners using conventional rote methods. There were additional benefits of implementing the Keyword method discussed in the review of the literature. These benefits included: (a) retrieval time, which is the time between the instruction and testing, (b) level of learners, novice to advanced (c) age of learners, elementary students to college students and (d) useful variations of the original method.

**Span of retrieval time**

Carney and Levin (1998) stated that the Keyword method was more effective than rote methods after delayed recall. Learners using the Keyword method recalled the foreign language vocabulary words five days after the initial instruction. Furthermore, Fritz, Morris, Acton, Voelkel and Etkind (2007) agreed with Carney and Levin about the effectiveness of the Keyword method regarding delayed recall. Learners demonstrated the ability to recall foreign language vocabulary words one week after the initial test. Studies by van Hell and Mahn (1997) also confirmed that the Keyword method was more effective than rote rehearsal after one and two week delayed testing. In addition, Beaton (2005) concluded that the Keyword method was successful after 10 years delayed recall.

**Level of proficiency**

Another benefit of implementing the Keyword method was its effectiveness with novice foreign language learners as well as advanced foreign language learners. van Hell and Mahn (1997) determined through their study, that the Keyword method
was effective with both novice foreign language learners and experienced foreign language learners. Furthermore, Sagarra and Alba’s (2006) study concluded that novice or elementary learners utilizing the Keyword method performed better than rote memorization learners when immediate recall testing was given. In addition, Hogben and Lawson (1994) concluded that experienced foreign language learners benefited with the use of the Keyword method over conventional rote method learners.

Age level

The use of the Keyword method was found to benefit all ages of learners. Pressley, Levin, Nakamura, Hope, Bispo and Toye (1980) stated how the Keyword method was more effective than rote memorization for vocabulary acquisition with college-age students. Pressley, Levin and McCormick (1980) also determined its effectiveness with elementary students. Furthermore, Campos et al. (2004) determined that the Keyword method was useful for foreign language vocabulary acquisition with middle school students.

Variations of the method

The Keyword method also demonstrated benefits through variations of the original method. Although Pressley et al. (1980) confirmed the benefits of the Keyword method with elementary learners; they used the self-generated sentence variation of the Keyword method, a variation that required students to make their own sentence linking the foreign language word to the keyword. Additionally Hogben and Lawson (1994) stated how effective the Keyword method was in their study with what they described as add on strategies, or elaborations with the Keyword method.
In a similar variation, Pressley et al., Campos, et al. (2004) found that their variation study of the Keyword method, subject-generated-keywords as apposed to experimenter-generated-keywords, was as effective for foreign language learning as the initial Keyword method.

Through a review of the professional literature, it was determined that the benefits of the Keyword method extended from age of learners to performance level as well as variations of the initial method. However, the most significant benefit of the Keyword method was increased foreign language vocabulary acquisition (Atkinson, 1975; Raugh and Atkinson, 1975; Campos et al.; 2004; Sagarra and Alba, 2006).

Research question (3): How was the Keyword method implemented according to the professional literature reviewed?

In order to answer research question three, a review of the professional literature was conducted. The Keyword method was implemented in varying techniques and within various settings, most of which resulted in increased foreign language acquisition.

Atkinson (1975) developed the Keyword method and his first study was comprised of college English speaking students learning Russian or Spanish. In his study, for the first step of the two-step method, he chose an English word that resembled a specific sound in the foreign language word to be the link word. He presented his method using a computer. Learners heard the foreign vocabulary word through headphones while viewing the keyword displayed on the monitor along with the English translation. The second step involved the creation of a mental image.
Learners were given adequate time to create a mental image linking the keyword and the foreign language word. When shown the foreign language vocabulary without the translation, learners typed the English translation of the foreign word. van Hell and Mahn (1997) implemented the Keyword method identically to Atkinson, by presenting the method via the computer with college students. Beaton, Gruneberg, Hyde, Shuffebottom, and Sykes (2005) presented the Keyword method as van Hell and Mahn did, with college students, however, they used slides to present the Keyword method, and subjects were asked to recall the vocabulary receptively as well as productively. In the studies by Atkinson, van Hell and Mahn, and Beaton et al., the subjects only used receptive recall.

Pressley, Levin and Ghatala (1984) also used college students in their study. They, on the other hand, used a variation of the standard Keyword method. They used the sentence variation technique. Students were shown a flashcard that contained the foreign language word, keyword and definition. Students then heard the foreign language word, what it sounded like and what it meant. After hearing the words, they were asked to make a sentence with the words. In their conclusion, students benefited from using this technique. However, they also used this elaborated technique with fifth and sixth-grade students, and concluded the technique was even more effective.

Pressley, Levin, and McCormick (1980) also discussed the implementation of the standard Keyword method with elementary students. They stated that elementary students, specifically second graders, had difficulty with imaging; therefore, they used a sentence variance to the standard Keyword method. Students were provided with the foreign language word orally and visually on an index card. Then, they were
asked to create a sentence in which the keyword and the English translation were acting together. Although students who verbalized their sentence had higher gains than those who internalized their sentence, all students using the sentence variation technique had success with foreign language vocabulary recall. Pressley, Levin and McCormick concluded that the sentence variation method of the standard Keyword method fared better than the standard method when implemented with younger children. They stated that younger children did not yet have the ability to image, thus creating a sentence using the keyword and its translation enhanced the effectiveness of the method.

Rodriguez and Sadoski (2000) implemented the Keyword method with Venezuelan high school students learning English. In their study, they used the standard Keyword method described by Atkinson. However, they presented the technique through booklets given to each student. The teacher presented each vocabulary word using a specific script, which included a description of an image involving the keyword and the meaning of the English word interacting. In their conclusion, students with less knowledge of English performed better using the Keyword method when compared with those who were more proficient in the English language at the beginning of the study.

Similar to Rodriguez and Sadoski (2000), Campos, Amor, and González (2004) also used the Keyword method with high school students. In their study, they used three varying techniques of the method to assist Spanish students learning Latin. The first technique required students to create their own keywords and images for the Latin word. The second technique gave students the keyword and image for the Latin
word, and with the third technique, the students' peers provided the keywords and images. With all three variations of the method, the Latin word was read out loud with its Spanish translation. With the other two techniques, the proctor supplied keywords and images. Campos et al. concluded that all variations of the standard Keyword method were effective for foreign language acquisition and immediate recall. They stated that the method worked better with high-vividness words, which were more concrete, as opposed to low vividness words, less concrete, hence referring to the image step of the method. Hogben and Lawson (1994) implemented the Keyword method with high school students as well. Their study differed slightly to Campos et al. and Rodríguez and Sadoski, to involve high school students with experience in the foreign language. They implemented the Keyword method through booklets, displaying the foreign vocabulary word with an orthographic definition of the word and a related word. Students were not given keywords; rather they were instructed in how to create their own keyword and image to use the method.

According to the literature reviewed, the implementation of the Keyword method varied in technique and setting. The various techniques or elaborations of the method were implemented to have the greatest success with the specific students involved. As demonstrated by van Hell and Mahn (1997), the standard Keyword method was implemented with college students in laboratories. In addition, Pressley et al. (1980; 1984) used a variation of the standard method with elementary students as well as middle school students. A variation of the standard method was also implemented with high school students (Campos et al., 2004; Rodríguez and Sadoski, 2000). Although many variations of the standardKeyword method were used and
differing implementations were applied with multiple age learners, the fundamental two-step process developed by Atkinson was employed.

**Conclusion**

Through a review of the professional literature, the teacher/researcher found the Keyword method developed by Atkinson (1975) was a two-step process involving linking the foreign language vocabulary word with a native language word, then creating a mental image of the keyword with the translation interacting. The researcher/teacher also determined the benefits of implementing the Keyword method was to increase immediate vocabulary acquisition.

Furthermore, she discovered that using the various techniques of the standard Keyword method, when applied across multiple ages of learners and differing settings was highly effective in increasing foreign language vocabulary acquisition.
CHAPTER III: METHODS AND PROCEDURES

Introduction

The purpose of the project was to determine if the use of the Keyword method improved vocabulary recall of high school foreign language students. The research questions were: (1) How did the professional literature reviewed define the Keyword method? (2) According to the professional literature reviewed, what were the benefits of the implementation of the Keyword method? (3) How was the Keyword method implemented according to the professional literature reviewed? (4) Did the Keyword method improve vocabulary recall of high school foreign language students?

Participants

Thirteen high school first-year foreign language students participated in the action research project. Students were enrolled in the second semester a Spanish I course. The participants were students in a small, rural, Midwest high school. The participants were in grades 9 through 12. Twelve of the participants were female, with one male participant. Twelve of the participants were European American, and one student was Mexican American.

Treatment/Intervention

The intervention for this project was the implementation of the Keyword method. The professional literature reviewed stated that the use of the Keyword method increased foreign language acquisition (Atkinson, 1975).

Before the Keyword method was introduced to students in the first year Spanish class, the teacher discussed with students the various methods of foreign
language acquisition. After the discussion, students were provided with a survey to complete on various methods to determine students' preferred method of foreign language acquisition. Using the survey results, the teacher was able to develop a strategy on how to instruct students in the Keyword method. The teacher introduced the Keyword method with random vocabulary found in the last chapter of the first-year textbook that was not familiar to any of the students. This set of vocabulary words allowed for practice and proficiency of the method. Once students mastered the Keyword method, the teacher implemented this technique with the next sequential chapter in the textbook. Students executed this technique through the use of computer technology. The teacher implemented the Keyword method using a Power Point program. Each foreign language vocabulary word was presented on a slide with the link word, and the meaning of the foreign language word. Students either saw a picture of the foreign language word and the link word interacting, or they were asked to create a sentence, which involved the foreign language word and the link word interacting. Students then pressed a button on the slide to hear the pronunciation of the foreign language word. Prior to the implementation of the method, the teacher instructed students to repeat the foreign language word aloud, following the pronunciation given with each slide. Students were asked to view each slide for 15 seconds before advancing to the next slide, and to move through the slide show twice. Students repeated the process over a two-day period.

On the second day, after students had completed their series of slides, they were given a vocabulary quiz. The quiz required students to recall the vocabulary
words receptively and productively by seeing either the foreign language word or the English translation. This procedure was employed using both vocabulary sections of the current chapter. Students were provided with a quiz over the vocabulary after each section for immediate recall results, as well as twelve days later on the cumulative chapter test for delayed recall results.

Instruments/Protocols

Various instruments and protocols were implemented to collect data in order to answer Research Question #4: Did the Keyword method improve vocabulary recall of high school foreign language students? Data were collected using three instruments. They were the Foreign Language Acquisition Method Survey, Vocabulary Quizzes and Tests, and Informal Interviews.

Foreign Language Acquisition Method Survey

The first instrument used for data collection was the Foreign Language Acquisition Method Survey (see Appendix A for the Foreign Language Acquisition Survey). The survey, developed by the teacher consisted of seven statements to which students responded using a Likert scale format. Students were asked to respond to each question by choosing: A = always, O = often, S = sometimes, and N = never in regards to foreign language method of acquisition. Types of statements included, “I learn foreign language vocabulary by pronouncing the word out loud with its translation.” and “I learn foreign language vocabulary by writing the foreign language word and its translation.” This survey was intended to gather information with reference to student foreign language study methods for vocabulary acquisition. The teacher wanted to identify if any of
the students in the class practiced the Keyword method for foreign language acquisition.

**Vocabulary Quizzes and Tests**

The second instrument used to collect data involved archival documents. Atkinson, (1975) stated, that with the Keyword method foreign language vocabulary recall increased. Therefore, to determine if foreign language vocabulary recall increased, archival documents were reviewed. These documents consisted of chapter quizzes from the previous chapter, used for comparison to determine improvement of vocabulary for immediate recall as well as the chapter test, to determine improvement with delayed recall. Through student records, the teacher recorded the most resent quizzes and chapter test grades for each participant. These grades were recorded on a spreadsheet. At the end of the research, each participant received a grade for quizzes from the chapter and a grade from the chapter test, which were recorded on the same spreadsheet. These grades were then used as a means of comparing vocabulary improvement using the Keyword method.

**Informal Interviews**

The final instrument used to collect data was an informal interview. According to Atkinson (1975), the Keyword method was beneficial for foreign language vocabulary acquisition. Thus, the teacher wanted to determine if students felt that the Keyword method was beneficial for learning foreign language vocabulary. Therefore, informal interviews were done with students from the class to document the students’ opinions about the Keyword method and
its effectiveness. The interviews were conducted during the class and recorded on a tape recorder. Interview questions included, "Which method of the Keyword method did you prefer?" and "Did you like using the Keyword method to learn vocabulary?" (see Appendix B for the informal interview guide).

Procedures

To begin the project, the teacher met with the building principal at the beginning of the second semester to explain her action research project and to receive permission to involve one of her first year classes. The teacher then sent home letters to parents of the students informing them of the project that involved their child. The letter contained a consent form for the parent or guardian to use if they did not wish their child to participate (see Appendix C for a copy of the letter). The various procedures used to collect data were conducted in the classroom during the regular school day.

*Foreign Language Acquisition Method Survey*

In the first week of the second semester, the teacher presented a brief explanation of the various methods used to study a foreign language to students in her first period class. Through direct instruction, she provided a definition of the method along with an example of how to use the method. After the explanation, students completed a survey. Statements of the survey included, "I learn foreign language vocabulary by pronouncing the word out loud with its translation." and "I learn foreign language vocabulary by writing the foreign language word and its translation." The Foreign Language Acquisition Survey was administered to all students in the first period level one Spanish class (see Appendix A for a copy of
the survey). The teacher provided a black pen for each student to complete the survey. Students were instructed to not put their names on the survey and to place the survey in the Manila envelope on the back table. The teacher stood in the back of the room while students completed the survey.

**Vocabulary Quizzes and Tests**

Prior to the project, archival documents were obtained. These were vocabulary quiz grades from the previous chapter and the previous chapter test grade. These grades were in the form of a percentage, which equaled a letter grade. The teacher assigned a number for each student. The percentage and letter grade for the quizzes and chapter test was recorded on a spreadsheet next to the assigned number representing the student. At the end of the data collection period a second percentage grade and letter grade was recorded for each student beside the first grades on a spreadsheet (see Appendix D for the spreadsheet). The percentage grade and letter grades included two vocabulary quizzes and one chapter test.

**Informal Interviews**

Informal interviews with every student in the class were completed after the Keyword method was implemented. The interviews were recorded on a tape recorder and then transcribed by the teacher one week later (see Appendix E for a sample transcribed interview). Students shared with the teacher their thoughts about the Keyword method. The interviews were approximately 5 minutes in length. Students were asked questions about the technique of the method as well as the personal benefits they received with the implementation of the Keyword method. Some sample questions asked were, “What did you like about using the
Keyword method to learn Spanish vocabulary?” and “Would you continue to use this method on your own to learn Spanish vocabulary?”

Timeline

The Foreign Language Acquisition Survey was administered to students in the beginning of January 2008. In addition, archival data was recorded on the spreadsheet during this time. Throughout the month of January and the first part of February the Keyword method was implemented. The Keyword method was utilized with the vocabulary that was provided in the textbook with the current chapter of study. Within the chapter, there were two vocabulary sections employed using the Keyword method. Completion of a chapter required three weeks. Upon completion, the chapter test was administered. Interviews with students were done upon completion of the chapter quizzes.

Data Analysis

Foreign Language Acquisition Survey

On the Foreign Language Method Acquisition Survey answers always (A), often (O), sometimes (S), and never (N) were assigned the following point values: A=4, O=3, S=2, and N=1. The average response for each statement was calculated by adding the total points assigned to each response and dividing by the number of participants. A bar graph was then constructed to show the results of students’ methods of acquiring foreign language vocabulary.

Vocabulary Quizzes and Tests

The archival data, which included recent and previous chapter quiz grades in addition to test grades were recorded on a spreadsheet. The grades were analyzed by
assigning a point value to the differences in grades. For example, if a student’s quiz grade improved by three letter grades, a +3 was recorded. If a student’s quiz grade declined by two letter grades, a -2 was recorded. This method of analyzing data was performed for both chapter quizzes and the chapter test used in the study. The following scale was used to analyze the grades: + 4 = improvement of 4 letter grades, + 3 = improvement of 3 letter grades, + 2 = improvement of 2 letter grades, + 1 = improvement of 1 letter grade, + 0 = the grade remained the same, - 1 = decline of 1 letter grade, - 2 = decline of 2 letter grades, - 3 = decline of 3 letter grades, and - 4 = decline of 4 letter grades. Using these assigned point values, the total number of students achieving each point value was then added and divided by the total number of students who participated, to determine the percentage of improvement or decline in vocabulary recall after implementing the Keyword method. A pie graph was created to display the percentage of improvement with vocabulary recall using the Keyword method.

Informal Interviews

The informal interviews with students were recorded on a tape recorder in class and later transcribed by the teacher. The students’ statements about the technique and their personal benefit from the technique were summarized onto index cards and categorized and coded as either benefits with the method, or concerns about the technique. The summarized student opinions were then listed in two sections, with one section listing the benefits and the other concerns with the technique. Interviews were used to gather student comments and opinions about benefits and concerns of the Keyword method technique with vocabulary recall. The comments and opinions
provided the teacher specific information about implementing the Keyword method and how it benefited students with foreign language vocabulary recall.

Conclusion

With the procedures defined and employed, data collection began the third in January 2008. In order to answer the research question, did the Keyword method improve vocabulary recall of high school foreign language students, the Keyword method was implemented for four weeks, culminating with a chapter test for delayed recall assessment. After the collection of data, the researcher began to analyze the data and interpret the results.
CHAPTER IV: RESULTS

The purpose of this study was to determine if the use of the Keyword method improved vocabulary recall of high school foreign language students. The teacher wanted to determine if students acquired foreign language through mnemonic techniques, and what were students' reactions to implementing the Keyword method for foreign language vocabulary acquisition. The research questions were: (1) How did the professional literature reviewed define the Keyword method? (2) According to the professional literature reviewed, what were the benefits of the implementation of the Keyword method? (3) How was the Keyword method implemented according to the professional literature reviewed? (4) Did the Keyword method improve vocabulary recall of high school foreign language students?

The review of the professional literature provided evidence that the utilization of the Keyword method improved foreign language vocabulary recall (Atkinson, 1975). It was a beneficial method for foreign language acquisition with all ages of learners as well as their level of language learning aptitude (van Hell and Mahn, 1979; Hogben and Lawson, 1994; Pressley, Levin, Nakamura, Hope, Bispo and Toye, 1980). The review of professional literature also provided evidence on varying techniques of the Keyword method. Pressley et al., 1980 stated that the Keyword method was also a beneficial method for foreign language acquisition when students created their own link word sentence.

Through the review of professional literature the teacher gained the information required to implement the Keyword method successfully. She also developed a foreign language acquisition survey to determine if students used
mnemonic techniques for language acquisition. Furthermore, she interviewed students to determine students' perception of the technique.

Instruments and procedures were developed to gather data to determine if the use of the Keyword method improved vocabulary recall of high school foreign language students. The data collection instruments included the Foreign Language Acquisition Survey, informal interviews, vocabulary quiz scores, and chapter test scores.

**Foreign Language Acquisition Survey**

The first data collection instrument was the Foreign Language Acquisition Survey (see Appendix A for copy of survey). This teacher-generated survey consisted of seven questions to understand how students acquired foreign language vocabulary. Students were to indicate if they used a particular technique always, often, sometimes, or never, with each statement. Students completed the survey immediately after the teacher discussed the various methods used to learn foreign language vocabulary. The teacher averaged the responses for each statement from the survey by assigning numerical values to each answer, Always=4, Often=3, Sometimes=2, and Never=1, totaling the points for each statement, and dividing by the number of participants. The results indicated that students preferred to use a rote rehearsal method for acquiring foreign language vocabulary, although they did not use the method regularly. The highest average response was to question number 3 indicating that students learn vocabulary by pronouncing the word aloud with its English translation. An average response of 2 was recorded. Therefore, it implied students used this method sometimes to learn vocabulary.
Question number 2 indicated that students preferred to learn vocabulary by writing the Spanish word and its English translation. This had the second highest average response. This method also implied students chose to use a rote memorization method for acquiring foreign language vocabulary. An average score of less than 2 was recorded. Thus, students did not use this method on a regular basis.

Question number 1 indicated that students preferred to use rote memorization for acquiring vocabulary through reading the textbook multiple times. Again, a less than 2 average response was recorded. Question number 4 was the statement that described the Keyword method, a mnemonic technique for learning vocabulary. There were five students that indicated use of this technique. However, they did not employ the method consistently. Question number 7 indicated that students learned foreign language vocabulary by complete emersion, while question number 5 indicated emersion with specific vocabulary. Only a few students selected this method of acquiring foreign language vocabulary. Furthermore, a couple of students indicated that they learned foreign language vocabulary through osmosis, which was the method, described in question number 6. The graph, shown in Figure 1, represents results of the survey.
The data collected from the Foreign Language Acquisition Survey provided the teacher with results that indicated how students acquired foreign language vocabulary. From the results, she determined that students did not use a specific method for learning vocabulary and they did not use a particular method on a regular basis. The results of the survey also indicated that overall students did not use a mnemonic technique. Therefore, the conclusion to be drawn was that students did not have a method for acquiring foreign language vocabulary. Thus, implementing the Keyword method would benefit students with vocabulary recall.

Vocabulary Quizzes and Chapter Tests

The second method of data collection was the comparison of students’ vocabulary quiz scores and chapter test scores (see Appendix D for copy of students’ scores) prior to implementation of the Keyword method to vocabulary quiz scores and chapter test scores after the implementation of the Keyword method. Two past quiz scores were averaged for each student. Then they were compared to quizzes taken after employing the Keyword method. Students’ scores were assigned a point value
corresponding to the level of improvement or decline in letter grade. The total number of students for each point value was added and then divided by the total number of students in the class. This method was used to determine the percentage of students who improved their grade by 1, 2, 3, or 4 letter grades. The same technique was also used to determine students whose grade declined or remained the same. There were many graphs created to demonstrate the Keyword method effects after implementation.

Figure 2 represents the overall comparison of vocabulary quiz scores after the implementation of the Keyword method. The teacher compared past quiz grades with quiz grades after Keyword method implementation. The overall results of implementation of the Keyword method showed that 54% of students did not have a grade change after employing the Keyword method. However, 23% of students in the class increased their grade by one letter grade. While, 8% or 1 student showed an increase by two letter grades. The Keyword method benefited 15%, or 2 students in the class as their grade increased by three letter grades.

Figure 2. Percentages of students’ overall quiz grades after implementing the Keyword method.
While just over half of the students' grades did not change, a comparison of quiz scores showed that 46% of students increased one or more letter grades. Therefore, the vocabulary recall from implementation of the Keyword method could be considered mixed success.

The teacher implemented the Keyword method with two separate vocabulary sections in the chapter. The first section of vocabulary was presented with the Keyword method supplying an image of the foreign language vocabulary word interacting with the link word. Students worked at their own pace to move through the slide show presenting a picture of the link word and the foreign language word interacting. Students were also given the opportunity to hear the foreign language word with each slide. After viewing the slides two times, students completed a quiz. The teacher graded the quizzes and recorded the scores. She then compared these scores to the quiz scores from the previous chapter. Figure 3 summaries the results of the Keyword method employed in this manner.

![Graph showing percentages of increase in letter grades](image)

Figure 3. Percentages of increase in letter grades using the Keyword method when an image was provided.
The results indicated that 100%, or every student in the class benefited from the Keyword method. More than half of the students or 69% showed an increase from one to three letter grades. Furthermore, 31% of students in the class increased their grade by four letter grades. As a result, the Keyword method when an image was supplied for the learner, increased foreign language vocabulary recall for all students in the class.

The second or remaining section of vocabulary from the chapter was implemented with the Keyword method requiring students to create their own image with the vocabulary word and the link word interacting. Students were asked to look at the foreign language word and the link word and create a mental image of the two words interacting. Students again were given the opportunity to hear the foreign language word with each slide in the same manner as presented with the first section. Students were asked to move through the slides two times, and then complete a quiz. The teacher graded the quizzes and recorded the scores. She then compared these quiz scores to the quiz scores from the previous chapter. The results of this comparison are shown in Figure 4. Where as Keyword method benefited all students in the class when an image was supplied for learners, the opposite occurred when students were asked to create their own image. More than half, or 61% of students in the class showed a decline in letter grade. In addition, there were 2 students, 16% whose grades declined by two or more letter grades. However, 31% of students’ grades stayed the same when compared to previous quiz scores, and 1 student’s grade increased.
Therefore, results indicated data demonstrated that when students were required to create their own mental image the Keyword method increased vocabulary recall for only one student. This indicated the importance of a teacher supplied mental image with the link word and the foreign language word interacting.

For a delayed recall comparison of grades taken before and after the implementation of the Keyword method; the teacher used the grades from the previous chapter test prior to employing the Keyword method to the grades from the current chapter test, which was administered after implementing the Keyword method. The chapter test consisted of vocabulary and grammar learned from the chapter. Figure 5 showed the results of this assessment.

The results of the comparison of past and current chapter test scores indicated that more than two-thirds 70% of the class showed a decrease in their test grade. The largest percentage of decrease was one letter grade 32%. On the other hand, 15% of
students' grades stayed the same or increased with the use of the Keyword method with delayed recall.

![Figure 5. Percentage distribution of letter grades after implementation of Keyword method for delayed recall.](image)

The results indicated that the Keyword method did not show an increase in vocabulary recall in a delayed recall setting. Only a few students showed an increase in their letter grade after implementation of the Keyword method.

**Interviews**

The teacher conducted informal interviews (see Appendix B for summary of interviews) with 13 students. This was the final method used for data collection. The teacher tape-recorded and transcribed the interviews. She then coded the responses of those that were positive about the Keyword method and those that were negative about the method. Students were asked questions regarding their likes and dislikes of the Keyword method. The data was intended to give the teacher specific information and student opinions about the Keyword method for vocabulary acquisition. The teacher asked students questions such as, “Did you like using the Keyword method?”
"What did you find you liked the best about the method, and "What aspect of the Keyword method didn’t you like?"

The results of the interviews showed that overall the Keyword method was preferred as a positive alternative method for foreign language vocabulary acquisition. More than half of the students, 62%, thought the Keyword method was easy to use. At the same time, more than two thirds of the students, 69%, enjoyed using the method for learning vocabulary. There were only 4 students, 31%, who stated that they did not like using the Keyword method. They felt it was too complicated. Almost all students, 92%, indicated through the interviews, that having the teacher supply the mental image interacting with the link word was easier to use than the varied technique, which required the students to create their own mental image interacting with the link word. Only one student did not indicate a preference for either the teacher supplied image or student generated mental image with the Keyword method. This student found both methods to be beneficial. It was not difficult for this student to create a mental image interacting with the link word.

Figure 6 shows results of students’ opinions about the use of the Keyword method.

Figure 6. Percentages of students’ opinions regarding the Keyword method.
Summary

The purpose of the study was to determine if the Keyword method increased vocabulary recall with first year high school foreign language students. The results of the data indicated that the Keyword method did increase foreign language vocabulary recall. However, the method was more successful when employed with a supplied image for students to assist with linking the keyword with the vocabulary word. In addition, the Keyword method was found to benefit students more with immediate recall rather than delayed recall. The data from the Foreign Language Acquisition stated that students in the study preferred to use rote rehearsal as a method to learn foreign language vocabulary even though they did not use it regularly. The results also showed that the majority of the class had never before used the Keyword method, and as the informal interview results implied, the students liked the Keyword method. The results of the informal interview also showed that students preferred the method when an image was supplied for them. This was consistent with the results that indicated students’ grades increased when the image of the keyword and vocabulary word interacting was supplied.
CHAPTER V: DISCUSSION

The purpose of the project was to determine if the use of the Keyword method improved vocabulary recall of high school foreign language students. The research questions were: (1) How did the professional literature reviewed define the Keyword method? (2) According to the professional literature reviewed, what were the benefits of the implementation of the Keyword method? (3) How was the Keyword method implemented according to the professional literature reviewed? (4) Did the Keyword method improve vocabulary recall of high school foreign language students?

Meaning of Findings

The research instruments used to gather data were the Foreign Language Acquisition Method Survey, vocabulary quizzes and tests, and informal interviews. Results indicated that the implementation of the Keyword method improved vocabulary recall with first year foreign language students.

The teacher observed that when the Keyword method was employed, students' foreign language vocabulary recall increased. This increase was indicated by the results of the vocabulary quiz scores. Overall, most students' vocabulary recall grade stayed the same. This suggested that students, who received the highest quiz grade either remained consistent in their vocabulary recall, did not use the Keyword method properly or they simply did not use the method at all. However, 46% of the students in the class did show an increase in one or more letter grades overall, following implementation of the Keyword method. These results indicated that students, who wanted to increase their grade, used the technique properly and consistently. Furthermore, results showed that all students increased one or more
letter grades when they used the Keyword method but only when students were provided with an image of the link word, or keyword, and foreign language vocabulary word interacting. These results demonstrated that students might have preferred to see an image of the vocabulary word and the keyword interacting.

On the other hand, results showed that when students were asked to create their own mental image of the keyword and the foreign language word interacting, letter grades decreased. These results suggested that students had a difficult time creating their own mental images of the keyword and the vocabulary word interacting. The results of the delayed recall data also showed students' grades decreased. These findings indicated that with elapsed time between vocabulary quizzes and the chapter test, students did not remember the method.

The Foreign Language Acquisition Method Survey data revealed that students did not have a consistent method with which to study vocabulary. In addition, they were not familiar with a mnemonic technique, especially the Keyword method, to acquire vocabulary. The data obtained from the survey presented an opportunity for the teacher to give her students another method to help them acquire foreign language vocabulary. It was evident from the survey that students did not have a specific technique to learn vocabulary; therefore, the Keyword method provided an alternative to rote rehearsal, which was the students' method of choice identified from the data.

Results from the informal interviews indicated that students enjoyed using the Keyword method. Thus, students liked using a mnemonic technique as well as computers to learn foreign language vocabulary. Almost all students preferred the Keyword method when a mental image was supplied. Therefore, reinforcing results
of the vocabulary quiz scores, all students showed an increase in one or more letter
grades with the supplied mental image. More than half the students thought the
method was easy to use. This suggested that students would use this method on their
own, because it required little effort in preparation and implementation.

Summary

The purpose of the project was to determine if the use of the Keyword method
improved vocabulary recall of high school foreign language students. The
research was conducted in a small, rural, Midwest high school. The participants
were students, grades 9 through 12, enrolled in a Spanish I course. Twelve of the
participants were female, with one male participant. The study was implemented
over a three-week period.

The teacher began the project by inquiring how students acquired foreign
language vocabulary. Students were asked to complete the Foreign Language
Acquisition Survey. Results obtained from the survey reinforced the need to
implement a new method for recalling foreign language vocabulary. The teacher
demonstrated the technique to the class, and students practiced the technique
together. Students employed the technique individually via the computer for a
week, with two separate selections of vocabulary from the current chapter of their
textbook. Upon completion of each vocabulary selection, students were required
to take a quiz. After the remaining sections of the chapter were completed,
students were required to take a comprehensive chapter test. The results of the
vocabulary quizzes were data collected for immediate recall and the results of the
chapter test were that of delayed vocabulary recall. Overall, results showed that
students’ vocabulary recall improved with the Keyword method. Their grades, however, decreased when time elapsed and students were required to create their own mental image of the vocabulary word and the keyword interacting. Finally, students were interviewed for their opinion about the technique. The results revealed that the majority of students enjoyed the technique. The results also indicated that students preferred to have the mental image of the vocabulary and keyword interacting provided with the technique. The data collected from the quizzes corroborated these findings.

Recommendations

The teacher determined that if a future study of the Keyword method were conducted, she would create and provide images for all the vocabulary words used in the study. As indicated from the informal interviews, almost all students preferred to have the image provided for them when learning the foreign language vocabulary word. Also, the teacher would suggest having more participants in the study. There were only thirteen students in the class, which limited the amount of data collected. A larger group of participants would provide a broader base for data collection. In addition, the teacher would suggest studying a specific group of students. For example, students whose grades were the lowest achieved the most success with the Keyword method. Furthermore, the teacher would consider using headphones with the computers. Not all students had access to headphones and as a result, the computer lab was noisy and confusing at times. Lastly, the time period would need to be lengthened. Implementing the technique over a
greater span of time would familiarize the students with the method in order for them to become more proficient with using the Keyword method independently.

Conclusion

In this study, which was conducted over a six week period in a small, rural, Midwest high school, first year foreign language students increased their immediate vocabulary recall using the Keyword method when linked with a teacher provided visual image. Quizzes that were administered within a two-day period, showed marked improvement in vocabulary recall for all students in the study. However, tests administered in a delayed time period, demonstrated mixed results. The implementation of a mnemonic technique such as the Keyword method provided students with an alternative method to increase foreign language vocabulary recall.
References


Pressley, M. Levin, J. R., Nakamura, G. V., Hope, D. J., Bispo, J. G., & Toye, A. R.


Appendix A
Foreign Language Acquisition Survey

Please respond to the following statements by drawing a circle around the response that most closely reflects the way you study foreign language: always (A), sometimes (S), often (O), or never (N).

1. I learn foreign language vocabulary by reading the words in the textbook multiple times.
   
   [Circle one: A S O N]

2. I learn foreign language vocabulary by writing the Spanish word and its translation.
   
   [Circle one: A S O N]

3. I learn foreign language vocabulary by pronouncing the word out loud with its translation.
   
   [Circle one: A S O N]

4. I learn foreign language vocabulary by making up a word that sounds like the vocabulary word and create a picture in my mind with those words interacting.
   
   [Circle one: A S O N]

5. I learn foreign language vocabulary by having a classmate use the vocabulary in a sentence without any translation.
   
   [Circle one: A S O N]

6. I learn foreign language vocabulary by sleeping on my textbook every night.
   
   [Circle one: A S O N]

7. I learn foreign language vocabulary by only speaking Spanish at home.
   
   [Circle one: A S O N]
Appendix B
Students' Interview Summary of the Keyword method

Benefits

- Students liked the method 9
- Students thought the method was easy 8
- Preferred the supplied image technique 12
- Did not have a preference of technique 1
- Liked using computers 10

Disadvantages

- Students did not like the method 4
- Did not like noise in computer lab 3
January 21, 2008

Dear Parent/Guardian:

To complete my master's degree in Education, I am writing an action research project. My project involves using a specific method for acquiring foreign language vocabulary. This type of research involves students to actively participate in the project. Names of the students will never appear in print, or on their work. I ask your permission to allow your child to participate in my action research project. Please sign the form and return it to school only if your child may not participate in the project.

Sincerely,

Jill M. Bell
Spanish Teacher
Pike-Delta-York Schools

________________________ may not participate in the action research project.
(child's name)

________________________ (parent/guardian signature)
Appendix D
Data Collection Spreadsheet

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<th>Quiz 5-Quiz 5-2</th>
<th>Average Quiz Grade before Keyword method</th>
<th>Letter Grade</th>
<th>Keyword method with Letter image</th>
<th>Keyword method w/out image</th>
<th>Letter Grade</th>
<th>Average Keyword method score</th>
<th>Letter grade</th>
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<td>4 64 F</td>
<td>0 82 C</td>
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62.307692 95.5 58.8 77.2
Appendix E
Sample of Transcribed Interview

Teacher: “Tell me, did you like using the Keyword method?”

Student: “I really liked learning vocabulary with the picture and an English word.”

Teacher: “What did you find you liked best about the keyword method?” Did you like it when a picture provided or when you had to make up your own mental image?”

Student: “It didn’t matter what variation of the technique.” “I liked them both.”