

## Vocabulary Instruction Using Cognitive Psychology Principles

Dr. Yasira Waqar, Dr. Tahira Batool Bokhari

University of Management and Technology, Government College for Women Jhang

### **Abstract:**

*This paper explores how theories of short term memory, long term memory and depth of processing of information can be used to build the vocabulary of third grade ESL students. The curriculum of vocabulary instruction is designed in such a way that every week students are given a new list of ten words but the previous word lists are also added with the new list given to the students for that particular week. Every week students are tested on the meaning and spelling of all the words. This helps in the reinforcement of the old word lists along with the new words. The results of these students showed that they performed well on the vocabulary and spelling of the words that they had learned throughout the year.*

**Key Words:** *English vocabulary instruction, long term memory, short term memory, depth of processing*

### **1. Introduction**

There are different research methods for vocabulary instruction. A study done by Petty, Herold and Stoll (1968) analyzed 80 different methods of vocabulary instruction and their conclusion was that it is better to use more than one method when teaching vocabulary. Later Mezynski (1983) found several factors which affected the success of vocabulary instruction and two of these factors were: a) the practice done in learning the words, and b) the breadth of training in the use of words.

Stahl and Fairbanks (1986) studied three specific methods and two general setting factors that can affect vocabulary teaching methodology effectiveness. Three specific methods studied were: 1) whether a method gives the student examples of each to-be-learned word in context, 2) the types of activities that are required to learn the word and 3) the number and types of exposures to information about each word. The setting factors examined were: 1) the amount of time allocated to vocabulary instruction and 2) whether the lessons were given to groups or individuals. In the exposure method multiple or single exposure and Mnemonic or Keyword method was included. The three method specific factors – emphasis on definitional or contextual information, depth of processing, and number and types of repetitions affected the effectiveness of vocabulary instruction. The methods providing both definitional and contextual information were more effective and the drill and practice methods produced better results.

The retention of words taught in vocabulary teaching programs has also been a matter of concern for researchers. A vocabulary program generally teaches 10 to 12 words a week or about 400 a year and from this 75% or 300 are learned and it is difficult to know that how many of these words are actually learned as the effects of vocabulary instruction decreases with time (Gipe, 1979) so the real effects of “vocabulary instruction are much more modest” (Stahl & Fairbanks, 1986).

The focus of this research is the retention of vocabulary words of English by ESL students of grade 3 in a private school in Lahore. The grade 3 students of this class included both boys and girls with 10 girls and 7 boys in a class of 17. Except the national language Urdu, the students are taught all the other subjects in English. The school caters to students from middle class background.

## **2. Review of Related Literature**

According to the Cognitive Psychology, transient sensory memory stores information when it first comes in but the representation of sensory information is held temporarily (Anderson, 2005).

The theory of short term memory was developed in the 1960s (Atkinson & Shiffrin, 1968). The information coming in from the environment is held in transient sensory stores from where it is lost unless attended to. The theory of short term memory proposes that the attended information goes into an intermediate short term memory where it has to be rehearsed before it can go into relatively permanent long term memory. This is the memory storage we use when we look up a phone number and remember it just long enough to press the buttons on the phone. A minute or two later we will not be able to recall the number (Willis, 2006). It is not possible to keep information in short term memory indefinitely as new information is always coming in. Hence, if students are given a new word list of 10-12 words every week then students will not be able to retain this information indefinitely. This is of concern to researchers as vocabulary instruction is not producing the desired results (Gipe, 1979).

A critical factor in the theory of short term memory is that the amount of rehearsal controls the amount of information to be transferred to long-term memory. “Information has to ‘do time’ in short term memory to get into long term memory, and the more time done, the more remembered” (Anderson, 2005). The more the information is repeated, it gets transferred to long term memory. This is one of the reasons why studying helps students to perform better on the tests. The capacity of the long term memory is not limited (Mohs, 2007).

Craik and Lockhart (1972) found that depth of processing of information is important for retention. They found that rehearsal will improve memory only if the material is rehearsed in a deep and meaningful way. Passive rehearsal in which the meaning of things is not taken into account will not result in better memory. Hence one critical feature is that information is

processed in a way that it sets up a long-term memory trace. A study done by Koriat and Melkman (1987) on the depth of processing found that the organization of information in memory depends on the depth of processing.

The number of times that a memory trace is activated is referred to as the strength of the memory trace (Horn, Nicol & Brown, 2001). The strength of the trace determines how active it can become and how accessible it will be. According to the Power Law of Learning, the memory performance improves as a function of practice. According to ACT-R theory the more we retrieve information from a memory trace the chances of retrieval of the same information increases (Anderson & Schooler, 1991).

### 3. Methodology

The vocabulary program of students in this study is based on the research on short term memory, long term memory, depth of processing of information, and power law of learning (Anderson & Schooler, 1991, Craik and Lockhart, 1972). The vocabulary words were repeated again and again to the students so that the retrieval of words got easier with practice (Horn, Nicol & Brown, 2001). Writing a meaningful paragraph using words from the word list is an example of depth of processing of information.

The English teacher chose ten words for vocabulary instruction from the reading text book assigned to students every week. The words were not thematic and were chosen by the teacher because the words were difficult for students. The vocabulary activities assigned to students each day of the week starting from the first week of the class are listed below. The activities helped the students to transfer the words from short term memory to long term memory (Anderson & Schooler, 1991). Breadth of practice is done by these students as they complete different tasks on different days of the week (Stahl & Fairbanks, 1986).

The activities assigned for different days were:

Monday: The English teacher chose ten difficult words from the reading book assigned to students. The teacher and the students discussed the meanings of all the words in the word list. The students were given a worksheet for homework in which they had to match the words with the word meanings as discussed in the class.

Tuesday: On Tuesdays the students made sentences of the new word list in their English notebooks. For the homework assignment the students were given one worksheet of Fill in the Blanks. The word list was on top of the page and students completed Fill in the Blanks using the word list.

Wednesday: There was no English Class on Wednesdays

Thursday: On Thursdays students wrote a paragraph choosing any eight words from the ten word list given to them on Monday. The students were given instructions that the paragraph must be meaningful that is all the sentences of the paragraph must be linked with one another and the

sentences must be on one topic. The teacher gave examples of sentences which were accurate but were not linked with each other and then gave examples of sentences which were connected so that students understood the concept of meaningful paragraph and how sentences must be on one topic. For homework worksheet, students had to choose one correct word from the multiple choice option of three words.

Friday: On Fridays the English teacher took a spelling test of the word list given on Monday. After the spelling test the teacher took the meaning test of the word list. In the meaning test the students were asked to make sentences, do a worksheet on Fill in the Blanks or Complete a Multiple choice worksheet.

The Friday assessments helped the students to revise the words and this is also supported by the research on transfer of material to long term memory (Anderson & Schooler, 1991).

The activities for week 2 are listed below:

Monday: On Monday, the second list of new ten words was given to the students. The students reviewed the new word list given by the teacher. The students were told that they will have a test of twenty words on Friday so the word list given in last week and the new word list will be included in the test.

Tuesday: On Tuesday the students made sentences of the new word list. In the Fill in the Blanks worksheet for homework, the students were given the previous word list and the new word list.

Wednesday: There was no English class on Wednesday.

Thursday: On Thursday the students chose ten words to write a paragraph. The word list was given to the students to write the paragraph was the new word list as well as the word list given in the previous week.

Friday: On Friday, the students were given the spelling test of previous word list and the word list given to students this week. In the other part of the test that is the meaning test the students completed a worksheet of fill in the blanks and the students used twenty words to complete the worksheet.

Next Monday, students were given ten more vocabulary words and the students were told that the test on Friday will be of the previous word lists and the new word list. Hence when making sentences or doing multiple choice exercises the words from the previous lists were also included. The breadth of practice helped the students to learn the vocabulary words and to transfer the material to long term memory (Mezynski 1983, Stahl and Fairbanks 1986, Willis 2006). The students revised the previous word lists along with the new word list.

The word list was given to the students starting from the first week of school that is the last week of August and the students kept on adding ten new words to the word list every week till the end of the term in May. Every week the students were tested on their previous word lists as well as the new word list.

After the December holidays, the students were given new word lists every week and the previous word lists were also added to the new list of 10 words given to the students on Monday. The previous words were reinforced by the teacher along with the new words given to the students. Two weeks before the term exams in March the students were not given new lists of words. In these two weeks, students revised the previous lists in the two week period so that they completely mastered the lists for their term exams.

In the March exam, students were tested on twenty lists of words with ten words in each list. The final term of students ended in the last week of May and in this term students were given new word lists every week till the first week of May. Students were given a break of few weeks so that they could revise the words. The word lists of students for the final term exam were 25 lists with ten words in each list. The total words given to the students for the final term exam were 250 words.

#### **4. Results**

The results of the students in the vocabulary portion of the exam at the end of May on 250 words were: 80% of students scored A grade in the vocabulary portion of final exam, 15% of students had B grade and 5% of students scored C grade. The vocabulary section of the final term paper was divided into making sentences, writing a paragraph using the given words, and fill in the blanks with appropriate words.

One part of the paper was unseen comprehension and the questions asked after the comprehension passage was multiple choice as well as essay questions. All the students performed well on the comprehension passage and 90% of students answered all the questions whereas 10% of students could not answer one multiple choice question.

The results of the students on the tests done on Fridays also showed that students were retaining the vocabulary words. All the students scored more than 80% on the spelling and vocabulary tests on Fridays. Weekly assessments helped the teacher to monitor the learning of vocabulary words by the students.

Weekly assessments of all the words also helped the students to get prepared for the term exams. “Even though there were 250 words of vocabulary but my son studied the least for the English paper. With weekly assessment of all the words, he was ready for the term exams” said one of the mothers of grade 3 students.

#### **5. Conclusion**

The learning of the new vocabulary words by students is an area of concern for researchers as it is difficult to know how much words have students actually learned (Gipe, 1979).

In this study a vocabulary program is designed where the English teacher assesses and reinforces the new and old vocabulary words every week. This practice helps the students to retrieve the

words easily (Anderson & Schooler, 1991), and the teacher also keeps a record of student learning of new vocabulary words. The weekly reinforcement is based on the theories of short term memory, long term memory, depth of processing and power law of learning.

One of the dilemmas which English teachers face at school level is finding an appropriate program to improve the vocabulary of ESL students. The program used for this study is simple as ten new words are introduced every week but these words were reinforced everyday of the week with different activities and old lists of words were also included along with the new list. The main outcome of this research is the development of a vocabulary program which provides students breadth of practice, depth of processing, a lot of drill and practice as well as frequent assessments to monitor student learning. A vocabulary program which introduced 10 to 12 words every week without reinforcing the previous words does not produce the desired results as students are unable to retain the words after sometime. In this program, assessments are done every Friday which help the teacher to monitor student learning and adjust the pace of the program.

The findings of this study might have been very different if students had not been exposed to English from nursery. Another important factor to keep in mind is that students in Pakistan get support at home hence the concepts introduced in the class are reinforced at home. Also students are used to preparing for exams and hence they did not feel pressurized with the old list of words was added to the new list.

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