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ABSTRACT

This article suggests that the use of mnemonic strategies may help learning disabled (LD) students in the area of spelling, which is of particular frustration to most LD students. It has been found that children with learning disabilities do not have a pathological difficulty with long-term memory, but rather a deficiency in the use of metacognitive strategies for memory retrieval. It has been proven that children can be taught to use mnemonic strategies to enhance long-term memory retrieval tasks. By making abstract concepts more concrete, students are better able to remember content in a variety of subjects. However, there has been no research to determine whether these strategies can be used to improve the spelling skills of these students. The article suggests that mnemonic methods such as keyboard, auditory memory, and imaging may prove helpful in teaching LD students to spell. By using the principles of each method and applying it to spelling, LD students may be able to improve their long-term memory in this area. It is recommended that teachers try these methods with all ability students and that more research be done. (Contains 19 references.) (Author)

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Abstract

This article suggests that the use of mnemonic strategies may help LD students in the area of spelling, which is of particular frustration to most LD students. It has been found that children with learning disabilities do not have a pathological difficulty with long-term memory, but rather a deficiency in the use of metacognitive strategies for memory retrieval. It has been proven that children can be taught to use mnemonic strategies to enhance long-term memory retrieval tasks. By making abstract concepts more concrete, students are better able to remember content in a variety of subjects. However, there has been no research to determine whether these strategies can be used to improve the spelling skills of these students.

The article suggests that mnemonic methods such as keyword, auditory memory, and imaging may prove helpful in teaching LD students to spell. By using the principles of each method and applying it to spelling, LD students may be able to improve their long-term memory in this area. It is recommended that teachers try these methods with all ability students and that more research be done.

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Introduction

One of the most powerful instructional methods of special education is mnemonics. It can be especially useful in the acquisition of academic content (Scruggs & Mastropieri, 1990). While traditional methods of teaching may work for the majority of students, different approaches are often needed for the learning disabled. For these students, mnemonics can be especially beneficial.

Children with learning disabilities appear to have no characteristic difficulty with long-term memory. Their deficits appear to be in their failure to use metacognitive strategies for memory retrieval and their short attention spans when engaging in activities requiring memory retrieval. However, studies have shown that if the attention and motivation of these children can be manipulated, and if they can be taught how to code information for memory storage, they can remember at levels compatible with children who do not have such disabilities (Haines & Torgesen, 1979). Mnemonics, which can be a very engaging and entertaining instructional approach. It has also been shown to be very effective in enhancing the memory of all types of students in various academic areas. Therefore, it should not be ignored when working with children with learning disabilities.

Most teachers have used one form of mnemonics strategy at some time or other to help children remember some abstract information, although they may not realize the strategy had a

hard-to-spell name. For instance, many teachers have taught children the acrostic HOMES to help them remember the names of the great lakes:

Huron
Ontario
Michigan
Erie
Superior

Memory strategies such as this one and other organizing strategies are especially beneficial to children with learning disabilities (Torgeson 1984).

Summary of Content

Because of the wide range of characteristics of children with learning disabilities, these students present many enigmas for educators. Despite the presumption that students with disabilities have normal or above normal intelligence, they often fail to perform academic tasks at a level commensurate with their potential. This discrepant performance usually involves problems with reading, writing, spelling and mathematics (Bryan, Bay, Lopez-Reyna, and Donahue, 1991). Studies indicate that the performance of students with learning disabilities on school-related academic tasks lags behind their non-disabled peers and that this gap increases with age.

This problem may be due, at least in part by their failure to use memory enhancing strategies that are commonly used by non-disabled students. Wong (1982) noted that students with learning disabilities often fail to use appropriate metacognitive strategies to complete a task. Cognitive and metacognitive problems are closely related. A person who has problems in one of these areas is likely to have problems in the other as well. For example, parents and teachers are well aware that students with learning disabilities have problems remembering such things as assignments and appointments. In fact, they often claim that they can't

understand, "how a child who seems so smart could forget things so easily." Numerous researchers have documented that many students with learning disabilities have a real deficit in memory (Hallahan, 1975; Hallahan, Kauffman, and Ball, 1973; Swanson, 1987).

For example, most children when presented with a list of words to memorize, will rehearse the names to themselves. They will also make use of categories by rehearsing words in groups that go together. Students with learning disabilities, however, are not likely to use these strategies spontaneously.

The deficiency in the use of strategies on memory tasks is an indication that children with learning disabilities have problems in cognition. Cognition is a broad term covering many different aspects of thinking. Children who have problems in this area can experience difficulties in planning and organizing their lives at school and at home.

Closely related cognitive problems are problems with metacognition (Cherkes 1983). Metacognition has two components: (1) an awareness of what skills, strategies, and resources are needed to perform a task effectively; and (2) the ability to use self-regulatory mechanisms to ensure the successful completion of the task, such as planning one's moves, evaluating the effectiveness of one's ongoing activities, checking the outcomes of one's efforts, and remediating whatever difficulties arise (Baker, 1982).

The purpose of this paper is to discuss vital metacognitive strategies which might be used to enhance memory retention in students with learning disabilities, especially the use of **mnemonics in the area of spelling.**

Mnemonic Keyword Method is designed to help students with memory problems remember information by presenting them with pictorial representations of abstract concepts (Mastropieri and Scruggs, 1988; Scruggs and Mastropieri, 1992). By making abstract

concepts more concrete, students are better able to remember content in a variety of subjects such as English, history, science, and foreign languages.

Mnemonic strategies work, in theory, by what Levin (1983) has termed the three "Rs": recoding, relating, and retrieving. It works like this: **recoding** is simply finding a more familiar way of understanding something difficult. Ex: If the word "plateau" is a difficult word to remember, therefore its meaning might also be difficult to remember. One can see, however that the word "plate" is contained in the word "plateau" and we know what a plate is. One might then decide to recode the word as "plate."

Relating has to do with relating the recoded word or "keyword" to something in the word which is to be remembered. The process might involve the following reasoning: a "plate" is flat and so is a plateau. Another word for a plateau is "tableland." A plate sits on a table. One might, therefore, relate the word "plateau" to "plate" in order to remember its meaning.

Retrieving is devising a method for pulling this new vocabulary word from the memory successfully. One might make a sentence which might resemble the following: "A plate sits on the table, Mr. Land." If this sentence were repeated several times it may be remembered that "plateau" has the word "plate" in it and means "tableland". Or, a picture could even be drawn of a plateau that resembles a table with a plate on it. By adding a picture, another sense is included in the memory process, therefore, increasing the probability of its being remembered.

Using the **Three "Rs"** is a useful tool in helping children code information for memory storage. According to Carney, Levin and Levin (1993), "with particular regard to remembering new vocabulary and technical terminology, of all instructional strategies in

current use or under current scrutiny, mnemonic strategies have proved to be the most effective."

Still, more encouraging to regular and special education teachers is the research which shows that students who are taught such strategies can use them in other learning contexts (O'Sullivan and Pressley, 1984). That brings us to the topic of our discussion which is the possibility of using mnemonic strategies to teach children with learning disabilities to spell better.

Spelling is one area of particular frustration to children with learning disabilities. Children who have trouble recognizing words in reading usually have poor spelling skills as well (Carpenter and Miller, 1982; Lerner, 1989). However, some students can read words but can not spell them. For those students, spelling a word may be more difficult than reading it. It is for those students that techniques and strategies must be devised to encode spelling information for later retrieval.

Using the Keyword Method for Spelling

The keyword method of mnemonics may help both regular and LD students to remember the spelling of homonyms as well as words which do not follow a phonetic pattern. For instance, to help students learn the different spelling of the homonyms great and grate the teacher might look for keywords within the spelling words, such as the word "eat" in the word great. Applying the **Three Rs** method mentioned previously, the keyword "eat" could be chosen. Next, the teacher would devise a relationship between "eat" and "great" which would enhance the correct spelling of the word as well as teaching its meaning. The sentence, "It is great to eat large hamburgers." could be used since it reminds the student that **e-a-t** is a part of this particular spelling of "great". The sentence also reminds the student that this spelling of

the word means "large." Then, by applying the phonetic spelling the blend "gr" and sound of "t" along with this keyword approach, the word could be encoded to long-term memory for more effective retrieval.

By using the same method, the spelling of the other homonym, "grate" could be taught. The word "rat" is in this spelling, thus, a sentence such as, "There is a rat in my furnace grate," could be used to remember the spelling and its associated meaning.

Auditory Memory for Spelling

To help students remember the spelling of words which do not sound the way they are spelled, the teacher may force associations through a literal/ phonetic pronunciation of the word.

For instance, the spelling of the word "southern" could be taught by separating it into two parts: "South" and "ern". Since most children learn to spell the word "south" before "southern", they could, therefore, through repetition, learn to think "south" + "ern" when the word "southern" is said orally.

"Wednesday" is another word that is often hard to learn to spell. By teaching the individual, syllabic pronunciation of the word: Wed + nes + day, students hear WED--NES--DAY orally as they see the word written simultaneously. The association is coded, thus, mentally so that later, when they hear "Wednesday" pronounced properly, they will think WED-NES-DAY for the purpose of spelling it correctly.

Many good spellers use such strategies spontaneously to learn to spell new words. Students with learning disabilities can be taught these same strategies.

Imaging

Imaging is visualizing as well as verbalizing. Association is visualizing one scene and linking it with another (Letendre, 1993). This process is necessary when learning to spell. When a LD student must learn words that share spelling patterns, or common structural elements, they should visualize them and rehearse them to help remember the pattern.

For instance, words containing patterns such as, "igh, ou, ow, au, tion," etc. are often hard to spell because they do not sound the way they are spelled. Words containing these letter patterns are often found in similar groupings in spelling texts and lists, i.e., night, sleigh, sigh, right, or caution, audition, auction.

Teachers should point out the similar patterns in each word and have students repeat the spelling pattern, i.e., "i-g-h," or "t-i-o-n," until they can remember the letter combinations and successfully repeat them orally as well as write them An exercise might go like this: (While pointing to the words on a board or an overhead transparency, the teacher might say:)

"Spell these words aloud with me after I show you which letters to emphasize: l-i-g-h-t, l-i-g-h-t, l-i-g-h-t ." Then the students would repeat the spelling, emphasizing those letter patterns which are to be remembered as the teacher modeled. After the letter patterns were repeated and emphasized, the teacher would have the students write the word to be learned as they say it, emphasizing the letter pattern as they write.

When the students were successful repeating and writing the word, the teacher would then repeat the exercise with the next word.

Stowistschek and Jobes (1977) present a similar method of spelling instruction that involves imitation. The student must repeat orally and write the correct spelling of the word the way the teacher has modeled it. Direct feedback is given and correction is administered to any misspelling either in the oral repetition or the writing. Therefore, emphasizing the pattern

orally, having the child orally repeat the pattern and having him/her write it, will enhance the coding process for memory retention.

One of the authors of this article, Donna Johnson, has tried these methods with her ten-year-old son who has trouble spelling words which do not follow a phonetic pattern. He improved his spelling considerably over a very short time period and is now beginning to develop his own strategies using the keyword and auditory method.

Summary

Mnemonic strategies have been proven to have a long-term effect on memory by improving retention and comprehension. Mnemonics have proven most successful in the teaching new vocabulary and technical terminology. Studies have shown that memory strategies and other organizing strategies for children with learning disabilities are especially beneficial.

Because of the wide range of characteristics of children with learning disabilities, these students present many enigmas for educators. This discrepant performance usually involves problems with reading, writing, spelling and mathematics.

Research has shown that students with learning disabilities often fail to use appropriate metacognitive strategies to complete a task. The deficiency in the use of strategies on memory tasks is an indication that children with learning disabilities have problems in cognition, which is closely related to metacognition.

Spelling is an area of difficulty experienced by many LD children as well as some children without learning disabilities. Mnemonic strategies such as the keyword, auditory

memory, and imaging methods may be helpful to these students in the teaching of some spelling words which do not follow a phonetic pattern.

Conclusions

More research is needed in the area of mnemonics instruction in the teaching of spelling. Since many good spellers use mnemonic strategies instinctively to learn to spell difficult words, research is needed to determine whether long-term memory of spelling words can be achieved using these and other mnemonic methods.

Teachers should try using mnemonic instruction to improve the overall performance of students in spelling. Since research tends to support its effectiveness in improving memory in other content areas, it is reasonable to expect that mnemonic instruction could prove beneficial in the teaching of spelling.

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