



Research Supporting the Use of Puppets, Music, Humor and Associative Learning in the Keyboard Town PALS Software

I hear and I forget, I see and I remember, I do and I understand.
Confucius (Ancient Chinese philosopher)

Puppets

Puppets are a valuable educational tool providing an essential link in learning and play. Children trust puppets and don't feel threatened by them, making them the perfect neutral medium.

- Greensmith, Salk Institute

Mental Imagery

Mental imagery plays an important role in memory recall. The results will show significant improvement in performance.

- Paivio, Prof. University of Ontario; Egan, Prof. Fraser University; Barsalou, Prof. University of Chicago; Prinz, Prof. University of North Carolina

The Brain

To accelerate learning the whole brain is engaged stimulating the sensory rich aspects of the right side of the brain and meshing intellectual functions of the left side of the brain.

- John Heron, Feb. 7, '06

Associative Learning

1. Human memory relies on association and objects frequently seen together to become linked in our minds to enhance the learning process.

- Science Daily, March 15, 2007



2.

Children's associative learning: Automatic and deliberate encoding of meaningful associations

ROBERT GUTTENTAG

University of North Carolina, Greensboro

Three experiments were conducted examining 10- and 11-year-old children's deliberate and automatic encoding of meaningful associative relationships on a paired-associate learning task. Subjects in Experiment 1 were presented pairs of related and unrelated words under deliberate memorization and item-specific incidental-learning conditions. Cued-recall performance was superior with related relative to unrelated pairs under both instructional conditions, suggesting that the encoding of an association between items occurred automatically with meaningfully related words. In Experiment 2, it was found that execution of a verbal elaboration strategy required more time with unrelated than with related pairs, suggesting greater ease of elaboration strategy execution with related materials. Experiment 3 monitored strategy use online using a think-aloud procedure. Cued-recall performance was superior with related pairs when subjects used rehearsal. In contrast, elaboration produced equivalent levels of recall with both types of items, but subjects executed the strategy successfully more often with related than with unrelated pairs. These findings are discussed in terms of the role of automatic processes and the effort demands of strategy execution in children's strategy use.

A common form of learning involves the encoding of a meaningful relationship between to-be-remembered items. Children in school, for instance, may be asked to learn the capitals of the states, the products produced in different countries, or the accomplishments of some eminent historical figure. Associative learning of this type has generally been studied by examining performance on paired-associate learning tasks which require subjects to memorize item pairs in preparation for a cued-recall task.

Developmental research has documented large age differences in paired-associate learning performance during childhood and adolescence, due in large part to age differences in the types of procedures or strategies that subjects deploy in an effort to make the relationship



Humor

1. An article in the Journal of Experimental Education discusses the effect of humor in education. Humor can significantly increase recall, but it should be used sparingly: in a previous study, Dr. Avner Zvi, of Tel Aviv, Israel had found that the optimal dosage of humor desired to be effective was, at most, three to four instances of humor per hour. Thus in order to gain maximum benefit, humor should be mobilized only to underscore core concepts.

- <http://www.mfa.gov.il/MFA/Israel+beyond+the+conflict/In+Good+Humor.htm?Display>

2. Another advantage of humor is that it stimulates creativity. Dr. Avner Zvi, of Tel Aviv, Israel, demonstrated that individuals who watched humorous videos were able to provide more creative solutions to problems than a matched control group that did not have access to the humorous material. Recently, PET scan data has revealed that the part of the brain responsible for humor is the same area of the brain responsible for creativity.

- Neil Baum M.D. Associate Clinical Professor at Tulane Medical School and Louisiana State University

Timed Speed Tests

1. Do not subject young children to stressful testing for speed and accuracy. "My emphasis is on proper form not speed. Don't frustrate students by raising speed and accuracy beyond what they can manage, forcing them to look at the keys."
 - Education World, Lauren Eve Pomerantz, Program Coordinator - California Space and Science Center
2. "If you put pressure on students at a young age to attain speed and accuracy, I think you will be doing a disservice. Speed is not what is most important. Most important is correct technique. With correct keying, speed will come automatically with time and use. Emphasize correct technique only."
 - Education World, Carla Cruzin

Benefits of Learning Proper Computer Keyboarding Technique

Students who keyboard properly improve...

- Homework (faster & neater)
- Language Arts
- Reading, Grammar & Spelling



- Writing Efficiently
- Self-confidence
- Self-motivation
- Self-respect
- Self-esteem

source: <http://www.usoe.k12.ut.us/ate/keyboarding/key.htm>

Mnemonics

1. Mnemonics is a memory aid. Rather than straining to recall meaningless sequences, mnemonics works best when used with easy to remember insignificant data that is then attached to spatial, personal, or otherwise meaningful storylines.
 - Wikipedia
2. Direct Vs. Mnemonic Instruction

Relative Benefits for Exceptional Learners

In two experiments, students learned the hardness levels of minerals via either direct instruction or a pictorial mnemonic technique. In Experiment 1, the subjects were 56 learning-disabled high school students, taught one of the methods in small groups. In Experiment 2, the subjects were eight educable mentally retarded junior high school students who were individually administered both methods in a crossover design. In both experiments, students given mnemonic instruction substantially outperformed direct instruction subjects.

- **Margo A. Mastropieri, PhD**, Purdue University;
Thomas E. Scruggs, PhD, Purdue University;
Joel R. Levin, PhD, University of Wisconsin;
Science for Students With Disabilities
REVIEW OF EDUCATIONAL
RESEARCH January 1, 1992 62: 377-411



3.

MNEMONIC VOCABULARY INSTRUCTION FOR LEARNING DISABLED STUDENTS

*Margo A. Mastropieri, Thomas E. Scruggs, Joel R. Levin,
Jan Gaffney, and Barbara McLoone*

Abstract. In two experiments, learning disabled junior-high school students learned the definitions of 14 vocabulary words either according to a pictorial mnemonic strategy (the "keyword method") or via the principles of direct instruction. Results of the first experiment showed that when specially constructed mnemonic illustrations were provided, the keyword method was substantially more effective than direct instruction. The keyword method continued to surpass direct instruction in the second experiment, even when keyword students were required to generate their own mnemonic images. The potential benefits of mnemonic vocabulary instruction for learning disabled populations are considered.

Learning disabled (LD) students are reported to demonstrate deficits in both reading comprehension and vocabulary acquisition (Pany & Jenkins, 1978). Some authors (Marge, 1972; McGrady, 1968) have claimed that as many as 50% of all LD students have language-related deficits. Various instructional procedures have been used to increase such students' vocabulary learning, including drill with flashcards (Jenkins, Pany, & Schreck, 1978) and direct instruction (Carnine & Silbert, 1979). With respect to non-disabled learners, however, recent research suggests that systematic "mnemonic" instruction—derived from the psychological literature on associative-memory facilitation—is the most potent vocabulary-learning strategy, even compared to currently popular "semantic-based" approaches (see Levin & Pressley [in press] for a review).

Associative mnemonic techniques capitalize on what Levin (1983) referred to as the "three R's": stimulus Recoding, semantic Relating, and systematic Retrieving. In the context of vocabulary learning, for example, in order to remember that the English word *ranid* means *frog*, *ranid* is first recoded as *rain* (an acoustically similar, familiar word that can be pictured).

Next, the "keyword" (Atkinson, 1975) *rain* is related to its meaning *frog* via a pictorial interaction, such as a picture of a frog sitting in the rain (see Figure 1). When the learner is subsequently asked to recall the meaning of *ranid*, a systematic retrieval path is available: *ranid* leads directly to the keyword *rain*, which leads directly to the picture of the frog in the rain, which, in turn, enables the response *frog*. This pictorial mnemonic technique and extensions thereof have consistently produced high levels of recall

MARGO A. MASTROPIERI, Ph.D., is a Post-Doctoral Research Fellow, Exceptional Child Center, Utah State University.

THOMAS E. SCRUGGS, Ph.D., is a Research Evaluation Specialist, Exceptional Child Center, Utah State University.

JOEL R. LEVIN, Ph.D., is Professor of Educational Psychology and Principal Investigator, Wisconsin Center for Education Research, University of Wisconsin, Madison.

JAN GAFFNEY, Ph.D., Special Education, Arizona State University, 1984.

BARBARA MC LOONE, M.Ed., is a doctoral student, Arizona State University.



Music

1. Most students are highly motivated by song-based activities, which they perceive to be fun.
2. Music can relax and simultaneously stimulate students. These affective responses to music are optimum for learning.⁽¹⁾
3. There is often a lot of repetition in songs, which can aid long-term memory. Just think about all those lyrics that get stuck in your head!
4. The rhythmical aspect of music also aids rote memorization.⁽²⁾
5. Music with lyrics engages both sides of the brain so it becomes a powerful learning tool.⁽⁴⁾
6. Music can help language learners to learn good pronunciation. Melodies and rhymes guide learners to speak in a native cadence.⁽⁵⁾

Principles and Practice in Second Language Acquisition: Krashen, S.; 1982; Oxford: Pergamon Press. Language, Literacy, and Academic Development for English language Learners; Lallas, J, Lee, S.; 2002; Pearson Educational Publishing. The effect of music on second language vocabulary acquisition: Medina, S.; 1993; FEES National Network for Early Language Learning, 6 (3), 1-8. Enhancing Acquisition through Music: Lake, R; 2003; Journal of the Imagination for Language Learning (VII). How Music Helps Language Learning: Farrug, D.; 2008; Language Study Suite 101.com. Songs as an aid for language acquisition: Schon et al; Cognition; Feb 2008; 106(2):975-83