

INFLUENCES OF THREE CONCURRENT REMEDIAL PRACTICES, ONE COMPUTER ASSISTED, UPON COMPREHENSION, VERBAL REASONING, DISTRACTABILITY, AND SELF-MONITORING

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Efforts to remediate comprehension dysfunctions tend to focus upon explicit training in word recognition and literal level comprehension. Many clinicians believe, however, that deficiencies in reading comprehension are symptomatic of more fundamental cognitive and/or emotional dysfunctions. A "psychoeducational" view, growing in popularity, holds that intervention *should* provide assistance in all three realms: explicit reading skills, cognitive abilities, and personal-social adjustment. The prospect of providing adequately for each of these is impeded, however, by practical problems of limited time and constraints of current methodology.

For this study, three psychoeducational treatments were compared which were believed to contain a capacity to meet multiple objectives concurrently, or simultaneously. The thrust of this research effort was to ascertain the practicality of these 'concurrent' methods approaches. The intent was to compare patterns of gain; as opposed to gain versus no-gain. For this reason, there was no conventional "control" group. Of the three experimental treatments, two addressed to the concurrent objectives of reading comprehension, abstract verbal reasoning, and personal-social adjustment, with one of the two containing a computer assisted remediation element. The third treatment focused upon enhancement of reading vocabulary and personal-social adjustment as the means of improving comprehension.

Subjects were twenty-one students (ages nine to fifteen) with reading comprehension disorders, enrolled in a University Reading Clinic program. Tutors were advanced degree seeking students. The training period was twelve one hour sessions over a three week period.

Treatment was randomly assigned to each tutor/student pair. Three "mentors" and the Clinic Director provided appropriate training and supervision.

Treatment Specifications

1. Proverbs Mastery Paradigm with Conventional Work Sheet Reinforcement: students were taught how to read and

interpret proverbs following a paradigm and reinforcement exercises described by Manzo (1980). Difficulty level of proverbs was controlled by organizing them for use on a reading and maturational hierarchy. Prior research had shown abstract comprehension of proverbs to be correlated positively to reading comprehension, critical-evaluative thinking, and personal-social adjustment (Manzo and Casale, 1983). As such, it seemed a reasonable approach to improving reading comprehension while simultaneously reducing distractibility, or emotionally disruptive thinking while reading.

2. Computer Assisted Remediation (CAR): this treatment was identical to the above except that the reinforcement exercises were presented through a CAR program which attempted to enhance remediation further with three computer functions: (a) the computer made a "cheerful" sound whenever the most correct (abstract) answer was chosen; (b) it urged students either to choose again where an incorrect (miscued or emotive response) was made, or indicated which was the most preferred (abstract) choice where a correct but overly literal response was made; and (c) it kept a running record of each student's choices which the teacher could have printed out for diagnostic purposes.

3. Subjective Approach to Vocabulary (Manzo, 1981): this approach stressed improvement of reading vocabulary through exploration of personal or "subjective associations" with word meanings. The expectation was that explicit exploration of these personal associations would aid recall and allay possible disruptive thought patterns.

All three methods had in common a concentration of effort upon more profound levels of analysis of words and ideas than is typical in conventional remedial reading instruction. In this way, each method represented an attempt to improve personal-social adjustment and cognitive growth, as well as, or as part of, comprehension dysfunction.

Operational Definitions

Comprehension, for purposes of this study was operationally defined as tendency to choose the most abstract interpretation of a proverb from distractors on Subtest 10, ALARM Battery (Manzo and Casale, 1983). This operation was selected because it requires suppression on the part of the reader of the three most common sources of comprehension dysfunction: overly concrete thinking, emotionally disruptive patterns of thought, and/or simple misapprehension of message units. Test items are constructed to represent each level of responding (see Illustration I).

Illustration I	
	Look before you leap.
(abstract)	1. Do not act in haste.
(literal)	2. Watch before you step down.
(emotional)	3. Do not leap, just look.
(miscued)	4. We see farther in Leap Year.

Four additional measures were employed in this study. The Similarities Subtest of the WISC-R was used to measure "pure" abstract verbal reasoning ability. The Digit Span

Subtest was used to further measure "distractability." A researcher designed Prediction Test was used to measure inclination and ability in "Self-Monitoring:" students were asked to estimate, on a Likert Scale, their level of understanding of each item on an alternate form of the Proverbs Tests; scoring was based upon the extent to which their appraisal of their comprehension matched their actual comprehension.

The fourth measure, a group administered form of the MBI or Manzo Bestiary Inventory (Manzo, 1975), was administered as a posttest only. The MBI is an affective measure yielding a social-psychological profile based upon student identification with thirty-three animals. Sets of 'adjectivals,' or associated images, are available on each animal. The instrument was used to ascertain whether (and what) the distinguishing affective characteristics might be of achieving and non-achieving remedial students.

Data Analyses

A Chi-square statistic was employed to analyze gain scores for levels of significant differences on each treatment variable measured. These are expressed in terms of percent of gain in order to provide more tangible indication of trends which larger sample studies might show to be more significant.

The social-psychological characteristics of the remedial readers was estimated by constructing a stepwise regression equation with Abstract Comprehension gain as the criterion variable, and the MBI, or animal identifications, as the dependent variables.

Findings

Only one treatment, Self-Monitoring, achieved statistical significance. It favored the two teacher based systems over the computer assisted program.

The trend, however, was to higher means in Abstract Comprehension and Similarities for both Proverbs remedial methods (see Illustration 2). The Proverbs with Work sheets group showed a higher mean score on Abstract (Proverbs) Comprehension, while the VAR enhanced group had a higher mean gain on pure Abstract Verbal Reasoning (Similarities). Reduction of distractibility (as measured by improved Digit Span score) showed relatively even improvement across treatments with a slight edge to the Subjective Vocabulary approach.

Three animal identifications accounted for 62% of the affective factors associated with gains from all treatments (Illustration 3). Two were negative predictors, and one was positive. The negative predictor, Snake, is most often identified with feelings of worthlessness, isolation, and coyness. The other negative predictor, Goat, is perceived similarly, though with even less social status, for it is perceived also as being dumb and odorous. The positive predictor, Dog, is perceived as affectionate, frisky, and intelligent.

Statistical and Observational Inferencing

It seems clear from these findings that imparting self-monitoring skills requires more "personalized" teacher-student interaction. While less clear, it appears that : (1) abstract comprehending can be enriched by either conventional print materials or by a computer assisted program; and, (2) that gain in pure cognitive ability, such as is measured on the

WISC Subtest, may be best accomplished by a Computer Assisted Remediation Program. (The latter inference is strengthened by findings from a replication study recently completed with average students in a conventional classroom situation.)

From the vantage point of potentially important incidental observations, three additional points bear comment. There was a great enthusiasm for, and desire to continue treatment among the students in the Computer Assisted Remedial treatment. This may be a significant factor on the long term since student enthusiasm for an instructional task clearly is a critical factor in remedial education. Ironically, despite higher enthusiasm to continue the computer reinforcement activity, students in this treatment group actually may have had less "time-on-task" due to time lost in orientation to the computers, and in dealing with logistical problems stemming from the limited number of computers.

A second incidental, though potentially significant, conjectural inference drawn from this study is the impression that there may be specific and identifiable affective characteristics of students who are least and most likely to benefit from remediation. (This finding also was strengthened and extended by the replication study noted above; the replication yielded distinctive profiles of those who were most and least likely to benefit from two different forms of intervention—computer versus teacher—with identical material.)

Finally, the modest, though tangible and uniform, gains on the Digit Span Subtest seem to bode well for 'concurrent,' or psychoeducational, approaches to remediation.

A replication and extension of this study with a larger sample size and with a traditional, non-treatment, "control group" would be an easy recommendation. Such research, however, is extremely difficult to conduct due to the small samples of suitable clinical-remedial students typically available at any given site. Therefore, the recommendation for replication and extension of this study is offered with a sense that it probably could not be accepted under most current arrangements.

Author's Notes

1. The author invites letters of interest from remedial practitioners, university clinics, and researchers who might be interested in forming a Clinical Research and Practices Network for the purpose of conducting cooperative targeted research and development projects with remedial level subjects.

2. Copies of the assessment instruments and the computer program used in this study are available at cost from the author.

REFERENCES

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Illustration 2
Percent Gains By Treatment
GAINS

	Self-Monitoring	Similarities Test	Digit Span	Proverbs Test
Proverbs with Computer	-20%*	13% +	7%	60% +
Proverbs with Conventional Reinforcement	21%	4%	11%	77% +
SAV	17%	-12%	17%	26%
Entire Population	6%	1.6%	10.3%	54%

* significant .05 level: chi-square test
+ trend

Illustration 3

Regression Equation of GAIN by MBI Characteristics

62% of Affective Variance accounted for by =
SNAKE (25%) + DOG (23%) + GOAT (15%)