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Sentence Combining and the Learning

Disabled Student

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Running Head: SENTENCE COMBINING

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Pre- and postwriting samples, obtained using standardized drawings as stimuli, were analyzed for mean number of words, mean number of words per T-unit, percentage of well-formed T-units, and mean number of adjectives per T-unit. While no significant differences were present for the control group, the experimental group made significant gains on mean number of words ($p < .05$) and mean number of words per T-unit ($p < .001$). No evidence was found that the experimental group either overapplied their SCE instruction or created errors in new syntactic structures.

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Sentence Combining and the Learning Disabled Student

A primary focus in identifying learning disabled (LD) pupils is lang-
uage deficits and their impact on school learning., While an estimated 85
to 90 percent of all LD children nationally have reading difficulty (Kaluger
& Kolson, 1978), many of these children also experience concurrent, often
overlooked, problems in written expression. A casual observer need only
examine textbooks in the LD field to realize the wide coverage given reading
problems (e.g., Lerner, 1981) and the relative lack of attention to sentence
writing and composition. Unfortunately, this problem is compounded by the
inadequate level of expertise of many LD teachers and consultants in this
area. It is unlikely that English educators can fully rely on these Special
Education personnel for assistance in the development of appropriate methods
in composition for the mainstreamed LD student. However, one potentially
valuable instructional method that can be adapted by the regular class
teacher for this purpose is sentence-combining exercises (SCE's). This
study will examine the instructional efficacy and applicability of SCE's
with LD students.

The basic classification criterion for a LD program is a discrepancy
between the pupil's measured capacity to learn (individual IQ score) and
performance in one of seven academic areas (e.g., reading comprehension)
(Forness, Sinclair, & Guthrie, 1983). While LD pupils by definition have
intelligence scores within the average range, they frequently display
information processing deficits which explain low performance (Hall, 1980).
Though their basic storage capacity for information is equivalent to that
of their normal peers, LD pupils are often unable to use cognitive strategies

4

to process and retrieve information. These deficits have been described in the literature as "production deficiencies" (Flavell, 1970), "inactive cognitive responses to task demands" (Torgeson, 1979), and inefficient or inflexible strategies (Gerber, 1983). In general, LD children lack mediational strategies for storing, retrieving, and reprocessing semantic units, which in turn interferes with their ability to organize specific tasks, including written expression.

A comparison of the literature on learning disabilities and on SCE's indicated that this method might be particularly effective for improving the writing of LD pupils. First, the method itself provides a relatively high degree of structure and accountability, which are believed to help LD pupils develop strategies for organizing and accomplishing tasks independently. In contrast to more open approaches to writing instruction, each SCE presents the pupil with a limited, comprehensible amount of material (the problem sentences themselves), a clear goal (to co __ e the sentences), and a finite set of acceptable responses (all grammatical combinations of the sentences). The teacher, in turn, can better focus on specific problems and supply specific, targeted feedback. SCE's clearly help pupils explore the potential of language, but in a controlled context particularly suitable for learners who lack basic self-organizing skills and display attentional deficits (Hallahan, Kauffman, & Ball, 1973).

Second, the body of experimental and quasi-experimental studies (see Morenburg & Kerek, 1979) shows that SCE's increase mean length of T-unit in the writing of a wide variety of ages and types of students including

fourth graders (Hunt & O'Donnell, 1970), seventh graders (Combs, 1976; O'Hare, 1973), college students (Haswell, 1982; Maimon & Nodine, 1978; Morenberg, Daiker, & Kerek, 1978; Ross, 1971; Stewart, 1978; Swan, 1978; 1979), and adults (Mulder, Braun, & Holliday, 1978). Other researchers have reported increases in measures such as length of composition and use of the structures practiced (Burruel, Gomez, & Ney, 1975; Miller & Ney, 1968; Vitale, King, Shontz, & Huntley, 1971), use of specific types of clauses (Mulder, et al., 1978) or decreases in measures such as percentage of faulty clauses (Ross, 1971). Taken together, the studies indicate that SCE's address a fundamental, significant writing skill that is highly teachable to many types of people.

Finally, SCE's appear to improve writing by giving pupils practice in storing information and then retrieving and reprocessing it into surface structures through a syntactic grid. Ney (1974) theorized that, so long as the learner is developmentally ready and possesses the requisite cognitive structures, practice will improve his or her command of syntactic operations. He attributed the changes observed in students' writing when they are given SCE's to the fact that they practice "(1) mnemonic skills, (2) sentence processing (or reprocessing) skills and (3) skills connected with the raising to conscious control of linguistic resources which are innate to the student" (p. 168).

Strong (1976) similarly interpreted SCE's as a method for helping pupils bring passive linguistic abilities under conscious control and for teaching them to hold longer units of structured discourse in their memories. The LD pupil's characteristic discrepancy between capacity to learn and

performance in academic tasks may be conceptualized as a discrepancy between passive or potential competence and active competence in cognitive skills, including skills in ordering language. Thus, the development of LD pupils' awareness of their own cognitive processes or "metacognition" has become an important educational goal (Loper, 1980), particularly in an applied academic context (Gerber, 1983).

Purpose

The purpose of this study was to explore the feasibility and effectiveness of naturalistic incorporation of SCE's into regular tutoring sessions provided for LD pupils in public schools. Because of its exploratory nature and the scheduling constraints of two educational systems (public schools and college), the study was conducted as a quasi-experiment.

Method

Subjects. Twenty-four public school LD pupils in grades one through nine were selected by their teachers for 50 hours of individual tutoring (within a 10 week period) provided by 15 special education seniors enrolled in an advanced field work course. For the experimental group, seven tutors were randomly selected from volunteers to use SCE's with their 13 assigned tutees in grades one through six.

The control group consisted of 11 tutees in grades two through nine who were assigned to eight tutors. The two groups of pupils were not equivalent, with the control group being older (12.27 vs. 10.15), higher grade level (6.00 vs. 4.15) and producing longer T-units (7.06 vs. 5.07) in the prewriting sample.

Procedure

Two standardized sets of drawings were reproduced and used by the tutors as stimuli for obtaining pre- and postwriting samples from the tutees. The two sets were randomly distributed for prewriting and reversed for postwriting to counterbalance any potential practice or order effects.

The researchers demonstrated constructing and using SCE's to the tutors for the experimental group (E tutors). The E tutors themselves practiced sentence combining problems and then worked in small groups to construct their own. E tutors were given examples, a method for introducing SCE's (having pupils manipulate words on index cards), suggestions for identifying suitable material (e.g., pupils' spelling and vocabulary words, decombined passages from pupils' assigned reading), and a set of general principles to follow in implementing SCE's (Nutter & J. Safran, in press). After the E tutors demonstrated proficiency in the use of SCE's, they were encouraged to implement the method naturalistically--using whatever modifications and content and to whatever extent they judged appropriate for each tutee. The method was presented as a "time filler"--to be used briefly from time to time within the regular tutoring context. E tutors were encouraged to use SCE's featuring various types of adjectives but were not restricted solely to their use.

University supervisors regularly observed each tutor and monitored the use of SCE's by the E tutors. In addition, the E tutors recorded their use of SCE's and reactions in daily lesson plans and logs. Over the course of the term, the time devoted to SCE's for individual pupils ranged from 70 to 188 minutes with a mean of 126.08 minutes, out of a total tutoring time of

8

50 hours for each pupil. For the control group, a separate group of 11 tutors provided instruction according to course requirements and the class-room teachers' indications of pupils' needs.

Analysis of Data and Results

Due to this study's quasi-experimental design and absence of an equivalent control group (Campbell & Stanley, 1963), valid between-group comparisons were not possible. Therefore, dependent t-tests were used to determine if significant within-group differences (control and experimental) existed on pre- and postwriting samples. If, for example, an instructional treatment effect for SCE's were present, significant differences for a dependent variable would be found for the experimental group, but not for the control group. The four dependent measures analyzed were mean number of words; mean number of words per T-unit; percentage of well-formed T-units; and mean number of adjectives per T-unit. Pre- and posttest mean scores for each dependent measure are listed in Table 1 for the experimental group and in Table 2 for the control group. Results of the dependent t-tests are reported in Table 3.

Insert Table 1 about here

Insert Table 2 about here

Insert Table 3 about here

Results indicated that, while no significant differences were present for the control group, the experimental group made significant gains on two of four measures--mean number of words ($p < .05$) and mean number of words per T-unit ($p < .001$). These findings are illustrated in Figures 1 and 2. It can be concluded that the experimental group made short term instructional gains in two of four areas assessed as a result of SCE's.

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Discussion

The results of this study support the findings of previous research that SCE's improve the syntactic complexity of varied student populations' writing. The significant increase in the total number of words written by the experimental group (+ 13.38), compared to smaller, nonsignificant gain by the control group (+ 5.73), reflects an increased fluency among the experimental pupils. These findings are likely the direct result of the instructional features of short task increments, multisensory instruction (combining visual, auditory, kinesthetic, and tactile modes) and specific emphasis on writing skills. Numerous students classified as LD, particularly those exhibiting information processing, perceptual, and attentional deficits, have been shown to benefit from these strategies (Lerner, 1981). Apparently these students were able to generate cognitive strategies through instruction to help perform task demands.

Concurrently, no significant difference was found for either group in the percentage of well-formed T-units in their writing. Both groups improved in their ability to write sentences without faulty syntax, possibly due to maturation. No evidence was found that the experimental group either overapplied their SCE instruction or created errors in new syntactic structures, as some researchers have reported (Burruel et al., 1975; Maimon & Nodine, 1978; Swan, 1979).

Although no significant increase in frequency of adjectival modifiers was found for the experimental group, this group did show growth relative to the control group. Quite possibly, a greater increase in specific structures would be observed in future studies if the experimental treatment included more carefully targeted or longer instruction.

Despite the significant findings of this study, results must be viewed as preliminary for several reasons. First, due to the quasi-experimental design and the nonequivalence of the two groups, both regression effects and the interaction of maturation and selection are potential threats to external validity (Campbell & Stanley, 1963). Second, small sample size and the use of undergraduate tutors, instead of experienced teachers, may have biased results. Third, only short-term instructional gains were analyzed, omitting the important aspect of longitudinal improvement in LD students' writing skills. Each of these qualifications should be carefully considered in the design of future research. However, the size of the effects obtained, particularly for mean number of words per T-unit, and the fact that the data corroborate previous studies indicate that the instructional use of SCE's with LD pupils in the regular classroom should be pursued within small groups, on an individual basis, or using peer tutors.

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Table 1

Pre- and Posttest Writing Sample Means

and Standard Deviations for Experimental Group (N=13)

	Pretest		Post-test	
Measure	$\overline{X}$	SD	$\overline{X}$	SD
Number of Words	34.77	25.56	48.15	16.23
Number of Words per T-unit	5.07	1.48	7.19	1.16
Number of Well-formed T-units	6.00	3.54	6.62	2.33
Number of Adjectives	3.31	4.27	4.23	2.17

Table 2

Pre- and Posttest Writing Sample Means

and Standard Deviations for Control Group (N=11)

Measure	Pretest		Posttest	
	$\overline{X}$	SD	$\overline{X}$	SD
Number of Words	83.00	47.27	88.73	77.63
Number of Words per T-unit	7.05	1.86	6.72	2.35
Number of Well-formed T-units	10.45	3.86	11.73	6.83
Number of Adjectives	11.36	8.04	12.27	16.28

Table 3

<u>T-tests for Experimental and Control Groups</u>

<u>on Pre and Post Writing Samples</u>

	Group			
	Experimental (N=13)		Control (N=11)	
Measure	t	p	t	p
Number of Words	3.02	.0107*	.38	.7110
Number of Words Per T-Unit	4.64	.0006**	-.49	.6341
Percentage of Well-formed T-Units	1.85	.0893	1.68	.1246
Number of Adjectives per T-Units	1.61	.1340	-.43	.6778

* $p < .05$

** $p < .001$

Figure 1

Mean Number of Words on Pre and Post Writing Samples By Group

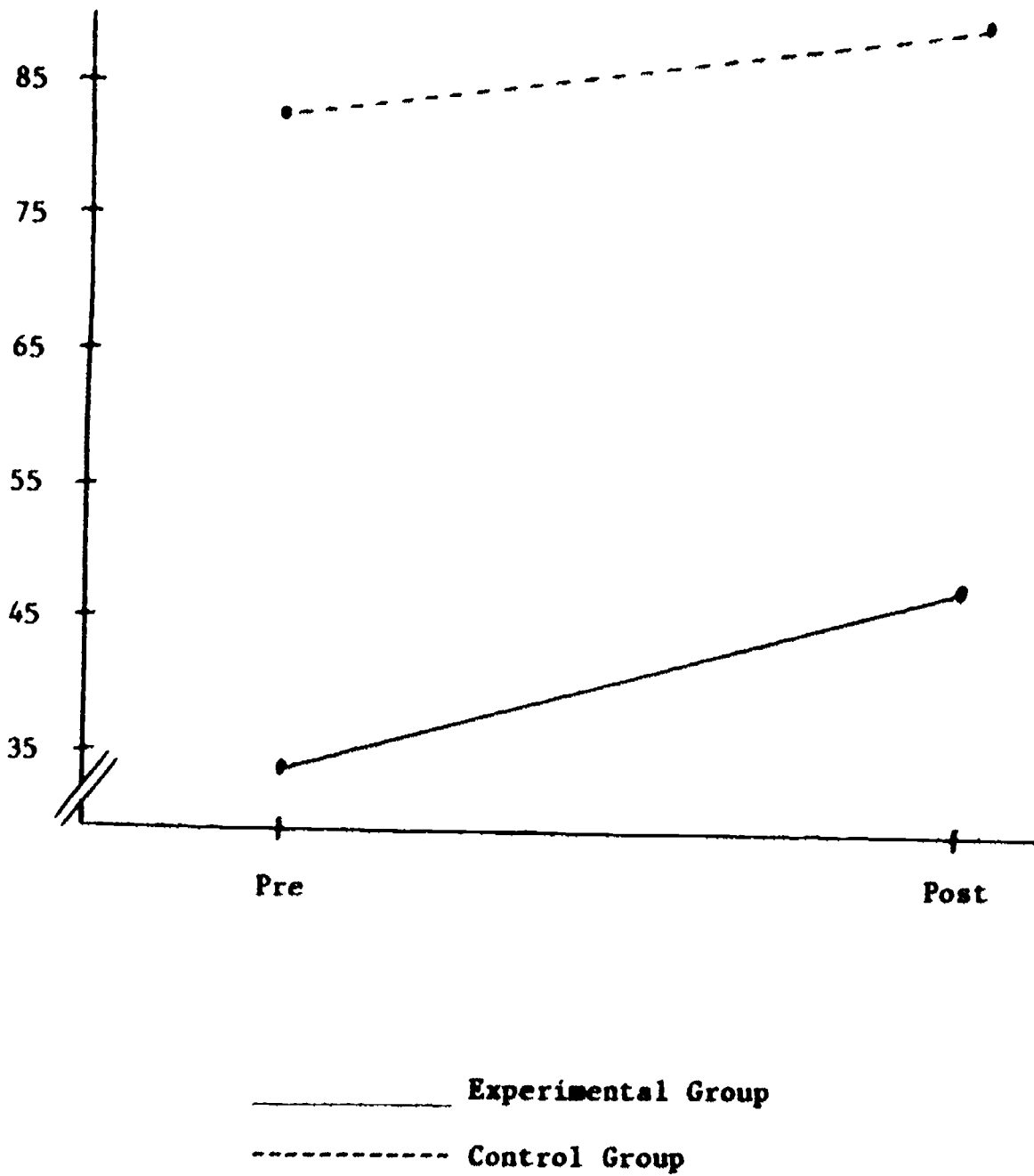_____ Experimental Group

- - - - - - - - - - Control Group

Figure 2

Mean Number of Words Per T-Unit on Pre and Post

Writing Samples by Groups

_____ Experimental Group

- - - - - - - - Control Group