INFORMATION TO USERS

This reproduction was made from a copy of a document sent to us for microfilming. While the most advanced technology has been used to photograph and reproduce this document, the quality of the reproduction is heavily dependent upon the quality of the material submitted.

The following explanation of techniques is provided to help clarify markings or notations which may appear on this reproduction.

1. The sign or “target” for pages apparently lacking from the document photographed is “Missing Page(s)”. If it was possible to obtain the missing page(s) or section, they are spliced into the film along with adjacent pages. This may have necessitated cutting through an image and duplicating adjacent pages to assure complete continuity.

2. When an image on the film is obliterated with a round black mark, it is an indication of either blurred copy because of movement during exposure, duplicate copy, or copyrighted materials that should not have been filmed. For blurred pages, a good image of the page can be found in the adjacent frame. If copyrighted materials were deleted, a target note will appear listing the pages in the adjacent frame.

3. When a map, drawing or chart, etc., is part of the material being photographed, a definite method of “sectioning” the material has been followed. It is customary to begin filming at the upper left hand corner of a large sheet and to continue from left to right in equal sections with small overlaps. If necessary, sectioning is continued again—beginning below the first row and continuing on until complete.

4. For illustrations that cannot be satisfactorily reproduced by xerographic means, photographic prints can be purchased at additional cost and inserted into your xerographic copy. These prints are available upon request from the Dissertations Customer Services Department.

5. Some pages in any document may have indistinct print. In all cases the best available copy has been filmed.
Reynolds, Catharine Jeanne

THE EFFECTS OF INSTRUCTION IN COGNITIVE REVISION STRATEGIES ON THE WRITING SKILLS OF SECONDARY LEARNING DISABLED STUDENTS

The Ohio State University

Ph.D. 1985

Copyright 1985 by Reynolds, Catharine Jeanne

All Rights Reserved
PLEASE NOTE:

In all cases this material has been filmed in the best possible way from the available copy. Problems encountered with this document have been identified here with a check mark ✓.

1. Glossy photographs or pages
2. Colored illustrations, paper or print
3. Photographs with dark background
4. Illustrations are poor copy
5. Pages with black marks, not original copy
6. Print shows through as there is text on both sides of page
7. Indistinct, broken or small print on several pages ✓
8. Print exceeds margin requirements
9. Tightly bound copy with print lost in spine
10. Computer printout pages with indistinct print
11. Page(s) lacking when material received, and not available from school or author.
12. Page(s) seem to be missing in numbering only as text follows.
13. Two pages numbered . Text follows.
14. Curling and wrinkled pages
15. Dissertation contains pages with print at a slant, filmed as received
16. Other

University
Microfilms
International
THE EFFECTS OF INSTRUCTION IN COGNITIVE REVISION STRATEGIES ON THE WRITING SKILLS OF SECONDARY LEARNING DISABLED STUDENTS

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of the Ohio State University

By

Catharine Jeanne Reynolds, B.A., M.S.

* * * * *

The Ohio State University

1985

Dissertation Committee:

Raymond H. Swassing
Marjorie E. Ward
David S. Hill

Approved by

Raymond H. Swassing
Advisor
Human Services Education
Copyright by
Catharine Jeanne Reynolds
1985
To my parents

The fear of the Lord is the beginning of knowledge; fools despise wisdom and instruction. Hear, my son, your father’s instruction, and reject not your mother’s teaching; for they are a fair garland for your head, and pendants for your neck.

Proverbs 1:7-9
ACKNOWLEDGMENTS

I would like to express my sincere appreciation to those people who were co-workers in this study:

My roommates, Mary Ellen Elliott and Gail MacMillan, for their patience, encouragement, and prayers,

Adele Weiss, pathfinder and fellow traveler, for sharing her expertise in writing evaluation and her friendship,

Frank Cole, Susi Lenox, Mary Watson, and Maddy Weisz, the faithful teachers who devoted many hours to evaluation of the students' writing,

Amy Ellsworth, Bobbi Johnson, Gale Langstaff, and Sharon Young who graciously allowed me to interrupt their schedules to work with the students,

Luis Torres and all the staff of the Great Lakes Area Regional Resource Center who offered technical assistance and support during the typing process,

My committee members, Dave Hill and Marge Ward, whose expertise, inspiration, and friendship throughout my program were invaluable.
I would like to especially recognize Dr. Raymond H. Swassing, my advisor. His gentle and wise guidance has been my mainstay throughout the doctoral program. His concern for both my professional and personal well-being will serve as an example for me as I undertake the role of mentor.
VITA

December 15, 1950......................... Born - Drexel Hill, Pennsylvania


1973-1975............................. Secondary English and Reading Teacher
Medinah Public Schools
Roselle, Illinois

1976-1977............................. Secondary English and Reading Teacher
The Christian Academy
Brookhaven, Pennsylvania

1977-1978............................. Secondary English Teacher
Stewartville School District
Stewartville, Minnesota

1978-1980............................. Secondary English Teacher
Rochester School District
Rochester, Minnesota

Pine Island School District
Pine Island, Minnesota

PUBLICATIONS


FIELDS OF STUDY

Major Field: General Special Education
Early Childhood Special Education
Mildly Handicapped
Special Education Administration
TABLE OF CONTENTS

DEDICTION................................................................. 11
ACKNOWLEDGMENTS......................................................... 111
VITA...................................................................................... v
LIST OF TABLES............................................................... IX
LIST OF FIGURES............................................................. x

Chapter

I. INTRODUCTION................................................................. 1
   Purpose of the Study....................................................... 6
   Research Questions....................................................... 8
   Definition of Terms...................................................... 8

II. REVIEW OF LITERATURE................................................. 11
   Cognitive Approaches................................................... 12
      Information Processing.............................................. 13
      Genetic Epistemology............................................... 14
      Cognitive Behavior Modification............................... 15
      Specific Abilities.................................................. 17
      Metacognition....................................................... 17
   Instruction in Cognitive Strategies.............................. 20
      Definition............................................................ 20
      Research for LD Students......................................... 22
      Future Research Needs............................................. 25
   Instruction in Writing Strategies
      for LD Students..................................................... 26
   Writing Instruction.................................................... 27
      Writing As Language............................................... 27
      Writing Research.................................................. 30
      Writing and the LD Student....................................... 31
      Writing as a Process............................................... 33
   Instructional Methodology.......................................... 38
      Prewriting............................................................ 39
      Drafting.............................................................. 40
      Revising............................................................. 40
      Need for Modeling................................................ 48
      Teacher Conferencing............................................. 49
   Writing Evaluation..................................................... 49
   Summary....................................................................... 53
<table>
<thead>
<tr>
<th>TABLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mean total scores for two ratings on the pretest</td>
<td>70</td>
</tr>
<tr>
<td>2. Pearson correlation coefficients for total scores of two ratings on pretest, posttest 1, and posttest 2</td>
<td>70</td>
</tr>
<tr>
<td>3. One-way ANOVA table of group pretest total scores</td>
<td>71</td>
</tr>
<tr>
<td>4. Mean scores for content and mechanics subtotals by rating and group</td>
<td>72</td>
</tr>
<tr>
<td>5. Overall mean scores and standard deviations for posttests, ratings and subtests</td>
<td>73</td>
</tr>
<tr>
<td>6. ANOVA of Mean Posttest Subscores</td>
<td>75</td>
</tr>
<tr>
<td>7. Mean subscores for 3 groups of pretest, posttest 1, and posttest 2</td>
<td>81</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>FIGURES</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Model for expository writing</td>
<td>35</td>
</tr>
<tr>
<td>2. Graph of mean posttest subscores for 3 groups showing disordinal interaction</td>
<td>76</td>
</tr>
<tr>
<td>3. Graph of mean scores on posttest for 2 ratings showing disordinal interaction</td>
<td>78</td>
</tr>
<tr>
<td>4. Graph of mean scores on the 2 posttest ratings for each group showing disordinal interaction</td>
<td>79</td>
</tr>
<tr>
<td>5. Graph of mean pretest-posttest subscores by group showing disordinal interaction</td>
<td>80</td>
</tr>
</tbody>
</table>
CHAPTER I
INTRODUCTION

Much controversy surrounds the issue of successful program placement and instructional techniques for the learning disabled (LD) adolescent. In a nationwide study of secondary LD service delivery (Deshler, Lowrey, & Alley, 1979), five predominant program options were identified: basic skills remediation (51%), functional curriculum (17%), tutorial (24%), work-study (5%), and the learning strategies model (less than 1%). At the time of the survey, the learning strategies model had been implemented in only a small number of schools and, consequently, limited data were available to determine its efficacy as a service delivery model. However, the characteristics of students who appear to benefit from a learning strategies approach seem to fall into the following categories: (1) reading skills above a third-grade level, (2) ability to deal with symbolic as well as concrete learning tasks, and (3) average intellectual ability, scoring in the 85-115 IQ range (Alley & Deshler, 1979). Because of the adolescent's ability to perform more symbolic cognitive functions, early adolescence may be a prime time for instruction in learning strategies (Rowher, 1971).

The major goal of the learning strategies approach is to teach students techniques in the resource room that will allow them to cope
better with the demands of the regular classroom. Success in a secondary program demands that a student implement useful strategies for studying, note-taking, test-taking, comprehending and summarizing extensive textual information, and preparing oral and written reports. Strategies are taught under controlled conditions and applied to controlled materials. Once the techniques are mastered on those materials, the strategies are transferred to classroom requirements.

Instruction in strategies or problem solving techniques rather than individual skills is based upon a cognitive approach to instruction. This position asserts that it is important to consider what happens internally to the person who is learning. Effective instruction provides activities which facilitate the learner's ability to construct meaning from experience through such experiences as observation, imitation of models and discussion. A second important factor in cognitive education is the learner's understanding that he must be active in his own learning and feel responsible for his own achievements through activities such as selecting his own topics or devising his own strategies. Finally, the goal of a cognitive approach is to maintain information in long-term memory. New information is assimilated through the use of instructional materials and strategies which build upon what the child already knows (Reid & Hresko, 1981).

While some have argued that LD students cannot benefit from a cognitive approach to instruction, a growing number maintain that LD individuals learn in a way that is fundamentally the same as other persons (Reid, 1978). However, the LD individual may be less efficient in structuring her own approaches to learning (Hall, 1980; Loper, 1980).
LD students seem to be able to use specific control processes but are less likely than normally achieving students to use them spontaneously (Deshler, Warner, Schumaker, & Alley, 1983). Therefore, research and instructional approaches in LD are beginning to concentrate on developing executive or control processes within the learner rather than assigning that responsibility to the teacher.

Few studies attempt to apply a cognitive approach to actual classroom instruction. At Kansas University Institute for Research in Learning Disabilities (KU-IRLD) eight studies have been conducted which demonstrate the effectiveness of learning strategies interventions (Deshler, Warner, Schumaker, & Alley, 1983). The strategies were designed to assist LD adolescents approach the tasks of gaining information from oral and written materials and expressing information in writing. Results indicate that students instructed individually have learned the strategies to criterion and are able to generalize these skills to grade-appropriate materials in the resource room.

Written language is the most complex aspect of the language arts involving many skills such as handwriting, spelling, grammar, capitalization, punctuation, syntax, vocabulary and ideation (Morris & Crump, 1982). Because of the advancements in communication technology, some would question the continued need for emphasis on writing instruction in our schools. This line of thought may be argued even more convincingly when the secondary LD student is considered. Because of such factors as the complexity of the writing task, the LD student's individual differences in cognitive functioning, the multiple demands of the high school curriculum, the controversy over appropriate
programming, and the perception that writing is not an essential skill after graduation, writing instruction for LD students has held low priority.

In spite of Marshall McLuhan's suggestions that writing will become an anachronistic craft, there is evidence that written expression is proliferating in our society rather than vanishing (Corbett, 1981). Written documents continue to be the principal means of storing and retrieving information in business and government and the number of publications increases yearly (U.S. Bureau of the Census, 1984). Courses in technical and professional writing are growing in both the university and business setting.

Writing abilities are considered reflective of one's economic and societal status.

Writing ability is unevenly distributed in our society along class lines. Indeed, writing and access to writing improvement is as good an indicator of the difference between white collar and blue collar career tracks as we are likely to find. (Hendrix, 1981, p. 53)

Writing skills have also been used to judge an individual's cognitive abilities.

Society may be betraying its misplaced emphasis when it bases estimates of the worth of a person on one's spelling, grammar, and punctuation. But society can and does make some legitimate judgments about the quality of one's mind from the conditions of one's writing. (Corbett, 1981, p. 51)

Several surveys have been conducted which relate the status of students' writing in our schools today. In a report to the Ford Foundation, Donald Graves (1978) noted that writing is seldom practiced in our schools. Reading is favored over writing by a large ratio. For every $3,000 spent on children's ability to comprehend text, $1 is spent
on their power to express ideas in writing (Graves, 1981). During the 1970's many decried the alleged writing crisis in America and back-to-the-basics proponents called for a return to grammar and usage instruction. The National Assessment of Educational Progress (NEAP) conducted writing assessments during the 1969-70, 1973-74 and 1978-79 school years. Information was gathered from 9-, 13- and 17-year-olds who performed a variety of writing tasks: expressive, persuasive, descriptive or explanatory. Thousands of papers were evaluated or analyzed for overall quality (holistic scoring), rhetorical effectiveness (primary trait scoring), coherence, cohesion, syntactic fluency and mechanical correctness. Because of the longitudinal nature of the studies, varieties of writing tasks assigned, and multiple factors evaluated, broad generalizations are not possible. However, the following findings are relevant to this study:

(1) Among 17-year-olds, rhetorical skill on a persuasive writing task declined between 1974 and 1979. Those writing successful papers declined from 21% to 15%.

(2) Among 13-year-olds, the percentage of papers displaying good cohesion was 29% in 1969, 19% in 1973, and 21% in 1978.

(3) At ages 17 and 13, expressive writing skills were improving or remaining at the same level, while persuasive and descriptive skills appeared to be declining.

(4) Error analysis does not reveal many major changes in the commission of errors over a decade's time at any age.

(5) Neither 13- nor 17-year olds receive much direct instruction in writing or are required to do much writing in school. Very few appear
to have access to a writing program that includes prewriting instruction, oral and written feedback on writing assignments, encouragement to write several drafts of papers and opportunities to rework papers after they have been reviewed by teachers (NAEP, 1981). The NAEP study indicates that students do not have primary difficulty with mechanics but with awkward sentences and incoherent paragraphs.

While the NAEP does not differentiate between normal and LD students, it does give us information regarding writing instruction and writing skills among adolescents. With only 15% of 17-year-old students writing successful persuasive pieces and 21% of 13-year-olds writing cohesive papers, we may safely extrapolate these difficulties to LD students. Examination of the writing of LD students has documented deficits in grammar, mechanics, spelling, production, content, organization and style. (Davis, 1975; McGill-Franzen, 1979; Poplin, Gray, Larsen, Banikowski, & Mehring, 1980; Poteet, 1979; Weiner, 1980; Herneck, 1979). The difficulty and complexity of writing instruction must not be used as an argument for its exclusion from the secondary LD curriculum. The ability to write is necessary as a means of communication as well as a vehicle for organizing and directing thought. This relationship has been stated by Loban, Ryan, and Squire (1969).

To write clearly students must think clearly. To write competently, students must think competently. To write with power and imagination, students must think with power and imagination: think/write, write/think - these processes cannot be disjoined. When a student has learned to write better, he has learned to think better. (p. 319)

**Purpose of the Study**

The purpose of this study is to determine the effectiveness of instruction in the revising stage of the writing process for secondary
LD students by comparing the results of teaching two revising strategies. The results of the control group are compared with two experimental groups who have learned the two revision strategies in opposite order. One strategy addresses the mechanical aspects of writing such as capitalization, appearance, punctuation and spelling while the second is concerned with the content and organization of their writing.

A cognitive approach to instruction suggests that learning can be studied as an internally mediated process which interacts with factors external to the learner. It has been suggested that the academic difficulties found in learning disabled children are attributable to a deficiency in the ability to execute cognitive control processes. Therefore, theorists suggest that LD students be trained in strategies which can be applied to academic tasks and which promote generalization of response. However, few studies have been conducted which assess the effectiveness of teaching cognitive strategies for teaching academic tasks.

The most recent models have depicted writing as a linguistic and cognitive process involving three stages: prewriting, drafting and revising. It is the revising stage which transforms a piece of writing from prose which represents meaning primarily to the writer to prose which effectively communicates with the intended audience. Factors which have been identified as criteria for evaluating good writing include ideas, usage, sentence structure, punctuation, spelling, organization, wording, and style (Diederich, 1974).
Research has demonstrated that students have deficiencies in all of the features which constitute a well-written composition. Modeling, group and individual practice, and teacher conferencing are among the techniques that authorities have tried for improving the revision process. Few experimental studies have been conducted to determine the effectiveness of instruction in revising skills with secondary LD students. None of them have attempted to teach LD students strategies which promote revision of more than mechanical errors.

This study will evaluate the effectiveness of revision strategies on writing improvement between pre- and posttest measures as well as control and experimental groups. The effect of the sequence of instruction on revision strategies will be measured by comparing posttest scores.

Research Questions
1) Does instruction in the revising process improve the quality of the secondary LD student's writing in regard to general merit or content (ideas, organization, wording, and flavor) and mechanics (spelling, punctuation, capitalization, usage, and handwriting)?
2) Which sequence of revision strategies results in the more improved quality of writing?

Definition of Terms
1) Control processes - the operations by which one internally manipulates information in order to perform a cognitive task (Deshler, Warner, Schumaker, & Alley, 1983).
2) Editing - an automatically triggered reviewing process which examines any material which the writer puts into words, whether by reading,
writing, or speaking in order to detect and correct violations in writing conventions and inaccuracies to meaning and to evaluate materials with respect to writing goals. (Hayes & Flower, 1980)

3) Learning Disabled - "a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations. The term includes such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does not include children who have learning problems which are primarily the result of visual, hearing or motor handicaps, of mental retardation, of emotional disturbance, or of environmental, cultural or economic disadvantage." (Rules for the Education of Handicapped Children, Ohio Department of Education, 1982, p. 12)

3) Planning - the first component of the writing process, the function of which is threefold; (1) generating - retrieving relevant information from the task environment and from long term memory (LTM), (2) organizing - selecting and structuring useful information into a plan, and (3) goal setting - establishing criteria by which to judge the text (Hayes & Flower, 1980). This stage of the writing process has also been termed prewriting or rehearsing.

4) Procedural facilitation - experimental techniques to facilitate cognitive development by easing the executive burden of writing without providing substantive help regarding content or form (Hayes & Flower, 1980).
5) Reviewing - the third component of the writing process, the function of which is to improve the quality of the written text through systematic examination by the writer during a specified period of time (Hayes & Flower, 1980). This stage of the writing process has also been termed revising.

6) Translating - the second component of the writing process the function of which is to take material from memory under the guidance of the writing plan and to transform it into complete sentences (Hayes & Flower, 1980). This stage of the writing process has also been termed writing, drafting, and transcribing.
A cognitive approach to instruction views the learner as the most important factor in the teaching-learning situation. The learner actively participates in the learning process by constructing meaning from experience. The goal of instruction focuses on maintenance of information in long-term memory by elaborating on the framework of what is already known (Reid & Hresko, 1981). The cognitive approach may be contrasted to the behaviorist movement in America during the twentieth century which emphasizes the learning environment rather than the learner. Mention of mentalistic association is avoided as associations are thought to occur externally between stimuli and responses rather than centrally between ideas or images. Wittrock (1978) summarizes these differences by stating, "A cognitive approach implies that learning from instruction is scientifically more productively studied as an internally, cognitively mediated process than as a direct product of the environment, people, or factors external to the learner" (p.15).

In the 50's, several important spokesmen produced works which changed the direction of American psychology and education. Bruner espoused covert cognitive processes as a legitimate domain for study (Bruner, Goodnow, & Austin, 1956). In his now famous view of B. F.
Skinner's *Verbal Behavior*, Chomsky rejected behaviorism as a viable explanation of language development. Instead, Chomsky maintained that language is a complex sequence of behavior requiring control processes (Chomsky, 1959).

Consequently, educational researchers have recently resurrected the study of cognitive constructs which interact with learner characteristics in order to determine how learning is facilitated. First, an overview of the major directions of the cognitive movement in education will provide the framework for understanding a cognitive approach to instruction for the learning disabled student, the approach adopted in this study. A discussion of cognitive strategy instruction as it applies to instruction in writing for LD students will follow. A cognitive model for the writing process will be discussed. Finally, methods for instruction and evaluation of writing will be considered.

**Cognitive Approaches**

In reviewing theories of cognition which had an impact upon the field of learning disabilities, Hresko & Reid (1981) have delineated five different approaches to the study of learning disabilities: information processing, genetic epistemology, cognitive behavior modification, the specific abilities model, and metacognition. They state that although four of these categories support a view which gives primacy to the learner's involvement in acquiring knowledge and the cognitive organizational structure needed to process external stimuli, their implications for instructional interventions vary.
Information Processing

The information processing approach was stimulated by two major events: the development of information theory and the development of computers (Loftus & Loftus, 1976). Information theory attempts to quantify information into "bits" and change or recode it into another representation. The computer is an information-processor which can take information from the environment, manipulate and recode that information using a specific program, and subsequently output the processed information. Human behavior is analyzed using the computer analogy as an interaction between information acquired from the environment and programs within the organism. Two works appeared within one year which used an information processing approach (Newell, Shaw, & Simon, 1960; Miller, Galanter, & Pribran, 1960). Miller analyzed human behavior in terms of Plans which were "any hierarchical processes in the organism that can control the order in which a sequence of operations is to be performed" (p. 16). He proposed the fundamental unit of intelligent behavior to be the TOTE (Test-Operate-Test-Exit) in which present outcome is compared to the desired outcome. Newell and his colleagues proposed a General Problem Solver (GPS) that solves complex problems (e.g. Missionaries and Cannibals, Tower of Hanoi, Water Jugs) by using computer simulations applicable to a broad range of problems (Sternberg & Powell, 1983). Atkinson and Shiffrin (1968) based their model of memory on an information-processing system.

The following assumptions are listed by Reid, Knight-Arest, & Hresko (1981) as characteristic of an information processing orientation: a) people are active in their own learning; b) an
integrative reciprocal relationship exists among cognitive functions such as perception, attention, and memory; and c) these cognitive functions are controlled by higher order mental processes. Blumenthal (1977) refers to these higher order processes as central control processes whereas Anderson (1975) calls them executive functions.

**Genetic Epistemology**

Genetic epistemology, the study of the development of knowledge, is the correct term for Piagetian theory (Thomas, 1979). Genetic epistemologists are concerned with cognition particularly with regard to the development of new knowledge in children rather than the mechanisms of perceiving, attending, and remembering studied by information processing theorists (Hresko & Reid, 1981). Piaget viewed knowledge as a process and believed that to know something is to act on that thing. As a child matures these actions are less frequently external and more often internal or cognitive in the form of symbols. The image which a child constructs is influenced by his past experience and current stage of internal maturation. Piaget's term for the cognitive organization of repeated actions is scheme. Schemes are established through assimilation and accommodation. Assimilation is the process of understanding events of the world by matching the perceived features of those events to one's existing schemes. When perceived realities do not match available schemes, either the stimulus is not assimilated or existing schema are altered to account for environmental features. This later process has been termed accommodation.

Application of Piagetian theory to research with LD children is infrequent, yet it offers a method of examining complex behavior
sequences (Gallagher & Reid, 1981). Reid (as cited in Reid, 1981) conducted a study which indicated that LD children progress through developmental stages in the same order as normally achieving children, but with some delay. However, LD students differ qualitatively in their performance, for example, depending on perceptual characteristics of materials for problem-solving rather than drawing inferences or applying concepts (Reid, 1981).

Cognitive Behavior Modification

Cognitive behavior modification (CBM), an offshoot of social learning theory, is an attempt to merge behavior modification techniques with self-treatment methods (e.g. self-monitoring, self-instruction, self-evaluation) and modeling. In 1969 Bandura produced Principles of Behavior Modification which summarized the literature pointing toward cognitive-symbolic mediation. Bandura emphasized the role of modeling, acquiring new behaviors by observing and imitating others, as an instructional technique. Subsequently, Mahoney (1974) further supported the case for CBM, contending that the "non-cognitive" argument against behavior modification had lost its credibility. He maintained that a wide range of private events could be empirically examined. Mahoney drew analogies from both learning theory and information processing perspectives to describe his cognitive learning model. The human brain is viewed as a complex mediating organism that connects divergent experiences through symbolic representational processes and information storage skills. Specific to the purposes of this study, Mahoney points out that there is a growing consensus that we draw upon generalized performance strategies rather than upon discrete and isolated units.
In a classic CBM study Meichenbaum and Goodman (1971) found that error rates were reduced and response latency increased when impulsive children were trained to make self-regulating statements through instructor modeling and fading of self-talk to covert self-instruction. This approach rests on the assumption that behaviors can mediate cognitive functions which in turn mediate behaviors (Gerber, 1983).

The practical application of CBM for children with learning problems has been meager, particularly in attempts to remediate academic deficiencies. Hallahan and Kneedler (1979) have reviewed the efficacy of CBM with inattentive children in both behavioral and academic areas. One major conclusion drawn is that training strategies must be adapted to academic tasks rather than perceptual training. In a study of the use of covert self-instructions with elementary school children Friedling & O'Leary (1979) did not find that self-instruction training was effective in improving on-task and academic accuracy. Bornstein & Quevillon (1976) used CBM procedures to regulate impulsive classroom behavior and successfully improved on-task behavior with pre-school subjects. However, no data exists to indicate that learning was more successful as a result of on-task behavior. There are questions about the effects of self-verbalization on cognitive strategy formation and its effectiveness in remediating learning difficulties on applied academic tasks (Gerber, 1983). Criticisms of CBM with exceptional students are frequently targeted at the generality and durability of training effects (Meichenbaum, 1980). To date, CBM studies can only suggest that instructional strategies are specific to discrete tasks.
Specific Abilities

Early leaders in the field believed that learning disabilities resulted from a dysfunction in a basic ability or process such as visual or auditory perception or perceptual-motor skills which lead to difficulties in academic skills. This approach is based on a medical model, and its proponents assume that dysfunctions in basic processes can be diagnosed through specific tests and remediated. Samuel Kirk designed the Illinois Test of Psycholinguistic Abilities (ITPA) to evaluate information processing and Marianne Frostig devised her test to measure visual perception. Programs for remediation were subsequently constructed (Cartwright, Cartwright, & Ward, 1984).

This attempt to isolate and train specific cognitive abilities such as perception, attention, and memory has been unsuccessful in demonstrating a carry over to academic success. Skill trainers (Stephens, 1970) argue that tests to measure valid basic processes are neither valid nor reliable. Furthermore, the hypothetical constructs which are said to be measure and trained have not proven to be related to academic success (Hammill & Larsen, 1974; Torgeson, 1979). Hresko and Reid (1981) would argue that the specific abilities approach fails because it:

1) is static and simplistic,
2) views the learner as passive,
3) diverts instruction efforts away from content.

Metacognition

Perhaps the most recent avenue of cognitive inquiry has been that of metacognition. One of the foremost spokespersons in this field,
Flavell (1976) has described metacognition as one's knowledge concerning one's own cognitive processes and products or anything related to them. A more specific definition views metacognition as involving two components: (1) 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 on-going activities, checking the outcomes of one's efforts, and remediating whatever difficulties arise (Baker, 1982). In order to differentiate metacognitive training from process or ability training approaches, Loper (1982) emphasizes that investigations must measure progress in terms of academic achievement.

According to Flavell (1976) the growing child has to learn how, where, and when to store and retrieve information. The "how" includes a variety of storage and retrieval strategies such as verbal mediation, rehearsal, categorization, elaboration, or imagery. The "where" refers to a menu of storage and retrieval resources (e.g. the child's head, the heads of others, numerous nonhuman resources). An understanding of "when" is apparent if a child is aware that a specific situation requires active, deliberate attempts to retrieve and apply information. He predicts the later two aspects will be fertile ground for future developmental studies.

Flavell (1979) has suggested a model of cognitive monitoring which is based upon the interactions of four classes of phenomena:

(1) metacognitive knowledge,
(2) metacognitive experiences,
(3) goals (or tasks),
(4) actions (or strategies)

Flavell acknowledges an overlap between metacognitive knowledge and metacognitive experiences. Metacognitive experiences occur in situations that stimulate a lot of careful, highly conscious thinking such as a school task. Metacognitive experiences may serve a number of purposes by:

(1) leading a person to establish new goals,
(2) adding to, deleting, or revising the metacognitive knowledge base, and
(3) activating cognitive or metacognitive strategies.

Metacognitive knowledge of a successful solution to a similar problem can be adapted and applied to the new task. Flavell would make a differentiation that cognitive strategies are invoked to make cognitive progress whereas metacognitive strategies are used to monitor it. However, he allows for the possibility of using the same strategy for either purpose.

The range of cognitive manipulations attributed to metacognition is wide and imprecisely defined and confusion as to what is meant by the term has resulted (Cavanaugh & Perlmutter, 1982). Examples have ranged from outlining technical chapters and preparing shopping lists (Loper, 1980) to recognition that one is having trouble learning or checking all available alternatives on a multiple-choice test (Hresko & Reid, 1981).

Efforts to establish a cognition-metacognition connection have met with little success because of problems in methodology and interpretation (Baker, 1982). Therefore, it is difficult to identify
research studies which are exclusively recognized as metacognitive training. Many researchers would support the thesis that learning disabled students are passive learners with maladaptive information processing skills who should benefit from self-instructional or strategy training in academic tasks. Flavell (1979) states that investigations support the important role of metacognition in oral communication, oral persuasion, oral comprehension, reading comprehension, writing, language acquisition, attention, memory, problem-solving, social cognition, and various types of self-control and self-instruction. He indicates that ideas about metacognition are interfacing with similar ideas in the areas of social learning theory, cognitive behavior modification, personality development, and education.

**Instruction in Cognitive Strategies**

**Definition**

Gerber (1983) calls for an adequate definition of the term cognitive "strategy". He points out the differences in theoretical orientation which account for the ambiguity of existing terminology. For example, information processing theorists focus on the construction of models of cognitive control processes to differentiate strategic functioning in problem solving (Atkinson & Shriffin, 1968; Craik & Lockhart, 1972; Hall, 1980; Sternberg, 1979). Developmentalists are concerned with describing the emergence and age-related changes in these strategic processes (Brown, 1977, 1978; Flavell, 1970; Flavell & Wellman, 1977). Applied behavior analysts have investigated problem-solving behaviors, understood as operants, and techniques for proper programming and control of "problem-solving responses (Grimm,
Bijou, & Parsons, 1973). Social learning theorists are more willing to accept "conscious" cognitions, self-statement, and images (Meichenbaum, 1980) as modifiable behaviors, which can be approached by manipulating task-related verbal behavior (Meichenbaum & Goodman, 1971). Educators, concerned with design of instructional tactics have conceptualized "strategies" as "general case" concept discrimination abilities (Lloyd, 1980; Lloyd, Epstein, & Cullinan, 1980; Lloyd, Saltzman, & Kauffman, 1980). Metacognitive processes or executive control functions are further differentiated from cognitive processes presumed to mediate a specific response. Gerber points out the difficulty in knowing whether these perspectives converge on the same phenomenon. The design of instructional interventions is influenced by whether strategies are considered to be overt or covert. Furthermore, strategies can involve planning specific responses (e.g. verbal rehearsal to facilitate recall) or planning how to plan responses in general.

Torgeson (1982) defines a strategy as "any organized sequence of processing activities that helps solve an intellectual task" (p.45). However, he recognizes that strategies may be applied consciously and deliberately or with little reflective awareness. On the other hand, Gerber describes a strategy as "the skillful, deliberate, and coordinated use of problem-solving tactics." "Tactics" are "skills, clusters of related skills, or expeditious procedures associated with solving specific types of problems." (Gerber, 1983, p.259).

This recognition that there are varying levels of strategy training is apparent in Loper's distinction between two metacognitive training strategies: mechanical and elaborative. Mechanical approaches require
repetition of identical self-monitoring behaviors whereas elaborative approaches encourage unique responses to alternate situations (Loper, 1982). Similarly, Torgeson (1982) has identified three different levels of instruction:

(1) highly specific task strategies that apply to only one type of task,

(2) school-related strategies that aid performance in a variety of academic tasks, and

(3) broad control processes involved in good problem-solving behavior both in and out of school.

Research for LD Students

Few studies have demonstrated the use of strategies by LD subjects on applied tasks, nor has transfer of training been reported in which changes on a training task result in improvement in relevant school learning (Gerber, 1983). Even generalization to other laboratory tasks has been difficult to demonstrate (Brown, 1978). Brown emphasized the difference between training a child how to think as opposed to what to think. Presumably, metacognition permits strategies to be applied and promotes generalization of responses.

Unfortunately, few studies have attempted to examine the relationship between cognitive and metacognitive functions. Consequently, it is difficult to appraise the general usefulness of recommended strategy training procedures, especially with respect to the problems displayed by LD children. (Gerber, 1983)
A subject's failure to benefit from cognitive training has been attributed to two possible causes. The line of reasoning is that subjects possess cognitive control processes, but, due to a lack of training, do not activate them or use them inefficiently. When improvement from training does not result, this has been attributed to cognitive deficits. Flavell (1970) calls failure to use a strategy "production deficiency" and failure to benefit from training "mediation deficiency". Brown (1975) points out that such an inference cannot be reliably made since the training may have been inadequate or inappropriate. Following the production deficiency argument, Torgeson (1977, 1982) suggests that LD children are "inactive" or inefficient in their cognitive response to task demands, and fail to spontaneously apply appropriate strategies in situations of response uncertainty.

Flavell's model of cognitive monitoring is helpful in analyzing the factors which must be considered in designing cognitive instructional strategies. According to Flavell (1979), "metacognitive knowledge consists primarily of knowledge or beliefs about what factors or variables act and interact in what ways to affect the course and outcome of cognitive enterprises" (p. 907). The 3 major factors are person, task, and strategy variables. Person variables relate to intraindividual and interindividual differences such as age, processing abilities, and motivation. In line with Piaget's developmental approach to cognition, researchers have found that older children are more likely than younger children to understand their lack of knowledge (Brown, 1978; Markham, 1977). In addition to age, interindividual differences are also important. Differences between samples of LD and normal
children in the use of appropriate strategies do not mean that the
inefficient processing behavior is characteristic of all LD children
(Torgeson, 1982). Level of motivation is critically linked to strategic
activity. Low expectation and self-defeating attributions due to a
history of failure are sufficient reasons for avoiding more challenging
strategic tasks. Deficits in basic perceptual, motor or memory
processes or limitations in acquired knowledge may similarly affect the
ability to use cognitive strategies (Ryan, Ledger, Short, & Weed, 1982).

Flavell's task category concerns the quantity and quality of
information which is available and whether or not it is sufficient to
achieve the desired goal. One must realistically evaluate the
difficulty of the task given the available information and determine
whether there is a need for active information retrieval. Depending
upon the familiarity or concreteness of the task, young children may be
unaware of situations that require their personal, active involvement
(Perlmutter & Myers, 1979). If the premise of a developmental lag in LD
students is accepted, this inability to evaluate accurately the task may
be true for them as well. It is necessary to determine which strategies
are most likely to be effective in achieving subgoals and goals.

The research on Flavell's strategy variables indicates that a task
will be developmentally sensitive to the degree that a strategy is
required for task execution (Flavell, 1970). Furthermore, if a
deliberate strategy is not required, a task will not reflect
developmental trends (Brown, 1975). Loper (1980) applies the idea to
exceptional populations by hypothesizing that "strategy deficiency" may
be a core problem in special education, with children falling at
different points along a continuum of social or academic learning strategies. The question logically follows as to whether instruction in strategic awareness will enhance learning. Research in the area of memory has already substantiated the LD child's deficiency in the application of appropriate memory strategies as compared with children who learn normally in the classroom (Torgeson & Kail, 1980).

An important strategy variable, the ability to study in order to recall the "gist" of a story, was studied in fifth-, seventh-, and eleventh grade students (Brown & Smiley, 1978). All groups were prompted to use the study strategy of taking notes or underlining, and ostensibly practiced it. However, only the older two groups showed improvement.

Future Research Needs

Loper (1982) warns against a simplistic approach to cognitive training. One must consider the extent to which self-awareness is required for a specific task as well as the child's developmental level. Furthermore, she points to studies which indicate that children may be aware of a strategy that they do not apparently use (Salatas & Flavell, 1976), may perform competently without overt evidence of strategic behavior (Perlmutter & Myers, 1979, may (depending on age) use a strategy that does not generalize (Brown, Campione, & Barclay, 1977), and may (depending on age) use a strategy that does not improve performance (Brown & Barclay, 1976).

Gerber (1983) suggests three future areas of research needing attention:

(1) studies appropriate to tactics and strategies for applied
academic tasks.

(2) studies that examine the relationship between a tactical repertoire, and metacognitive status,

(3) studies which investigate what task or child parameters influence the ability to modify a known strategy.

Instruction in Writing Strategies for LD Students

As mentioned previously, Torgeson (1982) suggests three levels of instruction which could be classified as cognitive strategies. The first level involves instruction in highly specific task strategies that apply to only one type of task (e.g. borrowing rules in subtraction, sound-blending strategies in word decoding). Such strategies are widely used and allow for little generalization. The second level strategies are more general yet still primarily school related. These strategies include verbal rehearsal, self-testing, and various memory devices to aid association and retention as well as note-taking skills and planning functions for academic tasks such as composition and test-taking skills. The final level focuses on broad control processes involved with problem-solving behavior both in and out of school. It deals with the need to proceed in an orderly fashion (Where do I begin?), self-monitoring of results ("Does this outcome make sense?"), and the conscious searching for alternative procedures (What should I try now?).

Torgeson equates the third level of functioning with the term "metacognition" but admits that the relationship between metacognitive knowledge and skills and actual strategic behavior is not a simple one (Flavell & Wellman, 1977). However, there is beginning evidence that for late elementary children, metacognitive knowledge is one of the
factors that contribute to the effective and adaptive use of task strategies (Wellman, Droxdal, Flavell, Salatas, & Ritter, 1975). A study by Belmont, Butterfield, & Ferreti (cited in Torgeson, 1982) has demonstrated that training in broad control functions to be generalizable across situations with mentally retarded children.

Instruction in strategies to promote writing as a process for secondary LD students certainly qualifies for Torgeson's second level of instruction. The planning strategies involved in the prewriting stage promote an examination of person and task strategies. By requiring the student to evaluate his own interests, knowledge base, and preferred information-gathering style, person variables are addressed. Furthermore, decisions regarding format, length, and style deal with task variables.

Application of the third level of instruction to the writing process is also possible. The prewriting stage provides for strategies to answer the question "Where do I begin?" However, it is primarily in the revision stage that self-monitoring of results and conscious searching for alternative procedures occurs. Strategies for revision of writing can aid in answering the questions "Does this outcome make sense?" and "What should I try now?"

**Writing Instruction**

**Writing As Language**

Viewed within its proper context, writing is one component of language development. As children develop, language becomes the primary medium through which children encode experience, represent reality to themselves, and express their personal meanings to others (King, 1980).
Chomsky (1965) represents the nativist approach to language development, emphasizing that children learn language by unconsciously internalizing a set of grammatical rules that enable them to produce an unlimited number of sentences in a given language even without having heard or practiced most utterances before. Halliday (1973) has identified three major functions language serves: interpersonal, ideational, and textual. The interpersonal function allows the child to communicate with others and predominates in spoken language. On the other hand, the ideational function is a learning function that enables the speaker to embody concepts of his own internal world and the external world. This function is primary in written texts. The textual function refers to one's language resources for forming oral or written texts. This is primarily a solitary activity and does not provide the immediate feedback involved in dialogue.

An interactionist approach to language development would suggest that while humans are biologically prepared to use language, this development must be cultivated by the environment. Therefore, the active, thinking child interacts with predetermined genetic factors as well as environmental factors. Only recently has this approach been extended to the understanding of written language.

The major concepts applied to oral language development appear to apply to written language development as well. Children actively develop their own models of how written language works by purposefully interacting with people and objects in their environment. This view of written language as actively acquired by the child over time is relatively new. The vast majority of research on literacy has treated written language as a set of skills taught by adults in the context of school lessons. (Genishi & Dyson, 1984, p. 27)
It is important for the child to discover that written language, like oral language, represents meaning to himself and others. At the same time, he develops a need to learn how the culture uses written language. As children recognize that writing is different from speech and participate in telling stories, the structure of language appears in their writing (King, 1980). The child who follows a normal developmental pattern is increasingly able to report, explain, and describe events. Graves (1978) studied the writing of second graders and described two profiles of child writers, reactive and reflective. The reactive child is developmentally less advanced, struggling with the recording of individual words, deciding on spelling, and often rereading to recall intended meaning. On the other hand, the reflective writer finds spelling less of a problem and writes more quickly. The reflective child has a greater sense of what he intends to write before he begins and is more apt to review his writing when finished.

Researchers are in agreement that early readers and writers come from homes in which reading and writing are practiced and where someone responds to children's questions about print. In a study of fourth and seventh graders, Birnbaum (1980) found that more proficient writers compose with the intention of representing their meaning to a receptive audience which values writing whereas less proficient writers are more concerned with a neat, error-free paper than content. Many children experience environments in which television, telephone, or face-to-face communication is valued more highly than written language. Clay (1977) contends that, especially for these children, primary emphasis should be placed on meaningful uses of written language rather than mastery of
basic skills such as punctuation and letter formation.

**Writing Research**

Although scholars have been writing about writing since the time of Aristotle, relatively little is known about how people learn to write, what composing processes they use, whether or not there are any natural stages of development, and how to facilitate the learning of writing in schools. Writing research as an interdisciplinary field of inquiry is a quite recent development in educational and social science research (Whiteman, 1980). From 1955 through 1972, 68 percent of all research was concerned with what the teacher was doing in the classroom and only 12 percent with what children did when they wrote (Graves, 1981).

The best new research combines knowledge about language from branches of linguistics such as sociolinguistics and psycholinguistics, anthropology, psychology, and education. Janet Emig (1971) stimulated a new kind of research by using case studies to focus on what twelfth grade writers did during the composing process. In England, Britton, Burgess, Martin, McLeod & Rosen (1975) attempted to identify qualitative changes in writing ability based on a national collection of routine samples of writing from all curriculum areas by students aged 11-18. He and his colleagues studied the purposes and audiences for which children write.

At Carnegie Mellon University, Hayes and Flower (1980) are researching the writer's problem solving procedures through protocol analysis. This methodology has its basis in cognitive psychology. Other researchers are also investigating writing as a cognitive process with a focus on the revision stage (Nold, 1981; Bereiter & Scardamalia,
1982). An explanation of their findings will follow.

Writing and the LD Student

Research on the written expression of LD students as compared with achieving students has been conducted primarily at the elementary level. Significant differences have been found on quantifiable features such as productivity, syntactic structure, conventional usage, spelling, and the mechanics of punctuation and capitalization (Poplin, Gray, Larsen, Banikowski & Mehring, 1980; Poteet, 1979; Weiner, 1980). Myklebust (1973) reports on his study of third- and fourth graders defined as having moderate or severe learning deficits. The Picture Story Language Test (PSLT) was administered to normal and control groups to determine written language abilities. Control groups had significant deficits in written language as measured by total words written, words per sentence, syntax, and abstract-concrete scales. Expression of meaning and correct use of syntax were the most impaired skills.

Moran (1981) compared elicited writing samples from learning disabled, low achieving, and achieving groups in grades 7 through 10. Spelling was the only formal feature which was significantly higher in the low achieving group. Moran confirmed significant differences favoring achieving students as measured by conventional grammar and usage, spelling, mechanics, and productivity in terms of mean morphemes per T-unit. LD students wrote ten times as many run-on sentences and three times as many fragments as did achievers. However, disregarding the conventional sentence boundaries of a capital letter and a period, the LD group wrote the same percentage of complex combinations of independent and dependent clauses as did achievers. This can be
compared to a study of the word totals on compositions of LD and nonhandicapped students in several grades by Hernreck (1979). He found that non-LD students wrote an average of 42 percent more words per composition.

As part of an epidemiological study conducted by the University of Kansas Institute for Research in Learning Disabilities, the Written Language Cluster of the Woodcock-Johnson Psycho-Education Battery was administered to 225 LD students in grades 7 through 12. These students earned grade equivalent scores ranging from 3-7 to 4-8 and median percentile ranks of 7 for junior high subgroups and 4 for senior high subgroups (Warner, Alley, Schumaker, Deshler & Clark, 1980). Research at the IRLD has also indicated that LD high school students evidence a monitoring deficit on academic tasks which require their detection of self-generated and externally-generated errors. On a creative task, LD students detected only one-third of the errors they committed (Deshler, Ferrel, & Kass, 1978).

McGill-Franzen (1979) studied the substantive features of written expression such as argumentation and organization of a 17-year-old LD student. Although formal features of the writing were poor, the student showed skill that could support instruction in preparation of written reports. Therefore, such instruction need not wait for the mastery of sentence formulation, spelling, and punctuation skills. However, LD students definitely exhibit weakness in the compositional areas of content, organization and style. Davis (1975) characterized the writing of LD college students as being:

(1) rigid with limited variety in sentence patterns, word
selecting, and style;
(2) poorly organized in controlling ideas and developing thoughts and arguments;
(3) lacking in comparisons, elaborations or conclusions.

Writing as a Process

Several attempts have been made to develop a cognitive processing model of writing in recent years. Such models try to deemphasize exclusive examination of the finished product and instead look at what is occurring inside the writer from the time an idea is generated to the finished piece. Although the terminology selected to describe these stages varies, they are often referred to as prewriting, drafting, and revising. Often these models are based on a three stage process. These stages should be viewed as a form of organization rather than inflexible steps which have a fixed and necessary progression (Bereiter, 1980).

Douglas (1966) described the three stages as prewriting, writing, and revising. Prewriting encompasses:
(1) analyzing the writing assignment,
(2) searching for a paper idea,
(3) examining what one knows and needs to know about a topic,
(4) gathering information, and
(5) organizing the paper.

Although writing may occur throughout the process, focused writing (getting out all that is known at the moment) usually comes after preliminary work. The final stage is revising, proofreading and conferring with an editor or teacher. Admittedly, the model fits best with the expository and argumentative writing most frequently expected
in schools.

Pulitzer Prize winning author Donald Murray (1980) carried out a detailed analysis of the composing process of accomplished writers. He defined the act of writing as four forces:

1. collecting observations,
2. connecting them to previous experiences and to one another,
3. writing them out, and
4. reading them back as if the writer were someone else.

All four intellectual forces may be operating during the writing sequence which he has labeled rehearsing, drafting, and revising.

Hayes and Flower (1980) have described a model of expository writing which identifies the subprocesses of the composing process and allows for individual differences in composing styles. The model describes the writing process by dividing the writers world into three parts: the task environment, the writer's long-term memory, and the writing process (see Figure 1).

The task environment involves everything external to the writer that influences the writing task, including the assignment, the topic, the intended audience, and the writer's motivation and, once begun, the text. The writer's long term memory (LTM) contains knowledge about topics, audiences, and writing formulas.

The central component of the model, the writing process, consists of planning, translating and reviewing. The planning process takes information from the environment and LTM to set goals and establish a writing plan. The writer retrieves relevant ideas pertaining to the topic from LTM and generates written or mental notes in words or
Figure 1. Model for Expository Writing
(Hayes & Flower, 1980)
fragments which can then be organized into a hierarchical or temporal writing plan. In addition, he retrieves criteria by which to judge the text. The goal setting process identifies and stores such criteria for later use in editing.

The translating process takes concepts, propositions, relations, images from LTM and transforms them into English sentences. Text is reviewed through reading and editing. The editing process detects and corrects violations in writing conventions and inaccuracies of meaning. It also evaluates the text with respect to the writing goals (e.g. "Will this argument be convincing?", "Have I covered all parts of the plan?"). Editing is defined as an automatic triggering which will interrupt any other ongoing process. On the other hand, reviewing occurs when the writer decides to devote a period of time to systematic examination and improvement of the text.

The monitor reflects three observations about the composition process. First, the editing and generating processes may interrupt other processes. Second, even when interrupted, the writer will return to organizing to accomplish defined goals. Third, writers reflect their individual differences in goal setting. While some may attempt to review each sentence before continuing to the next, others write out their thoughts as they occur and later review them.

Hayes and Flower's model is based upon the technique of protocol analysis (Newell & Simon, 1972). Subjects are asked to say aloud everything they think and everything that occurs to them while performing the task. The protocol consists of verbal transcript along with notes and completed essay. One protocol which they analyze
consists of three general types of comments:

1. metacomments - comments about the writing process itself,
2. content statements - statements that reflect the application of writing processes to the current task,
3. interjections.

The protocol analyzed by Hayes and Flower supports three hypotheses upon which the model is based. First the protocol supports the concept of the writing process as described in the model. Divided into three sections, the content of the protocol varies from section to section. In the first section the writing is primarily detached phrases and incomplete sentences typical of planning. In the second section the writing shows the translating process through organization (e.g., paragraph indentation). Finally, in the third section of the protocol which should represent reviewing, there are indications of search for sentence completion.

The protocol also supports the hypothesis that editing and generating interrupt the other processes. The writer's comment statements under each of the three sections were analyzed. As predicted, the majority of three sections represent generating, organizing, and translating, respectively. However, approximately 10-15% of the sections can be attributed to editing and 10-15% of the second and third sections to generating.

The protocol supported the third hypothesis that the generating process will be more persistent during the first section 1, when the goal is to produce, than during the second and third sections. In the first section, idea chains (ideas cued by a previous idea) had an
average length of 6.4 words whereas in the last two sections chains averaged 2.0 words.

Flower and Hayes point out that the model is helpful in that it is specific in regard to the processes of planning, translating, and reviewing. However, they emphasize that it is not a stage model since it is recursive, allowing for complex intermixing of stages.

**Instructional Methodology**

Viewing writing from a cognitive processing perspective has definite implications for developing and implementing instructional methodology. Nold (1981) points out that even skilled writers can attend to only one subprocess at a time due to the limits of short term memory (STM). The richness of LTM affects the ease of writing and the quality of the product. In order to increase the workload which can be handled by such a limited capacity, it is important to make various elements of the process routine in order to decrease the processing space required. Furthermore, a broad range of strategies must be available over time in order to attend to all the important elements of the process.

In the upcoming discussion, environmental conditions and instructional strategies appropriate for prewriting, drafting, and revising will be included. Because of the emphasis of this study, the work of various authorities on the revising stage will be emphasized. In particular, the research of Bereiter & Scardamalia will be reviewed as a basis for revision of content in this study. Finally, modeling and teacher conferencing will be discussed as instructional methods applicable for all 3 of the stages in the writing process.
Prewriting

Students must be allowed to generate ideas during the planning or prewriting stage in a manner that allows for individual differences. The National Institute of Education awarded a grant to Donald Graves and his associates Lucy Calkins and Susan Sowers to conduct an intensive longitudinal study in Atkinson, New Hampshire, of the composing processes of children ages six through ten. Graves observes that children approach prewriting differently. Some walk about the room as they think. Others talk about ideas to classmates while others start to write immediately and then examine and reflect before writing again (Graves, 1983).

Rohman (1965) views prewriting as a stage of discovery in the writing process by which the person assimilates his subject to himself. He stresses that good writers have discovered the personal context. It appears to be important that students have a latitude of topic choice so that writing is not stymied due to a deficiency in their knowledge base. Self-chosen topics are more likely to produce fluent ideation than teacher-chosen ones (Bereiter, 1980). The writing should emerge from the on-going classroom activities rather than from artificially imposed parameters. Writing may be stimulated by primary sources such as field trips, spontaneous outings, activities which encourage a high level of involvement, as well as secondary sources such as books, stories, poems, and improvised drama. The child's memory of experiences is a rich store of information. The teacher can take the role of adviser and audience as the students make major decisions about planning and execution. (Mallett & Newsome, 1977).
Many suggestions have been advanced for prewriting activities including keeping a list of topics, interviewing, writing alternative leads, drawing before writing, free-writing or continuous writing, informal outlines, categorizing lists, and making audio tapes (Temple & Gillett, 1984; Flanigan, 1980).

**Drafting**

Translating has also been referred to as the drafting or writing stage. Translating can be facilitated if students are made to feel that first drafts are tentative. They should be encouraged to use invented spellings or be able to refer to the blackboard or personal dictionary for help. Some, especially younger children, benefit from being able to dictate their ideas to an older student or adult. Subsequent revision can be encouraged by having students write on every other line of the paper or, if available, use the word processing abilities of a microcomputer (Temple & Gillett, 1984).

**Revising**

The revising or reviewing stage of writing has probably been the most distasteful, and therefore the most neglected stage to many writers. However, it is this process which determines whether a piece of writing is merely an expression of thought or prose which actually communicates meaning to the reader. Linda Flower (1979) has made a distinction between Writer-Based prose and Reader-Based Prose. Writer-Based prose functions as a verbal expression written by a writer to himself and for himself. Its structure reflects the associative, narrative path of the writer's thought and its language is that of privately loaded terms and unexpressed contexts. On the other hand, the
function of Reader-Based prose is to communicate something to a reader. Its language and structure reflects the purpose of the writer's thoughts, whereas Writer-Based prose reflects process. The revision process can be viewed as a means of transforming Writer-Based prose to Reader-Based prose.

Flowers characterizes Writer-Based prose as similar to egocentric or inner speech as described by Vygotsky (1962) and Piaget (1932). It is highly elliptical, depends on a personal, idiosyncratic interpretation of word meaning, and lacks logical and causal relations. Although it is inadequately structured for a reader, it is functional for the writer in that it helps to solve problems by providing a medium for thinking. Readers expect complex concepts which are organized. However, this is a demanding cognitive task, especially for the inexperienced or remedial writer. The short term memory (STM) has a limited capacity and can hold only a few alternative relationships in mind at once. The Writer-Based version provides the first draft or raw materials which can then be revised. Editing, then becomes more than a matter of correcting errors, but an act of transforming a network of information into a more fully hierarchical set of propositions.

Flower's research suggests that good writers use scenarios, generate lists, and ignore the reader, but only temporarily. They then re-examine in order to refine, elaborate, and anticipate the reader's response. For remedial writers, Writer-Based prose should not be viewed as a composite of errors but a stage in the composing process. By selecting a purpose or focus of mutual interest to both reader and writer, the text can be restructured to Reader-Based prose.
Nold (1981) has also advanced a writing model which describes a three stage process: plan, transcribe, review. She warns against oversimplification of the model, emphasizing the recurring nature of planning. The three products of the planning subprocess are a representation of the writer's intended meaning, intended audience, and the persona to be projected. When a writer reviews his transcription, he compares it to these original intentions. Developing the ability to view the text for an audience requires a sophisticated social awareness. Bereiter (1982) takes this idea of audience viewpoint one step further. He presents a model of writing development which speculates that it is easier for a writer to take the point of view of another person than it is to take the point of view of oneself as reader. However, once the writer is able to integrate his own evaluative reading skills with his writing skills, an important feedback loop is established. Personal style and viewpoint are developed.

Ponsot & Dean (1982) distinguish four phases which can occur after the first draft: rewriting, revision, copy-editing, and proof-reading. Re-writing involves a rereading, clarifying, and organization of the whole draft. Revision, on the other hand, recasts the draft due to an original idea or new vision. Copyediting ensures correctness of spelling, syntax, punctuation, and paragraphing. Proofreading involves comparison of the copy-edited final draft with the final piece for submission. Although revision changes the work most radically, it cannot be required. However, rewriting can and should be expected. Ponsot & Dean recommend that rewriting be practiced in the classroom beginning on the sentence level and later analyzing the beginning,
middle, and end components of the composition. Rewriting is the most essential form of evaluation because it requires self-evaluation. It causes the writer to answer such questions as:

1. What have I said?,
2. What other ways can I say it?, and
3. Is it what I want to say?

Graves (1983) points out that children revise what is most important in their concept of writing. The typical order appears to be:

1. spelling;
2. motor-aesthetic issues;
3. conventions (punctuation, capitalization);
4. topic and information; and
5. major revisions (addition and exclusion of information, reorganization).

Sommers (1978) found that skilled writers revise first globally—adding and deleting large chunks of discourse, then sentences and words. However, unskilled writers were stuck on finding the right words.

Calkins (1980) stresses that elementary aged children learn punctuation best when they write, not when they complete workbooks on which they insert correct punctuation. Rather, children can express the purpose for punctuation and apply it correctly in the context of their own writing. It is conceivable that children who learn to write under an instructional approach might reverse the order which Graves noted.

At the IRLD at the University of Kansas researchers have developed and tested a strategy that deals with the revision of mechanics. Schumaker, Deshler, Nolan, Clark, Alley and Warner (1981) used error
monitoring to enable nine LD adolescents to detect and correct errors in written products. The instructional procedure involved an eleven-step process including such procedures as describing the steps of the strategy, modelling the strategy, and student practice to criteria in both teacher-generated and self-generated passages. Students were taught the "COPS" acronym.

C - Have I capitalized the first word and proper names?
O - How is the overall appearance?
P - Have I put in commas and end punctuation?
S - Have I spelled all the words right?

The compositions were evaluated in each error category by trained scorers. The percentage of agreement of independent scores was approximately 91% for teacher-generated passages and 81% for student generated passages. Researchers using a multiple baseline design demonstrated that all students showed marked improvement immediately following instruction.

Some have suggested that modeling the revision process in a group setting will allow students to understand better the total process involved. Diederich (1974) advocates duplication of an anonymous composition which students are requested to revise, by making positive comments and inserting corrections. Then, the class as a whole can discuss appropriate changes. He believes the group experience results in more comprehensive revision than peer editing. Others have adapted this method for use with the overhead projector (Bushman 1984). Flanigan (1980) devised the idea of the edit sheet. Reviewing one student's draft, all students jointly complete an edit sheet to raise question regarding the particular type of writing being examined. Thus
revision is taught by modeling the desired behavior.

Bracewell, Bereiter & Scardamalia (1980) studied revision methods using the writing of students in grades 4, 8, and 12. Each grade level was divided into an immediate revision group and a group which revised six to eight days later. Both groups were given a 15 minute presentation. The instructor used the overhead projector to model ways to revise a composition from the mechanical to the sentence level. The compositions were rated on content, presentation and mechanics. A second study compared the difference between revision by the author and a peer. An analysis of the rank scores for each study revealed few significant effects. Neither immediate or delayed revision by the author produced improvement in quality on any criteria. Revision by peers who had written on the same topic improved the presentation and mechanics but not the content. Developmental differences were reported. Grade 4 revisers made mechanical changes while higher-grade revisers made mechanical, word, and sentence changes. However, although more revisions were apparent in older writers, revisions did not consistently result in better quality text.

Bereiter and Scardamalia (1982) have also examined the revision process. They look at writing as a transition from a language system dependent at every level on inputs from a conversational partner to a system capable of functioning autonomously. Because the writer must be a reader of his own text, instructional concerns center on what difficulties students have in making this transition. In order to investigate the role of executive factors in this process, they have devised a number of experimental techniques which they have labeled
"procedural facilitation."

In a study of revisions produced by 90 children, Scardamalia & Bereiter (as cited in Bereiter & Scardamalia, 1982) found that not a single child scrapped a sentence and successfully produced a new one which used a markedly different strategy from the original. They note that failure of revision could result from the writer's inability to diagnose a fault in the text or an inability to solve the problem diagnosed. Therefore, they view an iterative language production system as having two elementary requirements. The first is an executive mechanism for writing between the forward process of text generation and the backward process of evaluation. The second requirement is termed "capacity". When written text re-enters the language production system as feedback, it may come back out unchanged even when the child makes an evaluation that revision is needed. Due to the information processing load, children's attention is directed to the most salient characteristics (the text already generated). They must overcome the saliency of their own text in order to revise. If the processing load exceeds the subject's capacity, memory search and generation of alternative language cannot occur.

Bereiter & Scardamalia conducted a study based upon the assumption that lack of revision was not based upon children's inability to evaluate but on the lack of an internal feedback system that allows evaluation to become part of the writing process. In oral communication the conversational partner triggers evaluation, but the same does not occur in writing. Furthermore, if children do stop to evaluate, they may have problems switching back to generating without losing track of
where they were in the process. This executive control problem may mask abilities to evaluate and revise.

In their study the researchers required the children in grades 4, 6, and 8 to write a composition and then go back over it, stopping after every sentence to select an evaluative statement that seemed most appropriate. Each statement was on a separate card. The child then chose a directive statement, indicating some general sort of action. Finally, the child tried to carry out the self-chosen directive (see Appendix A).

Student self-reports supported the central thesis that such a procedure helped them to evaluate and revise, a process that did not normally occur. The children's choice of evaluative phrases were scored by a semi-professional writer who gave the highest rating to the phrase if it was the same one she would have chosen and the next to highest rating when it was not her choice but judged appropriate.

In all three grades, the modal rating of the appropriateness of evaluative phrases was the highest rating possible. However, the children's diagnoses, or evaluative phrase, generally did not agree with the rater, although mean ratings improve at grade 8. Quality of revisions were judged in two ways. When each change was judged separately, the results were positive: significantly more changes for the better. When whole compositions were compared, there was not a tendency for the revised version to be preferred.

Bereiter & Scardamalia recommend procedural facilitation in any learning situation in which the overall burden on executive processes is high and children's representational knowledge of what constitutes
desirable performance exceeds their procedural knowledge for achieving that performance. They have listed a series of principles to follow in designing methods of procedural facilitation:

(1) Use procedures that mimic, in a simpler way, mature executive processes,

(2) Use highly patterned routines to minimize the attention that must be devoted to running executive routines themselves,

(3) Make potentially infinite sets of choices finite,

(4) Structure procedures so as to bypass rather than support immature tendencies,

(5) Foster metacognition by making normally covert processes overt,

(6) Provide labels to make tacit knowledge more accessible, and

(7) Use procedures that can be scaled upward or downward in complexity.

Need for Modeling

Graves (1983) stresses the importance of teacher modeling of the writing cycle. The teacher should generate a list of possible topics for a writing assignment and discuss each briefly. By thinking aloud the teacher describes the top choice for this piece and then begins a rough draft on an overhead projector transparency so that the students can observe writing taking place. Word choice, sentence construction, changes in focus should all be verbally explained. Subsequent revision should also be modeled through proofreading marks or other revising strategies.
Teacher Conferencing

Throughout the process, it is imperative that a student's writing receive a response. Graves supports the idea of a writing conference which encourages the child to inform the teacher of his purpose, difficulties, and meaning. The teacher's role is primarily one of listener, asking questions rather than making judgments. Conferences may be held individually or in small groups for common concerns. Bushman (1984) points out the time limitations of conferencing, noting that even five minute conferences can be prohibitive in a sizable class. He also mentions the possibility of conferences being teacher dominated rather than allowing for constructive interaction. However, used appropriately, conferences can provide an opportunity for students to talk out what they really wanted to say but did not.

Writing Evaluation

Due to the many components of the process and product of writing, finding a valid and reliable evaluation system is a difficult task. The difficulty of this search is compounded by the fact that English teachers do not agree on a common criteria for determining good writing. According to Bushman (1984) classroom teachers may use a variety of evaluation methods:

(1) grades
(2) written comments
(3) peer evaluation
(4) individual conferencing
(5) lay readers
(6) holistic scoring
While the first five methods are intended more for use in the classroom, holistic scoring is most helpful as a final evaluation method for student placement or for research purposes.

Holistic evaluation of writing provides a guided procedure for sorting written pieces (Cooper, 1977). Various alternatives have been advanced, allowing the rater to either (1) match the writing with another piece in a graded series of pieces, (2) score it for the prominence of certain features important to that kind of writing, or (3) assign a letter or number grade. Corrections or revisions are not made so that raters can spend only two minutes on each paper. The evaluation is guided by a holistic scoring guide which describes each feature and identifies high, middle, and low quality levels for each feature. An advantage of holistic evaluation over objective tests or frequency counts of word or sentence elements is that it provides for assessment of important features of expository writing such as content quality, organization, awareness of audience, individuality, vocabulary choice, and control of written language. Cooper (1977) states that this system is the most valid and direct means of rank-ordering by writing ability with the possibility to scoring reliability as high as .90 for individual writers. When raters from similar background are given opportunities for practice with a holistic scoring guide, they can achieve scoring reliabilities in the high eighties and low nineties on their summed scores from multiple pieces of student's writing. Cooper specifies that at least two pieces of a student's writing, reviewed by two independent raters are needed. In addition, a student should be allowed to give his or her best performance under controlled conditions.
Many different criteria for evaluating student writing have been suggested. Teidt and her colleagues (1983) have constructed a sample rubric for holistic scoring on a nine-point scale. Evaluators rate the composition based upon a description of each rank in terms of content, organization, sense of purpose and audience, style, and mechanics. Each paper is read by two readers and then evaluated by a third reader if a discrepancy of more than two exists.

Cooper classifies Diederich's well-known evaluation format as an analytic scale. In 1961 Diederich (1974) conducted a study of college students writing was conducted in 1961 to determine the basis upon which writing may be judged (Diederich, 1974). A panel of fifty-three judges, both academic and non-academic, evaluated 300 papers. A factor analysis of their ratings showed that the judges represented five different schools of thought as to what constitutes excellence in student writing. The largest cluster was more influenced by ideas: their richness, soundness, clarity, development and relevance to the topic and the writer's purpose. The next largest cluster attended to errors in usage, sentence structure, punctuation, and selling. The third cluster commented primarily on organization and analysis, the fourth on wording and phrasing, and the fifth on personal qualities such as style, individuality, interest, and sincerity. Loadings on these factors explained 43 percent of the variance in ratings.

Applying these findings to a study of writing improvement in twelve school districts in New York, Diederich used the following rating scale to judge the writing ability of ninth and tenth graders. The first four factors are called "general merit". Mechanics is broken up into its
logically distinguishable components - usage, punctuation, and spelling. Later Diederich added handwriting because the 1961 study with college students had been based on typed copies. The essay topic was prescribed. Teachers chose to double weight the items pertaining to ideas and organization since their courses concentrated in those areas.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Reader</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ideas</td>
<td>Low</td>
<td>Middle</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Organization</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Wording</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Flavor</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Usage</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Punctuation</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Spelling</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Handwriting</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Sum</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Teachers attended an all-day workshop in which they were given practice in rating sample sets of papers that had previously been rated by expert readers. The teachers rated the papers and then discussed scoring differences until reasonable consensus was reached. After using this method for one year, teachers met to write brief descriptions of the salient characteristics of "high", "medium", and "low" papers (see Appendix B). These descriptions were used a second year and revised.

To eliminate bias, students were instructed to write a 6-digit code on their papers and record identifying information on a separate sheet of paper. Papers are arranged by self-chosen numbers. Ratings were made on a separate worksheet so that the composition bore no marks to influence the second reader. If scores were more than ten points apart, they were reviewed by a committee of most experienced teachers who substituted their own grade for whichever of the original graders was
farther from their own. Only ten percent typically needed review.

Cooper recommends the analytic scale for research on methods of teaching writing because it can serve as a guide to raters who are choosing the better of each student's paired pre-and post-instruction essays on matched topics of the same discourse. Lundsteen (1976) believes that the Diederich scale represent an evaluation method that is both qualitative and quantitative, as it provides for assessment of both the quality of ideas and style and the quantitative amount of correctness in such areas as grammar, punctuation and spelling.

**Summary**

Although researchers have developed many approaches to cognitive instructional strategies, they all stress the importance of the learner's active involvement in the acquisition of knowledge through internal manipulation of external stimuli. While terminology differs between cognitive theorists, many would support the concept of problem solving through development and application of strategies. Strategies can be applied to specific tasks, but appear to hold greatest promise for more complex behaviors. Some researchers have suggested that LD students fail because they do not apply appropriate strategies to problems such as writing which demand more complicated mental processing.

The most recent models view writing as a complex process with components both external and internal to the learner. Writing instruction for LD students may need to focus on strategies which provide a framework for understanding that process and systematically attacking it. The revising process is, perhaps, the most frequently
ignored stage of writing, yet it determines whether or not the work communicates to the reader. It is, therefore, important that LD students learn and internalize a strategy to revise both the content and mechanics of their writing.
CHAPTER 3
METHODS AND PROCEDURES

Purpose
The purposes of this study were to determine (1) the relationship between the instruction of secondary LD students in two strategies for revision of paragraph writing and the improvement of their writing in general merit or content (ideas, organization, wording, and flavor) and mechanics (spelling, punctuation, capitalization, usage and handwriting), and (2) the relationship between the order of the instruction of the two revision strategies and the improvement in general merit and mechanics.

Subjects
The subjects consisted of 54 students who were classified as learning disabled according to the Ohio Rules for the Education of Handicapped Children (see Appendix C). The subjects exhibited a severe discrepancy, or difference of 2 standard deviations between achievement and ability in either reading skills or written expression. There were 9 girls and 45 boys in the study. These students had IQ scores ranging from 76 to 125 (x=97.1) and were in grades 6 through 8. Treatment Group X had a mean IQ of 96.4 and Treatment Group Y had a mean IQ of 99.1. The Control Group had a mean IQ of 95.9.
Setting

The study was conducted in four special class/learning centers for special education programming in language arts, but students in these centers attended mainstream classes at other times during the day. The classes were located in three middle schools and one junior high school located in three suburban school districts. The subjects were in eight classes ranging in size from three to nine students.

Pilot Study

A pilot study was conducted at a private day school for LD children. Two language arts classrooms of sixteen students in 8th grade participated in the pilot study. Of the students participating, 2 were girls and 14 were boys. The following purposes of the pilot study were determined:

(1) to develop materials for the instruction in prewriting
(2) to field test the Evaluative and Directive Phrases used in one of the revision strategies and adapt them to the writing of opinion paragraphs
(3) to obtain samples of student-generated paragraphs on which subjects in the actual study could practice revision strategies
(4) to use the paragraphs written to train the raters on the Diederich Analytic Scale.

Material Development

The students involved in the pilot study generated two opinion paragraphs based upon topics which they chose. They were given an assignment sheet which required that they choose topics about which (1)
they could express an opinion, and (2) others might agree or disagree. These topics could be related to home, school, community or family concerns. Examples of possible topics were given. This format was adopted for the actual study (see Appendix D).

The students were taught that the three stages of writing are prewriting, drafting, and revision. While the investigator explained these stages, she used an overhead to present the name of each writing stages visually (see Appendix E). Similarly, she told the students that the five factors that should be considered during prewriting include:

1. the topic  
2. the reader  
3. the ideas  
4. the plans  
5. the evaluation

The overheads used (see Appendix F) aided the students when they were instructed to memorize these steps using verbal rehearsal.

Following the introduction of the prewriting steps, the class observed the teacher model the prewriting and drafting processes on the overhead (see Appendix G). Next, this process was repeated using a different topic. The class supplied the input for the content of the prewriting and drafting stages through group discussion while the experimenter recorded the information. The experimenter developed a worksheet similar to the overhead on prewriting to guide student's thinking when they recorded prewriting ideas for their self-chosen topics.
Material Adaptation

After the students had generated their two opinion paragraphs, they were taught two revision strategies (1) COPS (Capitalization, Overall Appearance, Punctuation, and Spelling), and (2) Evaluative and Directive Phrases. The teacher explained COPS using an overhead and a similar worksheet which was distributed to the students (see Appendix H). The Evaluative and Directive Phrases as suggested by Bereiter and Scardamalia (1982) (see Appendix A) were modified in order to devise a systematic method for application and to determine those phrases most appropriate to opinion paragraphs. Therefore, two modification were made. First, the evaluative phrases were lettered and the directive phrases were numbered so that students could evaluate their writing by placing a letter and number after each sentence. Second, the researcher changed the wording of some phrases, changed the order, and added 9 evaluative phrases and 6 directive phrases (see Appendix I). A tally of phrases used in the students' revisions was kept and phrases which had been used by fewer than 5 students were eliminated (see Appendix J). This list was used in the main study.

The experimenter chose paragraphs written by the students in the pilot study for practice after instruction in the revision strategies. Three paragraphs for the COPS strategy were chosen, using one for teacher modeling, one for group practice, and one for individual practice (see Appendices K-M). Likewise, 3 paragraphs were chosen for instruction in Evaluative and Directive Phrases. However, because this strategy is concerned with general merit more than mechanics, the investigator typed the paragraphs and corrected spelling to eliminate
possible distractions due to mechanical errors. In addition, two blanks were added after each sentence to facilitate the recording of both phrases (see Appendices N-P).

Instructional Sequence

The time period available to the experimenter for each class was 30 minutes per day for each class. It took approximately 15 days to complete the pilot study which required the students to complete two opinion paragraphs. The sequence established during the pilot study was used to finalize the instructional sequence used in the study (see Appendix Q).

Training Evaluators

The pilot study was also useful in training the evaluators to use the Diederich Analytic Scale (see Appendix B). The paragraphs written by the students were each rated by two evaluators. At a second training session scores on the same paragraphs were compared in order to further clarify the "high", "medium", and "low" descriptions listed under each category on the scale.

Instructional Procedures

In all 8 classrooms in which the study was conducted, the experimenter taught the class according to the instructional sequence developed during the pilot study. The regular teachers were given the outline of the instructional sequence. They remained in the classroom and verified that the experimenter delivered the content and sequence specified. As a second check on the consistency of content delivery, tape recordings of critical instructional sessions were made and then compared to the outline.
Each student produced 3 rough drafts based upon his choice of topics and the prewriting worksheet which he completed. These rough drafts were returned to the students in random order for revision. The first draft returned was used as a pretest. In all three groups the students were told, "Revise this as you would whenever you hand in a paragraph to be graded." The teacher answered student-generated questions, but did not hold writing conferences with the students.

In treatment Group X the students were then instructed in the use of the COPS strategy. After teacher modeling and group and individual student practice, each subject revised the second rough draft. Rough drafts were written on every other line to allow room for revisions on the paper. The experimenter then held a brief conference with the student. During the conference the student might be asked to check a particular line or sentence to see if he had missed a capitalization, punctuation, or spelling error. The student then corrected the errors he observed and rewrote the paragraph. The same procedure was followed for the second draft.

Next the students in Group X were instructed in the use of Evaluative and Directive Phrases using the same sequence of teacher modeling, group and individual practice. The paragraphs which had been revised using COPS were returned in random order and the students placed a letter and numeral at the end of each sentence in the paragraph indicating the Evaluative and Directive Phrases chosen. Using the lines between the sentences, they made revisions based upon those choices. Before rewriting for the final draft, the teacher met with the student to discuss the proposed revisions. If necessary the teacher encouraged
the students to read their paragraph aloud in order to draw their attention to sentences which were unclear in meaning or awkward in structure. During the conference the teacher asked such questions as:

1. Will this sentence convince your audience?
2. Does this sentence support your topic or opinion?
3. Where can you find more information?
4. Tell me what you mean by_____.
5. Does this sentence logically follow the sentence before?
6. How could you say that?
7. What words could start this sentence?
8. Does it sound like the paragraph is finished?

The students then wrote the final draft for submission. They repeated this procedure on the last rough draft.

In treatment Group Y the same procedures were followed but the sequence was reversed. Students were first instructed in the use of Evaluative and Directive Phrases and then made revisions on the two rough drafts. After they had submitted those 2 paragraphs, they learned COPS, made needed changes, and completed the final draft on both rough drafts.

The control Group Z received no instruction in either revision strategy. Instead, the instructions given during the pretest to revise their paragraphs as they usually would when submitted for a class grade were repeated. The details of the instructional sequence are outlined in Appendix P.

The students submitted the prewriting worksheets, rough drafts, and final drafts under the grading requirements and reward systems which had
been operating in the classroom prior to the start of the study. In no classroom did a student receive a letter grade for an individual paragraph. A record of work completion was kept by the experimenter and reported to the classroom teacher. The classroom teacher used the record of work completion as a part of the overall grade for the quarter.

Students received feedback on their assignment in the following ways:

(1) Written comments on prewriting sheets as to accuracy and adequacy of information supplied
(2) Returned rough and final drafts indicating that they had received credit according to normal classroom grading procedures
(3) Response to student-generated questions in class
(4) Teacher conferences on rough drafts

Measurement Procedures

Diederich's analytic scale (1974) was used to evaluate the opinion paragraphs because it provides for a reliable measure of both general merit and mechanics. Diederich emphasizes that the reliability of the rating scale is based upon independent grading by two different evaluators. He further suggests that when the grades differ by more than a specified amount, the paper be referred to a committee of experienced teachers who substitute their own grade for the original grades which is further from their own.

The evaluators are encouraged to work rapidly and trust their first impressions, since that increases the reliability of grading. Scores are recorded on a separate rating sheet. The scale is divided into two
categories, general merit and mechanics. General merit includes 4 subcategories:

1. ideas
2. organization
3. wording
4. flavor

Mechanics also includes 4 subcategories:

1. usage, sentence structure
2. punctuation, capitals, abbreviation numbers
3. spelling
4. handwriting, neatness

Each subcategory can be rated on a scale from "1" (low) to "5" (high). A description of "high", "middle", and "low" accompanies each subcategory (see Appendix B). The possible ratings for general merit and mechanics, separately, range from "4" to "20" while the overall rating may range from "8" to "40". In this study, if the total score varied more than 8 points, the paragraph was re-evaluated by another rater. The third rating was substituted for the most discrepant total score. Diederich does not specify how the two scores were analyzed.

Data Collection

Photocopies of each of the students' 3 paragraphs were made. A code appeared at the top of each paper. The code consisted of the identification number that each student had been assigned and the letter "X", "Y", or "Z". This eliminated rater bias possible due to a knowledge of the student's name or whether the paragraph was a pretest or posttest.
Five raters participated in the evaluation of the paragraphs. Each rater was an experienced teacher who had worked with secondary LD students in writing in his or her classroom. As previously mentioned, the raters had met twice to practice using the Diederich Analytic Scale on paragraphs written by students during the pilot test. Based upon the description of "high", "medium", and "low" under each subcategory of the scale, the raters compared the scores they had assigned and discussed discrepancies. When the raters met to evaluate the paragraphs from the study, they each scored 2 paragraphs chosen by the experimenter as representing probable "high" and "low" ratings. After rating the 2 paragraphs individually, each rater reported his scores for each paragraph and discussed the reason for any difference of more than 1 point under every subcategory. The raters agreed to follow the Diederich Scale description but made the following additions and qualifications:

(1) The subcategory "Usage" would include errors in voice, tense, agreement and parallelism.

(2) The subcategories "spelling" and "punctuation" would be graded in the following manner:

<table>
<thead>
<tr>
<th>Errors</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>4 or more</td>
<td>1</td>
</tr>
</tbody>
</table>
(3) The scale does not reflect whether the student has followed the experimental requirements (e.g. each paragraph should be at least 6 sentences long).

(4) The scale does not reflect the use of correct paragraph form (e.g. indentation)

Copies of the 159 paragraphs were placed in one pile and raters picked them up as needed, placing their initials at the top of the paragraph. They filled out a separate form for each paragraph. When each paragraph had been rated once, the process was repeated. The experimenter and an assistant tallied the points and placed the forms in a file folder labeled by identification numbers for each student. When a discrepancy of more than 8 in the total score occurred between 2 raters, a third rater evaluated the paragraph. The two closest scores were used for the study.

Research Design

The requirements for determining the design of the study were as follows: (1) the experimenter would instruct all 3 groups, (2) the groups would be equal in size, (3) all students in the groups would be LD students in grades 6, 7, or 8, (4) all students would be instructed in prewriting, (5) the 2 experimental groups would receive a different sequence of instruction. A pretest-posttest control group design with a repeated measure on the posttest was used for the study (Campbell & Stanley, 1963). The study consisted of a pretest, instruction in two revision strategies (Evaluative & Directive Phrases and COPS), and two posttests.
<table>
<thead>
<tr>
<th></th>
<th>Pretest</th>
<th>Treatment</th>
<th>Posttest 1</th>
<th>Posttest 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group X</td>
<td>X</td>
<td>COPS/E&amp;D Phrases</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Group Y</td>
<td>X</td>
<td>E&amp;D Phrases/COPS</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Group Z</td>
<td>X</td>
<td>0</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

The null hypothesis states that there is no significant difference between the 3 groups. The alternate hypothesis is that the groups are different at the .05 level.

The Ohio Rules for the Education of Handicapped Children (1982) require that there be no more than 16 students in an LD special class/learning center. This necessitated locating 8 classrooms in 3 school districts in order to obtain a sample of 53 students. Although there had been 18 students in each group at the beginning of the study, one student in Group Y transferred to another district before the study was completed.

In order to hold the instructor constant throughout the study, not all classrooms were instructed within the same time frame. The study was begun in 4 classrooms from one school district in March. The treatment was randomly assigned to classrooms. The study was conducted on alternating days during periods of 40 or 45 minutes. In mid-April, instruction was begun in two more special class learning centers in a second district. Each classroom was assigned to a treatment group and instruction was delivered on an alternating days. In May, the study was begun in two classrooms in the third school district. Both classrooms were assigned to the control group. Because of the time limitations of the school year, the study was conducted on a daily basis.
CHAPTER IV

RESULTS

The results of the study give data regarding: (1) the relationship between the instruction of secondary LD students in two strategies for revision of paragraph writing and the improvement of their writing in content and mechanics, and (2) the relationship between the order of the instruction of the two revision strategies and the improvement in general merit and mechanics.

The 2 independent variables in the study were instruction in mechanics using the COPS strategy and instruction in content using Evaluative and Directive Phrases. Treatment Group X received instruction in revision of mechanics first, followed by instruction in revision of content. Treatment Group Y received instruction in revision of content followed by instruction in mechanics. The Control Group Z did not receive any instruction in revision.

The dependent variable was the scores of the two raters on the Diederich Analytic Scale (1974). Scores are based upon ratings on 8 factors. The values that may be assigned to these criteria range from 1 to 5. The first 4 criteria evaluate the content of the paragraph and the last 4 evaluate mechanics.

At the beginning of the study each student was instructed in prewriting skills and then required to write a rough draft of a
paragraph. Each student revised the rough draft without any instruction in revision. This final draft was used as a pretest. The pretest was administered to each group to determine any variance in groups prior to the treatment. Both posttests were final paragraphs submitted after instruction in the two revision strategies for Groups X and Y. Group Z wrote final paragraphs with no instruction in revision.

At the completion of the study, there were 159 final paragraphs to be scored. The 18 students in Group X generated 54 paragraphs with 18 being pretest, 18 being the first posttest, and 18 being the second posttest. The 17 students in Group Y wrote 51 paragraphs with 17 being the pretest, 17 being the first posttest, and 17 being the second posttest. The control group, consisting of 18 students, submitted 18 pretest paragraphs, and 18 paragraphs for both of the posttests.

Because the Diederich Analytic Scale requires 2 ratings of a writing sample for reliable scores, each test was evaluated twice by 2 of the 5 raters in the evaluation team. Therefore, 318 ratings were made altogether. In only 11 paragraphs the scores between raters were found to be discrepant by more than 8 points. These 11 paragraphs were re-evaluated and the 2 closest scores were used for the data analysis.

**Research Question 1**

Does instruction in the revising process improve the quality of secondary LD students' writing in regard to general merit or content (ideas, organization, wording, and flavor) and mechanics (spelling, punctuation, capitalization, usage, and handwriting)?
The mean total scores for the ratings on the pretest are listed in Table 1. The total score combines both content and mechanics subscores and can range from 8 to 40. The degree of association between the 2 total scores obtained from the 2 ratings of each test were computed using the Pearson product-moment correlation. Correlations for the total scores of each rating on the pretest, posttest 1, and posttest 2 are recorded in Table 2. There is a moderate positive correlation between the two scores on all three tests (Sharp, 1979).

To determine whether the differences among the total score means of the 2 pretest ratings for the 3 groups is significantly different, a one-way ANOVA was performed (see Table 3). Variance between and within the total pretest scores was not significantly different for either rating 1, $F(2,50) = 1.14$ or rating 2, $F(2,50) = .73$ $p's > .05$. Because the hypothesis of no significance is tenable, the differences among the 3 groups on the pretest is assumed to be random, and no further statistical comparisons are necessary (Hopkins & Glass, 1978). Therefore, groups were equal at the start of the study and further analysis may be confined to a comparison of the 3 groups on the 2 posttests.

An analysis of the posttest scores was done based upon 2 subscores of the overall rating. As stated previously, the first 4 scores assigned reflected the content of the paragraph whereas the second 4 scores pertained to mechanics. Scores on content and mechanics ranged from 4 to 20. Mean scores and standard deviations for the content and mechanics subtotals for each rating of the 2 posttests are shown in Table 4. Overall mean scores for the 2 posttest, 2 ratings, and content and mechanics subscores are listed in Table 5.
TABLE 1
Mean Total Scores for Two Ratings on the Pretest

<table>
<thead>
<tr>
<th>Group</th>
<th>Rating 1</th>
<th>X</th>
<th>s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group X</td>
<td>Rating 1</td>
<td>21.44</td>
<td>5.73</td>
</tr>
<tr>
<td></td>
<td>Rating 2</td>
<td>20.89</td>
<td>6.34</td>
</tr>
<tr>
<td>Group Y</td>
<td>Rating 1</td>
<td>18.82</td>
<td>4.78</td>
</tr>
<tr>
<td></td>
<td>Rating 2</td>
<td>19.00</td>
<td>4.34</td>
</tr>
<tr>
<td>Group Z</td>
<td>Rating 1</td>
<td>19.50</td>
<td>5.50</td>
</tr>
<tr>
<td></td>
<td>Rating 2</td>
<td>21.00</td>
<td>5.52</td>
</tr>
</tbody>
</table>

TABLE 2
Pearson Correlation Coefficients for Total Scores of Two Ratings on Pretest, Posttest 1, and Posttest 2

<table>
<thead>
<tr>
<th>Test</th>
<th>r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>.77</td>
</tr>
<tr>
<td>Posttest 1</td>
<td>.78</td>
</tr>
<tr>
<td>Posttest 2</td>
<td>.74</td>
</tr>
<tr>
<td>Group</td>
<td>Posttest 1</td>
</tr>
<tr>
<td>----------</td>
<td>------------</td>
</tr>
<tr>
<td></td>
<td>Rating 1</td>
</tr>
<tr>
<td></td>
<td>Cont</td>
</tr>
<tr>
<td>Group X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>s</td>
</tr>
<tr>
<td>Group Y</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>s</td>
</tr>
<tr>
<td></td>
<td>s</td>
</tr>
<tr>
<td>Source</td>
<td>SS</td>
</tr>
<tr>
<td>----------</td>
<td>-----</td>
</tr>
<tr>
<td>Between</td>
<td>65.42</td>
</tr>
<tr>
<td>Groups</td>
<td>.73</td>
</tr>
<tr>
<td>Within</td>
<td>1437.41</td>
</tr>
<tr>
<td></td>
<td>1503.77</td>
</tr>
<tr>
<td></td>
<td>$X$</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>Posttest 1</td>
<td>11.30</td>
</tr>
<tr>
<td>Posttest 2</td>
<td>11.55</td>
</tr>
<tr>
<td>Rating 1</td>
<td>11.43</td>
</tr>
<tr>
<td>Rating 2</td>
<td>11.42</td>
</tr>
<tr>
<td>Content</td>
<td>10.70</td>
</tr>
<tr>
<td>Mechanics</td>
<td>12.15</td>
</tr>
</tbody>
</table>
The hierarchal design (Myers, 1979) to be analyzed had one between
group factor (Groups X, Y, and Z) and three within group factors
(posttest, rating, and subscore). Each within group factor had 2
levels. Content and mechanics subscores were nested within ratings.
Rating 1 and 2 were nested within posttests. An ANOVA was used to
analyze the means of the posttest subscores which were crossed with each
of the groups (see Table 6).

The factorial indicates that there are overall differences for the
main effect group, $F(2,50) = 3.89, p<.05$, but no significant
differences for the main effect posttest, $F(1,50) = .40, p>.05$, or
rating, $F(1,50) = .00, p>.05$. Table 4 shows that the mean total score
is 12.03 for Group X, 11.0 for Group Y, and 10.4 for Group Z.

The second overall difference is found in the content and
mechanics subscores across groups, $F(1,50) = 15.46, p<.01$. The mean
mechanics scores are higher than the mean contents scores (see Table 5).

**Research Question 2**

What sequence of revision strategies results in the more improved
quality of writing?

The data presented thus far tells us that there are significant
differences between groups and that these differences are significant in
regard to the content and mechanics subscores. However, further
analysis is necessary to determine which groups vary from one another
and whether other factors contributed to the main effects reported.
Interactions between main effects were found in 3 areas (see Table 6).
As displayed in Figure 2, there is significant disordinal interaction
between the mean content and the mean mechanics subscore and the group,
### TABLE 6

ANOVA of Mean Posttest Subscores

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>247.53</td>
<td>2</td>
<td>123.76</td>
<td>3.89</td>
<td>.03</td>
</tr>
<tr>
<td>Error</td>
<td>1592.05</td>
<td></td>
<td>31.84</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Posttest</td>
<td>6.25</td>
<td>1</td>
<td>6.25</td>
<td>.40</td>
<td>.53</td>
</tr>
<tr>
<td>Rating</td>
<td>.10</td>
<td>1</td>
<td>.10</td>
<td>.00</td>
<td>.96</td>
</tr>
<tr>
<td>Subscore</td>
<td>231.97</td>
<td>1</td>
<td>231.97</td>
<td>15.46</td>
<td>.01</td>
</tr>
<tr>
<td>Posttest x Group</td>
<td>3.54</td>
<td>2</td>
<td>1.76</td>
<td>.11</td>
<td>.89</td>
</tr>
<tr>
<td>Rating x Group</td>
<td>.75</td>
<td>2</td>
<td>.37</td>
<td>.01</td>
<td>.99</td>
</tr>
<tr>
<td>Subscore x Group</td>
<td>161.67</td>
<td>2</td>
<td>80.83</td>
<td>5.39</td>
<td>.01</td>
</tr>
<tr>
<td>Posttest x Rating</td>
<td>21.23</td>
<td>1</td>
<td>21.24</td>
<td>9.28</td>
<td>.01</td>
</tr>
<tr>
<td>Posttest x Subscore</td>
<td>1.67</td>
<td>1</td>
<td>1.67</td>
<td>.34</td>
<td>.56</td>
</tr>
<tr>
<td>Rating x Subscore</td>
<td>.72</td>
<td>1</td>
<td>.72</td>
<td>.15</td>
<td>.70</td>
</tr>
<tr>
<td>Posttest x Rating x Group</td>
<td>15.22</td>
<td>2</td>
<td>7.61</td>
<td>3.32</td>
<td>.04</td>
</tr>
<tr>
<td>Posttest x Subscore x Group</td>
<td>11.84</td>
<td>2</td>
<td>5.92</td>
<td>1.19</td>
<td>.31</td>
</tr>
<tr>
<td>Rating x Subscore x Group</td>
<td>1.16</td>
<td>2</td>
<td>.58</td>
<td>.12</td>
<td>.89</td>
</tr>
<tr>
<td>Posttest x Rating x Subscore</td>
<td>11.05</td>
<td>1</td>
<td>11.05</td>
<td>2.02</td>
<td>.16</td>
</tr>
<tr>
<td>Posttest x Rating x Subscore x Group</td>
<td>7.92</td>
<td>2</td>
<td>3.96</td>
<td>.72</td>
<td>.49</td>
</tr>
<tr>
<td>Error</td>
<td>273.52</td>
<td></td>
<td>5.47</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 2. Graph of Mean Posttest Subscores for 3 Groups Showing Disordinal Interaction
F (2,50) = 5.39, p<.01. The mean mechanics score is higher than the mean contents score for Groups X and Y, but lower for the control group. The mean content score is highest for Group X and the mean mechanics score is highest for Group Y.

Figure 3 illustrates the significant disordinal interaction between the posttest and the rating, F (1,50) = 9.28, p<.01. In the first posttest the first rating score was slightly higher than the second rating (11.54, 11.08). Whereas in posttest 2, rating 1 was lower than rating 2 (11.34, 11.78).

The third interaction was between test, rating, and group, F (2,50) = 3.32, p<.05. as shown in Figure 4. In group X and Y, the first rating was slightly higher than the second rating (12.04, 12.02). In Group Y, rating 1 was again higher than rating 2 (11.93, 11.90). However, in the control group, the second rating was slightly higher.

A comparison of mean pretest and posttest subscores gives a further picture of the treatment effect (see Figure 5). Table 7 displays the mean subscores for 3 groups on pretest, posttest 1, and posttest 2. The following results can be observed:

(1) There are educationally significant improvements in both domains (contents and mechanics) for the treatment group but not for the control group from pretest to posttest.

(2) The improvement from pretest to posttest for content is less than the improvement for mechanics in the treatment groups (GX, .43c-2.52m) (GY, .99c - 4.05m) while only a negligible difference exists for the control group (GZ, .14c - .09m).
Figure 3. Graph of Mean Scores on Posttest for 2 Ratings Showing Disordinal Interaction
Figure 5. Graph of Mean Pretest-Posttest Subscores by Group Showing Disordinal Interaction
Figure 4. Graph of Mean Scores on the 2 Posttest Ratings for Each Group Showing Disordinal Interaction
<table>
<thead>
<tr>
<th></th>
<th>Pretest</th>
<th>Posttest 1</th>
<th>Posttest 2</th>
<th>Posttest Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group X</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Content</td>
<td>10.78</td>
<td>11.25</td>
<td>11.17</td>
<td>11.21</td>
</tr>
<tr>
<td>Mechanics</td>
<td>10.33</td>
<td>12.21</td>
<td>13.39</td>
<td>12.85</td>
</tr>
<tr>
<td><strong>Group Y</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Content</td>
<td>9.47</td>
<td>10.30</td>
<td>10.62</td>
<td>10.46</td>
</tr>
<tr>
<td><strong>Group Z</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Content</td>
<td>10.28</td>
<td>10.36</td>
<td>10.48</td>
<td>10.42</td>
</tr>
<tr>
<td>Mechanics</td>
<td>10.22</td>
<td>10.25</td>
<td>10.37</td>
<td>10.31</td>
</tr>
</tbody>
</table>
(3) Group Y yields a greater pretest-posttest improvement score in mechanics (4.05) than does Group X (2.52).

(4) Group Y yields a greater pretest-posttest improvement score in content (.99) than does Group X (.43). However, the difference is much less than the difference seen in mechanics.

(5) There appears to be a greater benefit for treatment (either X or Y) in mechanics than in content.

Comparisons may also be made between posttest treatment scores and posttest control group scores:

(1) The difference between treatment and control subscores in mechanics for Group Y (3.06) is greater than for Group X (2.54).

(2) The difference between treatment and control subscores in content for Group X (.79) is greater than for Group Y (.04).

(3) The difference between treatment and control group subscores in mechanics is much greater than the improvement in content (GX, .79c - 2.5m) (GY .04c - 3.06m).
CHAPTER V
DISCUSSION

The purpose of this study was to analyze the effects of instruction in revision strategies on the paragraph writing of secondary LD students. Outlined below are the research questions asked at the beginning of the study and a summary of the results which answered those questions.

1. Does instruction in the revising process improve the quality of secondary LD student's writing in regard to general merit or content (ideas, organization, wording, and flavor) and mechanics (spelling, punctuation, capitalization, usage, and handwriting)?

The dependent variable, scores in content and mechanics, was measured by 2 subscores of the Diederich Analytic Scale. The data indicate that there were significant differences between the 3 groups on the 2 posttests, but no significant differences between the 2 posttests or the 2 ratings. Because the total pretest scores showed no significant differences, it appears that the variance between the groups was due to the treatment. It is also possible to see improvement for both treatment groups between pretest and posttest scores whereas the improvement on control group scores was negligible. The data also show overall differences in content and mechanics, with the mean mechanics score for the 3 groups exceeding the content score. However, it is
necessary to look at the significant disordinal interaction between mechanics and content in Figure 2 to make conclusions regarding the effectiveness of the treatment. The treatment appears to have differentially affected the groups. In the control group the content score was only slightly higher than the mechanics score. However, in both treatment groups the mechanics score is appreciably higher than in the control group. It may be safely assumed that the significance of the difference in the main effect "group" is due primarily to differences related to the treatment in Groups X and Y.

It must be noted that some of the variance appears to be due to the interaction of rating and test (see Figure 3). The first rating on posttest 1 had a mean score of 11.54 whereas the second rating had a mean score of 11.08. On posttest 2 the mean score for rating 1 was 11.34 and 11.78 for rating 2. The overall mean scores for posttest and ratings were very close (see Table 5). This interaction may be due to the type of analysis chosen rather than any differences due to ratings or posttest. It was decided that the 2 ratings would be analyzed separately rather than summed or averaged. The 2 ratings were done randomly by any of the 5 raters. Therefore, the rating factor does not specify rater. Furthermore, this differentiation of rating 1 and 2 does not specify order of rating since once the rating was completed, the rating sheet was placed in file folders by identification number. In recording the data, the subscores were randomly assigned to rating 1 and 2. It is possible that more of the ratings that were completed first were recorded first, but there is no definite way of ascertaining this. Raters may have evaluated the paragraphs with different standards at the end of the rating period than at the beginning. This cannot be verified
since posttest 1 and 2 do not signify the order of evaluation.

The differences in posttests are equally difficult to explain. Students chose their topics and wrote 3 rough drafts based upon their choices. Because it was possible that the student might submit their rough drafts in order of preference from most to least preferred, the rough drafts were returned to the students for both revisions randomly. This was done to control for the effect of preference for topic on revision. While the student might be more concerned about revising a rough draft on a favorite topic, this should not be reflected in the posttest scores since the code used to identify the paragraph gave no clue as to order and the paragraphs were randomly recorded as posttests 1 and 2.

Another source of variance is attributed to the interaction of the ratings with group and score (see Figure 4). In Group X the ratings are extremely close, with rating 1 higher than rating 2 (12.04, 12.02). In Group Y, the first rating is also higher (11.93, 11.90). However, in the control group, the second rating is higher (10.35, 10.38). As mentioned above, the rating differentiation is not specific to rater or order of rating. Therefore, it is difficult to explain this interaction from an individual or time perspective. The influence of Group on the rating is unexplained. The paragraphs were coded according to identification number (1-53) and test (x,y,z). It was not possible to determine the treatment group from the identification number. The x,y,z coding was done randomly so that raters could not differentiate between pretests and posttests. Therefore, it appears that both of these interactions may be due to separating the 2 ratings rather than averaging or summing the scores.
If we may assume that the variance due to rating and test interactions and rating, group, and score are contributing but small factors influencing the differences between treatment and control group, it may be concluded that the treatment had an effect on the student's performance in paragraph writing as measured by the Diederich Analytic Scale. While differences were noted in both contents and mechanics scores, the treatments had a greater effect on mechanics than on content scores.

2. What sequence of revision strategies results in the more improved quality of writing?

More specifically, the question asks whether there are differences in content and mechanics scores when the sequence of teaching COPS (A strategy for revising mechanics) is reversed with Evaluative and Directive Phrases (a strategy for revising content). The results indicate that while there was improvement for all 3 groups in both content and mechanics, improvement for Group Z was negligible in both areas. Likewise, although there were differences in the posttest content scores between the treatment groups and the control group, these differences were small. However, as has been noted, the variance in mechanics scores is considerable between pretest and posttest and between control group and treatment groups. It would appear that improvement in mechanics is greater for Group Y than for Group X, although both groups improved. It is therefore possible to assume that while both treatments improve mechanics, instruction in Evaluative and directive Phrases before COPS resulted in greater improvement in the mechanics score.
It is difficult to analyze the differential effect of the 2 treatments on the content scores. Looking at only posttest scores, it is apparent that Group Y content score is higher than the scores of the other 2 groups. The difference between Groups X and Y content scores is negligible. On the basis of only the two scores, one might conclude that if either treatment has an effect on content, treatment X would be preferable. However, when pretest and posttest scores for the two groups are compared, the difference between scores in content is greater for Group Y. Therefore, it would be appropriate to conclude that, of the two treatments, instruction in Evaluative and Directive phrases before mechanics is the preferred strategy for improving secondary LD students' content and mechanics scores in writing.

**Implications of the Study**

A cognitive approach to instruction assumes that students bring a knowledge of their topics and audience to the writing task. Students are actively involved in the writing process, integrating ideas about the possible content of their writing with plans or strategies they have developed on the proper structure for a particular writing sample. There are definite, though not discrete stages of the writing process: prewriting, drafting, and revising. By comparing their knowledge of the world and the requirements of the writing task, students refine their choices of topic, audience and plan during the prewriting stage. In the drafting stage, they generate text in rough form and then change it during the revision stage so that it communicates to the intended audience.

It has been suggested that LD students are strategy deficient and need deliberate instruction in academic tasks which require more complex
cognitive processes such as writing. They must understand the stages of writing and learn strategies for approaching those stages. This study taught all students a strategy for prewriting and drafting through modeling and group and individual practice. Treatment Group Y was instructed in Evaluative and Directive Phrases, a strategy for revising the content of a paragraph in terms of vocabulary, organization, ideas, and style. Students revised their rough drafts using this strategy and then were instructed in COPS, a strategy for revising the mechanical aspects of writing. Both instructional sequences included teacher modeling, group and individual practice, and teacher conferencing. Treatment Group Y received the same instruction in the reverse order.

The significant effects for both treatment groups over the control group in this study demonstrated that both instructional sequences described can result in improvement in paragraph writing for secondary LD students. Students who are just told to revise their work show negligible improvement. Although improvement in mechanics was most obvious, gains in content were also apparent for Group Y.

The greater improvement in mechanics may be explained in several ways. Mechanical errors are more objective and, therefore, more easily recognized and corrected by students than content revisions. For the most part, students seem to comprehend the proper use of COPS more easily than Evaluative & Directive Phrases. In terms of the evaluation of the paragraphs, the description of mechanical errors on the rating scale is more discrete and less open to interpretation by raters. Also, raters agreed on definite scores for punctuation and spelling errors.

A second possible reason for mechanics improvement is that deficiencies in spelling or punctuation are more easily revised. By
using a dictionary or consulting a teacher or classmate, the students can make necessary corrections without extensive background information. However, deficiencies in knowledge of topic, readers, or plans are more complex, requiring input from many sources and complex cognitive processing. Students often struggled with finding better words to express what they themselves admitted was unclear in their writing. Improvement in content, organization, wording, and style may be better assessed over a longer period of time than allowed in the design of the study.

During prewriting, revision was discussed. Students were asked what they thought they needed to attend to in the revision stage. The list generated included:

1. spelling
2. length of assignment
3. heading requirements
4. legibility
5. punctuation
6. formatting
7. pencil or pen requirements
8. grammar
9. punctuation
10. clear topic sentence
11. clarity of ideas

Obviously, the majority of items on the list focus on mechanics rather than content. Whether due to their own perceptions of what good writing includes or perceptions of teacher expectations, most students see revision as the correction of mechanical mistakes.
Although no directional hypothesis was made at the outset regarding which treatment would be more effective, possible explanations as to why Treatment Y seems to be preferable over Treatment X can be offered. Treatment Y requires students to consider the organization, ideas and clarity of their writing first. No emphasis is placed on correct mechanics. In fact, students are told not to be concerned about mechanical aspects until later. Evaluative & Directive Phrases enable students to evaluate whole sentences and may even prompt consideration of connections between sentences. One student commented that he didn't realize that one sentence needed to be revised until he read the whole paragraph together.

On the other hand, Treatment X requires students to refine the mechanics first, a task which primarily centers on particular rather than global assessment. Correction of mechanics is recognized by Ponsot & Dean (1982) as copyediting, one of the last phases of revision. This fine tuning implies a finality which does not encourage further revision. In fact, some LD students tend to make mechanical errors each time they rewrite. This is partially due to poor fine-motor coordination observed in some LD students which makes writing laborious and time-consuming. Requiring students to write on every other line allows space on the rough draft for corrections and additions. Unfortunately, while they may correct mechanical errors by implementing COPS first, they may also commit the same or other mechanical errors when they revise for content.

If mechanical correction is the only type of revision about which a teacher is concerned then, clearly, Treatment Y is the preferred treatment. There are educationally significant results to suggest that
If both mechanical and content are considered important, Treatment Y is also preferable.

It should be pointed out that the revision of content and mechanics cannot be viewed as separate tasks, one unaffected by the other. Revision of these two aspects of writing often occurs simultaneously. However, this study implies that emphasis on revision of content prior to mechanics may be the best sequence of revision for improvement in both areas.

It cannot be assumed that instruction in Evaluative and Directive Phrases encourages revision of only the paragraph content. The questions asked and the suggestions given with Evaluative and Directive Phrases center on organization, ideas, and wording. Style is addressed only indirectly. However, a student who revises wording or ideas may correct spelling or sentence structure as well. On the other hand, the COPS strategy encourages students to examine the more detailed aspects of writing. Revision of mechanics is highly valued by teachers and essential in improving readability. However, implementation of the COPS strategy alone may not encourage revision of content.

Because the literature suggests that both content and mechanics considerations are essential to good writing, this study examined the combination of two separate strategies dealing primarily but not exclusively with those domains. No comparisons were made between groups who might have learned and used either of the strategies separately. Nor is it possible to use the Diederich Analytic Scale to make predictions about the effect of one strategy over another. Predictions can only be made regarding the treatment packages.
While the Diederich Analytic Scale has two subscores content (or general merit) and mechanics, it cannot be assumed that there is a direct correlation between the COPS strategy and the mechanics subscore and the Evaluative and Directive Phrase Strategy and the content subscore. Instruction in COPS helps students to revise capitalization, overall appearance, punctuation, and spelling. These are all areas which are included on the scale under mechanics. However, the mechanics subscore also applies to abbreviations, numbers, usage, and sentence structure. These are areas which are not explicitly addressed by COPS but which might be influenced by instruction in Evaluative and Directive Phrases. Conversely, Evaluative and Directive Phrases ask students to revise wording and content. Revision in those areas may effect usage and sentence structure, a factor on the mechanics scale. Therefore, not only must treatment packages be viewed as one independent variable, improvement of student writing must be evaluated on the basis of both content and mechanics scores.

Limitations of the Study

Population

The population studied was secondary LD students in 3 school districts in Ohio. These students are identified and placed according to a formula which requires that there be a discrepancy score of 2 or greater between achievement and ability (Telrow & Williams, 1982). This discrepancy is calculated by subtracting the z-score of the achievement measure from the z-score of the ability measure. Because each SEA has established its own definition of LD, the LD population is far from a homogeneous group nationally (Chalfant, 1984). Because of the limitations of travel on the experimenter, there was no attempt made to
control for socio-economic status. The school districts in the study were suburban middle to upper class areas. Therefore, it would be improper to extrapolate these results to another state's LD population or to a lower economic, urban setting.

Research Design

According to Hopkins & Glass (1978), the assumptions of ANOVA are:

1. Normality
2. Homogeneity of variance
3. Independence of observations in the population

A sample of n=25 or more can be relied upon to yield a very nearly normal sampling distribution of means. However, the ANOVA, nonnormality has inconsequential results. From this perspective, the sampling size of this study is not a major concern. ANOVA is also robust with respect to heterogeneous variance when the n's are equal. However, Group Y had 17 subjects while Groups X and Z both had 18. Hopkins and Glass point out that when the larger sample is associated with the population with the larger variance, the ANOVA is conservative with respect to committing type I errors. In other words, the risk of incorrectly concluding that the hypothesis is false if it is true is less than the nominal probability. Since the variance in Group Y is smaller than the variance in the other 2 groups (see Table 1), there is a reduced probability of a type I error.

The pretest-posttest control group design requires that if subjects cannot be randomly assigned to group that treatment be randomly assigned to group. Because of the small class sizes in LD resource rooms, the need to stagger instruction, and the requirements for sample size, the treatment was only randomly assigned to the first groups.
Later in the study, groups were assigned to treatment according to sample size requirements. This design also requires that pretest and posttest measures occur at the same time. Again, because of the limitations of having only one experimenter, tests were staggered.

Two threats to the internal validity must be considered. First, although all students in Groups X and Y received the same instructional sequence and approximate amount of teacher/pupil contact, some groups were instructed later in the school year than others. However, both Groups X and Y had almost equal numbers of students who participated in the study at similar times. The majority of the students in Group Z began the study later in the school year. Therefore, maturation could be a threat to internal validity. This threat is minimized, however, by recognizing that there were no significant differences in the pretest scores of the 3 groups.

Second, the posttest scores were administered to the control group immediately after the pretest. For some of the control group students this was done to avoid the interaction threat that might occur between treatment and control groups when students in those classes discuss what they are learning. For the rest of the control group, this was done because the end of the school year prohibited limited study length. This allows for the threat of maturation. Could the students have improved because they got older and not because of the treatment? While this threat must be considered, a difference of one or two weeks would not appear to make a significant difference.

**Recommendations for Further Research**

There are several areas of research suggested by this study. The first listings relate to continued analysis of the data for this study.
The additional suggestions result from the experimenter's observations of student performance during the study.

Extended Analysis

In this study, the scores of the Diederich Analytic Scale were treated as separate ratings rather than summed or averaged. The resulting analysis showed significant interaction of posttest x rating and posttest x rating x group. Combining the ratings into a total score would reduce one nesting of factors and strengthen the findings. In addition, a post hoc analysis of differences between subscores in both pretests and posttest would further quantify the findings.

Treatment Package

The present study allows predictions regarding the sequence of instruction in both Evaluative and Directive Phrases and COPS. However, no conclusions may be drawn about the effectiveness of either of these strategies separately in improving content and mechanics. If either strategy alone can accomplish similar gains in content and mechanics scores, valuable instructional time can be saved. Furthermore, researchers (Brown & Smiley, 1978) have suggested that student-generated strategies may be more effective than strategies imposed by the teacher. A comparison of teacher-generated strategies for revision of writing and student-generated strategies would yield valuable data regarding strategy construction.

Revision is viewed by many LD students as a laborious and frustrating process. This study required revision of 3 paragraphs, 2 of which had to be rewritten twice. The effectiveness of repeated revision of the same writing assignment should be examined.
This treatment package required students to write in pen or pencil on every other line of their papers to facilitate revision. Because of difficulties in fine-motor coordination experienced by many LD students, legible handwriting is difficult and time-consuming to produce. Rewriting an entire paragraph each time revisions are needed could be avoided through student use of a microcomputer. Several word-processing systems are currently available which, once mastered, would reduce the time needed to revise a writing assignment. This technology hold great promise for writing instruction with LD students.

The audience for the students' writing in this treatment package was the experimenter and the classroom teacher. Researchers agree that students writing improves when they have a real audience (e.g., peers, parents, community members) who will read the students' work. Motivation for writing is also increased when students' writing is published for the classroom, school, or community. There is a need to examine writing improvement as related to the student's expectation of the reader, purpose, and publication of his work.

**Generalization**

The two strategies taught the LD students were applied to opinion paragraphs on self-selected topics. However, revision of other forms of writing may also be accomplished using these strategies. The COPS strategy applies to mechanical aspects which are common to many writing tasks. The Evaluative and Directive Phrases as originally developed by Bereiter and Scardamalia (1982) have a limited versatility. New strategies for revision may be needed for application with other writing tasks required of secondary students such as narrative or report writing.
The effectiveness of these strategies were demonstrated in a secondary LD resource room. However, if the LD student is more appropriately placed in the regular classroom, the strategies must be generalizable. Therefore, it would be useful to study the effectiveness of strategies taught in the resource room on writing assignments from the regular classroom.

It would also be helpful to replicate this study with different populations. Would LD students who have been placed in an LD program according to different definition of LD benefit from this treatment package? Do LD students of above average IQ benefit more than students of average or low average IQ? Do non-LD students show similar gains in revision skills?

Feedback

The type, amount, and frequency of feedback is another area for examination. In this study students received feedback through written comments, teacher response to student-generated question, teacher conferences, and credit according to normal classroom grading procedures. Teacher conferencing is a time-consuming but recommended feedback devise. Further research is needed which compares the effectiveness of strategy instruction paired with other methods of feedback such as written comments, peer conferences, and self-evaluation. It would also be important to know whether revision strategies can be internalized to the extent that self-monitoring techniques are equally as effective as external-monitoring techniques.

In this study feedback on content and mechanics was delivered separately. Should they be integrated? Should feedback on mechanical errors be limited to one area (e.g., spelling) at a time? What balance
between positive comments regarding their writing and needed changes is most likely to result in improved writing?

**Evaluation**

The Diederich Analytic Scale was chosen because it measures both mechanical and content factors of writing. Once mastered, it is a fairly efficient method of scoring a large quantity of papers and it allows for comparisons over time. However, the Diederich Analytic Scale requires a team of raters and a minimum of 2 ratings. Use of a holistic rating scale may yield similar information in a more time-efficient manner.

The Diederich Analytic Scale was not used to provide feedback to the students either for revision or grading purposes. There is need to research this possibility along with more criterion-reference evaluation devices.

**Conclusions**

LD students who are deficient in the area of written expression can benefit from instruction in revision strategies. This study combined instruction in two strategies, COPS and Evaluative and Directive Phrases. This treatment package resulted in improved scores in both content and mechanics on the Diederich Analytic Scale. Improvement in mechanics was more pronounced than improvement in content for both treatment groups. However, the gains made by the treatment groups in both of these aspects of writing can be viewed as educationally significant. There also appears to be evidence that would suggest that the preferred order of instruction should be Evaluative and Directive Phrases followed by COPS for greatest overall improvement.
LIST OF REFERENCES


APPENDIX A

Evaluative and Directive Phrases
(Bereiter & Scardamalia, 1982)

**Evaluative Phrases**

People won't see why this is important.

People may not believe this.

People won't be very interested in this part.

People may not understand what I mean here.

People will be interested in this part.

This is good.

This is a useful sentence.

I think this could be said more clearly.

I'm getting away from the main point.

Even I am confused about what I am trying to say.

This doesn't sound quite right.

**Directive Phrases**

I'd better leave this part out.

I'd better say more.

I'd better cross this sentence out and say it a different way.

I'd better change the wording.

I think I'll leave it this way.

I'd better give an example.
APPENDIX B

Diederich’s Analytic Scale
(Diederich, 1974)

I. GENERAL MERIT

1. Ideas

High. The student has given some thought to the topic and writes what he really thinks. He discusses each main point long enough to show clearly what he means. He supports each main point with arguments, examples, or details; he gives the reader some reason for believing it. His points are clearly related to the topic and to the main idea or impression he is trying to convey. No necessary points are overlooked and there is no padding.

Middle. The paper gives the impression that the student does not really believe what he is writing or does not fully understand what it means. He tries to guess what the teacher wants and writes what he thinks will get by. He does not explain his points very clearly or make them come alive to the reader. He writes what he thinks will sound good, not what he believes or knows.

Low. It is either hard to tell what points the student is trying to make or else they are so silly that, if he had only stopped to think, he would have realized that they made no sense. He is only trying to get something down on paper. He does not explain his points; he only asserts them and then goes on to something else, or he repeats them in slightly different words. He does not bother to check his facts, and much of what he writes is obviously untrue. No one believes this sort of writing—not even the student who wrote it.

2. Organization

High. The paper starts at a good point, has a sense of movement, gets somewhere, and then stops. The paper has an underlying plan that the reader can follow; he is never in doubt as to where he is or where he is going. Sometimes there is a little twist near the end that makes the paper come out in a way that the reader does not expect, but it seems quite logical. Main points are treated at greatest length or with greatest emphasis, others in proportion to their importance.

Middle. The organization of this paper is standard and conventional. There is usually a main-paragraph introduction, three main points each treated in one paragraph, and a conclusion that often seems tacked on or forced. Some trivial points are treated in greater detail than important points, and there is usually some dead wood that might better be cut out.

Low. The paper starts anywhere and never gets anywhere. The main points are not clearly separated from one another, and they come in a random order—as though the student had not given any thought to what he intended to say before he started to write. The paper seems to start in one direction, then another, then another, until the reader is lost.
3. Wording

High. The writer uses a sprinkling of uncommon words or of familiar words in an uncommon setting. He shows an interest in words and in putting them together in slightly unusual ways. Some of his experiments with words may not quite come off, but this is such a promising trait in a young writer that a few mistakes may be forgiven. For the most part, he uses words correctly, but he also uses them with imagination.

Middle. The writer is addicted to tired old phrases and hackneyed expressions. If you left a blank in one of his sentences, almost anyone could guess what word he would use at that point. He does not stop to think how to say something; he just says it in the same way as everyone else. A writer may also get a middle rating on this quality if he overdoes his experiments with uncommon words; if he always uses a big word when a little word would serve his purpose better.

Low. The writer uses words so carelessly and inexacty that he gets far too many wrong. There are not intentional experiments with words in which failure may be forgiven; they represent grouping for words and using them without regard to their fitness. A paper written in a childish vocabulary may also get a low rating on this quality, even if no word is clearly wrong.

4. Flavor

High. The writing sounds like a person, not a committee. The writer seems quite sincere and candid, and he writes about something he knows, often from personal experience. You could not mistake this writing for the writing of anyone else. Although the writer may assume different roles in different papers, he does not put on airs. He is brave enough to reveal himself just as he is.

Middle. The writer usually tries to appear better or wiser than he really is. He tends to write lofty sentiments and broad generalities. He does not put in the little homely details that show that he knows what he is talking about. His writing tries to sound impressive. Sometimes it is impersonal and correct but colorless, without personal feeling or imagination.

Low. The writer reveals himself well enough but without meaning to. His thoughts and feelings are those of an uneducated person who does not realize how bad they sound. His way of expressing himself differs from standard English, but it is not his personal style; it is the way uneducated people talk in his neighborhood. Sometimes the unconscious revelation is so touching that we are tempted to rate it high on flavor, but it deserves a high rating only if the effort is intended.

II. MECHANICS

5. Usage, Sentence Structure

High. There are no vulgar or "illiterate" errors in usage by present standards of informal written English. and there are very few errors in points that have been discussed in class. The sentence structure is usually correct, even in varied and complicated sentence patterns.
Middle. There are a few serious errors in usage and several in points that have been discussed in class but not enough to obscure meaning. The sentence structure is usually correct in familiar sentence patterns but there are occasional errors in complicated patterns: errors in parallelism, subordination, consistency of tense, reference of pronouns, etc.

Low. There are no many serious errors in usage and sentence structure that the paper is hard to understand.

6. Punctuation, Capitalization, Abbreviations, Numbers

High. There are no serious violations of rules that have been taught—except slips of the pen. Most, however, that modern writers do not require commas after short introductory clauses, around nonrestrictive clauses, or between short coordinate clauses unless their omission leads to ambiguity or makes the sentence hard to read. Contractions are acceptable—often desirable.

Middle. There are several violations of rules that have been taught—as many as usually occur in the average paper. Counts of such errors in high, middle, and low papers at various ages and socioeconomic levels would be desirable in order to establish standards.

Low. Basic punctuation is omitted or haphazard, resulting in fragments, run-on sentences, etc.

7. Spelling

High. Descriptions of spelling levels are most often used in grading test papers written in class. Since there is insufficient time to make full use of the dictionary, spelling standards should be more lenient than for papers written at home. The High paper (at ages 14-16) usually has not more than five misspellings, and these occur in words that are hard to spell. The spelling is consistent; words are not spelled correctly in one sentence and misspelled in another—unless the misspelling appears to be a slip of the pen. If a poor paper has no misspellings, it gets a high rating on spelling, even if no difficult words are used.

Middle. There are several spelling errors in hard words and a few violations of basic spelling rules, but no more than one finds in the average paper. Spelling standards differ so sharply from grade to grade and from one socioeconomic level to another that each school would do well to make a distribution of spelling errors per hundred words (at least for test papers written in class) and relate its ratings to this distribution.

Low. There are no many spelling errors that they interfere with comprehension.

8. Handwriting, Neatness

High. The handwriting is clear, attractive, and well spaced, and the rules of manuscript form have been observed.

Middle. The handwriting is average in legibility and attractiveness. There may be a few violations of rules for manuscript form if there is evidence of some care for the appearance of the page.

Low. The paper is sloppy in appearance and difficult to read. It may be excellent in other respects and still get a low rating on this quality.

Reprinted by permission of the publisher
(ii) The following formula shall be used in computing the discrepancy score:

(a) From:

(i) The score obtained for the measure of intellectual ability,
(ii) Minus the mean of the measure of intellectual ability,
(iii) Divided by the standard deviation of the measure of intellectual ability;

(b) Subtract:

(i) Score obtained for the measure of achievement,
(ii) Minus the mean of the measure of achievement,
(iii) Divided by the standard deviation of the measure of achievement.

(c) The result of this computation equals the discrepancy score. If the discrepancy score is two or greater than two, a severe discrepancy assists.

(iii) Achievement is not commensurate with his or her age and ability levels in one or more of the seven areas listed in paragraph G. 1. b. (i) of this rule when there is evidence that the child has been provided learning experiences appropriate for his or her age and ability levels.

(iv) The child's severe discrepancy between achievement and ability is not primarily the result of:

(a) Vision, hearing, or motor handicap;
(b) Mental retardation;
(c) Emotional disturbance; or
(d) Environmental, cultural or economic disadvantage.

C. The academic performance in the regular classroom setting shall be observed by at least one evaluation team member other than the child's regular teacher. In the case of a child of less than school age or one who is out of school, a team member shall observe the child in an environment appropriate for a child of that age.

d. A written report shall be developed by the evaluation team for each child evaluated for a specific learning disability. Each evaluation team member shall certify in writing whether the report reflects his or her conclusion. If it does not reflect his or her conclusion, the team member must submit a separate statement presenting his or her conclusion. The report must include a statement of:

(i) Whether or not the child has a specific learning disability;
(ii) The basis for making the determination;
APPENDIX C

Rules for the Education of the Handicapped (1982)

G. PROGRAM FOR SPECIFIC LEARNING DISABLED CHILDREN

1. Eligibility

A child who meets the definition for specific learning disability according to paragraph FFF. of rule 3301-51-01 of the Administrative Code and the following requirements shall be eligible for special education programming and related services for specific learning disabled children.

a. Each child shall have a multi-factored evaluation for initial placement that includes, but is not necessarily limited to, evaluations in the following areas:

(i) General intelligence as determined through a measure of cognitive functioning administered by a qualified psychologist using a test designed for individual administration;

(ii) Academic performance as measured through the use of standardized tests designed for individual administration which must include evaluation in the areas of:

(a) Basic reading skills,

(b) Reading comprehension,

(c) Mathematics calculation, and

(d) Mathematics reasoning;

(iii) Vision, hearing, and motor abilities;

(iv) Communicative status, which must include assessments in the areas of:

(a) Oral expression,

(b) Listening comprehension, and

(c) Written expression; and

(v) Social and emotional status.

b. Each child shall have a severe discrepancy between achievement and ability which adversely affects his or her educational performance to such a degree that special education and related services are required. The basis for making the determination shall be:

(i) Evidence of a discrepancy score of two or greater than two between intellectual ability and achievement in one or more of the following seven areas:

(a) Oral expression,

(b) Listening comprehension,

(c) Written expression,

(d) Basic reading skills,

(e) Reading comprehension,

(f) Mathematics calculation, or

(g) Mathematics reasoning.
(iii) The relevant behavior noted during the observation of the child,
(iv) The relationship of that behavior to the child's academic functioning,
(v) The educationally relevant medical findings, if any,
(vi) Whether or not there is a severe discrepancy between achievement and ability which is not correctable without special education and related services; and
(vii) The determination of the team concerning the effects of environmental, cultural or economic disadvantage.

e. In the event that the evaluation team determines that a child has a specific learning disability, even though the application of the formula for computing the discrepancy score indicates that the child does not have a discrepancy score of two or greater than two between achievement and ability, the team judgment must prevail. In this event, the team must document in the written report the following additional information:

(i) Data obtained in the evaluation of the seven areas of educational functioning listed in paragraph G. 1. b. (i) of this rule;
(ii) Recommendations and information obtained from the child's regular classroom teachers and parent,
(iii) Evidence of the child's performance in the regular classroom including work samples and group test scores;
(iv) Evidence of possible deficiencies in more than one of the seven areas of educational functioning;
(v) Additional supportive data besides standardized test data; and
(vi) Consideration of the child's age, particularly in the case of young children.

f. Medical consultation shall be encouraged especially when school authorities feel that there has been a change in the child's behavior or educational functioning or when new symptoms are detected.

g. The required reevaluation includes, but is not necessarily limited to, areas in paragraphs G. 1. a. to G. 1. e. of this rule.
APPENDIX D

Name____________________________
Teacher__________________________

Assignment 1

Your class is participating in a research study being conducted by the Department of Human Services Education at The Ohio State University. You are to choose 3 topics about which you will be writing. You will write one paragraph on each topic. The topics can relate to home, school, community or national concerns. Choose the topics by asking yourself:

1) Do I have an interest in this topic?
2) Will other people be interested in this issue?
3) Do I know where I can get information on this issue?

Write one complete sentence that states your topic clearly.

Examples

1) More than one hour of homework per evening is too much.
2) Parents should limit the amount of TV their children watch.
3) Columbus should build a domed stadium.
4) The United States should decrease the defense budget.

Topic Statements

1

2

3
The Stages of Writing

Prewriting

Drafting

Revising
Prewriting Steps
  Topic
  Reader
  Ideas
  Plans
  Evaluation
Topic: Ohio should not pass a law that fines people who do not wear seat belts in private cars.

Readers: Students, teachers, parents

Ideas: Individual decision. Doesn't hurt other people not to wear one. Seatbelts are uncomfortable. People have been killed because they couldn't get out of their seatbelts. Old cars don't have seatbelts—expensive to install. Young children are covered by another law. Hard for police to enforce. Better options—air bags, improved seat design.

Plans: 1) Start with clear topic sentence. 2) Give reasons why it wouldn't work. 3) Give better alternatives. 4) End with concluding sentence.

Evaluation: 1) At least 6 sentences. 2) Skip every other line. 3) Number at top.
COPS Revision

C Have I capitalized the first word and proper names?

O How is the overall appearance?

P Have I put in commas and end punctuation?

S Have I spelled all the words right?
### EVALUATIVE AND DIRECTIVE PHRASES

<table>
<thead>
<tr>
<th>Evaluative Phrases</th>
<th>Directive Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Readers won't see why this is important.</td>
<td>1. I'd better leave this part out.</td>
</tr>
<tr>
<td>B. People may not believe this.</td>
<td>2. I'd better say more.</td>
</tr>
<tr>
<td>C. People won't be very interested in this part.</td>
<td>3. I'd better cross this sentence out and say it a different way.</td>
</tr>
<tr>
<td>D. People may not understand what I mean here.</td>
<td>4. I'd better change the wording.</td>
</tr>
<tr>
<td>E. People will be interested in this part.</td>
<td>5. I think I'll leave it this way.</td>
</tr>
<tr>
<td>F. This is good.</td>
<td>6. I'd better give an example.</td>
</tr>
<tr>
<td>G. This is a useful sentence.</td>
<td>7. I'd better support what I'm saying with facts.</td>
</tr>
<tr>
<td>H. This could be said more clearly.</td>
<td>8. I'd better give more details.</td>
</tr>
<tr>
<td>I. I'm getting away from the main point.</td>
<td>9. I'd better connect these sentences.</td>
</tr>
<tr>
<td>J. Even I am confused about what I am trying to say.</td>
<td>10. I'd better move this sentence.</td>
</tr>
<tr>
<td>K. This doesn't sound quite right.</td>
<td>11. I'd better start with a connecting word.</td>
</tr>
<tr>
<td>L. This sentence states the topic.</td>
<td>12. I'd better divide this into two sentences.</td>
</tr>
<tr>
<td>M. This sentence sums up what I have said.</td>
<td></td>
</tr>
<tr>
<td>N. This supports my topic.</td>
<td></td>
</tr>
<tr>
<td>O. This sentence doesn't follow a logical order.</td>
<td></td>
</tr>
<tr>
<td>P. Readers will know I wrote this.</td>
<td></td>
</tr>
<tr>
<td>Q. This shows what I really think.</td>
<td></td>
</tr>
<tr>
<td>R. Readers will think this is important.</td>
<td></td>
</tr>
<tr>
<td>S. This does not sound like a concluding sentence.</td>
<td></td>
</tr>
<tr>
<td>T. This doesn't support my topic.</td>
<td></td>
</tr>
</tbody>
</table>
### EVALUATIVE AND DIRECTIVE PHRASES

**Evaluative Phrases**

- A. Readers won't see why this is important.
- B. People may not believe this.
- C. People won't be very interested in this part.
- D. People may not understand what I mean here.
- E. This is good.
- F. This could be said more clearly.
- J. Even I am confused about what I am trying to say.
- H. This doesn't sound quite right.
- I. This sentence states the topic.
- J. This sentence sums up what I have said.
- K. This sentence doesn't follow a logical order.
- L. This shows what I really think.
- M. This does not sound like a concluding sentence.

**Directive Phrases**

- 1. I'd better leave this part out.
- 2. I'd better say more.
- 3. I'd better cross this sentence out and say it a different way.
- 4. I'd better change the wording.
- 5. I think I'll leave it this way.
- 6. I'd better support what I'm saying with facts.
- 7. I'd better move this sentence.
Alot of Columbus high schools require there students to wear uniforms. They like them to wear them because it cuts out the problem of peer pressure on the choice of clothing. It also makes the school look good. But the question is is that what is right for the children. Kids bring out the uniqueness in the clothes they wear. I think that there should be no dress code. If you dress different from someone else you should be able to learn how to deal with the way you dress and not deliberately try to blend in with everybody else.
APPENDIX L

COPS Revision Practice - Nuclear War

How should we settle the arms race? I think we should have nuclear bombs made and set aside for extreme emergencies, and all unnecessary warheads we do have we should disarm and destroy. The way they make warheads today is incredible. It doesn't take years anymore to produce one; it takes only weeks. If we could just stop making so many and trying to top each other, with who has the better bomb maybe the Russians and the Americans could be better friends. This could be a good plan, with a little touching up I think it could work.
APPENDIX M

COPS Revision Practice - Stereo

I think all teenagers should have a stereo. The sound of a good stereo can relax you or make you get excited. And it is a great feeling when a friend comes over and you have to show off and show how lowed it can get and make the walls and the floor start to vibrate. Some people study with music. Music can make you concentrate better. Having a box is O.K. But having a stereo is better.
I feel that teen drinking and driving is getting out of hand in Ohio and teens should do something about it. In 1983 the death rate in teens related to driving drunk was at the highest it has ever been. In 1984 the death rate was cut in half because of S.A.D.D. S.A.D.D. is a group that works with teens from 15 - 17. They try to stop teens from drinking and driving and maybe killing someone. Do you know that every 30 seconds there is a car accident related to drinking and 1 minute someone is killed in a alcohol related accident.
A prayer that all students say or a quiet time that students may use as a prayer time. These are two of the ideas that are being introduced to the Congress. In a recent article, organized school prayer is favored by 6 of 10 Americans. My view is that prayer and religion is private not for school. School is for all people, and students should not be made to pray. Prayer should be left out of school.
I am glad Ronald Reagan is our president for another four years. He is a heck of a lot better president than Walter Mondale. Walter Mondale said that he will raise taxes and Ronald Reagan said he won't. Ronald Reagan has the power not to start a war and I think Mondale would. When Mondale and Reagan had the talks before the election, Mondale put Reagan down a lot but Reagan answered nicely, and knew a lot more than Mondale.
APPENDIX Q

Instructional Sequence

I. Introductions

II. Purpose of the Study
   A. Improvement of writing skills
   B. Need for writing skills
      1. In school
      2. After school
   C. Explanation of Dissertation Study
      1. Conducted for OSU Ph.D. in education
      2. Paragraphs rated by panel of teachers
      3. The students can decide what they want to do with paragraphs when done

III. General Rules
   A. Raise hand to talk or ask questions
   B. Ask when you don't understand
   C. Use assigned number at top of paper
   D. Use pen or pencil as long as dark enough to photocopy
   E. Either cursive or manuscript is acceptable as long as it is dark enough to photocopy
   F. Write on every other line
   G. Use invented spellings or blanks on rough drafts if unsure of correct spelling
IV. Assignment #1 - Handout on topic choice (see Appendix D)

A. Read through directions

B. Points of discussion

1. They should choose a controversial topic which is of interest to them
   a. example of noncontroversial topic - an eraser will fall when you let go of it
   b. example of controversial topic - amount of homework assigned

2. Topics should be of interest to another significant group of people other than themselves

3. Discuss possible sources of information: library, TV, radio, newspaper, magazines, family, friends, professionals, their own experience

4. Stress 3 complete sentences on 3 different topics of interest

5. Review examples. Stress that they choose their own topics which may relate to home, school, local or national concerns

V. Students Write 3 Topics

A. This may be accomplished in school or at home.

B. Time to complete may vary from 2 days to one week. There is usually time to discuss suggested topics and answer questions of appropriateness in the intervening time

C. Teacher reads and accepts all topics which meet stated requirements. Those which do not meet requirements regarding
C. Teacher reads and accepts all topics which meet stated requirements. Those which do not meet requirements regarding controversy are returned for rewriting.

VI. Discussion of Writing Stages - overhead transparency (see Appendix E)

A. General discussion of the stages of writing
   1. Discussion of types of writing they are required to do in their classes
   2. Writer's block - getting started, gathering information
   3. Need for teachers to describe and model the process of writing and not just make writing assignment

B. Prewriting Stage
   1. Preparation for writing
   2. Time to experiment with topics, ideas, plans and readers
   3. Usually ignored or underrated stage of writing process

C. Drafting Stage
   1. Tentative writing - can be changed
   2. Ideas are more important than spelling, punctuation, form and neatness

D. Revising Stage
   1. First two stages involve primarily writing (Writer-based) but this stage requires more objectivity as a reader of your own work (Reader-based)
   2. Solicit their ideas of what revision involves
E. Overlapping nature of stages
   1. Not mutually exclusive
   2. Interactive

F. Distribute handout identical to overhead

VII. Verbal Rehearsal of Strategy
   A. Group rehearsal with overhead/handout
   B. Instructions to look at overhead/handout and say it to self
   C. Point out mnemonic strategy of PDR
   D. Group rehearsal without overhead/handout
   E. Individual rehearsal without overhead/handout

VIII. Discussion of Prewriting Stages - overhead projector - (see Appendix F)
   A. Topic
      1. Decision points for topic choice
         a. What topic should I write about?
         b. What am I interested in?
         c. What am I familiar with?
      2. Limiting the topic according to writing purpose and requirements
   B. Readers
      1. Decision points for readers/audience
         a. Who will read this?
         b. What do I know about them?
         c. How can I write this so my readers will understand and be interested?
2. Discussion of varying writing content according to reader
   a. example of varying content according to reader age
   b. example of varying content according to reader interest

C. Ideas
   1. Explanation of Brainstorming
      a. generating ideas
      b. use your head - no such thing as a bad idea at this point
   2. Consider other sources of information
   3. No need for complete sentences - can be words, phrases
   4. Written or unwritten

D. Plans
   1. Refers to the organization/format of writing
   2. Decision points
      a. How have I seen others organize this type of writing?
      b. How have I organized this type of writing before?
      c. If this is a new type of writing, where can I find a model?
      d. How much of the organizational plan must be decided upon now?

E. Evaluation
   1. Refers to requirements by which the final draft will be evaluated
   2. May be internally or externally imposed
3. Decision points

   a. What requirements have others imposed upon me?
      1. length
      2. due date
      3. format
      4. content
      5. mechanics

   b. What requirements should I impose on myself?
      F. Distribute handout identical to overhead

IX. Verbal Rehearsal of Strategy
   A. Group rehearsal with overhead/handout
   B. Instructions to look at overhead/handout and say it to self
   C. Point out mnemonic strategy of TRIPE
   D. Group rehearsal without overhead/handout
   E. Individual rehearsal without overhead/handout

X. Assignment #1 Returned
   A. Discussion of appropriateness of topics chosen based on requirement of being controversial
   B. Directions to rewrite if necessary or if new topic decided upon

XI. Review of Writing Stages
   A. Verbal rehearsal
   B. Group discussion of stages

XII. Review of Prewriting Stages
   A. Verbal rehearsal
   B. Group discussion of stages
XIII. Model Prewriting - Overhead transparency

A. TRIPE transparency is used on overhead and five steps are completed

B. Each step is written down and teacher talks through rationale for her choices while writing

C. Content

1. Topic - Columbus should build a domed stadium

2. Readers - Students, classroom teacher

3. Ideas
   a. Attract professional sports teams to Columbus
   b. More options to OSU teams
   c. Create jobs for unemployed
   d. Improve downtown business
   e. Increase convention business
   f. Funding possibilities - food/beverage tax, state support private investors

4. Plans
   a. State topic
   b. Support with 5 reasons
   c. Concluding sentence

5. Evaluation
   a. Six sentences minimum length
   b. Logical arguments
   c. Correct spelling and punctuation
   d. Clear wording
XIV. Individual Prewriting - Assignment 2 - TRIPE handout (Worksheet with space to fill out Topics, Readers, Ideas, Plans, and Evaluation)
   A. Students complete TRIPE handout for one of their 3 topics
   B. May be started in class, completed for homework
   C. Due date stated. Students will receive written teacher feedback on adequacy of responses
   D. Credit given according to usual class grading system is based upon work completion rather than quality of response

XV. Model Drafting - Overhead transparency - (see Appendix G)
   A. Lined transparency on overhead
   B. Teacher writes out paragraph on every other line and talks out reasons for word choice, sentence structure, simple proofreading symbols, arrows parentheses, blanks, etc.

XVI. Group Prewriting - Overhead transparency
   A. Teacher chooses topic - Passage of seatbelt law in Ohio
   B. Students vote on whether they want to argue for or against it. Majority rules
   C. Students suggest content of each of the 5 steps

XVII. Group Drafting - Overhead transparency
   A. Teacher reviews contents of TRIPE overhead on seatbelt law
   B. Students have handout of group prewriting to refer to
   C. Students formulate first sentence of paragraph based upon "Plan" in TRIPE handout
   D. Teacher records dictated sentences, asks for spelling, punctuation
XVIII. Individual Drafting - Assignment #3

A. Students use TRIPE worksheet to write their draft of the first topic
B. Due at next class period
C. Start in class, may complete as homework
D. Requirements for draft
   1. Clearly state opinion/topic
   2. Six sentences minimum
   3. Legible
   4. Written on every other line
   5. Number at top
E. Credit given according to usual class grading system and based upon completion of stated requirements rather than quality of response

XIX. Individual Prewriting - Assignment #4

Same procedure as #2

XX. Individual Drafting - Assignment #5

Same procedure as #3

XXI. Individual Prewriting - Assignment #6

Same procedure as #2

XXII. Individual Drafting - Assignment #7

Same procedure as #3

XXIII. Review of Prewriting and Drafting

A. Review stages
B. Verbal rehearsal of 3 writing stages, 5 prewriting steps
C. Discuss purpose of prewriting and drafting
XXIV. Introduction of Revision
   A. Students asked to suggest their concept of revision
   B. General discussion of commonly made revisions

XXV. Pretest of Revision - Assignment #8
   A. Rough Drafts A, B and C randomly distributed to students
   B. Students directed: "Revise the paragraph as you would before
      handing in a paragraph for any class to be graded."
   C. Credit given according to usual class grading system based upon
      completion of stated requirements rather than quality of response
   D. Control group repeats this step for additional 2 paragraphs

XXVI. Discussion of Three Stages of Writing
   A. Repeat XXIII in summary form
   B. Teacher discussion of Revising Stage
      1. Rough draft is only a beginning
      2. Rough draft is vehicle for getting thoughts on paper -
         Writer-Based
      3. Need to look at rough draft from readers viewpoint to
         revise - Reader-Based
         a. difficulties/advantages in revising own work
         b. difficulties/advantages in revising others' work
   C. Example of revising in professional writers
      1. John Kenneth Galbraith
         a. famous economist
         b. usually makes at least 5 revisions but only 4 revisions
            if "inspired"
2. Gore Vidal
   a. modern novelist
   b. obsessive rewriter - "In a way I have nothing to say, but a great deal to add."

D. Explanation of 2 Revision Strategies Teaching Strategies
   1. Teacher will explain two different revision strategies
   2. There will be chance to learn through teacher explanation, modeling, group practice and individual practice and teacher feedback
   3. Encourage to ask questions

XXVII. Describe Evaluative and Directive Phrases - Handout - (see Appendix A)

A. Distribute handout

B. Explanation of Meaning
   1. Evaluative
      a. contains word "value"
      b. judge or value the quality, clarity or logic of a sentence
   2. Directive
      a. contains word "direct"
      b. suggests what to do to improve

C. Review of Evaluative and Directive Phrase lists
   1. Emphasize there is no "correct" answer, but some more appropriate than others
2. Point out directive phrases which might be used logically after evaluative phrases

3. One evaluative phrase (letter) and one directive phrase (number) should be placed after each sentence

XXVIII. Model Evaluative and Directive Phrases - Handout on S.A.D.D.
(see Appendix N)

A. Teacher reads each sentence and talks through decision process of placing a letter and number at the end of each sentence

B. Evaluative and Directive Phrases suggested

1. Sentence 1 - I,5
2. Sentence 2 - E,5
3. Sentence 3 - D,2
4. Sentence 4 - F,4
5. Sentence 5 - H,3
6. Sentence 6 - M, 7 or 2

C. Teacher asks for student input on other alternatives

XXIX. Group Practice on Evaluative & Directive Phrases Revision - Handout on prayer - (see Appendix O)

A. Distribute handout

B. Review evaluative and directive phases list

C. Students read each sentence one at a time and suggest possible evaluative and directive phases
XXX. Individual Practice on Evaluative & Directive Phrases - handout on Reagan - (see Appendix P)

A. Each student chooses evaluative and directive phrases on their own
B. Group sharing of rationale for individual choices
C. Emphasis on no one correct answer, although some are more logical than others
D. Class makes suggestions for rewriting. Teacher records on board.

XXXI. Individual Revising - Assignment #9

A. Students put an evaluative phrase letter and directive phrase number at the end of each sentence of their paragraphs, which have been returned randomly
B. Students rewrite sentences they have indicated need revision on rough copy
C. Students have conference with teacher regarding possible revisions
D. Students rewrite paragraph

XXXII. Individual Revising - Assignment #10

Same procedure as Assignment #9

XXXIII. Describe COPS revision strategy

A. Distribute handout - (see Appendix H)
B. Explanation and discussion of each step

1. C - Capitalization - of beginning letter of sentence and proper nouns and examples

2. O - Overall appearance - explanation of what might be included: indentation, heading, handwriting, margins, adherence to specified format

3. P - Punctuation - listing and possible application of period, question mark, comma, exclamation mark, apostrophe

4. S - Spelling - Discussion of methods of determining correct spelling: regular dictionary, spelling dictionary, ask reliable source, look at printed materials that you've seen

XXXIV. Model COPS revision strategy - Handout on dress code - (see Appendix K)

A. Distribute handout

B. Teacher goes through COPS on each sentence

C. Corrections suggested - students record on handout

XXXV. Group Practice with COPS Revision Strategy - Handout on nuclear war (see Appendix L)

A. Distribute handout

B. Teachers ask COPS questions at end of each sentence. Students make suggested changes on handout.

C. Teacher gives prompts for those errors missed

D. Student records revisions
XXXVI. Individual Practice with COPS Revision Strategy - handout on stereo - (see Appendix M)

A. Distribute handout

B. Students are told they must find 80% of errors

C. Review handout as a group

XXXVII. Individual Revising - Assignment #11

A. Paragraphs are returned in random order

B. Students use COPS strategy on each sentence

C. Students revise sentences, putting corrections on rough copy

D. Students hold conference with teacher regarding revisions.
   Teacher gives feedback on corrections by responding "Look for C
   (or O,P,S) in line number___)"

E. Students rewrite paragraph (Posttest 1)

XXXVIII. Individual Revising - Assignment #12

Same procedure as assignment #11 (Posttest 2)