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**Effects of strategy instruction and self-monitoring on summary
writing of college students**

Friend, Rosalie, Ph.D.

City University of New York, 1994

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**EFFECTS OF STRATEGY INSTRUCTION AND SELF MONITORING
ON SUMMARY WRITING OF COLLEGE STUDENTS**

By

Rosalie Friend

**A dissertation submitted to the Graduate Faculty in Educational Psychology in
partial fulfillment of the requirements for the degree of Doctor of Philosophy,
the City University of New York**

1994

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Abstract**EFFECTS OF STRATEGY INSTRUCTION AND SELF MONITORING
ON SUMMARY WRITING OF COLLEGE STUDENTS**

by

Rosalie Friend**Advisor: Shirley Feldmann**

This classroom study drew on the text processing theory of van Dijk and Kintsch (1983) to teach college students strategies for summarization for use in studying. Generalization, a process for judging importance and condensing text, was contrasted with argument repetition, a feature of the surface structure of text which establishes coherence and thus indicates importance. Each strategy was taught with and without self monitoring. A control group wrote about the same materials and took the posttest.

The dependent measure was a summary of a passage from Day's (1980) study of summarization. The generalization group significantly outperformed the argument repetition group and control group on constructing a thesis statement

which clearly requires macroprocessing. Overall summarization was significantly better in instruction groups than in the control group; the generalization group scored higher than the argument repetition group, but the difference was not significant. Instruction groups did significantly better than controls at excluding ideas that were unimportant, redundant or extraneous and at stating information directly (avoiding empty references). Inclusion of important ideas was higher among instruction groups, but not statistically significant. Sentence transformation, integration of ideas at the sentence level, was not improved by instruction. Self monitoring as implemented in this study did not make a significant difference in summarization.

Students in college developmental reading and writing classes often have trouble going beyond the surface structure of text. Many are bewildered by instructions to put only "important" ideas in summaries. Instructions to use generalization or argument repetition were easily understood, and students commented on the usefulness of the strategies.

In future research these strategies should be taught for a longer period with a wider range of materials, a pretest, and a test of maintenance and transfer. Poor reliability of scores from one passage to another remains a problem for summarization research; having subjects write two posttest summaries might be wise. A measure of self efficacy and of students' understanding of summarization processes would improve future research.

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This work is dedicated to the memory of my mother, a strong active caring woman, empathic, analytical, good with tools, always interested in ideas and always applying ideas to beautify her surroundings and improve people's lives.

I thank my husband, Alan, whose love, humor, and unfailing support made this possible, my daughter, Julia, who has brought immeasurable joy to my life, my father whose insight and commitment and love set a very high standard, my sister Susan, and all the other relatives who encouraged me.

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Introduction

In the last two or three decades economic and political forces have led colleges to admit students with weak academic backgrounds and to try to retain and graduate as many of these "nontraditional" students as possible. Reading courses have been set up to teach these students reading skills which enhance learning from text. Among these skills summarization, which had seldom been explicitly taught in the past, stands out, because practitioners consider it both very important and very hard to teach (Friend, 1987, 1988, August, personal communication, May, 1991). Practitioners consider summarization important, because college students have to read and remember large amounts of new information. They consider it difficult, because it is hard to teach students to determine what is important when there are few consistent surface indicators of importance in text. An additional source of difficulty is that students in a typical reading class will have to read and summarize materials from the whole range of academic domains.

For purposes of this paper summarization will be defined as the process of determining what information in a passage is most important, and writing this information as succinctly as possible in the summarizer's own words. This process involves the interplay of reading ability, task awareness, prior knowledge, and self monitoring. The composition of a summary to be read by someone else also requires writing ability. While all reading involves the interaction of reader based meaning and text based meaning, it is the role of text based meaning which is

considered in this study.

Summarization is important to reading theorists, because it requires the construction of a cognitive representation of gist, a condensed representation of the most important information from the text being summarized. In their 1991 review of research in reading comprehension instruction, Dole, Duffy, Roehler, and Pearson identify determining importance and summarizing information as two of the five effective strategies which should compose a reading comprehension curriculum. They say :

The ability to summarize information requires readers to sift through large units of text, differentiate important from unimportant ideas, and then synthesize those ideas and create a new coherent text that stands for, by substantive criteria, the original.

Dole et al (1991) continue their discussion of summarization by stating, "This sounds difficult, and the research demonstrates that, in fact, it is." Studies have found that summarization of expository material is too difficult for fifth and sixth graders, and even among college students, mastery of summarization is incomplete (Brown & Day, 1983, Garner & McCaleb, 1985, E. Kintsch, 1989).

Experimental and descriptive studies have shown that students usually try to summarize materials by copying or paraphrasing certain sentences and deleting others (Winograd, 1984, Brown & Day, 1983, Sherrard, 1986, Byrd, 1990). Of all components of summarization, the integration of information from more than one sentence is the most difficult. It is the latest to be developed, and experimental

studies of summarization instruction show that few students master this skill (E. Kintsch, 1989, Brown, Campione, & Day, 1981).

Generating sentences rather than copying them is important, first, because copying is anathema to college faculty. Plagiarism is grounds for expulsion from colleges. Even more important is research indicating that generating sentences rather than copying them, and integrating information from more than one sentence, enhances recall. Early assumptions about the importance of writing "in your own words" were based on Craik and Lockhart's (1972) levels of processing theory. Recently Wittrock's studies of generative teaching (Wittrock & Alesandrini, 1990) show that comprehension and recall are improved when students "generate relations (a) among the propositions and sentences of the text, and (b) between the text and their knowledge base and their experience."

Cook and Mayer, (1983) refer to summarizing as one of five reading strategies for learning from text. They characterize summarizing as entailing construction of connections among the ideas being read. They claim this is a precondition for meaningful learning, learning which can be transferred or applied.

The Basis for Summarization

Formal studies of the cognitive processes of summarization confirm the conviction of practitioners and students that summarization is very difficult to teach and learn. Writing a concise depiction of the most important information in a text requires good local comprehension and prior knowledge, so that students can

integrate information across sentences and across paragraphs. The notion of "selecting" the most important information is misleading, because often that information is not on the page. It is constructed by the reader and is part of the cognitive representation of the text. The work of Schank and Abelson (1977) on scripts is an appropriate model of how extensive and automatic this construction can be.

Because it is the reader who constructs the meaning of a text, both reader based and text based factors must be taken into account. Rosenblatt (1985) describes all reading as a transaction in which a reader's personal qualities determine the meaning given to a text, and urges researchers to study all reading as affective experience in response to the signs in the text.

Weaver (1990) contrasts instruction based on Rosenblatt's transactional model with instruction drawn from what Weaver calls the transmission model. Transactional instruction rewards risk taking and novelty, and values the unique contribution of each reader. In the transmission model "ability to reproduce or verbalize a predetermined correct response is taken as evidence of learning." (Weaver, 1990, p. 9)

Dole, Duffy, Roehler and Pearson (1991) conclude that while text reader and context all interact, it is text based meaning that is emphasized in most school based reading. Indeed many college courses are the epitome of Weaver's (1990) transmission model; they feature large lecture classes and multiple choice tests

provided by textbook publishers assessing text based meaning.

Thus part of the reading task for the college student may be to set aside personalized interpretations in favor of "public meaning." Pearson and Dole (1987) show that students identified as poor readers can be taught to make text based inferences and recognize authors' main ideas.

Expert readers make inferences, draw analogies, and synthesize ideas so automatically that they "know" just what the author "said." In an in depth study Britton (1990) showed that experts knew just what the author of a textbook meant. College students reading the same text could not fully understand what the author said, and were unable to reach the conclusion implied in the article.

We speak of text processing, because as skilled readers progress through a text, they automatically "see what it adds up to." This study will not consider poetic texts which require extensive inference so that readers construct very personalized interpretations. In contrast the inferences required by expository texts and "dry" textbooks are highly constrained. These texts might require inferences such as classification, concept formation, bridging inferences between ideas, and recognition of relationships such as contrasts, causation, or sequence. The cognitive representations of the gist of technical prose constructed by skilled readers are very similar to one another. This process of "seeing what it adds up to" is the layperson's notion of Kintsch and van Dijk's (1978) macroprocessing .

Beginning writers are instructed to begin and end each composition with the

thesis (main idea of the entire composition) and to start every paragraph with a topic sentence. A glance at any magazine or textbook reveals that professional writers do not provide this explicit superordination. The professional writer can use more subtle cues such as repeated references to establish coherence - to make the text "hold together". The reader may have to "keep in mind" or retrieve information from several sentences or paragraphs to understand what the sentences or paragraphs mean in relation to one another.

Thus readers often do not select important information from the surface of the text. They must construct the "meaning" of the text before they can determine what is important enough to include in a summary. Still, for the reading required for most college courses, students must base the meaning they construct and their judgements of importance on the author's point of view, not their own. This accounts for many of the problems in teaching summarization.

The Goal of this Study

Earlier studies of summarization (Byrd, 1990, Brown, Campione, & Day, 1981) showed that college students had trouble generating sentences that would integrate information across sentences or paragraphs, a crucial part of summarization. The first goal of the present study is to examine the implications of the discourse processing theory of van Dijk and Kintsch (1983) for improving summarization instruction. The study will give students explicit instruction in generating sentences to integrate information from a text utilizing the principles of

discourse processing developed by van Dijk and Kintsch (1983). According to that theory, text is processed at two levels. Microprocessing constructs microstructure, a cognitive representation of the surface of text, while macroprocessing abstracts the gist of the text. This study will contrast an element of microprocessing with an element of macroprocessing to determine their usefulness for summarization instruction.

In discussing microprocessing, van Dijk and Kintsch (1983) describe many factors which contribute to coherence, but they identify argument repetition, repeated references to an idea, as a text element which it is profitable to study, "Reducing coherence to argument repetition thus provides a convenient first approximation." (van Dijk and Kintsch, 1983, p. 43). Kintsch and van Dijk (1978) showed that argument repetition alone could be the basis for predicting which portions of a short text would be remembered best, an indicator of importance. Their model assumed that the importance of a segment of text was directly related to the number of references to it. In Kintsch and van Dijk's (1978) experiment, argument repetition also predicted which portions of the text were included in fluent readers' summaries. Argument repetition is appealing as a basis for instruction in summarization, because the arguments are part of the surface structure of the text. It should be possible to train students to recognize argument repetition as the basis for coherence and an indicator of importance. Thus the first condition in this study will be training in using argument repetition for

summarization. Instruction will refer to coherence. Students will be taught to use argument repetition as an indicator of the author's focus. Students will be taught to look for coreferences among ideas. The idea to which the largest number of other ideas refer will be identified as most important because it is central to the text.

The second condition is based on van Dijk and Kintsch's (1983) identification of generalization as one of the three elements of macroprocessing; students in the second condition in the experiment will be trained to form generalizations which supercede the specifics of the surface structure or to recognize generalizations made by the author. The idea which is most general will be identified as most important because it is superordinate.

Teaching generalization as an indicator of importance relies on a generic structural property of expository text, its hierarchical organization. This makes the strategy applicable across academic domains. The generalization instruction used in this study was developed through trial and error during fifteen years of teaching summarization to college students. Students are trained to form generalizations to encompass the specifics of a passage. This instruction gives students a heuristic for determining importance, and gives them practice in integrating information across sentence and paragraph boundaries. Generalization is a simple strategy which students use in their daily lives, so they can be taught to apply it to summarizing text.

Teaching argument repetition as an indicator of importance relies on the role of argument repetition in establishing coherence. Like hierarchical organization, coherence is a generic structural property of text, useful in almost all academic domains. In Kintsch and van Dijk (1978) argument repetition was the basis for the leading edge model of text processing which successfully predicted the information good readers included in their summaries. Van Dijk and Kintsch (1983, p. 43) say, "Coherence is thus reduced to referential ties, which is certainly an oversimplification ... but at least it serves to index the existence of a relationship in an objective, easily identifiable way." Thus argument repetition is comparable to hierarchical structure in providing a basis for extending meaning across sentence boundaries. It also can serve as a heuristic for determining importance as shown in Kintsch and van Dijk (1978).

It is assumed that generalization, directly leading to macrostructure, would be a more powerful tool for summarization instruction, but it is possible that coherence, more closely tied to the surface structure of the text, may prove more accessible to students who are not fluent readers.

The second goal of this study is derived from research on self regulation. Students who are taught a set of rules or procedures in isolation do not seem to do as well as students who are also taught to regulate their implementation of the rules (Brown, Campione, & Day, 1981, Bereiter & Scardamalia, 1987, Shenkman & Cukras, 1986). Therefore students who are taught methods for summarization by

argument reference or generalization will be contrasted with students who are taught these methods plus self monitoring. The self monitoring procedures are derived from the procedural facilitation of Bereiter and Scardamalia (1987). The self monitoring instructions include specific criteria for students to use in evaluating and correcting their work. An additional behavioral component is a checkoff for each evaluative step.

It is assumed that students taught to self monitor summarization with either argument repetition or generalization will be able to write more effective summaries than students taught the summarization methods alone. The interaction of self monitoring instruction with generalization instruction should enable students in that condition to write the best summaries.

Acknowledging the interaction of reader, context and text, this study concentrates on text based meaning. Rosenblatt (1990) suggests that the reader may take an efferent stance, focused on extracting information, or an aesthetic stance, focused on the immediate experience of reading itself, but across the continuum from technical to poetic material the reader will interpret material and have a personal affective response. She advises

We need to see the reading act as an event involving a particular individual and a particular text happening at a particular time, under particular circumstances, in a particular social and cultural setting, and as part of the ongoing life of the individual or group. (Rosenblatt, 1990, p. 100)
In this study the cultural setting is a public university whose students must read textbooks and take tests on their contents across the entire range of academic

domains. Some students will ultimately take licensing examinations in areas as diverse as teaching, accounting, nursing, and massage. Reading departments require instruction in summarization, because most academic departments at most colleges require efferent reading.

David Bloome (1984) emphasizes the impact of contextual factors such as classroom interactions and conventions. Students may be carrying out the actions directed by the teacher without sharing or understanding the goals or intentions of the teacher. Differences in students' cultural backgrounds mean that they come to class with different scripts, and different standards. These must be taken into account in studying reading instruction.

In this study the direct instruction method, advocated by Pearson and Dole (1987) is used to reduce the impact of contextual factors so as to concentrate on the cognitive impact of textual cues. The direct instruction model enables experimenters to teach from scripts to reduce the variance due to classroom interactions. Experimenters are counterbalanced across instructional conditions, and each condition includes students from three different colleges. The study was conducted in ten different prefreshman writing classes whose professors considered summarization a natural part of their courses. Experimental conditions were as close to normal college reading and writing classes as possible.

The ultimate goal of this study is to make summarization instruction less mysterious and less difficult for instructors and students. By clarifying the role of

argument repetition and generalization in summarization, this study can give practitioners a teaching mechanism and an introduction to van Dijk and Kintsch's (1983) discourse processing theory.

Literature Review

The model of summarization developed by Kintsch and van Dijk (1978) and van Dijk and Kintsch (1983) has been the basis for much of the subsequent research in summarization. This model assumes that the primary steps in reading are symbol recognition, lexical access and syntactic parsing as researched and described by others (Perfetti & Lesgold, 1977, Frederiksen, J.R., 1977, & Clark & Clark, 1977, cited in van Dijk & Kintsch, 1983). Kintsch and van Dijk have developed a dual level model of the semantic processing which follows those steps to build a cognitive representation of the material being read, called the text base. The lower level, microstructure, is quite detailed and close to the surface structure of the original text. The higher level, macrostructure, is the gist of the text, i.e. the material identified as most important.

Microprocessing

According to van Dijk and Kintsch (1983) microprocessing, constructing microstructure, is the basic process of reading comprehension in which words are grouped into propositions and meaningful links between sentences are established. In establishing these links the first (automatic) judgements of importance occur. Fillmore's (1968) case grammar (cited in van Dijk and Kintsch, 1983) is the framework for van Dijk and Kintsch's propositional structure. A proposition is a classification of verbal input in which each proposition consists of a predicate and an argument.

"A predicate is a term which identifies some property of an object or some relation between two or more objects. The objects concerning which a predicate asserts something are the arguments of that predicate.(Fillmore, 1968, cited in Hormann, 1981)

For instance, Sue saw Eli becomes [SAW: SUE, ELI], while Jane Eyre is a good book becomes [ISA: JANE EYRE, BOOK] [GOOD: BOOK]. Thus each new relationship becomes a separate proposition, and a propositional analysis yields a very explicit model of how meaning is built.

Van Dijk and Kintsch (1983) propose representing all the atomic propositions that make up a sentence as a single propositional schema. The propositional schema, illustrated in Figure 1, has a slot for action or state (the verb) and its arguments (agent or patient [animate subject or object], instrument, object, goal or source) and a slot for circumstances: time or location, or both. Any slot can have a modifier, and a prepositional phrase or subordinate clause can modify an element of the main clause. Van Dijk and Kintsch give this example (Figure 1, page 142).

As each sentence is processed it will be represented in the microstructure of the textbase by a propositional schema. Links between sequential sentences will form the basis of local coherence. These links may be established by the content of the sentences: there may be reference in sequential sentences to the same events or individuals, or readers may use their world knowledge to recognize situations which normally occur together such as stores and purchases. Links may be based on explicit markers in the text such as conjunctions or pronouns. The text may

have signal words indicating patterns such as causality, comparison, contrast, sequence or extension e.g. therefore, like, nonetheless, then, or and.

Another element of coherence discussed by van Dijk and Kintsch (1983) is topicality. If the cognitive importance of a word or phrase is heightened so that its processing is affected, it is a topic. The assignment of topicality is not explicitly spelled out in this model, but it seems to involve an interaction of grammatical and cognitive functions. Among grammatical factors are sentence position (initial noun phrase or final clause) and role as syntactic subject or semantic agent. The most potent cognitive factor in topicality is presence in short term memory. This would usually be due to prior occurrence of the information in preceding sentences (argument repetition). Topicality may affect the structure of information in propositional schemata. In some instances topicality will contribute to the building of macrostructure, while in other instances macropropositions may be taken as indicators of topic status for microprocessing. Apparently the direction of the microstructure/macrostructure interaction will depend on what is in the memory buffer as each new sentence is read.

Among the elements of coherence discussed above, reference to the same events or individuals, labeled argument repetition, has been picked out by van Dijk and Kintsch (1983) as a reliable indicator of importance. They cite the work of psychologists and linguists who demonstrated that sentences were read more rapidly and recalled better if they shared a common referent with an earlier sentence.

The relationships among propositions in textbases constructed entirely on the principle of argument repetition alone turn out to be quite predictive of recall. (van Dijk & Kintsch, 1983, p. 43)

Experiments by Kintsch and van Dijk (1978) showed that argument repetition predicted which propositions would be recalled or included in the summaries of fluent readers.

Originally Kintsch and van Dijk (1978) proposed that limitations of short term memory restrict the number of propositions which can be retained at one time, so processing was envisioned as occurring in recursive cycles. That model supposed four propositions could be held in short term memory at one time. In that model continuity was assured by the retention of the most important proposition from one cycle to the next. Importance was defined as frequency of argument overlap or reference among the propositions. Direct reference to an earlier proposition might be by argument overlap, by reference to the predicate, or by the explicit devices of local coherence cited above. Thus the proposition to which the most references were made would be retained from one cycle to another. It might be retained over several processing cycles if later propositions referred to it again. If no proposition was more important than the others, the most recent proposition would be retained from one cycle to the next.

The 1983 model recognizes the sentence as a cognitive unit and proposes that the propositions of each sentence are chunked into a propositional schema.

Recursive processing of propositional schemata is retained, but the mechanisms are more obscure. Prior knowledge is given a much larger role in determining importance. Kintsch (1988) proposes a construction-integration model of knowledge use. As text is processed, a weak production system generates possible associations; then a context-sensitive integration process selects the most appropriate association. Reference and recency interact with prior knowledge, goals, and cultural schemata in determining importance.

Macroprocessing

While microstructure is being built, macroprocessing is occurring according to the three macrorules:

1. Deletion: Given a sequence of propositions, delete each proposition that is not an interpretation condition (e.g. a presupposition) for another proposition in the sequence.
2. Generalization: Given a sequence of propositions, substitute the sequence by a proposition that is entailed by each of the propositions of the sequence.
3. Construction: Given a sequence of propositions, replace it by a proposition that is entailed by the joint set of propositions of the sequence.

These rules are learned through immersion, as children learn to speak (van Dijk & Kintsch, 1983). The rules are not taught explicitly, but are learned as the reader observes their use and tries them out. They are applied recursively so that the textbase has successive layers of increasingly condensed macrostructure. The final textbase will be a hierarchy with the topic or thesis at the top and the microstructure, arranged in strings or nets of propositional schemata, at the bottom.

In the 1978 Kintsch and van Dijk model, reference and recency, as discussed above, were the two factors determining whether a proposition would be retained in short term memory. Those propositions referred to by succeeding propositions would be held in short term memory for additional cycles, and those propositions which were processed over a larger number of cycles were, by definition, most important. This very clear model was modified in 1983 to include the influence of less easily specified factors that affect macroprocessing. In the 1983 model textual signals, such as headings, and semantic signals, such as cohesive devices, are recognized as considerations in building macrostructure. Furthermore the role of world knowledge is acknowledged; the reader's prior knowledge of content, genre schemata, and cultural mores is accessed during macroprocessing and used to build a text base.

Transactional theorists emphasize the range of perspectives, purposes, and affect that readers bring to the construction of meaning, and reject the experimental method

(Rosenblatt, 1985). Yet experiments by text processing theorists like van Dijk and Kintsch (1983) have shown that, across the range of individual differences in reader responses, text based factors make a significant contribution to what transactionalists call public meaning.

Kintsch (1988) proposes that the power and flexibility of the use of prior knowledge is best accounted for by a two phase construction-integration process.

Long term memory is represented as an associative net. During the first phase of text processing a weak production system would activate all propositions associated with the word being processed. Then an integration system would match the activated propositions against the context and suppress those propositions not appropriate for the context.

Thus it would seem that during a first reading of text the skilled reader would group recognized words into meaningful propositions, delete those propositions that do not add information, and reorganize representation of propositions into higher order macropropositions to form a hierarchical representation of the textbase. Data indicate that the higher in the hierarchy a proposition is, the greater its likelihood of being remembered (van Dijk & Kintsch, 1983).

Numerous experiments have suggested that this model has psychological validity. It has predicted the material that students recall from their readings (Kintsch & van Dijk, 1978), predicted portions of text which require inferences (Britton, 1990), and has been used for instruction in summarization (Brown & Day, 1983).

Another indication of validity is convergence with the findings of B.J.F. Meyer. Meyer (1985) developed a method for determining the hierarchical structure of text based on the work of Grimes, in which there are five basic groups of relationships: collection, causation, response, comparison, and description. Superordination is based on these rhetorical relationships. The hierarchies she

identified were found to correlate .96 with the structure identified by van Dijk & Kintsch's model. Meyer also found that propositions high in the hierarchical structure were recalled more readily than those lower in the hierarchy.

Difficulties in Summarization

Although the 1978 Kintsch and van Dijk model described a straightforward mechanical process for identifying the gist of a passage, the 1983 van Dijk and Kintsch model is much more complex. Studies have shown that writing a summary is quite difficult for many people. Day (1980) found that college students could delete low level information, but they only generated topic sentences (using the macrorules to generalize or construct) in half the instances in which it was appropriate. Garner and McCaleb (1985) also found that students at a four-year college using uncued texts included only 52% of the text's important ideas in their summaries. In addition, Garner and McCaleb found that only six of their 120 subjects achieved high ratings in integration of ideas (using the generalization or construction macrorules). Similar deficiencies have been found among business executives (P. Prunka, personal communication, June 14, 1989).

Explanation. Difficulties in identifying gist seem to be due to deficiencies in three areas. I. The first area is reading ability. Just as students who are not skilled at decoding can be overwhelmed by the task of reading comprehension, it would seem that students for whom local comprehension is difficult may use all their cognitive capacity for building microstructure (E. Kintsch, 1989). A similar drain

of cognitive capacity may occur when mature good readers encounter unfamiliar or difficult texts. Schnotz, Ballstaed and Mandl (1981) found that when students tried to summarize a difficult text immediately after reading, their summaries included elaborations and other inappropriate material. On a second attempt the summaries were improved; apparently the text base developed during the first reading freed cognitive capacity for the summarization task during the second reading.

II. The second problem is due to limitations in understanding of the process of reading and summarization. Young children and less literate adults sometimes seem unaware that text has an overall meaning. Wittrock (1988) found that students in the Army's reading program believed that reading comprehension entailed knowing the meaning of each word and saying the words aloud in the correct order. Baker (1984) found that younger and poorer readers gauged their comprehension in terms of understanding of individual words and ignored text level problems.

Another aspect of limited understanding of the task could be considered a form of decentration - taking the perspective of another. Young children and poor readers of any age make very idiosyncratic, personalized judgements of what is important in text (Hidi & Anderson, 1986, Brown & Smiley, 1978, & K.K. Taylor, 1986). These problems, which persist beyond the threshold of classical decentration, can be understood in terms of knowledge of task demands.

Summarizers must know that they are expected to write what is important to the author, not what is important to the reader. The need to take the perspective of another has not been discussed in the literature on text processing research. The transactionalist literature emphasizes the reader's perspective, but discuss taking the author's perspective (Rosenblatt, 1990). My experience as a practitioner is that poor readers in college must be told explicitly to consider importance to the author, not to themselves. When that distinction is learned, the number of idiosyncratic responses declines, although readers with weak academic backgrounds may still have trouble identifying cues to the author's perspective or emphases. This identification depends on prior knowledge of text conventions, content, and strategies.

III. Thus, the third problem is deficiencies in prior knowledge: structural, declarative, and procedural knowledge. A. First, knowledge of text conventions (structural knowledge) may be important for summarization (Gordon, 1990, Johnston & Afflerbach, 1985). If knowledge of relational terms, genre expectations, and other discourse conventions is automatic, more cognitive capacity is available for building macrostructure; the need to search for these elements diverts working memory.

B. Second, knowledge of the content domain is necessary in order to recognize members of the same category or ideas that entail the same idea. Content knowledge must be rich enough in concepts and vocabulary for the student

to be able to name the categories once they have been identified. The links between concepts must be plentiful enough and varied enough to enable the reader to retrieve information that was learned in the past (Bereiter & Scardamalia, 1985). In addition, a reader who is familiar with the domain may know what is considered important within the domain and be familiar with genre conventions and vocabulary.

C. Third, knowledge of strategies may be needed by immature or unskilled readers in order to summarize. Though van Dijk and Kintsch (1983) describe summarization as learned through immersion like spoken language, it can be taught to people who have not mastered it (Palincsar & Brown, 1984, Hare & Borchardt, 1984). Thus varying amounts of structural knowledge, declarative knowledge, and procedural knowledge are necessary for summarization.

If, as van Dijk and Kintsch (1983) have shown, macrostructure is built on the basis of recognition that groups of propositions entail a common macroproposition, limitations of cognitive capacity can be severely disabling by limiting the number of propositions that can be processed together. The student who lacks the prerequisite knowledge and skills may not be able to keep enough propositions in working memory at once to be able to make generalizations. Britton, Glynn, and Smith (1985) suggest that if slots in the "cognitive workbench" must be used for low level tasks, task management can be disrupted. The errors which distinguish the poor reader or immature reader from the expert can all be understood as

manifestations of this problem. If working memory is needed for decoding, lexical access, syntactic parsing, microstructure building, recall of prior knowledge, reinstatement of information from earlier in the text, or conscious strategy, then there may not be enough capacity remaining for the complex process of building macrostructure. Thus, if the novice cannot hold enough parts in mind at once to see a pattern or has not recognized the pattern, then he or she cannot put the parts together to form the whole.

Developmental data. The types of errors made by younger readers support this hypothesis. Children in elementary school are more prone to make decisions "on a piecemeal, sentence-by-sentence basis" (Hare & Borchardt, 1985); they rely on microprocesses without macroprocesses, making few generalizations (E. Kintsch, 1989), and they follow the order of the text while older students rearrange material into topic clusters (Brown & Smiley, 1978).

Developmental studies find systematic increases in summarization skill with age. An unpublished study by Brown and Day (cited in Brown, Campione, and Day, 1981) developed rules describing the steps in summarization. They found that given short texts at fifth grade readability level, all subjects (fifth, seventh and tenth graders, and college students) could delete trivia and redundancies. Seventh graders were beginning to substitute a superordinate for a list of subordinates. Half the tenth graders could select a topic sentence, but only a third could invent one. Half of the college students could invent a topic sentence. These age-related

differences suggest that reading skill and background knowledge that usually increase with age might free cognitive capacity for macroprocessing.

Data on Expert Processing. Brown and Day (1983) studied the summarization strategies of two experts, fourth-year graduate students in English who taught Rhetoric classes. Their responses to questions about their summarization strategies were vague, but during think-aloud summaries they referred directly to the strategies stated in Brown and Day's rules (below, page 23): deleting, superordinating, and inventing topic sentences. Unlike the less skilled subjects, the experts began by generating a topic sentence and then wrote the supporting details.

A limitation of the Brown and Day (1983) study was that the experts did not indicate how they formed topic sentences. It seemed to be an automatic process. Johnston and Afflerbach (1985) presented three expert readers (two graduate students and an assistant professor) with passages which were difficult enough so that the automatic processes broke down. Their think-aloud protocols revealed a number of procedures. One was to skim the passage and form a hypothesis about its main idea, then read to confirm or modify the hypothesis. A second was to pause while reading to allow automatic processes to consolidate what was read, condensing it and freeing space in working memory. When automatic processes were not sufficient, experts frequently used a listing procedure in which they selected important words or phrases and reviewed them to determine what they added up to. Occasionally the experts determined the topic of a passage and then

reviewed the passage to complete the main idea. An alternative strategy was to generate a rough draft and scan the text to revise it until it "felt right."

An interesting finding of the Johnston and Afflerbach (1985) study was that in an unfamiliar passage a familiar word or phrase was generally considered important by the readers. It could be used as a basis for constructing a main idea either directly or by analogy. In contrast, unfamiliar words evoked a judgement about their importance for interpreting the rest of the passage, and that judgement determined how much effort the readers gave to understanding them.

Johnston and Afflerbach's (1985) experts referred explicitly to the use of text based cues for determining main ideas. Among the cues they used were concept overlap or repetition, relational terms, rhetorical structures, and genre expectations.

Another aspect of the protocols was the experts' metacognitive processes. At numerous points in the summarization they explicitly checked their work, and if they were not satisfied with the results of automatic processes, they employed the conscious strategies cited above.

Johnston and Afflerbach's (1985) data indicate that the experts utilized sophisticated strategies and used structural cues when passages were too unfamiliar and too complex to permit automatic processing. The amount of effort required and the range of strategies needed by the experts underline the problems faced by college freshmen who are novices in the academic world.

Writing Processes in Summarization

The Kintsch and van Dijk model has been supported by a great deal of research, but an additional element would make the model more complete. Since Kintsch and van Dijk's theory discusses macrostructure or gist as a cognitive representation, whereas researchers and practitioners are looking at written summaries, the processes by which the macrostructure is written out as a summary should be added to the Kintsch and van Dijk model. Hidi and Anderson (1986) point out the differences in task demand between building a cognitive representation for one's own use and composing a written summary for a teacher or researcher in that summaries written for an audience entail additional demands for audience awareness, grammaticality, cohesion and other formal constraints which may demand planning, polishing and other additional processes.

Think aloud studies (Byrd, 1990, Bereiter, Burtis & Scardamalia, 1988, Kennedy, 1985,) show expert writers of summaries and related essays plan before writing and refer explicitly to main ideas, while novices do little planning and speak of meaning at the sentence level. Byrd (1990) found that after reading a passage to summarize it, three of twelve junior college students worked sentence by sentence, "summarizing" each sentence with no reference to global meaning or main ideas. Two others read the passage once and then wrote from memory without comments, rehearsal or revision.

Another Model of Summarization. Peter Winograd (1984) suggests thinking of summarization in terms of three processing stages: comprehension, judgement

of importance, and transformation. Comprehension is the process of understanding the material, presumably similar to microprocessing. Judgements of importance are the decisions about what information is to be included in the summary, apparently somewhat equivalent to macroprocessing, and transformations are the processes of rewriting, ranging from simple reproductions through combinations, run-on combinations, to inventions, the most sophisticated. Winograd's model is consonant with the ideas of practitioners who tend to teach comprehension strategies, paraphrasing, and judgements of importance (Pacheco, 1985.)

In analyzing written summaries it is often not possible to determine which of the three processes is responsible for deficiencies. Therefore Winograd devised separate tests of comprehension, judgements of importance, and transformations for his 1984 study. Comprehension was measured by short-answer questions, judgements of importance by a five-point scale on which students rated sentences from the text. Transformations were assessed by comparing written summaries with sentences in the original text. In Winograd's regression analysis, IQ and two measures of decoding accounted for a significant proportion of the variance of comprehension scores, but sensitivity to importance also accounted for a significant part of the variance, an indication that comprehension and judgements of importance are not independent. Winograd's three processes must be further operationalized so as to distinguish them from one another if we are to use this model for cognitive research. Yet it does call our attention to analyses of the role

of factors which have been found to contribute to judgements of importance.

Judgements of Importance

Judgements of importance are a concern in many studies of notetaking and other study strategies as well as in summarization. There are striking changes in judgements of importance in text as students mature. Many elementary school children seem to confound importance with salience (Hidi & Anderson, 1986). Salience, or text based interest, is highest for character identification, life themes, and intense actions or feeling (Hidi, 1989). Fourth and fifth graders picked interesting or unusual items to include in a summary (K.K. Taylor, 1986)

Brown and Smiley (1978) report that recall protocols show that even kindergarten children and educable mentally retarded people are sensitive to text based importance of different portions of text in story recall. Brown and Smiley (1978) asked subjects to judge the importance "of textual elements to the theme" of a story which had been coded into four levels of importance. The third graders made no reliable distinctions; their criteria for importance were "idiosyncratic." The fifth graders distinguished the top level of importance and lumped the others together. Seventh graders distinguished three levels, and college students all four levels. E. Kintsch (1989) found that sixth graders discerned fewer levels of importance than tenth graders or college students.

The major study comparing good and poor readers found striking difference in the judgements of importance of eighth grade good and poor readers (Winograd,

1984). Poor readers' judgements of importance were not the same as those of good readers and adults, but they were consistent among themselves. Poor readers chose sentences that had rich visual detail, which presumably appealed to interest. Poor readers had difficulty integrating individual bits of information into larger units. The effect of serial position on their judgements was significantly different from that of adults and older students. For their summaries adults drew most heavily on the first and last quartiles of the passage. Poor readers drew more heavily on the first quartile and decreased inclusion from each succeeding quartile. For a sentence importance rating task adults showed the same pattern as in summarization, while poor readers drew information equally from all quartiles. Most striking, though poor readers knew that the goal of summarization was to write the most important information, the material they included in their summaries was not strongly related to the material they rated as most important in a sentence rating task.

Roller (1985) manipulated prior knowledge, text elaboration and goal in a study of judgements of importance among college students. She found that for the student given the goal of writing a summary, text based factors had a significantly greater impact than prior knowledge, while for those given the goal of completing a sentence importance rating sheet, prior knowledge had more effect than text based factors.

These studies of judgements of importance suggest that summarization may be affected by salience, serial position, and task goals in addition to application of

van Dijk and Kintsch's (1983) macrorules . The findings that less mature readers identify fewer levels of importance (Brown & Smiley, 1978) is consistent with findings that deletion is mastered before generalization or construction (Brown, Campione, & Day, 1981). Serial position effects and task effects are also consistent with this theory. The effect of salience may be due to greater reliance on microprocessing by younger readers or to poor understanding of task demands as noted above.

Transformations

Several small descriptive studies have utilized Winograd's method of comparing sentences from the original passage to sentences in summaries written by college students. Sherrard (1986) studied the summaries of ten mainstream students at a four year college who were considered "competent writers." She found that 82.5% of the idea units from the original text had been either restated or omitted. The number of sentences deleted correlated with the length of the summary. Preferred strategies (by frequency of use) were (a) omission, (b) one to one copying or paraphrasing of a sentence, (c) combination of two adjacent sentences, (d) combination of triplets of adjacent sentences. This order was consistent across subjects and materials.

Johns (1985) compared 128 summaries of a single text written by "underprepared" students from a remedial freshman class, "mainstream" students from a regular freshman class, and "adept" students from an upper division class.

Her analysis revealed that among the underprepared students the percent of summaries including reproductions was 88.9%, while macropropositions were present in 50% of them. In contrast the adept students included reproductions in 70.6% of their summaries and macropropositions in 94.1% of their summaries.

Byrd (1990) found that among numerous summaries written by each of twelve junior college freshmen those labeled as relying on reproduction had from 70-73% of idea units copied or paraphrased and 15-18% of idea units combined across sentences. Summaries characterized as relying on condensing had from 37-72% of the idea units reproduced, and 18-26% combined. Among the 72 summaries in her sample, 29 had invented topic sentences and none had invented implied main ideas.

All these studies of transformations found that the most common pattern was what Winograd (1984) called reproduction, what Brown and Day (1983) called a copy and delete strategy. Students tended to either paraphrase sentences, copy them verbatim, or delete them entirely. Like Winograd (1984) and Brown and Day (1983) these researchers found very few summaries in which their subjects had generated a sentence to sum up a larger block of text.

A Model of Summarization Processes

Analysis of the data from the studies cited above and the theoretical models on which they are based leads to the following model. Written summarization is a complex series of recursive processes involving microprocessing,

macroprocessing, planning, and writing. As the reader of a passage recognizes words in the text, those words are activated in long term memory and the memories associated with them are primed. Automatic semantic and syntactic processes group the words of the text into propositions, phrase-length units of words and their relationships, and then into sentence-length propositional schemata. Processing continues in cycles, with the most important proposition (important by virtue of repeated reference) retained in working memory from one cycle to the next. As the reader proceeds, the associations in long term memory will be deactivated if not referred to again or strengthened as they are referred to again. If long term memory is rich in background information and that knowledge is well organized, superordinate concepts will be strongly activated by repeated activation of subordinate concepts, generating what Kintsch and van Dijk (1978) refer to as macrostructure, a hierarchy of increasingly concise representations of the gist of the passage.

When the skilled summarizer finishes reading, he/she will plan the written summary by reviewing the text or its cognitive representation and by considering the most effective way to organize the concepts so as to include main ideas and to exclude trivia and redundancies. Then the summary is written and refined. The amount of attention given to planning increases with the text's length and complexity and decreases with clarity and familiarity.

Summarization does not always proceed so smoothly. Many readers who

recognize words, form propositions, and form propositional schemata do not construct macrostructure (E. Kintsch 1989). There are numerous deficiencies which may contribute to this weakness. Poor reading ability may mean that microprocessing requires the reader's full attention, and there is no space in working memory for retaining earlier propositions to build larger units.

Poor task awareness may lead weak summarizers to think of importance in terms of their own judgement, rather than to that of the author. Furthermore students who think of reading as a word level task may never have become aware of the value of macroprocessing or of drawing on prior knowledge to interpret expository text.

Deficits in prior knowledge may be of three overall types. Poor declarative knowledge may mean fewer superordinate concepts, less content knowledge, and/or fewer links between knowledge (dead knowledge). Poor structural knowledge could restrict recognition of cohesive markers and/or indicate poorly formed genre expectations. The person weak in procedural knowledge may not have learned the strategies used by experts. Any or all of these weaknesses could contribute to poor summarization.

After reading, poor summarizers may omit the planning stage of expert strategy or first begin writing and then pause to make sentence level plans. Poor summarizers tend to use what has been described as a copy-delete strategy; they copy segments from the text verbatim or write paraphrases of individual sentences

or smaller units, and delete words, phrases or sentences from the text. They do not seem to refer to the global meaning of the passages in making judgements about what to include. They refine their writing at the sentence level without reference to global meaning.

Instruction in Summarization

If summarization skills are mastered late and are limited by poor reading skills, lack of prior knowledge, poor task awareness, and the limitations of cognitive capacity, strategy instruction may be needed to enhance summarization. A number of studies have found this to be the case.

Direct Instruction

Direct instruction was used to teach summarization in all the studies in which summarization strategies were taught except the Palincsar and Brown study (1984). In direct instruction the new strategy is modeled, students are told how to carry it out, guided practice is provided, including suggestions and corrections which are gradually phased out until students can carry out the strategy independently.

Instruction in "Metacognition"

In the Handbook of Reading Research Baker & Brown (1984) define metacognition as knowledge about cognition and regulation of cognition. Mature readers monitor their comprehension and learning from text and use appropriate strategies when text is not understood or recalled. Palincsar and Brown (1984) and Paris, Cross, and Lipson (1984) found that instruction in metacognition not only

improved performance on reading tasks, but increased maintenance and transfer of reading strategies.

Zimmerman and Martinez-Pons (1990) have explained self regulation, a central element of metacognition, as a triadic process in which three components, student personal processes, behavior, and environment interact. Students' perceptions of the results of their behavior will affect self efficacy and influence affective or cognitive responses. Research pertinent to summarization cited below has focused on two aspects of self regulation. One is accuracy of self monitoring; the other is training in strategies which can be used when performance falls short of students' standards.

Researchers at the Center for the Study of Reading who did the major studies of summarization (Brown & Day, 1983, Palincsar & Brown, 1984), found that including instruction in metacognition greatly enhanced gains from instruction in summarization. In particular they found that students who were informed of the value of the strategies they were learning, and who were trained in self control, did better than students who were merely instructed in the strategies. Self control training was defined as explicit instruction in how to "employ, monitor, check, and evaluate" a strategy (Brown, Campione, and Day, 1981).

J.D. Day (1980) taught summarization to junior college students in credit bearing and remedial English classes in a junior college. Within each of the skill levels were four instructional conditions. In self management students were given

a general description of the requirements for a good summary. In rules students were given five explicit rules to follow. In rules plus self management students were given both the set of rules and the self management guidelines. In the control of the rules condition students were instructed how to check their use of each of the five rules. These students received "Five General Steps to Writing a Summary." The five steps were stop (after reading), think, look back, - use the summarization rules - then check and double check. While average subjects benefitted more than remedial students from all conditions of instruction, students at both skill levels in the control of the rules condition showed greater gains than the other conditions, improving to the level of students at a four year college. These students showed 50% use of the hardest rule, invent a topic sentence.

These findings were accepted as demonstrating the importance of metacognition for summarization. Metacognition became a focus of the Palincsar and Brown (1984) study which used reciprocal teaching to teach control of summarization. Working in small groups seventh grade poor readers gradually took responsibility for the reading and self monitoring activities the teacher had modeled and reinforced. In this study reciprocal teaching students showed significantly more improvement than controls, improving 33% on deletion and 36% on recognizing the importance of topic sentences.

Metacognitive components were also found effective in a series of reading strategy studies of elementary school students by Paris, Cross, and Lipson (1984).

Instruction in reading comprehension was accompanied by instruction in metacognition, defined as

Evaluation of person, task, and strategy variables results in an assessment of the task difficulty relative to one's abilities and an assessment of the relative effectiveness of different strategies. Evaluation is a measure against a standard such as effort, ease, or certainty within a problem-solving context. Planning involves the allocation of time and effort in order to optimize task solutions. The good reader, like the good problem solver, selects reasonable goals and generates suitable means to accomplish them. Regulation refers to the ability to follow one's chosen plan and to monitor its effectiveness. (Paris, Cross, & Lipson, 1984, p. 1241)

The Paris, Cross, and Lipson (1984) instructional program utilized modeling, direct questions, group discussions, guided practice, feedback, and metaphor displayed on bulletin boards designed to teach evaluation planning and regulation of the use of reading comprehension strategies. Students in the program answered questions demonstrating declarative knowledge of the reading strategies, and made significant gains in comprehension.

Baker (1985) conducted numerous studies of comprehension monitoring using texts which included discrepancies. She found that good readers did better than poor readers and older readers did better than younger readers at detecting anomalies, but that problems frequently were unnoticed or glossed over. Miller (1987, 1985) found that instruction in self questioning improved children's accuracy in monitoring their comprehension of this type of texts.

In reviewing studies of metacognition and reading comprehension in adult readers, Baker (1989) found that good readers surpassed poor readers in

comprehension monitoring and that strategy instruction led to significant improvement in reading comprehension and learning from text. Of special relevance is research by Shenkman and Cukras (1986). They conducted an extended instructional study which included control processes and summarization. Their program was successful with students at the same university system as the study I am proposing.

Duffy and Roehler (1989) observe that research like that cited above has led to recommendations to teach reading strategies rather than to attempt to teach reading skills. Strategies involve reasoning and must be applied selectively depending on task and goals. Skills are assumed to be invariant and are taught with drill until they become automatic. Strategies require conscious control, yet they become automatic after extended use.

Bereiter and Scardamalia (1987) discuss metacognition in writing as a set of executive processes, conscious or automatic, through which the writer decides to plan, evaluate, or correct a composition. They suggest that each executive process for controlling writing must include its own goal setting, knowledge retrieval, processing and storing operations. To learn these processes while learning to write can create large demands on cognitive capacity interfering with the writing process.

To investigate their model, Bereiter and Scardamalia developed what they called procedural facilitation of a hypothesized control process. Procedural facilitation is a sort of simulation in which the experimenter provides the

hypothesized "executive process" to subjects who do not seem to use that process. The control process Bereiter and Scardamalia investigated is a feedback loop called COMPARE, DIAGNOSE, OPERATE (CDO). Bereiter and Scardamalia had found that expert writers compared their written products to their intended goals and made corrections when necessary. The purposes of the procedural facilitation was to determine whether external prompts could serve as a substitute for executive processes to enable children to carry out the CDO processes. Children in the fourth, sixth, and eighth grades were given a pack of cards to use in comparing their writing to their goals and diagnosing any difference they found. Each card had a one sentence evaluation. Children were to shuffle the cards and select the one which best described each sentence of their essay. If the evaluation was positive, the child went on to the next sentence. If it was negative the next pack of cards was used to select a tactical choice for correcting the sentence (operate). The fact that the children had no trouble using the cards and their favorable comments suggested that the procedural facilitation did in fact help them do something that they normally couldn't do. The children felt that the cards made it easier to improve their writing. Compared to experts' judgements the children's comparisons and diagnoses -evaluations of their sentences- were accurate, but their corrections were not. A second study with more informative tactical choice cards and a third study with minimal instruction helped students make further improvements in their writing.

Bereiter and Scardamalia (1987) interpret these results as supporting their model of executive processes in writing. The instructions they gave the children included when to start the processes and specified alternatives for evaluating and correcting their writing. The children did seem to use the experimenters' prompts as a substitute for the executive processes used by more mature writers.

Beal, Garrod and Bonitatibus (1990) also provided aids for revising texts. They found that children given questions to ask themselves, and trained in their use, did significantly better at identifying problems and revising stories than children who did not self question.

Summarization Strategies Taught in Experimental Studies

Rules

The major works on teaching people to summarize have been done by Ann L. Brown and her colleagues (Brown & Day, 1983, Palincsar & Brown, 1984). For these studies the three macrorules of Kintsch and van Dijk (1978) were developed into six rules, which were taught to students as the basis for summarization:

Delete trivia.

Delete redundancies

Substitute a superordinate for a list of items.

Substitute a superordinate for a list of actions.

Select a topic sentence.

Invent a topic sentence if none is written.

Before training, 90% of the students in the Brown and Day (1983) study deleted

appropriately, but selection and invention levels were 25% and 15% respectively. For students in remedial reading classes, training in these explicit rules improved summarizing significantly, compared to comparable students given a more general description of task demands (*self management*).

A simplified version of these rules was used in a study of seventh graders who were at least two years behind in reading comprehension (Palincsar & Brown, 1984). Students made significant improvements in deletion of trivia and redundancy and in selection of topic sentences. These gains generalized to a similar assignment in another class and were maintained for an eight-week period following the end of the intervention.

Hare and Borchardt (1985) extended the Brown and Day (1983) rules for summarizing, adding two rules to the list above: collapse paragraphs, and polish (rewrite) the summary. They also included instruction in self control in a study with minority high school students. Compared to a control group, the experimental students showed significantly greater use of the rules to collapse paragraphs (superordinate), delete, and polish the summary. They did not do significantly better in selecting or inventing a topic sentence. On the posttest, when asked to list some rules they might use to instruct another person to summarize, approximately one half of the experimental subjects mentioned the superordination, topic sentences and delete rules. About one third remembered the paragraph collapsing and polishing rules. Nonetheless there was no significant correlation between

recalling the rules and using them in the summaries.

Rhinehart, Stahl, and Erickson (1986) taught summarization to sixth graders, using four rules that differ somewhat from those of Brown and Day (1983). Rhinehart et al's rules were: Identify the main information, delete trivia, delete redundancies, and relate main idea and important supporting information. They found that instruction in the rules and in control of the rules for summarization improved student recall of important information.

Guido and Colwell developed an instructional procedure based on four of the Brown and Day (1983) rules:

- Don't include unnecessary detail.
- Don't repeat anything you have already said.
- Use a general term for a list of specific items.
- Use one word to describe a list of actions.

To date no studies have been reported using this model.

Restructuring Text

Ruddell and Boyle (1989) found that instruction in cognitive mapping improved summarization of expository text. They identify a cognitive map as

"a graphic representation of a text which facilitates integration and retention of information by providing the reader with a cognitive scheme to reconstruct meaning. It assists the reader and writer in identifying significant ideas and relationships..." (Ruddell & Boyle, 1989, p. 13).

In their study college freshmen who had volunteered for a "Learning from Text" course received three hours of direct instruction and six weeks of homework in either cognitive mapping or constructing topic outlines. Both groups received the

same instruction for the rest of the course. Ruddell and Boyle predicted that the mapping strategy would improve organization and integration of information, which would yield better summaries than topic outlining. Holistic scoring of pre and post test summaries showed that the mapping group made significantly higher gains than the control group on two of the three summaries. In addition, the mapping group used significantly more cohesive ties (conjunctions). The differences in inclusion of main ideas was not significant, but the mapping group showed significantly higher use of supporting details. Ruddell and Boyle conclude that instruction in mapping provides procedural knowledge for reorganizing text information and may also assist in activating and integrating declarative knowledge.

Armbruster, Anderson, and Ostertag (1987) taught a structural pattern as the basis for summarizing problem solution passages. They developed frames with a section for the problem and a section for the solution, and had normal fifth graders fill out a frame for each problem solution reading passage. Then they had the students utilize the information written in the frames to write summaries. The control group wrote and discussed the answers to traditional reading comprehension questions which covered the same information. The experimental group improved significantly on inclusion of the most important material. The drawback of this study is that the use of frames and practice in summarizing are confounded, because the control group did not write summaries during instruction.

B. M. Taylor (1982) taught hierarchical summaries to fifth graders utilizing

headings, subheadings, and other typographic textual cues to write a hierarchical outline before writing a summary. Subjects in the first experiment used the strategies more effectively than those in the second experiment, but both utilized their outlines as the basis for their summaries.

Bean and Stanwyk (1984) compared instruction in the rule based approach cited above with a procedure called GIST. In this procedure students were taught to develop a fifteen word summary for each paragraph by first writing a fifteen word "summary" of the first sentence, then modifying it to encompass the first and second sentence, rewriting it for each of the succeeding sentences until the paragraph is represented by a fifteen word "summary." This was referred to as an intuitive approach, but direct instruction was used to present both GIST and the rule based instruction. The researchers found the summaries of both instructional groups were significantly better than those of a practice-only control group, but there was no significant difference between the two instructional groups in inclusion of the most important ideas.

Rationale for Study

Researchers and practitioners consider summarization an essential strategy for meaningful learning from text, but students, practitioners, and researchers agree that summarization is difficult for college students. Indeed, in Garner and McCaleb's 1985 study of mainstream students at a four year college only six of 120 students wrote summaries that successfully integrated the four important ideas from the text.

Written summarization is a complex series of recursive processes involving microprocessing, macroprocessing, planning, and writing. As the reader of a passage recognizes words in the text, those words are activated in long term memory and the memories associated with them are primed. Automatic semantic and syntactic processes group the words of the text into propositions, phrase-length units of words and their relationships, and then into sentence-length propositional schemata. Processing continues in cycles, with the most important proposition (important by virtue of argument repetition or prior knowledge) retained in working memory from one cycle to the next. As the reader proceeds, the associations in long term memory will be deactivated if not referred to again or strengthened as they are referred to again. If long term memory is rich in background information and that knowledge is well organized, superordinate concepts will be strongly activated by repeated activation of subordinate concepts, generating what Kintsch and van Dijk (1978) refer to as macrostructure, a hierarchy of increasingly concise representations of the gist of the passage.

When the skilled summarizer finishes reading, he/she will plan the written summary by reviewing the text or its cognitive representation and by considering the most effective way to organize the concepts so as to integrate main ideas and to exclude trivia and redundancies. Then the summary is written and refined. The amount of attention given to planning increases with the text's length and complexity and decreases with clarity and familiarity.

The construction of gist can be almost automatic, but it is the product of a complex interplay of cognitive processes. It can be undercut by weaknesses in any of the subprocesses. Students who can microprocess may be unable to macroprocess, if microprocessing is not automatic enough to leave cognitive capacity for the other summarization processes, and/or if they are not aware of the task demands of constructing global meaning or recognizing what is important to the author instead of personal importance. Students may lack prior knowledge. Poor declarative knowledge may mean fewer superordinate concepts, less content knowledge, and/or fewer links between knowledge (limiting retrieval). Poor structural knowledge could restrict recognition of cohesive markers and/or indicate poorly formed genre expectations. The person weak in procedural knowledge may not have learned the strategies used by experts. Any or all of these weaknesses could contribute to poor summarization.

Fortunately all published studies of instruction in summarization show improvement due to strategy instruction. In major summarization instruction studies by Day (1980) and Hare and Borchardt (1985) students showed the greatest gains at eliminating trivia and redundancies, followed by superordination of surface structure lists and recognition of topic sentences. Generation of sentences giving the main idea of a paragraph or group of paragraphs proved most difficult to teach, although this was a regular feature of experts' summaries. This difficult component of summarization, the generation of connections to integrate

information, is necessary for meaningful learning (Cook & Mayer, 1983, Wittrock & Alesandrini, 1991). The present study extended the study of summarization strategy instruction to mitigate this weakness. Students were taught strategies which encourage generating macrostructure and discourage the ineffective "copy and delete" strategy used by many college students (Brown & Day, 1983, Sherrard, 1986, Byrd, 1990).

Summarization method This experiment compared two ways of teaching summarization which are designed to encourage students to generate sentences summing up a paragraph or a group of paragraphs. As shown in Figure 2, both summarization methods are based on van Dijk and Kintsch's (1983) text processing theory and each utilizes a structural property of text which is consistent across academic domains. Students in one condition were taught to use argument repetition in the surface structure as an indication of coherence and importance. Students in the other condition were taught generalization, the central process in constructing macrostructure, based on the hierarchical structure of text.

Argument repetition, a coherence marker, is an explicit part of the surface structure of text, though Britton and Gulgoz (1990) showed that inferences may be necessary when different words refer to the same idea. The basis for the second condition, hierarchical structure, may be indicated in the text itself, but it is often part of the macrostructure, the reader's representation of the gist of the passage.

In discussing microprocessing, the construction of a cognitive representation

of the surface structure of a text, van Dijk and Kintsch (1983) identify argument repetition, repeated references to an idea, as a major element of coherence. Kintsch and van Dijk (1978) showed that the importance of a segment of text was directly related to the number of references to it. Their model showed that argument repetition predicted which elements of microstructure would be the basis for construction of macrostructure. Because coreferences to ideas are part of the surface structure of text, students can use them as an indicator of the author's focus. Instruction in utilizing argument repetition should give students a method for integrating ideas to determine importance and shorten text for summarization.

The second method of summarization instruction teaches generalization as the way to represent the hierarchical structure of text. The hierarchical structure of text is a given for anyone who has written formal outlines in English classes. This essential property of text: numerous low level ideas supporting fewer midlevel and still fewer high level ideas, is central to the text processing theories of van Dijk and Kintsch (1983) and Meyer (1985). Frequently the hierarchical structure of text, termed macrostructure by van Dijk and Kintsch (1983), is not part of the surface structure; it is inferred automatically by the expert reader. Van Dijk and Kintsch (1983) found that this process, macroprocessing, proceeds according to three rules: deletion (of low level ideas), generalization (of ideas which imply the same superordinate idea), and construction (of superordinate ideas implied by the joint meaning of a number of low level ideas). Generalization is a process familiar

to college students. As a practitioner, I had found that the most effective way to teach students to generate paragraph main ideas and to write summaries was by training them to write a general sentence to subsume the author's specifics. This study will examine the effectiveness of that method as explained by van Dijk and Kintsch's (1983) theory and compare it to argument repetition which has not been studied experimentally as an instructional method.

Both of these procedures are designed to overcome the shortcomings observed in earlier experiments. In particular the Brown and Day (1983) summarization rules have three drawbacks for college reading instruction. First, they tell students to delete trivia without giving any mechanism for discriminating between trivial and important information. Second, they direct students to invent a topic sentence without showing how to do so. Third, they advise copying the author's topic sentences. This is problematic for the three reasons cited above: copying is not permitted by colleges, copying is not as effective for learning from prose as generating one's own sentences, and many college texts don't have topic sentences.

In addition, the notion that there is a sentence to be used in summaries may reinforce what was called the "copy - delete" strategy; experimental and descriptive studies have shown that students usually try to summarize materials by copying or paraphrasing certain sentences and deleting others (Winograd, 1984, Brown & Day, 1983, Sherrard, 1985, Byrd, 1990). This is the most common approach to

summarization, but it is not sophisticated enough for college study. Learning from text requires developing connections between new information and prior knowledge (Wittrock & Alesandrini, 1991, Cook & Mayer, 1983). Ideas that are merely copied are less available for future use (Bereiter & Scardamalia, 1985).

The present study compared two potentially powerful alternatives to students' ineffective strategy for summarization. Both coherence, including argument repetition, illustrated in Figure 3, and hierarchical structure, including generalization, illustrated in Figure 4, are cited by van Dijk and Kintsch (1983) as indicators of importance and as elements of meaning across sentence boundaries.

Kintsch and van Dijk (1978) used argument repetition alone as the basis of the "leading edge strategy" which successfully predicted what propositions students would include in summaries and what would be best remembered. Generalization is the second macrorule in the Kintsch and van Dijk theory. It has been proven very effective for strategy instruction by practitioners (Friend, 1987, 1988) but has never been tested experimentally as an instructional tool. Thus instruction in either of these methods should enable students to write better summaries. Though the two methods have never been directly compared, it is predicted that generalization will be more powerful, because it is part of macroprocessing and requires more transformation.

Summarization was not taught explicitly until the social forces cited above

caused colleges to admit students with weak academic backgrounds. Brown and Day's (1983) study has been widely disseminated among college reading professionals, but there is dissatisfaction with the drawbacks cited above. The present work on summarization has been of considerable interest to colleagues. Experimental validation of an effective way of teaching summarization would be very important to college reading and writing faculty (August, personal communication, 1991).

E. Kintsch (1989) suggests that immature readers may be "reading" by constructing microstructure, but not macrostructure. Thus it is of considerable interest to determine whether reading and writing instructors could better teach college students to summarize - which requires construction of macrostructure - by linking instruction more closely to the surface structure of the text or to the desired product. The present study will seek to compare instruction in summarization based on coherence - using argument repetition - to instruction in summarization based on hierarchical structure - using generalization.

Self monitoring The second independent variable in this study is self monitoring. Instruction in methods for summarization are compared to instruction including self monitoring of use of the summarization methods. Reading and writing researchers, cited above, found that poor readers can be taught to use some of the self monitoring and self correcting strategies used by good readers. Studies such as Day (1980) suggest that instruction in "control of the rules" would be more

effective than teaching summarization rules alone. Bereiter and Scardamalia (1987) explain that providing students with prompts and criteria for evaluation and revision is a procedural facilitation which provides cues for initiating the appropriate executive procedure and also minimizes the demands made on cognitive capacity by the new self-regulatory mechanism.

This study compares instruction in methods for summarization alone to instruction in summarization methods plus self monitoring of use of the methods. In this study the self monitoring instruction is distinguished from the methods alone in three ways:

1. Self monitoring instruction includes directions to check each step and gives explicit criteria for evaluation.
2. Self monitoring instruction is phrased in first person questions, "Did I ...?" while summarization methods alone are phrased in the imperative.
3. Self monitoring instruction calls for self recording after each component of checking one's work.

The handout with explicit summarization method and self monitoring instructions is intended to function as a procedural facilitation. The reminder to students to check their summaries gives explicit criteria for evaluation. Each of the evaluation criteria implies a corrective strategy, e.g. "Did my sentence give the central information and keep out specific details?" The summarization plus self monitoring instruction handout adds a behavioral component to the personal process

of evaluation by having students check a box as they complete each step of their evaluation.

Individual differences Student characteristics are not of central concern in this study, but descriptive data was taken from a brief questionnaire and student records. As indicated above, summarization involves a complex interplay of reading comprehension, the use of prior knowledge to process what is being read, and writing the macrostructure in standard English for the experimenter. Variables which might affect learning to summarize include reading and writing ability as measured by scores on the CUNY Reading Assessment Test and Writing Assessment Test, age, number of semesters in college reading and/or writing courses. Students' first language or number of years speaking English were included when that information was available.

Reading achievement would usually be expected to be a major contributor to summarization, but the reading scores of the students in this study may not be related to their summarization learning. The materials used in the study were pilot tested to be sure students who had low scores on the CUNY Reading Assessment test could understand them. Furthermore practitioners have found that there is little correlation between scores on the CUNY Reading Assessment Test and summarization or other written assessments.

Hypotheses

1. **Main Effect:** Within each self monitoring condition students taught to use generalization to write summaries will demonstrate significantly greater improvement in summarization as measured by the dependent variables than students taught to use argument repetition and students not receiving instruction.

2. **Main Effect:** Within each summarization method condition students taught to self monitor use of the summarization methods will demonstrate significantly greater improvement in summarization as measured by the dependent variables than students taught only the summarization methods and students not receiving instruction.

3. **Additive Effects:** Students who are taught strategies for using generalization and self monitoring to write summaries will demonstrate significantly greater improvements in summarization as measured by all dependent variables than students taught generalization alone or argument repetition plus self monitoring, while summaries written by students taught to use argument repetition alone will be significantly weaker. Students who receive no instruction will write summaries which are significantly weaker than those written by students in all groups who receive instruction.

Method

Design

This training study examines the effects of two crossed independent variables on students' summarization as measured by four kinds of dependent variables as shown in Figure 5.

The independent variables are summarization method and self monitoring; each has two levels. A posttest was administered to compare group means of students receiving different instruction. A no treatment control group took the posttest.

Independent variables The first independent variable, summarization method, compared training in argument repetition to training in generalization. Argument repetition, repeated references to the same idea, is accessible as an element of the surface structure of text. It has been shown to be a significant element of microstructure used in constructing macrostructure (van Dijk and Kintsch, 1983). Students in groups 1 and 2 were shown how to judge importance and write their summaries based on the number of references to the central ideas of the text. Training in generalization is based on two of van Dijk and Kintsch's (1983) macrorules for constructing macrostructure. Students in groups 3 and 4 were taught to utilize a familiar process, generalization, to judge importance and write shorter texts in their own words by generating superordinate sentences to subsume the specifics in the surface structure of the text. Students in group 5 did not receive instruction in summarization but received instruction in self reflection using

the same materials.

The second independent variable, self monitoring, compared instruction in summarization without self monitoring to instruction in summarization plus strategies for self monitoring. Students in groups 1 and 3 were taught to write summaries using argument repetition (group 1) and generalization (group 3). Groups 2 and 4 were taught strategies for self monitoring their use of argument repetition (group 2) and generalization (group 4). Group 5 did not receive instruction in summarization or self monitoring. Self monitoring instruction was a procedural facilitation (Bereiter & Scardamalia (1987) in which students were taught to use a series of questions to evaluate and revise their summaries after carrying out each of the summarization rules. The self monitoring instruction handout added a behavioral component to the personal process of evaluation by having students check a box as they complete each step of their evaluation.

Dependent variables A written summary has the highest ecological validity for determining how much students have learned about summarization. Objective assessment of summaries is somewhat difficult, because they are not derived directly from the surface of the text, and because the same ideas can be restated in many ways. An additional concern in this study was distinguishing poor macroprocessing from the poor writing that was the basis for placing students in the classes in this study. A method based on the research of Garner and McCaleb (1985) assessed the quality of the content included in the summary. Summarization

requires the identification of the important content or ideas which must be included in a summary and the unimportant ideas which must be excluded. Most natural language text also has material of intermediate importance which can be included or excluded without weakening the summary (see figure 6).

This optional information must be discounted in scoring the summary. The system of inclusion scores and exclusion scores developed by Garner and McCaleb (1985) accounts for the three levels of information in text. This system yielded two scores for each summary indicating the inclusion of important information, and exclusion of unimportant information. For the current study inclusion and exclusion were combined to give a measure of overall efficiency.

The second type of dependent variable was based on Winograd's (1984) method of assessing sentence transformations, the degree to which students integrated information across sentences or synthesized information from a paragraph or more to generate a sentence. Two additional dependent variables assessed adherence to two rules taught to the treatment groups. The first rule, start with the thesis (thesis), required that students macroprocess to generate a thesis statement. The second, do not say "how" (empty references), required that students include the actual information, not just references to it.

Subjects

Subjects were 149 students attending a prefreshman writing program at three senior colleges of a large urban university. They were placed in the program on

the basis of the university's Writing Assessment Test. One hundred and thirty of the students scored 6 on a scale of 8; the scores of the remaining nineteen students ranged from 2 to 6.7.

Subjects' scaled scores on the Descriptive Tests of Language Skills, Reading, of the College Board were within the range of 2 to 21 on a scale of 0 to 25, roughly equivalent to seventh to twelfth grade reading ability. Like the majority of students in New York City, most of the subjects were Afro-American, Hispanic or immigrants from all around the world. They are primarily "nontraditional" students, from homes and communities in which they are among the first to go to college. Their ages range from 16 to 46. Subjects included 64 males, 80 females, and 4 students who did not record their gender on the survey form. Although 70 students speak a language other than English, those placed in the writing classes participating in this study had passed faculty screening for sufficient command of English for placement in a mainstream writing class rather than in an English as a Second Language writing class. Among the subjects, 102 had spoken English for 15 or more years, 14 for 10-14 years, 13 for 6-9 years, and 12 for 5 or fewer years. Of those who spoke another language at home or as children, 27 spoke Spanish, 13 Chinese, 5 Haitian Creole, 5 Russian, 4 Urdu, and 13 spoke other languages. Subjects were not asked country of origin, but those speaking English alone or English and Spanish may have come from many different countries.

Subjects were randomly assigned to condition and seen during two

consecutive writing class periods. At one college students were randomly assigned to classes by order of registration, so intact classes of 12 to 16 students could be used for this experiment. At the other two colleges classes were somewhat larger; students in classes of 20-25 were randomly assigned to two groups, while classes of over 30 students were randomly assigned to three groups. At those colleges a random number table was used along with a roster or seating chart, and students were divided into groups at the beginning of the first session. All five conditions were taught at all three colleges.

Students who were absent one of the two days or came late enough to miss the introductory procedures participated in the lessons, but they were not counted as part of the sample. Those with one absence did not seem to differ from their classmates in demographics or classroom demeanor.

Two subjects were dropped from the sample because their summaries differed so sharply from the others in the sample, that they couldn't be coded by the predetermined methods. One of the two had the lowest reading and writing scores in the sample and was observed to have trouble understanding English. The other subject's scores and behaviors were not different from the rest of the students, but the entire posttest summary was written as empty references which couldn't be coded.

Materials

All materials were at reading levels (specified below) within the capacity of

the students, to reduce the possibility of reading comprehension problems confounding results. Introductory materials were about personal situations familiar to all students in field tests, but the passages to be summarized were in academic areas in which comparable students using these materials in classes had weak prior knowledge and moderate to low interest. This type of material was selected to avoid confounding by differences in interest and prior knowledge. Since this type of summarization is taught so students can use it in their college studies, using academic type materials might enhance transfer.

Two constructed passages from the Day (1980) study were used. These texts, used for the initial instruction and posttest in this study, were selected from a set of texts painstakingly constructed for studies of instruction in macroprocessing developed for a series of studies at the Center for the Study of Reading (Day, 1980, Day, 1986, Brown, Campione & Day, 1981, Brown & Day, 1983). Materials from seventh grade textbooks were selected, modified, and rewritten so as to be of approximately equal length (483-521 words), comparable readability (5.3-5.8 on the Dale Chall scale), and comparable number of idea units (68-81 as determined by 15 college student raters). The idea units were rated in structural importance by 11 additional college students and found comparable. All texts were written so that each of the the Brown and Day (1983) rules, based on the Kintsch and van Dijk (1978) macrorules would be utilized at least three, but never more than five times on any given text. A pilot study was run to assure that the paragraphs with

topic sentences deleted were similar to those which included topic sentences. "During and after calibration of the texts, sections were rewritten to ensure normal discourse cohesion and flow." (Brown & Day, 1983, pg. 4).

Three additional essays used for instruction were expository texts adapted from adult literacy materials. They did not have explicit thesis statements or topic sentences. They are:

Title	Length	Readability	(Flesch Kincaid)
Native Americans		530 words	6.98
Japan	627 words	5.63	
Thinking and Exploring		590 words	5.44

An anecdote and a paragraph about a child were used to introduce argument repetition. A list and a paragraph about chores were used to introduce generalization. The two paragraphs were used to introduce self reflection to the control group. A definition of summarization and guidelines for writing a summary were written for this study and pilot tested on university students. Scripts (Appendix B) were also written for each condition.

During pilot testing for this study the materials were examined by three university reading professors and an English laboratory supervisor. All considered them suitable for the classes participating in the experiment. They concurred in the judgement that the materials were easy enough that few university writing students would have trouble comprehending them. They considered the information in the

materials comparable to other instructional materials used in reading courses.

Measures

A written summary was used as the posttest. At the end of the second session of instruction students wrote a summary of the passage "Travel" from the study of summarization at the Center for the Study of Reading (Day, 1980). Each summary was analyzed for four elements of summarization: content, sentence transformation, construction of a thesis statement, and whether empty references were used instead of information.

The assessment of content was based the method of Garner and McCaleb (1985); experts determined the number of ideas in a given passage which must be included. The percent of these important ideas included in a subject's summary is the Inclusion score. The Exclusion score is the number of erroneous ideas, those which should not be in the summary. Experts identified unimportant information in the passage which has to be excluded from the summary. The exclusion score is the number of words in these unimportant ideas plus a count of any redundant ideas. For the present study inaccurate ideas and extraneous ideas in the summary were added to the exclusion score.

The present study utilized an additional measure in which the exclusion score was converted to a positive scale and combined with the inclusion score. This measure, called the Efficiency score, indicated the overall effectiveness of the summary. The efficient summary must **both include important ideas and exclude**

unimportant, redundant, erroneous and extraneous ideas.

One goal of this study was to teach students to generate sentences which subsume groups of sentences from the original passage. The fourth dependent variable is transformation indicating the degree to which students integrated information across sentences. The first transformation score, based on Winograd's (1984) study, determined the percent of sentences in each summary which are a paraphrase of a sentence from the original, combine two or more sentences from the original, or supersede a paragraph or larger unit from the original. An additional category found in pilot studies for this research is extraneous sentences, based on the students' personal reflections, not on the author's ideas. The Unified Transformation Score gave each summary a single score by giving each sentence a numerical score - based on the amount of transformation according to Winograd's categories.

The third and fourth types of dependent variables are elements of the summary specified in the summarization instructions. Rule two of the guidelines for all experimental conditions says to begin the summary by writing the thesis of the passage. Whether students wrote the correct thesis, a weak thesis or no thesis at all is the third type of dependent variable, Thesis Statement. Reading practitioners consider identification of the thesis of a passage an essential indicator of comprehension, as can be seen from the number of "main idea" questions on standardized reading tests. The materials used in this study did not have stated

theses, so that students would learn to macroprocess to generate the thesis of each passage. It seemed important to measure their success at doing so.

The last dependent variable, Empty References, is whether a student wrote the word "how," which the guidelines said to avoid. Textbooks for college reading courses often elaborate on the difference between topics and main ideas. The main idea includes both topic and comment. The topic without the comment is an empty reference. It doesn't tell what the author said about the topic. A sentence like "Fromm told how children learn to love." is not useful for studying. A sentence like "Fromm said children learn to love by identifying with their parents." is useful for studying. Eliminating empty references is not directly related to macroprocessing, but following the directive to avoid the word "how" might provide an indication of the effectiveness of the self monitoring procedures.

Procedures

The experiment was conducted during two consecutive writing classes. The groups were led by the experimenter and two experienced teachers working from scripts. Students were told the goal of the study, the definition of a summary and were taught to write a summary. The posttest was administered at the end of the second session. The no treatment control group took the posttest and did another writing assignment using the same reading passages while the experimental groups received summarization instruction.

All instruction followed principles of direct instruction as cited in Armbruster,

Anderson, & Ostertag (1987, p. 336)

the instruction featured teacher modeling of explicitly defined procedures, plenty of guided practice on increasingly longer and more difficult passages, teacher monitoring with corrective feedback, and independent practice."

Instruction for Groups 1-4 began with the definition of a summary and the goal of using summarization for studying. Argument repetition or generalization was introduced as a method for reducing the difficulty of summarization and creating a better summary for study purposes. Students in the two groups receiving summarization instruction without self monitoring (Argument Repetition/ no self monitoring and Generalization/ no self monitoring) received handouts telling what to do to summarize using argument repetition or generalization. Students in the summarization plus self monitoring conditions received handouts containing the summarization method plus guidelines for monitoring use of the rules and checkoff box to mark after carrying out each step. The summarization method was demonstrated, students were led through it as a group, and students wrote individual summaries. During the second session students received their corrected summaries, and the summarization method was modeled. The class did a summary together. Then students wrote individual summaries. This final summary was the posttest. The chart in Figure 7 shows the procedures step by step and group by group.

Specific procedures varied slightly by condition as follow. Scripts were used to enhance uniformity. Experimenters were directed to read from the scripts rather

than to make up ways to teach from them.

Argument repetition/No Self Monitoring, Group 1. Argument repetition was defined and modeled. Students practiced on an anecdote and a simple paragraph (Appendix A). The argument repetition guidelines (Appendix B) were distributed and read aloud. A copy of the first text was distributed and the experimenter modeled the use of argument repetition to write a summary, referring to the guidelines. A second text was distributed and the experimenter led the group through the steps of writing a summary according to the guidelines. Then a third text was distributed and students were asked to follow the guidelines and write a summary. Their summaries were collected. Strengths and weaknesses were noted on each paper with reference to the argument repetition rules.

During the second session the guidelines were distributed again and read aloud. Student summaries and the third text were returned. Students reviewed their corrected summaries. The experimenter modeled application of the guidelines to the third text and distributed a model summary. The fourth text was distributed, and the experimenter guided the group in using the guidelines to write a summary. Then students were directed to use the rules to write a summary of the last text on their own.

Argument repetition/Self Monitoring, Group 2. Procedures for instruction in using argument repetition for summarization used with Group 1 were supplemented by explicit self monitoring procedures. The guidelines included a checklist for self

monitoring (Appendix C). When the experimenter modeled the use of argument repetition guidelines for writing a summary, she also modeled self monitoring, checking off each step as it was completed. Instruction included self monitoring, so students were led in checking off each step as they did the second summary as a group, and were directed to use their check lists on the third summary. On the second day of instruction self monitoring was again modeled and taught along with the summarization method.

Generalization\No Self Monitoring, Group 3. Procedures for Group 1 were followed with instruction in generalization instead of argument repetition. Generalization was defined and modeled. Students practiced on a list and a simple paragraph (Appendix A). The guidelines for using generalization for summarization (Appendix D) were distributed and read aloud.

Generalization/Self Monitoring, Group 4. Procedures paralleled those for Group 2 with instruction in using the guidelines for summarization using generalization and self monitoring (Appendix E).

Pretest/Posttest Control, Group 5. Students read the same passages that were read by students in the other conditions. They were taught to relate the passages to their own experiences in order to understand what is important to the author. Students were given the phrase, "I see the world reflected in myself, I see myself reflected in the world." They learned to write a paragraph about themselves and relate it to the information in the passage.

Self reflection was defined and modeled. Students practiced on two simple paragraphs (Appendix A). A copy of the first text was distributed and the experimenter modeled the self reflection procedure. The second text was distributed and the experimenter led the group through the steps of writing self reflections and using them to infer what is important to the author. Then the third text was distributed and students were asked to write a self reflection. Their self reflections and handouts were collected. Strengths and weaknesses were noted on each paper with reference to the self reflection procedures.

During the second session student self reflections and the third text were returned. Students reviewed their corrected self reflections. The experimenter modeled application of the self reflection procedure to the third text. She read her model self reflection aloud. The fourth text was distributed, and the experimenter lead the class in writing self reflections. Then students were directed to use what they learned about importance to write a summary of the fifth text.

Scoring

A written summary was chosen as the most valid determination of how much students had learned about summarization. It is difficult to assess summaries objectively, because they are not derived directly from the surface of the text, and because the same ideas can be restated in many ways. Though passages from the Day (1980) and Brown and Day (1983) studies were used for the posttest in this study, the original scoring standards could not be used. As explained above, Day

(1980) and Brown and Day (1983), directed students to copy topic sentences from the text, while a major goal of this study is to teach students to generate their own sentences. In addition this study directed students to combine paragraphs, while Day (1980) and Brown and Day (1983) did not. Instead this study used analyses derived from other studies of summarization: measures of inclusion and exclusion developed by Garner and McCaleb (1985), and a measure of transformation developed by Winograd's (1984). An efficiency index was developed to combine the inclusion and exclusion scores. Figure 8 shows the scoring system.

In order to code and analyze the content of student summaries, a system developed by Garner and McCaleb (1985) was followed. The posttest passages were read by two experts (college reading instructors). Each wrote two "ideal" summaries of each passage, a terse summary and a full summary. Based on these protocols the experimenter made up a list of "important" idea units, those which are essential parts of gist whose omission is an error; optional idea units, those which can be included for a more informative summary; and erroneous idea units, trivial ideas whose inclusion would be an error. The "important" idea units identified by the experts consisted of two global generalizations, two global constructions, and four major supporting ideas. Differences were discussed until agreement was reached. Redundant, inaccurate, and extraneous ideas were also coded as erroneous. Optional ideas were not coded, because they do not strengthen or weaken the summary.

Student summaries were coded by the experimenter and two research assistants using the lists of "important," optional, and erroneous idea units. Summaries were typed and photocopied so a fresh copy was used each time a summary was coded. Each paper was coded twice for each variable and disagreements were coded by the third researcher. All statements were coded on what was actually written, even when expert readers agreed that the student intended to say something else. The Inclusion score was the percent of "important" ideas from the passage present in the summary.

The Exclusion score was the number of erroneous words present in the summary. Words were used instead of propositions, because during pilot testing the number of erroneous words was correlated at the .99 level with the number of erroneous propositions using the Bovair and Kieras (1985) system of propositional analysis.

The list of optional and trivial ideas prepared before the experiment had to be modified to cover the types of writing which showed up in the sample. For instance the list of important ideas included the passage of time, while the list of trivial ideas included specific vehicles or simple boats. Contrasts between the past and present of each form of transportation could be made succinctly by a good writer, but freshmen in developmental courses often are clumsy, using ten words where a skilled writer could have used one or two. Even more problematical was the fact that the students in the study often named one of the specific types of

vehicles or simple boats to make their comparisons. In this case one of the specific words was accepted as optional instead of erroneous for the sake of the past/present contrast.

The decisions were based on a cautious construction of error, so that sloppy writing was not considered poor macroprocessing. Thus when there was ambiguity, the exclusion count was reduced to those ideas which definitely should have been excluded. All such judgements were recorded using Brown and Day's (1983) system; trivial ideas were underlined in red, redundant ideas in green, inaccurate ideas in blue, and extraneous ideas in purple. Each summary was coded by two researchers with discussion and reference to the rewritten rules and comparisons among summaries to insure consistency.

An indication of overall quality of the summary was given by the efficiency score, developed in consultation with a statistician and a measurement expert, averaging the inclusion and exclusion scores as shown in Figure 9.

For this purpose the exclusion score was converted to a decimal ratio of possible errors. Because the number of possible errors could not be predetermined, the maximum number of erroneous idea units written by a single subject in each condition was used. The maximums for the five conditions were: 1-43, 2-82, 3-53, 4-30, 5-99. The mean of the maximums for the five conditions was calculated to set a maximum score, 61.4. The number of erroneous idea units in each summary was subtracted from the maximum score to create an intermediate exclusion score

so that a higher score indicates a better summary. This score was converted to a decimal, the ratio between an individual's score and the maximum score described above. When the exclusion score was converted to this decimal ratio of possible errors, and the inclusion score converted from a percent to a decimal, the two scores were summed to give an efficiency score, an indication of the quality of the essay as a whole. The sum of the two scores was divided by two so that the perfect summary's efficiency score is 100. The lowest scores fell below zero because of the conversion process.

To determine the extent to which students were able to generate their own sentences to summarize paragraphs of text, this study was planned using Winograd's (1984) method of analyzing transformations with addition of a category for extraneous sentences found in a pilot study for this research. In Winograd's (1984) study each sentence in the student summary was compared to the original passage and coded as:

- reproduction - one sentence in the original copied or paraphrased
- run-on combination - elements from two or more sentences are included but "in a less organized fashion,"
- combination - based on two or more sentences
- invention - "where subjects produced individual sentences which conveyed the meaning of a paragraph, several paragraphs or a whole passage."
(Winograd, 1984, p.408)
- extraneous - subject writes about ideas which were not in the passage at all.

This method was not as useful as had been anticipated, because sentences conveying the meaning of a paragraph could be just reproductions of a single topic

sentence, while sentences produced by a subject combining ideas from more than one paragraph might still not be higher level sentences. Thus the coding was modified so that sentences were coded as:

- reproduction - one sentence in the original copied or paraphrased
- run-on - elements from two or more sentences are included but "in a less organized fashion" (Winograd, 1984, p.408) with four or more clauses
- combination - based on two or more sentences
- invention - where subjects produced individual sentences which combined ideas from a paragraph, several paragraphs or a whole passage.
- extraneous - subject writes about ideas which were not in the passage at all.

This method of coding led to a very high ratio of sentences rated as inventions, even though they were not higher level ideas. So the inventions were broken down into three subcategories, low level inventions, inventions which included high and low level elements, and high level inventions.

To be consistent with Winograd's method, the number of sentences in each category was converted to a percent of sentences in the summary for the sake of comparison. The percent of sentences in each category is reported so that the results of this study can be compared with other studies using Winograd's method. The percent of sentences classified as reproductions and the percent of sentences classified as inventions were both analyzed for significance.

In addition, a unified transformation score was given to each summary so as to be able to test the significance of the quality of transformation . Each sentence

was scored:

- 1 point reproduction
- 2 points run-on combination
- 3 points combination
- 4 points invention

extraneous sentences excluded from this analysis

The number of points per sentence in each summary was totaled. Extraneous sentences were not included in this analysis, because they are not based on any sentences in the text. If a summary included extraneous sentences, the number of extraneous sentences was subtracted from the total number of sentences in the summary. To correct for variations in summary length, the number of sentences per summary - minus the number of extraneous sentences - was converted to a T score, and each summary's total number of points was divided by its T score to get a transformation score.

Transformations in a sample of 20% of the summaries were coded by a second trained researcher to check reliability of coding. All discrepancies were resolved by discussion. If interrater agreement was less than 80%, the coding guides were revised and a second sample of summaries was coded by both researchers until 80% agreement was reached.

The use of a thesis statement to open the summary was coded at five levels: 1=no thesis, 2=topic, 3=incorrect thesis, 4=travel changed, 5=correct thesis (travel improved.) Each thesis was coded by two researchers and discrepancies were resolved by a third researcher.

The use of the word how was coded using word perfect to search each summary for "how." Only one student used the word how more than once or twice. That student used it so frequently that the writing could not be coded, and the student was dropped from the sample. For the remaining subjects, how was coded as present or absent.

Among the various ways of coding the summaries, the exclusion score was the most difficult. For the other ways of coding it was necessary to double check for consistency and to discuss a few judgement calls. The exclusion score was difficult because there were many summaries which were long because of poor writing, not because of poor judgements of importance. Many students did not have the vocabulary or experience to write terse summaries. The difficulty was greater because the unit of analysis was the word, so many more judgements had to be made on each summary for this dependent measure than for the others.

Results

This training study examined the effects of two crossed independent variables on students' summarization as measured by a written summary analyzed as five kinds of dependent variables. The first independent variable, summarization method, has two levels, argument repetition and generalization, contrasted in Figure 2. The second independent variable, self monitoring, also has two levels, consisting of whether or not students were given a detailed self monitoring checklist as part of their summarization guidelines. A no treatment control group which took the posttest serves as a third level for each independent variable.

The summary each student wrote as a post test was analyzed in four ways in an attempt to analyze the complex processes of summarization. Three measures of content or judgement of importance were Inclusion (percent of important information), Exclusion (number of words of unimportant or erroneous information) and Efficiency (a combination of a student's scores on inclusion and exclusion, specified in Figure 9).

Transformation of units of text into sentences in the student's own words was analyzed as a Unified Transformation Score (see Figure 8). Three of the levels of transformation are also reported: they are Reproductions, Inventions, and High Level Inventions. These three levels of sentence transformation are reported as percents of the number of sentences in the student's summary.

The third type of dependent measure, Thesis Statement, assessed whether

students were able to determine the (unstated) thesis of the passage and write it in their own words at the beginning of the summary. The fourth type of dependent measure, empty references, shows whether students used the word "how" as a substitute for actual information.

Descriptive Statistics

The number of subjects in each condition was Argument Repetition (AR) 30, Argument Repetition with Self Monitoring (AR-SM) 30, Generalization (G) 28, Generalization with Self Monitoring (G-Sm) 25, and No Treatment (NT) 34. The means, and standard deviations for each dependent measure are given in Table 1. Ranges were Inclusion 12.50% - 93.97%, Exclusion 0-99, Efficiency -24.4 - 96.9, Reproductions 0-71.4%, Inventions 0-100%, High Level Inventions 0-66.7%, Unified Sentence Transformation 13.98-55.32, and Thesis 1 - 5. Empty References was treated as a dichotomous variable, because the word how was not used more than once or twice in any summary.

Descriptive variables were age, years speaking English, scores on the CUNY Reading Assessment Test, native language/language spoken at home, sex, and college. Table 2 gives means and standard deviations for continuous descriptive variables and numbers for discrete variables. Year of high school graduation was not analyzed, because it was directly linked to age. The majority of students in all conditions had graduated from high school just before the experiment. Older students had graduated at about age 18. CUNY Writing Assessment Test scores

Table 1

Group Means and Standard Deviations of Dependent Variables

Variables	AR	Condition				Total
		AR-SM	G	G-SM	NT	
Content						
Inclusion						
<u>M</u>	61.35	57.81	58.71	61.13	50.18	57.50
<u>SD</u>	17.26	18.66	13.72	16.88	18.01	17.36
Exclusion						
<u>M</u>	7.73	10.80	11.50	7.96	39.18	16.39
<u>SD</u>	11.38	16.22	8.83	8.83	26.52	20.86
Efficiency						
<u>M</u>	74.38	69.73	69.99	74.08	43.19	65.30
<u>SD</u>	13.51	15.87	12.25	11.23	23.30	20.26
Sentence Transformation						
% Reproductions						
<u>M</u>	15.12	16.16	11.99	13.89	13.12	14.06
<u>SD</u>	17.78	17.46	12.71	18.44	13.77	15.94
% Inventions						
<u>M</u>	73.15	64.73	68.01	68.01	57.99	65.87
<u>SD</u>	23.39	23.55	23.47	23.06	26.22	24.24
% High Level Inventions						
<u>M</u>	22.94	14.64	20.18	25.97	15.89	19.61
<u>SD</u>	19.10	20.43	23.16	24.29	15.45	20.57
Unified Sentence Transformation						
<u>M</u>	36.77	36.83	38.17	37.90	38.39	37.52
<u>SD</u>	6.36	6.70	5.76	6.03	10.73	7.47
Thesis Statement						
<u>M</u>	2.93	3.03	3.61	3.80	2.94	3.23
<u>SD</u>	1.80	1.86	1.75	1.68	1.69	1.77
Empty Reference ("How")						
# Avoid	29	30	27	25	10	135
# Use	1	0	1	0	24	12

Table 2

Descriptive Variables:
Means, Standard Deviations, and Tests of Significance

Variables	Condition					Total
	AR	AR-SM	G	G-SM	NT	
Age						
<u>M</u>	19.72	18.11	21.16	17.80	19.56	19.28
<u>SD</u>	5.68	.86	5.96	.91	5.40	4.59
Range	17-47	17-20	17-35	16-21	16-46	16-47
Years English						
<u>M</u>	18.41	14.00	15.96	14.24	17.53	16.12
<u>SD</u>	6.90	5.23	8.32	4.64	7.11	6.75
# 2-5yrs	1	3	3	2	2	11
# 6-10yrs	1	5	5	5	3	19
# > 11yrs	27	22	19	18	29	115
Reading Assessment Test						
<u>M</u>	15.25	13.46	15.04	15.58	15.29	14.92
<u>SD</u>	3.79	4.02	4.52	3.84	3.34	3.91
Language						
# English	20	11	15	11	22	79
# Spanish	2	6	6	6	7	27
# Other	7	12	7	8	5	39
Sex						
Female	20	16	16	12	16	80
Male	9	13	11	13	18	64
College						
College 1	12	14	11	11	15	63
College 2	4	8	5	8	5	31
College 3	13	8	12	6	13	52

were not analyzed, because all but 19 subjects received a score of 6.

Transformations

Two variables had to be transformed before being analysed with parametric statistics. The Exclusion score had a Poisson Effect. To correct for the Poisson Effect the logarithm of the quantity of one plus the score was used in the Manova and Mancova. The Efficiency score was transformed to a normal distribution using the square root of the quantity one minus the decimal efficiency score.

Hypothesis Testing

The first hypothesis predicted that within each self monitoring condition students taught to use generalization to write summaries would demonstrate significantly better summarization as measured by the dependent variables than students taught to use argument repetition and students not receiving instruction. The results for Exclusion, shown in Table 3 were significant $F(6, 282) = 8.94$, $P < .001$ as were results for Efficiency $F(4, 284) = 8.62$, $P < .001$. Tukey HSD tests indicated that for both variables the significant differences were between the control group and the treatment groups. The other continuous variables were not significant. Results for Empty References, shown in Table 4 were significant $\chi^2(2, N=147) = 26.64$, $P < .001$, due to differences between the control group and the treatment groups. Results for Thesis Statement, shown in Table 5 were significant $\chi^2(8, N=146) = 18.03$, $P < .03$ for the difference among the three levels of Method of summarization instruction, and for the difference between the two treatment

Table 3

Effects of Method and Self Monitoring On Inclusion,
Exclusion, Efficiency and Unified Transformation

Main Effect of Method							
		MANOVA			MANCOVA with RAT		
		df	F	P	df	F	P
Inclusion	6,	282	.20	.30	6,	268	1.23 .30
Exclusion	6,	282	8.94	.000	6,	268	7.81 .001
Efficiency	4,	284	9.50	.000	4,	270	9.33 .000
Uni.Snt.Tr.	6,	282	.74	.48	6,	268	.23 .79

Main Effect of Self Monitoring							
		MANOVA			MANCOVA with RAT		
		df	F	P	df	F	P
Inclusion	3,	140	.27	.61	3,	133	.36 .55
Exclusion	3,	140	1.50	.22	3,	133	1.54 .22
Efficiency	2,	141	1.18	.28	2,	134	1.27 .26
Uni.Snt.Tr.	3,	140	.02	.89	3,	133	.00 .95

Additive Effects of Method and Self Monitoring							
		MANOVA			MANCOVA with RAT		
		df	F	P	df	F	P
Inclusion	3,	140	.86	.36	3,	133	.36 .55
Exclusion	3,	140	1.85	.18	3,	133	1.57 .21
Efficiency	2,	141	2.88	.09	2,	134	1.55 .22
Uni.Snt.Tr.	3,	140	.00	.97	3,	133	.07 .79

Table 4

Effects of Method, Self Monitoring and Reading Assessment
On Empty References

Empty References by Condition*

	Condition					Total
	AR	AR-SM	G	G-SM	NT	
Avoid "How"	29	30	27	25	24	135
Use "How"	1	0	1	0	10	12

Empty References by Method

	Summarization Method			Total
	Arg. Rep.	Generaliz.	NT	
Avoid "How"	59	52	24	135
Use "How"	1	1	10	12

Empty References by Self Monitoring

	Self Monitoring			Total
	No Self Monitor	Self Monitor	NT	
Avoid "How"	56	55	24	135
Use "How"	2	0	10	12

*Empty Reference by Condition $\chi^2 = 27.09$ $p < .001$

Table 5

Effects of Method, Self Monitoring and Reading Assessment
On Thesis Statement

Thesis by Condition

	Condition					
Thesis	AR	AR-SM	G	G-SM	NT	Total
None	12	12	7	6	11	48
Topic	1	0	2	0	4	7
Incorrect	5	4	1	1	6	17
Approximate	1	1	3	4	2	11
Correct	11	12	15	14	11	63

Thesis by Method

	Summarization Method			
Thesis	Arg. Rep.	Generaliz.	NT	Total
None	24	13	11	48
Topic	1	2	4	7
Incorrect	9	2	6	17
Approximation	2	7	2	11
Correct	23	29	11	63

groups $\chi^2(4, N=112) = 11.23906, p < .03$.

The second hypothesis predicted that within each summarization method condition students taught to use self monitoring would write significantly better summaries as measured by the dependent variables than students who received only summarization instruction. Results were significant for Empty References $\chi^2(2, N=147) = 27.09 P < .001$ with a significant difference between the control group and the treatment groups, shown in Table 4. Other planned tests did not support this hypothesis.

The third hypothesis predicted that summarization method and self monitoring would have an additive effect so that students receiving argument repetition instruction alone would receive the lowest scores on all dependent measures and those receiving generalization instruction with self monitoring would receive the highest scores, while scores of the other two groups would fall in between. This hypothesis was not supported.

Background information about students given in Table 2 was analyzed to ascertain that it did not influence the outcome of the study. Of the descriptive variables of age, years speaking English, native language/language spoken at home, sex, and college, only one showed statistically significant differences among conditions. The statistically significant difference was in years speaking English, $F = 2.54, P < .05$. This difference would not have affected summarization. Group means ranged from 18.414 years to 14 years, so subjects in all conditions were

familiar with English. None of the descriptive variables had a significant effect on any of the dependent measures.

A MANCOVA of the dependent measures with the CUNY Reading Assessment Test as a covariate did not differ significantly from the MANOVA. Results of a MANCOVA, given in Table 3, show that Method of summarization instruction had a significant effect on Exclusion $F(6, 268) = 7.81, P = .001$ and Efficiency $F(4, 270) = 9.33, P < .001$. The CUNY Reading Assessment Test was significant for Unified Sentence Transformation $F(3, 133) = 6.40, P < .02$.

Because the dependent variables: Inclusion, Exclusion, Unified Sentence Transformation, and Thesis Statement were different components of a summary, correlations among them were tested for significance as shown in Table 6. Inclusion and Unified Sentence Transformation were the only dependent variables that were significantly correlated ($r = .39, P < .001$). Unified Sentence Transformation was the only dependent variable which was significantly correlated with scores on the CUNY Reading Achievement Test ($r = .22, P < .01$).

Additional Tests

In order to determine whether the treatment was more effective for good readers or poor readers, the continuous dependent measures were analyzed for students above and below the median for reading achievement, shown in Table 7. MANOVA of the continuous dependent variables Table 7 showed that while Method of summarization instruction had a significant effect on

Table 6

Correlations Among Dependent Measures and Reading Assessment Test

	Exclusion	Unified Trans- formations	Thesis	Reading Assess. Test
Inclusion	-.162	.388**	.089	.054
Exclusion		-.015	-.034	-.105
Unified Sent. Transf.			-.305	.216*
Thesis				.079

*p<.01 **p<.001 one tailed significance

Table 7
Students Above/Below Median Reading Assessment Score

Students at or Above Median Reading Assessment Score							
Variables	Condition						
	AR	AR-SM	G	G-SM	NT	Total	
Inclusion							
Mean	61.04	55.31	58.71	62.50	52.19	57.73	
StDev	19.58	13.43	16.22	16.11	17.91	17.10	
Exclusion							
Mean	.57	.65	.86	.68	1.42	.89	
StDev	.59	.61	.52	.54	.46	.62	
Efficiency							
Mean	.48	.53	.53	.49	.72	.56	
StDev	.15	.10	.10	.11	.14	.16	
Unified Sentence Transformation							
Mean	37.01	39.52	39.79	39.67	41.39	39.60	
StDev	6.32	7.76	4.10	6.00	9.48	7.11	
					ANOVA Effect of Method	F	P
Exclusion					4.753	.012	
Efficiency					4.972	.010	
Students Below Median Reading Assessment Score							
Variables	Condition						
	AR	AR-SM	G	G-SM	NT	Total	
Content							
Inclusion							
Mean	58.86	61.46	58.41	60.07	47.32	57.42	
StDev	13.31	20.34	11.72	19.50	18.42	17.47	
Exclusion							
Mean	.78	.83	.90	.71	1.52	.96	
StDev	.45	.60	.54	.58	.42	.59	
Efficiency							
Mean	.52	.53	.55	.51	.77	.58	
StDev	.11	.15	.13	.12	.16	.17	
Unified Sentence Transformation							
Mean	36.69	35.24	36.44	35.96	34.11	36.61	
StDev	7.12	5.32	7.07	5.02	11.29	7.40	
					ANOVA Effect of Method	F	P

Exclusion for students above the median in reading achievement $F(6, 136) = 4.75292$ $P < .02$, it was not significant for students below the median $F(6, 122) = 2.95571$, $P < .06$.

Reading Achievement Scores were split by frequency into thirds for chi² analysis of the discrete dependent variables. The effect of Method of summarization instruction on Empty Reference was significant for readers in the middle third $\chi^2(2, n=38) = 9.34921$, $P < .01$ and for the highest third $\chi^2(2, n=53) = 13.28684$, $P < .002$, but not for the low group. The effect of Self Monitoring on Empty Reference was significant for the middle group $\chi^2(2, 38) = 9.34921$ $P < .01$ and the high group $\chi^2(2, n=53) = 13.26796$ $P < .002$. Thesis was not significant when split into three levels of reading achievement, but was closest to significance at the highest reading level (Pearson $\chi^2 12.6895$ $P < .13$, Likelihood Ratio $\chi^2 14.48373$ $P < .08$).

The planned measures of sentence transformation, based on the amount of text brought together in a sentence, did not have significant effects for either independent variable. The percent of sentences in student summaries that were High Level Inventions, in which information was macroprocessed, not just pasted together, seemed to show more resemblance to the Inventions in the research of Winograd (1984) and Johns (1985) than the did the percent of Inventions. The High Level Inventions showed more variation among treatment groups and came closer to being significant than the other levels of sentence transformation. When

the Unified Sentence Transformation score was recalculated with five levels, splitting the Inventions into Low Level Inventions (4 points) and High Level Inventions (5 points), the new score differed from the original score of Unified Sentence Transformation in varying more among treatment groups and not being significantly related to students' reading achievement scores. Still, as shown in Table 8, the independent variables did not have a significant effect on this score.

An additional analysis was undertaken to be sure the the control group's lesson in self reference had not confounded the study by increasing the presence of extraneous sentences about students' personal experiences or points of view. Two additional exclusion scores were calculated. In Exclusion II only trivial, redundant and inaccurate ideas were counted. Exclusion III was a count of trivial, redundant, and inaccurate ideas plus the extraneous ideas which were extrapolations (for example, busses and trains as vehicles) but excluding personal statements or opinions (for example, "How would I get to school?"). Neither variant had a normal distribution, so both were analyzed by χ^2 of a median split. Both showed significant effects for both Method of summarization instruction and Self Monitoring as shown in Table 9 and Table 10.

Because individual dependent measures were not highly correlated, an overall measure of summarization was developed by transforming each range of scores to a five point scale and adding the points to get a score with a possible range of four to twenty. Overall Summarization, shown in Table 11, was significantly affected

Table 8

Effects of Treatment on Modified Unified Sentence Transformations
Separating High Level and Low Level Inventions

	Condition					
	AR	AR-SM	G	G-SM	NT	Total
Modified Unified Sentence Transformations						
<u>M</u>	.29	.27	.31	.33	.34	.31
<u>SD</u>	.10	.10	.10	.10	.14	.11
ANOVA						
Variable	df	F	P			
Method	2	2.75	.067			
Self Monitoring	1	0.13	.716			
Method by Self Monitoring	1	0.38	.573			
ANCOVA						
Variable	df	F	P			
Reading Assessment Test	1	0.04	.843			
Method	2	2.75	.067			
Self Monitoring	1	0.13	.716			
Method by Self Monitoring	1	0.38	.573			

Table 9

Exclusion II: Effect of Treatment on Exclusion
Of Trivial, Redundant & Inaccurate Ideas

Exclusion II

	Condition					
	AR	AR-SM	G	G-SM	NT	Total
<u>M</u>	7.20	10.83	11.43	7.92	19.21	11.65
<u>SD</u>	10.84	16.15	11.96	8.80	16.29	13.93

Exclusion II by Condition

						Chi ²
# < Median		20	15	12	13	10
# > Median		10	15	16	12	24
						9.40

Exclusion II By Method

	Summarization Method			Chi ²
	Arg. Rep.	Generaliz.	NT	
< Median	35	25	10	
>Median	25	28	24	
				7.28*

Exclusion II By Self Monitoring

	Self Monitoring			Chi ²
	No Self Monitor	Self Monitor	NT	
< Median	32	28	10	
>Median	24	25	24	
				6.08*

* P < .05

Table 10

Exclusion III: Effects of Treatment On Exclusion Of Trivial, Redundant & Inaccurate Ideas, Personal Ideas, and Opinions Discounting Extraneous Ideas that are Extrapolations

Exclusion III

	Condition					Total
	AR	AR-SM	G	G-SM	NT	
<u>M</u>	7.73	11.27	11.50	7.96	24.59	13.11
<u>SD</u>	11.35	16.10	11.89	8.83	19.79	15.71

Exclusion III by Condition						Chi ²
< Median	21	14	12	15	9	
> Median	9	16	16	10	25	
						13.88**

Exclusion III By Method

	Summarization Method			Chi ²
	Arg. Rep.	Generaliz.	NT	
< Median	35	27	9	
>Median	25	26	25	
				9.06*

Exclusion III By Self Monitoring

	Self Monitoring			Chi ²
	No Self Monitor	Self Monitor	NT	
< Median	33	29	9	
>Median	25	26	25	
				8.64*

* P < .05 ** P < .01

Table 11

Effects of Treatment on Overall Summarization: Combining Inclusion, Exclusion, Unified Transformation & Thesis

	Condition					
	AR	AR-SM	G	G-SM	NT	Total
Summarization						
<u>M</u>	14.43	14.17	15.29	15.52	12.62	14.31
<u>SD</u>	2.29	3.06	2.28	2.69	2.85	2.83
Summarization by Condition						
< Median	15	14	9	10	25	73
> Median	15	15	19	15	9	73
Summarization by Method						
	Summarization Method				Chi ²	
	Arg. Rep.	Generaliz.	NT			
< Median	29	19	25		11.80**	
> Median	30	34	9			
Summarization by Self Monitoring						
	Self Monitoring			Chi ²		
	No Self Monitor	Self Monitor	NT			
< Median	24	24	25	9.92**		
> Median	34	30	9			

**P < .01

by Method of summarization instruction $\text{Chi}^2 (2, N = 147) = 11.79464, P < .003$, and Self Monitoring $\text{Chi}^2 (2, N = 147) = 9.92022, P < .008$ and by condition $\text{Chi}^2 (4, N = 147) = 12.13532, P < .02$. Although differences between the two Methods of summarization treatment were not significant, the generalization students did summarize better than the argument repetition students. While half the argument repetition students scored above the median and half below, in the generalization group the number of students scoring above the median was twice the number that scored below the median.

Because the two measures of content, or judgement of importance, Inclusion and Exclusion, were not significantly correlated, it was of interest to determine which subjects had done well on both, which had done badly on both, and which did well on one and badly on the other. A new variable, called Content Mastery, shown in Table 12, was created to show the distribution of subjects with respect to this pair of variables.

A Chi square test of Content Mastery by condition showed a significant difference between the control group and the treatment groups for Condition $\text{chi}^2 (8, N + 147) = 27.4457, P < .001$, Method of summarization instruction $\text{chi}^2 (4, N = 147) = 21.40864, P < .001$, and self monitoring $\text{chi}^2 (4, N = 147) = 21.53551, P < .001$. Indeed only one subject in the control group was above the median in both Inclusion and Exclusion with the others roughly split between those above the median in one or the other and those below the median in both.

Table 12

Effects of Method and Self Monitoring on Content Mastery
Students Who Scored Above the Median on Inclusion and
Exclusion

	<u>Condition</u>					Total
	AR	AR-SM	G	G-SM	NT	
Above Median Inclusion and Exclusion by Condition						
Both	12	7	6	11	1	37
One	14	16	16	11	15	72
Neither	4	7	6	3	18	38
Above Median Inclusion and Exclusion by Method						
	<u>Summarization Method</u>			Chi ²		
	Arg. Rep.	Generaliz.	NT			
Number	60	53	34			
Both	19	17	1			
One	30	27	15			
Neither	11	9	18	21.48***		
Above Median Inclusion and Exclusion by Self Monitoring						
	No Self Monitor	Self Monitor	NT	Chi ²		
Both	18	18	1			
One	30	27	15			
Neither	10	10	18	21.536***		

***P < .001

In contrast, in all the treatment groups the number above the median on both dependent variables was greater or equal to the number below on both. Differences among the treatment groups were not significant.

Discussion

The goals of this study were: 1) to develop an effective way of teaching summarization to college students and 2) to determine the value of instruction in generalization, van Dijk and Kintsch's (1983) second macrorule, for summarization instruction. Kintsch and Van Dijk (1978) had shown that argument repetition predicted which ideas would be included in summaries written by fluent readers, so this study compared instruction in generalization to instruction in argument repetition. Extending Brown and Day's (1983) research on summarization instruction, the present study taught college students to summarize by generating their own sentences containing information needed for studying. Each student summary was analyzed using four types of dependent variables in order to improve our understanding of the covert processes of summarization.

The results confirm our presumption of the complexity of summarization and the value of strategy instruction. They show that instruction in generalization is as powerful as instruction in argument repetition for summarization and that both are more effective than no instruction. The results suggest that instruction in generalization may be more powerful than instruction in argument repetition for determining the thesis, the apex of the hierarchical structure underlying most expository text.

Practitioners and the researchers cited above have found summarization hard to teach, because cues to importance are not an obvious part of the surface structure

of text, and because abstracting gist requires both comprehending text and relating concepts to one another in order to construct higher level concepts. The Review of the Literature above set out the complexity of the processes entailed in summarization. One reason summarization is hard to teach is the conundrum that students being taught to summarize cannot discern the gist of a passage until they have learned to abstract gist or summarize. Classroom pilot tests of summarization reveal that students wonder what to look for and how to tell whether they have found it.

The two methods of summarization instruction taught in this study compared argument repetition, a central element of van Dijk and Kintsch's (1983) microprocessing, and generalization, a key element of their macroprocessing. Both methods were presented to students as familiar processes which can be used to figure out what is important to the author. Students in both conditions received the same definition of a summary, and the same overall instructions: 1. Read the entire passage and think about its meaning as a whole. 2. Write the thesis in your own words. 3. Group paragraphs and write the main idea of each group in your own words. 4. Check your summary. The only difference between the two methods of instruction was the way to determine the thesis and main ideas. Students in argument repetition were shown a chart of coherence, and taught that the more an idea was referred to in the text, the more important it was. Students in generalization were shown a hierarchical chart and taught how to form a

generalization to sum up the specifics written in the text. Experimenters in both conditions and tutors and faculty who sat in on some sessions felt that all the students understood the directions and procedures.

The difference between the two levels of self monitoring were differences of degree and explicitness. As noted above, students in all treatment groups were reminded to check their work. Building on Day's (1980) conclusions, all treatment groups were taught the reasons that the procedures would be effective. The guidelines for the self monitoring condition were modeled on Bereiter and Scardemalia's (1987) procedural facilitation. The self monitoring guidelines were more detailed and more explicit than the plain guidelines, and they utilized the physical act of checking off a list as a reminder to actually carry out the procedures.

The passages to be summarized were all easy to read. All had been selected or modified so that the thesis was not stated directly. Most of the paragraphs did not have explicit topic sentences. Students could not write the thesis or determine the most important supporting ideas without macroprocessing.

In order to gain insight into the processes of summarization, four types of dependent variables were used to analyze each student summary. The first was content, or judgement of importance, measured by Inclusion of important ideas and Exclusion of (erroneous) unimportant, redundant, inaccurate or extraneous ideas. The combined effect of Inclusion and Exclusion, was labeled Efficiency, and

consistency of achievement across Inclusion and Exclusion was called Content Mastery. The second type of dependent variable was transformation of sentences from the text into sentences in the students' own words, (described in detail on pages 67 to 69). The next variable was determining the Thesis Statement and writing it at the beginning of the summary. The last dependent variable was Empty Reference, writing the word how instead of actual information. The low correlations among the dependent variables confirmed the complexity of the summarization process. Only Inclusion and Unified Sentence Transformation were significantly correlated with one another, and these were the two variables that did not differ significantly among the treatment groups.

Hypothesis Testing

Hypothesis one, that instruction in summarization would be more effective than no instruction, and that instruction in generalization would be more effective than argument repetition was partly supported. Treatment groups received higher scores than the control group on all variables except the measures of Sentence Transformation. Exclusion, Efficiency, Content Mastery, Thesis Statement, Empty Reference and Overall Summarization showed statistically significant differences between the treatment groups and the control group.

The Exclusion score, the count of trivial, redundant, inaccurate, and extraneous ideas was significantly lower (better) for subjects given either kind of summarization instruction than for the no-treatment group. The difference

remained statistically significant after correcting for possible contamination by extraneous sentences due to the lessons studied by the no treatment group. This indicates that determining importance by either argument repetition or generalization gave subjects the basis for recognizing what to keep out of their summaries. Both methods of summarization instruction included explicit warnings to keep out examples and anecdotes, and admonitions not to repeat. This result supports Day's (1980) finding that deletion of trivial and redundant material was the first component of summarization that students mastered.

Differences in Inclusion were not statistically significant, though inclusion scores of students taught to summarize were higher than those of the no treatment group. The instructions for Inclusion were to group together consecutive paragraphs on the same aspect of the topic and write a single sentence for each group. This may have been hard to implement when differences between aspects of the topic were subtle. In addition lack of significance in Inclusion may be due to the shallowness of the posttest passage.

None of the measures of sentence transformation varied significantly across treatment groups, and measures of Reproduction and High Level Inventions had very high standard deviations. The measure of sentence transformation developed by Winograd (1984) had to be modified for this study, because it was ipsative, and because the number of units of text brought together was confounded with the level of abstraction. The current study showed that while the average percent of

sentences in a summary containing information from a paragraph or more of text was 65.87%, the average percent of sentences which were high level abstractions of a paragraph or more of text was 19.61%. Winograd found significant differences between good and poor eighth grade readers in the proportion of reproductions, combinations and inventions in their summaries. Johns (1985) studied transformation of idea units (Kroll, 1970, cited in Johns 1985) rather than sentences. She found significant differences between mainstream and "underprepared" college freshmen in the proportions of reproductions, combinations and inventions in their summaries.

All students in the present study fall into Johns' (1985) underprepared category. The present study's instruction in generalization did not lead to significantly higher use of Inventions or High Level Inventions. The group which received instruction in generalization with self monitoring had a higher proportion of High Level Inventions than the other conditions but the difference was not statistically significant, and this group did not have a lower level of Reproductions than the control group. The generalization without self monitoring condition had the lowest level of Reproductions but did not have a proportionately high level of High Level Inventions. It may be that the instruction in generalization is not effective or that a longer period of instruction is needed. It may be that instruction in one strategy is not enough to overcome extensive differences between good and poor students. Correlations between reading scores and transformation are

discussed below.

The absence of significant differences in sentence transformations may be due to the simplicity of the materials. It may be that the posttest passage was easy enough and familiar enough that students in all conditions were able to keep numerous sentences in mind and combine them. Byrd (1990) used three passages from Day (1980) including "Travel" in her study of summary writing of college freshmen and reported higher levels of reproduction among her students than were found in this study. She did not report statistical analyses.

The next dependent variable, construction of a thesis sentence which states the main idea of the entire passage, goes beyond Day's (1980) most difficult rule, invent a topic sentence. The thesis is the topic sentence of the entire passage, the apex of the macroprocessing pyramid as described in van Dijk and Kintsch (1983). At the sentence and paragraph level this study's measures of transformation showed insignificant differences among conditions, but the construction of a thesis sentence showed a significant difference between the treatment groups and the control group and between the generalization group and the argument repetition group. Thus generalization instruction was significantly more effective for the variable which most clearly indicates macroprocessing.

Within each self monitoring condition both treatment groups received the same number of reminders to start with the thesis. Their instruction in summarization differed only in how to determine the thesis. Thus the significant

difference between the argument repetition group and the generalization group confirms that generalization was a more powerful tool for the most difficult demonstration of macroprocessing. Apparently instruction in argument repetition was powerful enough for the midlevel macrostructure, but not for the thesis.

The variable Empty Reference was an indication that subjects actually gave information and avoided using the word "how" as a referent. It was significant for both Method of summarization instruction and Self Monitoring. All treatment groups, instructed not to use how, used it significantly less than the no treatment group. This suggests that the frequent use of how in the summaries of incoming college freshmen is due to writing styles learned in other settings in which preserving information may not be central to the goal of summarization. Any of the treatment conditions was sufficient for students to find how in the surface structure and replace it, or guard against writing it.

The second hypothesis, that students instructed in Self Monitoring would do better than students not instructed in Self Monitoring was not really supported. Although the Chi square for Self Monitoring for Exclusion, Empty Reference, Content Mastery, and Overall Summarization was statistically significant, it could not be attributed to the self monitoring training. The scores of subjects whose summarization instruction included only a reminder to check your work were much closer to the scores of subjects who received intensive Self Monitoring as part of summarization instruction than to subjects with no treatment. Differences between

the treatment groups were not significant. This suggests that it was the presence or absence of summarization instruction, not the presence or absence of the checklist used for self monitoring instruction, which accounted for the differences in students' scores.

The third hypothesis, that summarization instruction and self monitoring would have an additive effect was not supported. Indeed it seemed that on every variable except sentence transformations the argument repetition/no self monitoring group and the generalization/self monitoring group had similar scores, while the scores of the argument repetition/self monitoring group and the generalization/no self monitoring group were alike and a few points lower than the others. It may be that the generalization group, being taught a more complex process benefitted from the explicit list of reminders in the self monitoring materials and scored better than the subjects with generalization instruction alone. The students in the argument repetition group were taught to use the surface structure of the text to judge importance. The materials used in the study were very easy to read, and these students may have found argument repetition easy to identify. For students in the argument repetition - self monitoring group, the self monitoring check list may have been superfluous or even confusing.

Reading Assessment Scores

A close relationship between reading and summarization seems self evident, but, as anticipated, this study showed that the CUNY Reading Assessment Test was

not a significant predictor of summarization as measured this study. Using the test as a covariate did not appreciably affect outcomes of tests of significance. The most immediate conclusion we can draw is that, as practitioners claim, the reading assessment test, with its multiple choice answers does not involve the same processes as summarization. In particular the test requires recognizing answers rather than constructing answers.

More important from a theoretical perspective is the fact that the post test passage was easy to read, but not easy to summarize. The passage was at the fifth grade level of readability on the Dale Chall scale (Day, 1980); faculty and many students commented on how easy it was. Yet it was not easy to summarize. None of the dependent measures in this study had a ceiling effect, and all had wide ranges and relatively large standard deviations. Students did not need high scores on the CUNY Reading Assessment Test to "read" the passage, but high scores did not ensure that they could summarize the passage.

This may support the findings of E. Kintsch (1989) that weak readers are "reading" by constructing microstructure, but not macrostructure.

Yet reading assessment scores did make some difference. In comparing differential effects of the independent variables on better and weaker readers as identified by the CUNY Reading Assessment Test, the results of Exclusion and Empty Reference were significant for the better readers, not the weaker readers, while thesis came closer to significance for better readers than for weaker readers.

It may be that summarization is so difficult that only better readers could benefit from the short period of instruction. Though it may be that students who already knew how to summarize were getting higher reading assessment test scores in part because of that prior knowledge.

It must also be noted that although the differences in the subjects' backgrounds were not statistically significant, the argument repetition - self monitoring group had fewer native speakers of English than any of the other groups and an average reading assessment score of only 13.464, while the reading assessment score averages for the other four groups ranged from 15.037 to 15.583. This "weaker" group had slightly lower scores on most dependent variables than the other treatment groups, but their scores were always closer to those of the other treatment groups than to those of the control group.

The only variable that correlated significantly with the reading test was the Unified Sentence Transformation score, which did not vary among treatment groups. This correlation may mean that the more fluent readers had greater cognitive capacity available for processing larger chunks of text. When the unified transformation score was modified to differentiate between inventions which aggregated information from large chunks of text and inventions which transformed the information into higher level ideas, the correlation with reading test scores disappeared.

Limitations of the Study

This study's focus on classroom instruction meant that procedures were constrained by classroom conditions. The most serious was the limit on time taken from regular classes. Faculty at three colleges were very generous in allowing two full sessions for this experiment. This precluded a pretest, a complex posttest, and a fuller course of instruction.

The decision to omit a pretest was also influenced by difficulties in finding a reliable pretest/posttest comparison. Materials developed by Brown & Day for use in Day (1980) and related studies were selected after several unsuccessful attempts to find a pair of natural language texts which were comparable rhetorically. Pilot studies found that pairs of segments from a single book and pairs of ill structured passages by one author were not reliable. Although Brown and Day's materials were constructed for experiments in summarization and designed to be alike rhetorically, summaries of their "Desert" and "Travel" passages tested for this experiment were not reliable when scored according to this study's methods. This is unfortunate, because a pretest posttest model would have been a better indication of how much students learned from the experimental lessons. Yet it underscores the difficulty of experiments on summarization. Subtle differences in materials have significant effects on text processing.

There were three other reasons for using materials from Day's (1980) study. First, these materials have been used in several other experiments, so people who

read about the present study would be able to compare it to earlier studies using the same materials. Second, the materials are at a fifth grade reading level, so reading difficulties would not divert cognitive capacities from the summarization task. Third, college freshmen could write a summary of either one in twenty minutes accommodating this study's time limitations.

The fact that the posttest, "Travel" was easy to read had been seen as an advantage, but it also may have created a problem for the study. Students and faculty found "Desert" and "Travel" much simpler than the three other passages of comparable length used for instruction. The readability level was the same, but the contents of the passage were shallow. Bowman Wiley, of the Hostos Community College English Department suggested that judgements of importance would have been more clear-cut with a more complex passage, because the hierarchy of importance described in van Dijk and Kintsch (1983) would be more fully developed (personal communication). E. Kintsch (1989) also found that students did not macroprocess as well with simpler texts as with more challenging texts. This study would have been more informative if it had been possible to include as part of the posttest a second passage that was more difficult.

The clear theoretical distinction between text (argument repetition) and process (generalization) could not be totally adhered to in teaching the experiment. Students in the argument repetition condition had to be told that the thesis was not written in the text we used, but had to be thought out, although this was said

explicitly only once. Meanwhile students in the generalization condition had to look at what the details in the text were and how long the author kept talking about them, but repeated references were not referred to directly.

The fact that good students, as defined by reading assessment test scores, seemed to benefit more from the treatments than weaker students, suggests that a longer period of instruction might have led to greater gains in summarization and to more clear-cut differences among treatment conditions. The variability of posttest summaries also indicates that mastery of the strategies was incomplete.

A longer period of instruction would also have enabled the study to move from simple materials appropriate for introducing a new strategy to materials that were more appropriate for college reading classes. Short simple materials were used to assure that reading comprehension was not confounded with summarization, and to enable students to summarize several different passages in short time period. A drawback of this simplicity was that none of the passages dealt with their topics in depth, and one of the passages from Day (1980), "The Desert", was found to be inaccurate in some respects.

Scoring of natural language responses can often be problematic, and coding the work of poor writers can be even more difficult. Although efforts were made to consult experts in setting up scoring standards and to check and recheck actual scoring of summaries, some of the variability of scores and low correlation among dependent measures may be due to the scoring system. A review of the posttest

summaries indicates that part of the variability in scores is due to the great variability in the posttest summaries themselves. A few students wrote summaries that were good or bad in all respects. Some did well on one variable and some on another. Other summaries were consistently mediocre across variables.

How much of the variability in scores was due to individual differences in the subjects' backgrounds could not be determined in this study. None of the descriptive variables was statistically significant. Accounting for differences in prior knowledge as well as ethnicity, age, motivation, intelligence and other personal characteristics would reduce the error variance and tell us more about why students responded to the treatments the way they did, if there was a large enough sample. Yet in a sense the subjects' variability makes this study a more realistic test of classroom instruction. The variability of subjects in this study is certainly typical of the university; with large classes and limited resources, instruction is not usually adapted to students' individual needs.

Another limitation was the choice of instructional method. Concerns about experimental contrasts led to use of the direct instruction paradigm that was used in most published studies of summarization . Methods such as reciprocal teaching (Palincsar and Brown, 1984) in which students play a more active role have produced greater gains in strategy learning.

All college reading and writing classes teach strategies that students will need for their studies in varied academic domains. Thus maintenance and transfer are

extremely important. Transfer of summarization instruction was demonstrated in Palincsar and Brown's (1984) study of reciprocal teaching, and Cook and Mayer (1983) have shown that meaningful learning leads to more transfer than rote learning. The present study was not able to test for maintenance, generalization or transfer.

Directions for Future Research

A replication of this study with a pretest, two passages to summarize for the posttest, and tests of maintenance, generalization and transfer would reduce some of the ambiguity of the present results, and determine more conclusively whether the treatments were effective. Providing a longer period of instruction with more difficult materials would be a more realistic indicator of the value of this treatment for classroom instruction.

Another study should consider the effects of teaching both argument repetition and generalization. A study in which one group receives both treatments, one receives argument repetition and one group generalization, while the fourth group receives neither, would further clarify the usefulness of the treatments.

It would be important to reduce variability of scores on dependent measures. This effort could take three directions. The first would be more extensive testing of coding standards, especially in conjunction with a two passage (hard and easy) posttest. The second approach would be to extend the instruction until students mastered the strategy. The third would be to add a recognition test following the

test on which students generate answers.

The self monitoring device used in this study had limited, perhaps contradictory impact on summarization. Since self monitoring has been effective in many related studies, it would be of value to modify the self monitoring instruction. If a checklist is used, it might be needed between reading and writing rather than after writing. It might have to be on a separate card or chart. It might be valuable to have it modeled differently. The experimenters in the present study modeled the correct way to write the summary, so that when they modeled the checklist there were no errors to correct.

It would be valuable to apply the findings of Schunk and Swartz (1991) who found that self monitoring and writing were affected by goal setting. Though the process and product of the present study seem intertwined, Schunk and Swartz suggest that stating the goal of instruction as mastering the strategy rather than presenting the strategy as a way of meeting the goal of writing good summaries could lead to increased self efficacy and maintenance of strategy use after instruction. Measures of self efficacy for strategy use and for summarization like those used by Schunk and Swartz would provide additional information on the effects of self monitoring instruction and strategy instruction.

It would also be of interest to determine whether the perceived difficulty of the task affected the perceived need for self monitoring. Because the post test in this study was very easy to read, students consistently thought it would be easy to

summarize. They might have felt more need for the checklist as a procedural facilitation if they were summarizing a difficult passage.

A measure of perceived self efficacy and questions about prior experience with summarization and possible applications would have been useful in interpreting the results of the study and should be included in future studies. Tests of declarative knowledge about summarization strategy or think aloud procedures might provide additional insight.

It would be of value to test the summarization instruction in junior high school or senior high school classes. Earlier studies have shown some success at the junior high school level. A single try out of these methods in two junior high school classes showed that students had no trouble understanding the instructional materials, but would need quite a bit of practice to apply the strategies.

The confirmation that there was no significant correlation between reading assessment test scores and summarization merits further study. If macroprocessing is important for learning from text, it would be valuable to have an assessment instrument which tests macroprocessing as well as "reading comprehension." A useful start would be to assemble data from colleges which are developing departmental reading examinations. Many departmental examinations include summarization. Tests of their reliability and validity and correlation with the CUNY Reading Assessment Test have been cursory.

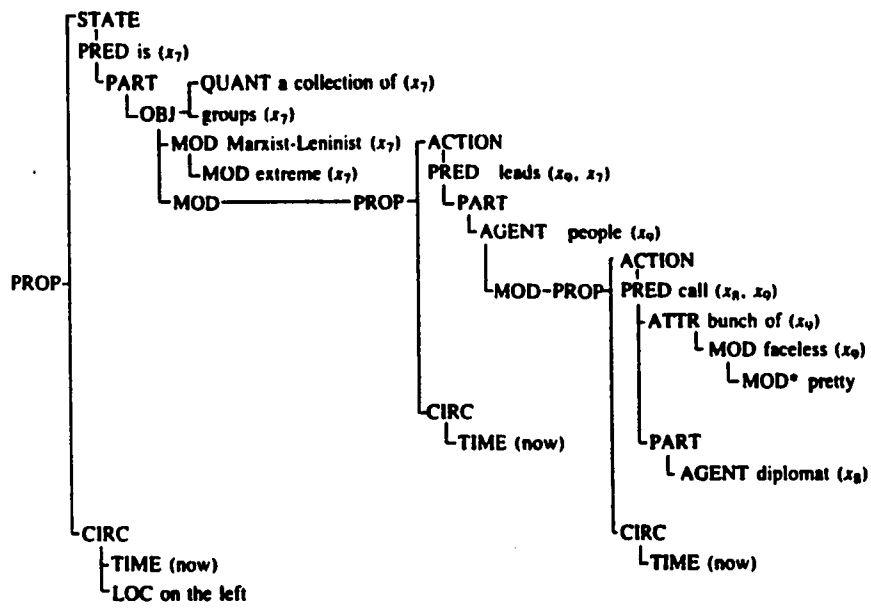
Implications for Education

This brief study gave modest support to a method of instruction in summarization based on the text processing theory of van Dijk and Kintsch (1983). Instruction in using argument repetition and generalization enabled students to write better summaries than a group that was not taught. The immediate implication for instruction is that teachers who want to go beyond the Brown and Day (1983) summarization rules could try this study's methods to teach summarization.

The wider implication is that direct instruction can be a valuable tool for reading instruction, supplementing reading immersion. If we acknowledge that there are many situations in which students must read to meet demands set by institutions, then we are obliged to teach strategies which students can apply to meet those demands. Direct instruction is not a substitute for extensive reading, but for many students it is a necessary complement.

This study may have raised as many questions as it answered, but it shows the value of van Dijk and Kintsch's (1983) theory as a framework for thinking about ways to teach summarization. Others will find this theory as valuable as a basis for investigating other aspects of reading comprehension instruction. Van Dijk and Kintsch's detailed description of the way readers process text is a powerful tool for improving reading instruction.

Figure 1



* 'Pretty' modifies a predicate, not an argument.

Figure 2

Comparison of Experimental Conditions		
Property of Text	Coherence	Hierarchical Structure
Instruction in	Argument Repetition	Generalization
Theoretical Basis	1.Element of microstructure. 2.Accounts for importance	1.Element of macroprocessing 2.Accounts for importance
Evidence of Effectiveness	1.Predicts recall and inclusion in summary, Kintsch & van Dijk (1978) 2.Used by computer to construct summary, Miller (1985)	1.Some improvement in instructional study, Day, (1980) 2.Very effective in classroom, Friend (1988, 1989)
Potential Ease of Instruction	1.Accessible 2.Present in surface structure of text.	Familiar process used in other settings. Tells how to convert surface structure to gist.
Functional Differences	1.Tells what text content will be used in macroprocessing 2.Directs student attention to specific elements of text. 3.Mechanism for recognizing author's emphasis. 4.Can be basis for shortening text.	1.Tells what operation will be performed on text. 2.Directs student attention to elements of text and cognitive process. 3.Mechanism for integrating low level ideas to construct higher level ideas. 4.Shortens text.
Applicability	1.Present in all text, regardless of academic domain.	Present in all text, regardless of academic domain.

Figure 3 **COHERENCE**
Central / Peripheral

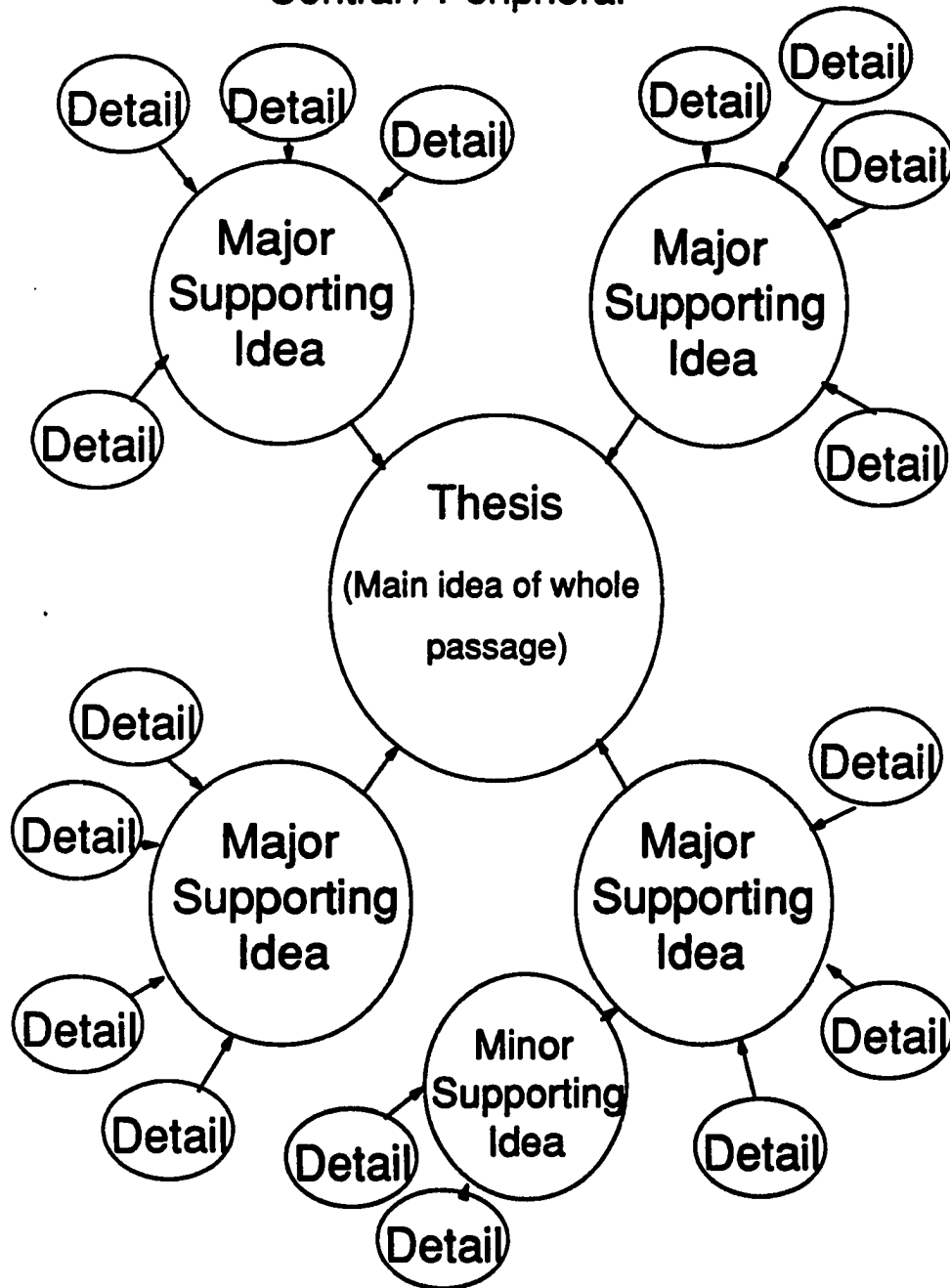


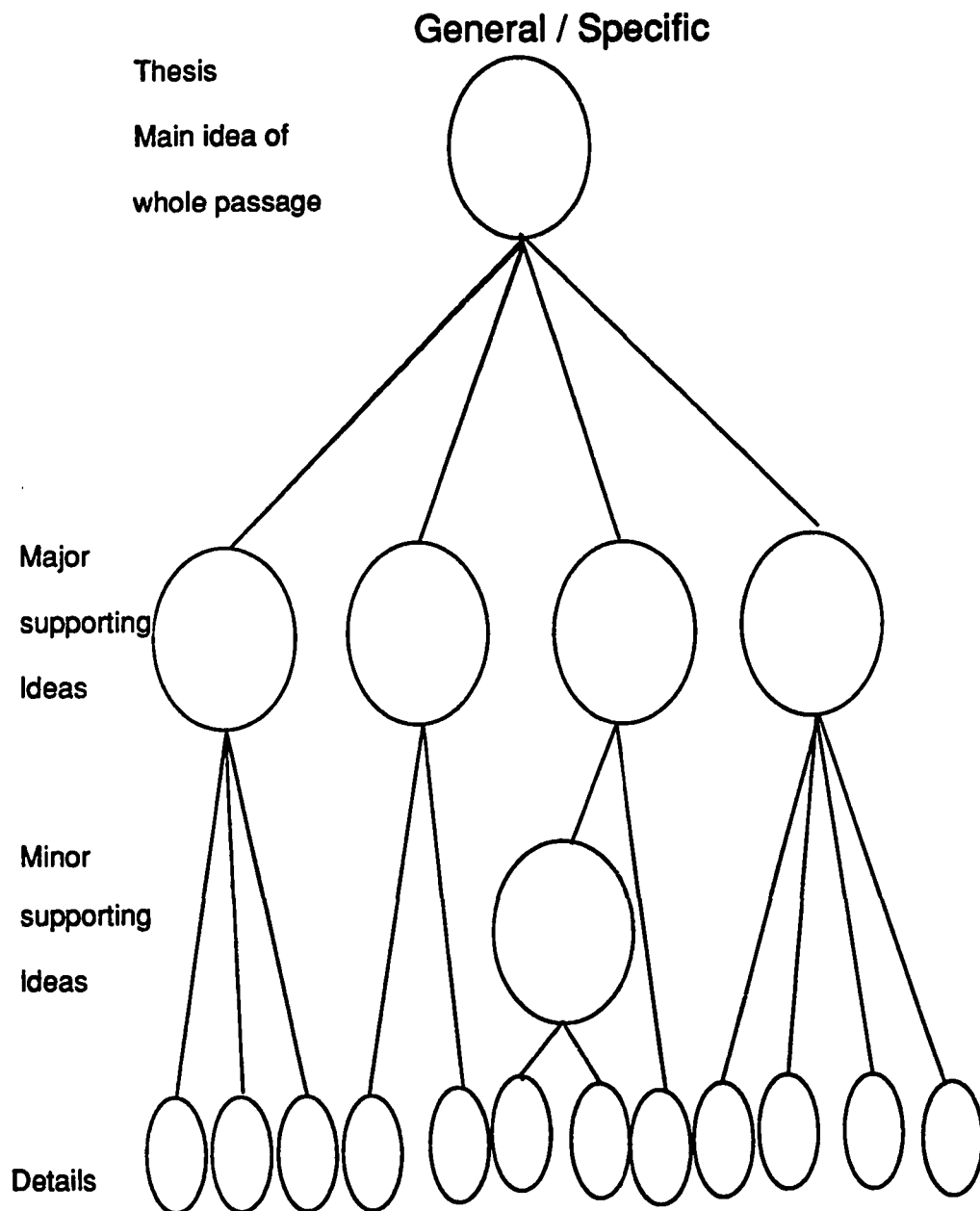
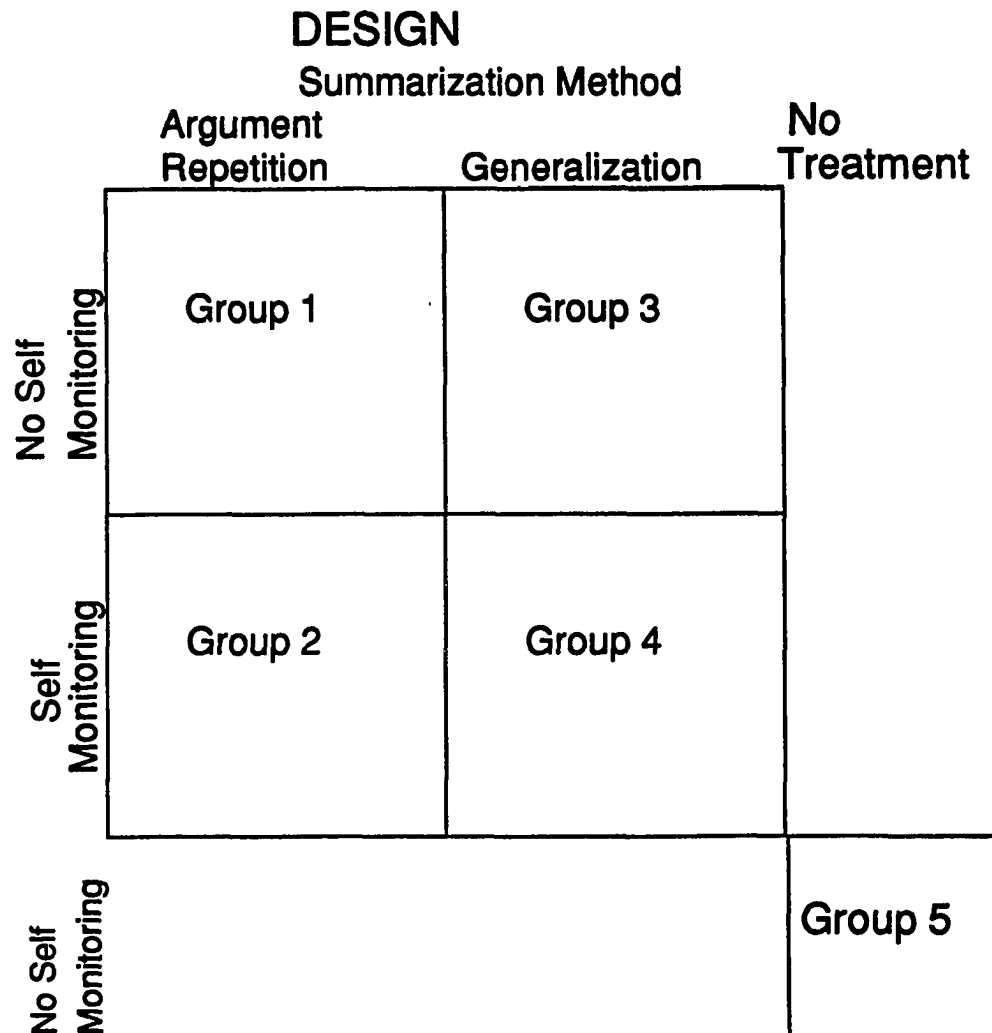
Figure 4 SUPERORDINATION

Figure 5



Dependent Variables

Summaries written by students coded for:

Inclusion - important information as a % of important information in passage

Exclusion - erroneous information as a % of difference between this and largest number of erroneous propositions

Efficiency - inclusion score plus exclusion score

Transformation - % of sentences in summary which fall in each of Winograd's categories of amount of text integrated

Thesis Statement - initial sentence stating main idea of passage

Empty References - Use of "how" instead of information

Figure 6

Three levels of Information

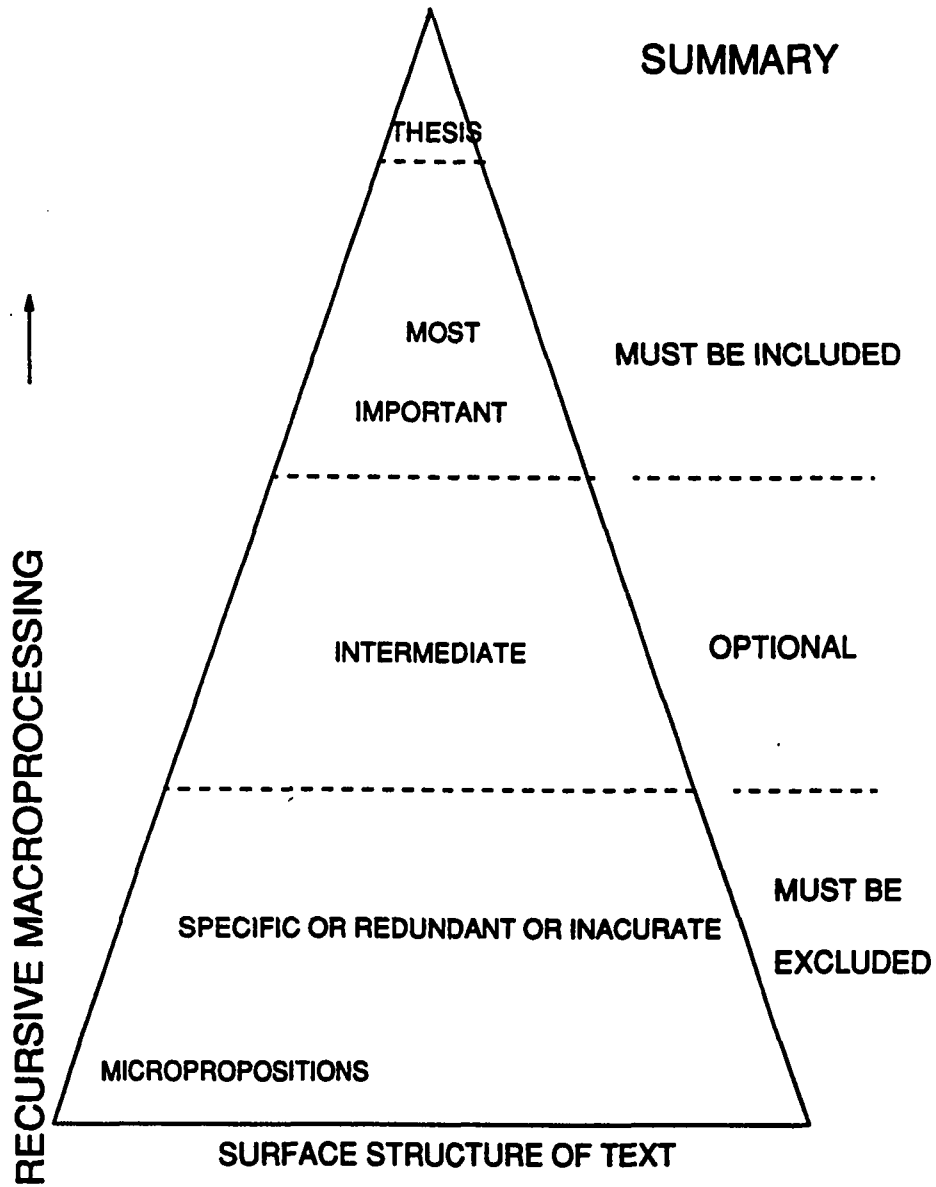


Figure 7 Procedures

Overall Procedures	How Procedures Vary by Condition				
All Summarization Groups	Argument Repetition/ No Self Monitoring <u>Group 1</u>	Argument Repetition/ Self Monitoring <u>Group 2</u>	Generalization No Self Monitoring <u>Group 3</u>	Generalization/ Self Monitoring <u>Group 4</u>	Self Reflection <u>Group 5</u>
<u>Instruction, First Session</u>					
Introduction	same	same	same	same	same
Summary Definition Instructional Mater.	Anecdote Paragraph w/ repeated references	Anecdote Paragraph w/ repeated references	List Paragraph w/ specifics	List Paragraph w/specifics	Self Reflection Paragraphs 1. w/ repeated references 2. w/ specifics
Distribute Guidelines	all instruction is in terms of repeated references	all instruction is in terms of repeated references with self monitoring of every step	all instructional is in terms of generalization	all instruction is in terms of generalization with self monitoring of every step	Distribute first text Model self reflection
Distribute first text Model summarization	↓	↓	↓	↓	Distribute second text Lead class in self reflection
Distribute second text Lead class in summarization	↓	↓	↓	↓	Distribute third text Have students write own self reflections
Distribute third text Have students write own summaries	↓	↓	↓	↓	Return corrected papers and third text Model self reflection
<u>Instruction, Second Session</u>	↓	↓	↓	↓	Distribute fourth text Lead class in self reflection
Return corrected papers and third text Model summarization	↓	↓	↓	↓	Return corrected papers and third text Model self reflection
Distribute fourth text Lead class in summarization	↓	↓	↓	↓	Distribute fourth text Lead class in self reflection
Distribute fifth text Have students write own summaries. (Posttest)	same	same	same	same	same

Figure 8

		Scoring
Label	Measure of	Form
Inclusion	Important content	Percent of important ideas (specified by experts) included in summary.
Exclusion	Erroneous content	# of erroneous ideas included
Efficiency	Overall content	Combine inclusion and exclusion by using sum. Convert exclusion to a standard score as shown in Figure 9.
Transformation for this study.	Reorganizing information in own words	Percent of sentences in summary which fall into each of Winograd's four categories plus a category added Test for significance the percent falling in the "reproduction category and the "invention" category. Also Use Winograd's four categories but assign a unified score by giving points for sentences in each category and correct for length by using the T score of the number of sentences in the summary.
Thesis Statement	Macroprocessing	Rating quality of thesis statement.
Empty References	Avoiding word "how"	Use of word how instead of giving information.
Manova with univariate analyses		
Mancova with reading assessment scores		
Pearson correlations among inclusion, exclusion, unified transformation and reading assessment scores		

Figure 9 Efficiency Score

The efficiency score must combine the inclusion and exclusion scores to indicate the overall quality of the information in the summary: the degree to which a student both includes important information and excludes erroneous (unimportant, redundant and inaccurate) information. Because the inclusion and exclusion scores use different units, both will be converted to decimal ratios.

- Inclusion score - convert directly from percent to decimal
- Exclusion score - a three step process will be used to convert from a scale on which the worst paper has the highest score to one on which the best paper has the highest score. Then that score will be converted to a decimal ratio.
 - Take highest pretest exclusion score from each treatment group and average to get a basis for conversion, called "maximum score."
 - Subtract exclusion score from "maximum score" to convert to an intermediate exclusion score.
 - Divide intermediate score by maximum score to get a decimal.
- Efficiency score - add inclusion decimal ratio and exclusion decimal ratio. Divide by two so the perfect score is 1.00

Calculating a Hypothetical Efficiency Score

Johnny's inclusion score is 45%. Convert to .45

His exclusion score is 13. The highest exclusion scores in the five groups are 43, 82, 53, 30, and 99, the mean, 61.4, is the "maximum score." Johnny's intermediate exclusion score is $61.4 - 13 = 48.4$. His decimal ratio is $48.4 / 61.4 = .79$.

Johnny's efficiency score is $(.45 + .79) / 2 = .62$

Appendix

Introductory materials

Lists for generalization instruction:

1. carrot, lettuce, tomato, cucumber
2. Bush, Reagan, Carter, Roosevelt, Washington

Paragraph for Generalization Instruction

When I get home from work, I have to buy groceries and make dinner, and then wash the dishes. I'll have to do the laundry and then dust and vacuum. If I have time, I ought to wash the kitchen floor.

Paragraph for argument repetition instruction

Johnny Lee has a good imagination and loves playing tricks on people, so his mother tries to keep an eye on her little darling. Yesterday Ms. Lee had a lot to do, so she left Johnny eating a snack while she started her work. Suddenly something cold and slimy slid down her back. She screamed. After a moment she realized that her son was up to more mischief.

Phrase for self reflection instruction (control group)

I see the world reflected in myself; I see myself reflected in the world.

The Summary

A summary is a valuable study tool because it helps you focus on what is most important to the author (and your professor). Writing a summary requires a lot of thinking, and thinking about what you read helps you understand and remember the information.

To be useful for studying a summary must follow four rules.

1. It must tell what is most important to the author.
2. It must be short.
3. It must be in your own words.
4. It must state the important information so you can use it to study.

Guidelines for Using Repeated References to Write a Summary

1. Preview the whole passage. Think about what you expect when you read it. Read the entire passage. Think about the passage as a whole. What does it all add up to? Be sure you understand the whole article.

2. Now figure out the thesis, the main idea of the whole article. Ask yourself two questions: What is the whole article about (the topic)? What is the message about the topic? Look the passage over until you have the one central idea that the rest of the passage refers to. Write this idea in a sentence in your own words. Be sure the thesis gives information for studying; avoid saying "how" or "about." Instead give the actual procedure, result, or other information.

3. To figure out the central idea of each paragraph or group of paragraphs, ask yourself two questions: What does the whole paragraph refer to (the topic)? What is the message about the topic? Reread the paragraph to be sure you have put together the idea that the author refers to the most. Write that idea in a complete sentence.

Sometimes two or three paragraphs can be grouped together for your summary. Paragraphs should be grouped together if they refer to the same aspect of the topic or if one paragraph doesn't add new information. Then one sentence can sum up the group of paragraphs.

To make the summary short, keep out the details that fill out the central idea. Keep out examples, illustrations, and little stories. Instead give the central principles they refer to.

Don't repeat anything in a summary. Be sure to reduce each paragraph or group of paragraphs to a sentence that gives the central information and keeps out the details. Be sure to avoid saying "how," "the way," or "about," so the sentences give the information you need to study.

4. Check your summary against the passage. Look back over the rules to be sure you followed them. Make sure you have written sentences that tell the most important (most central) ideas referred to by the other ideas. Make sure your summary is written in complete sentences forming a paragraph (or paragraphs) you can use to study. Make sure your first sentence states the thesis (main idea of the whole passage). Make sure you wrote the information in your own words.

Guidelines for Using Repeated References to Write a Summary

1. Preview the whole passage. Think about what you expect when you read it. Read the entire passage. Think about the passage as a whole. What does it all add up to?

Check: Do I understand the whole article? _

2. Now figure out the thesis, the main idea of the whole article. Ask yourself two questions: What is the whole article about (the topic)? What is the message about the topic? Look the passage over until you have the one central idea that the rest of the passage refers to. Write this idea in a sentence in your own words. Be sure the thesis gives information for studying; avoid saying "how" or "about." Instead give the actual procedure, result, or other information.

Check: Have I figured out the thesis, the main idea of the whole article? _

Does everything in the article refer to this idea? . . . _

Have I written the thesis in a complete sentence that gives information for studying? . . . _

Have I avoided saying "how" or "about," and given the actual procedure, result, or other information? . . . _

3. To figure out the central idea of each paragraph or group of paragraphs, ask yourself two questions: What does the whole paragraph refer to (the topic)? What is the message about the topic? Reread the paragraph to be sure you have put together the idea that the author refers to the most. Write that idea in a complete sentence.

Sometimes two or three paragraphs can be grouped together for your summary. Paragraphs should be grouped together if they refer to the same aspect of the topic or if one paragraph doesn't add new information. Then one sentence can sum up the group of paragraphs.

To make the summary short, keep out the details that fill out the central idea. Keep out examples, illustrations, and little stories. Instead give the central principles they refer to.

Don't repeat anything in a summary.

Check: Have I grouped paragraphs together when they tell about the same aspect of the topic? . . . _

Have I written one complete sentence summing up each paragraph or group of paragraphs? . . . _

Did my sentence give the central information and keep out the details?
Did I avoid "how," "the way," and "about," so my sentences give the information I need to study? . . . _

4. Check your summary against the passage.

Have I written the most important (most central) information? . . . _

Does my summary start with the thesis of the passage? _

Have I written my summary in a paragraph with complete sentences?

Have I kept out details? _

Have I kept out "how," "the way," and "about," so my sentences give the information I need to study? _

Have I kept out repetition? _

Have I written the summary in my own words?. _

Guidelines for Using Generalization to Write a Summary

1. Preview the whole passage. Think about what you expect when you read it. Read the entire passage. Think about the passage as a whole. What does it all add up to? Be sure you understand the whole article.

2. To figure out the thesis, the main idea of the whole article, ask yourself two questions: What is the whole article about (the topic)? What is the message about the topic? Look the passage over until you have the one general idea that includes all the specifics of the article. Write this idea in a sentence in your own words. Be sure the thesis gives information for studying; avoid saying "how" or "about;" give the actual procedure, result, or other information. Be sure the thesis is general enough to cover the whole article but not more general (not vague.)

3. Now figure out the major supporting ideas. They will be more specific than the thesis, but each one will be general enough to include all the details of a paragraph or a group of paragraphs. Paragraphs should be grouped together if they are on the same aspect of the topic or if one doesn't add new information. Write a sentence general enough to state the information from each paragraph or group of paragraphs.

To make the summary short, keep out the specific details. Keep out examples, illustrations, and little stories. Instead give the general principles they illustrate.

Don't repeat anything in a summary. Be sure to reduce each paragraph or group of paragraphs to a general sentence in your own words that covers the information. Be sure to avoid saying "how," "the way," or "about," so the sentences give the information you need to study.

4. Check your summary against the passage. Look back over the rules to be sure you followed them. Make sure you have written general sentences that sum up the specifics. Make sure your summary is written in complete sentences forming a paragraph (or paragraphs) you can use to study. Make sure you wrote the information in your own words.

Guidelines for Using Generalization to Write a Summary

1. Preview the whole passage. Think about what you expect when you read it. Read the entire passage. Think about the passage as a whole. What does it all add up to?

Check: Do I understand the whole article?.....[]

2. To figure out the thesis, the main idea of the whole article, ask yourself two questions: What is the whole article about (the topic)? What is the message about the topic? Look the passage over until you have the one general idea that includes all the specifics of the article. Write this idea in a sentence in your own words.

Check: Have I figured out the thesis, the main idea of the whole article?.....[]

Have I written the thesis in a complete sentence that gives information for studying?.....[]

Have I avoided saying "how" or "about," and given the actual procedure, result, or other information?...[]

Is the thesis general enough to cover the whole article but not more general (not vague.).....[]

3. Now figure out the major supporting ideas. They will be more specific than the thesis, but each one will be general enough to include all the details of a paragraph or a group of paragraphs. Paragraphs should be grouped together if they are on the same aspect of the topic or if one doesn't add new information. Write a sentence general enough to state the information from each paragraph or group of paragraphs.

To make the summary short, keep out the specific details. Keep out examples, illustrations, and little stories. Instead give the general principles they illustrate.

Don't repeat anything in a summary.

Check: Have I grouped paragraphs together when they tell about the same aspect of the topic?.....[]

Have I written one complete sentence summing up each paragraph or group of paragraphs?.....[]

Did I write a general sentence and keep out the specific details?.....[]

Did I avoid "how," "the way," and "about," so my sentences give the information I need to study?...[]

4. Check your summary against the passage.

Have I written the most important (most general) information?.....[]

Does my summary start with the thesis of the passage?_

Have I written my summary in a paragraph with complete sentences?.....[]

Have I kept out specific details?.....[]

Have I kept out "how," "the way," and "about," so my sentences give the information I need to study?...[]

Have I kept out repetition?.....[]

Have I written the summary in my own words?.....[]

Self Reflection

I see the world reflected in myself.

I see myself reflected in the world.

One way to judge what is important to the **author** is to think about what is important to **us**. Each of us brings different experiences and values to what we read. When we build a connection between ourselves and the ideas we are reading, it is easier to understand and remember the new ideas we read.

We will start by finding out what a passage means to each of us. Then we will use that knowledge to explore what the passage means to the author.

To write your self reflection, follow these steps.

1. Preview the passage, read it, think about what the whole passage means. Be sure you understand it, before you go on to step two.
2. Brainstorm. Think about the passage and yourself. Write down anything that comes to your mind, good and bad ideas. Don't use sentences when you brainstorm, just spill ideas on the page.
3. Organize. Look over your ideas and decide which ones are the most important. Cross out the ones you don't want to use. Think about how to connect your ideas to one another. Think about how to arrange your ideas, so someone else can understand what they mean to you. You may want to use a list or an informal outline to organize your ideas.
4. Write. Write clearly so anyone who reads your paper can tell what is important to you and how you reacted to what was important to the author. Be sure to tell what the author said that was related to your life or feelings.

The Desert

The desert is a hot and dry place. There are no clouds to stop the sun's burning rays. So the sun heats up the earth. As a result, it gets very hot, the temperature easily reaching 120 degrees. And rainfall is slight in the desert. Most deserts get less than 10 inches of rain per year. And years may pass between showers. Often 5 or 10 years may go by without a drop of rain falling on the desert.

With these harsh conditions, it is surprising that any plants or animals can live in the desert. They all need water and water is in short supply. Imagine how difficult it must be to live for 2 or 3 years without water. The heat is also a problem. It can quickly kill many living things.

Daisies, poppies, marigolds, and lilies, stay in the form of seeds and only bloom after a rain. Seeds are perfectly suited to the desert. The heat doesn't bother them and they can do without water. After a rain, the seeds sprout and flowers bloom. Then the desert is covered with many brightly colored flowers. The desert is a beautiful place when there are red, yellow, orange, and blue flowers everywhere. But soon the ground begins to dry up. As the ground dries, the flowers produce new seeds and then die. These new seeds wait for the next rainfall. When it rains, they grow, blossom, leave new seeds, and then die.

The cactus lives through the dry periods by storing water in its stem. When it rains the water is quickly taken in by the cactus' roots. This water is then storied in the stem. The cactus uses the stored water as it is needed. One cactus has pleats in its stem which swell with water after a rainfall. Occasionally, however, after too much rain, the pleats become too full and the cactus bursts.

Lizards, rabbits, pack rats, and snakes, can be seen in the desert. But they cannot be seen in the daytime. In the daytime the desert appears to be without life. The lizards, rabbits, pack rats, and snakes are not out running around. Under plants and rocks, or in the ground, the lizards, rabbits, pack rats, and snakes are asleep. At night, when it is cool, they wake up and go looking for food. By night, the desert is full of life.

Pupfish, minnows, and shrimp can be found in the desert. They avoid the desert dryness. Their eggs lie in dry lakebeds until a rain. When it rains, the eggs hatch. The pupfish, minnows, and shrimp live in the lake while there is water in it. They grow up, mate and lay more eggs in the lake. As the lake begins to dry up they die. The new eggs wait for another rain. These eggs may have to wait for 25 to 100 years to hatch.

Japan

Keiji Tanaka can't think of a better place to live than Japan. "There's no crime problem and the drinking water is good," he said. You can get "anything you can imagine wanting" in Tokyo, he said. Japan, he boasts, is "heaven."

But when talk turns to his daily life, Tanaka doesn't sound so pleased. His job keeps him out late four nights a week with clients. His children are growing up without him. "Something," he said, "has got to change."

Tanaka sounds like many Japanese today. They are proud of Japan's growing economy and high-quality products. But they see much that can be improved in their daily lives.

Recent polls by the Nippon Research Center suggest some Japanese are unhappy about their standard of living. As more Japanese go abroad, they see they don't live as well as they could elsewhere. Prices are sharply higher than in the U.S. "It's very hard to live a middle-class life," said Katsumasa Yoda, 45.

Housing is a big problem for younger Japanese. A new home in the Tokyo area often costs more than \$1-million. "How can the average worker afford to buy?" asked Junko Ando, 37, a homemaker.

According to the polls, younger Japanese question the long working hours. Many people work 10 to 12 hours a day, six days a week. Few take their full vacation time. "Can you work 24 hours a day, Japanese businessmen?" This phrase is from an ad on TV for healthy drinks. Of course, they can't, but they really work very hard.

Kimiko Matsuda describes her father as a typical Japanese businessman. Monday through Saturday, he leaves the house around 7:30 a.m. Getting on a rush-hour train, crowded with other commuters, he has to stand all the way. He's worn out even before his work.

Clock-out is 5:00 p.m. But he doesn't stop working until he finishes his work completely. After that, he often has to entertain clients. He doesn't get home until the wee hours of the morning. Ms. Matsuda does not have many memories of playing with her father, because he was always too tired from work. Ms. Matsuda points out that he is not special. He is just a normal Japanese businessman.

"I've firmly resolved not to work overtime," said Noriyuki Miyahara, 27. "If I do my quota of work for the day, that's enough."

Some nations have huge numbers of jobless workers. Japan has the opposite problem. It has so many jobs, it can't find enough workers to do them.

Japan is coping with its labor shortage in several ways. First, companies make widespread use of robots. Robot tasks range from preparing food to installing windowpanes. When Japan's Kentucky Fried Chicken chain couldn't find help, it tried something new. New workers were offered a trip to Hawaii.

So far, Japan has not welcomed foreign workers. Some nations use foreign workers to do jobs that other workers won't touch. But Japan has limited the flow of foreign workers into the country.

Companies are letting women into the workforce. Today, about 40 percent of Japan's workforce is female. It's been an uphill battle for women, however. Many top business and government leaders prefer that women stay at home.

Women earn, on the average, half the wages men do. Female office workers are told to run errands and pour tea for bosses and male co-workers. "We are quite unequal," said a secretary in Tokyo. "The top is all men. Women are basically assistants."

Still, after all the complaints, most people polled agreed with Tanaka's view that Japan is heaven. They love their country's culture and natural beauty. "In all the world, there isn't a country so interesting, with so much packed in one place," said Miyahara.

Native Americans

- 1) For thousands of years, Native Americans made their homes on this continent. Then, Europeans came and destroyed their way of life.
- 2) When Europeans arrived, they didn't share the same view of the land as Native Americans. Europeans believed land (and people) could be bought and sold. According to Native American tradition, land could not be owned. They thought human beings were part of nature, not above it.
- 3) The clash of views was settled by force. Europeans pushed Native Americans off their land. In the United States the government set aside land for each of the tribes. That land was called a reservation. Today, more than 330,000 Native Americans live on 260 reservations across the U.S.
- 4) Finding a job is a big problem for many Native Americans. The overall jobless rate for Native Americans is 40 percent. On the ten largest reservations, 75 percent of the people don't have jobs. They can no longer live by hunting and fishing. Many Native Americans must leave their reservations to find work.
- 5) Some tribes have begun to build businesses on the reservations. The Choctaws in Mississippi run five auto-parts factories on their land. The Navajo nation grows mushrooms to sell to people in Asia. It also builds missiles for the army. The Seminoles in Florida own a 156-room hotel. The Cherokee nation runs a plant and gardening business. These businesses provide many jobs.
- 5) The Passamaquoddy tribe of Maine bought a blueberry farm, two radio stations, and a failing cement plant. The tribe turned the cement plant into a successful business. Later, it sold the plant for a large profit.
- 6) The Choctaws' started their factories as partnerships with car companies. The tribe's jobless rate dropped from 80 percent to 20 percent.
- 7) Education has changed. Once Native Americans were forced to assimilate (adjust to mainstream culture). Before 1934, many Native American children were sent to boarding schools. They weren't allowed to speak their native languages or wear native clothes.
- 8) Today, many reservation schools teach the tribe's language and customs. Native American students learn to compete in mainstream American culture. But, there is also an effort to teach ancient tribal religion and values.
- 9) Native Americans hold powwows each year to celebrate their culture. In the past, a powwow was mainly a religious event. The gathering was held when a tribe had a problem. Through prayers and dances, the tribe asked for help from the gods. Today, powwows are part religious ceremony, part dance festival, and part social event.
- 10) For Native Americans who have left reservations, powwows provide a link to old traditions. "When you move away to the city, you find out how important

Indian identity is," said one woman.

11) Interest in powwows is growing. Seven years ago, 3,000 people attended the first "Gathering of Nations" powwow in New Mexico. This year 30,000 Native Americans came.

12) Many see powwows as key to their culture's future. At one time we were a forgotten people, but I think we are getting stronger." Said Linda Yardley, a Pueblo. "From the powwow we gain strength to go on into the twenty-first century."

Thinking and Exploring

The ancient Greeks, by about 300 B.C., were quite sure that the earth was a globe. They knew it had a North Pole at one end, and a South Pole at the other. The line of the equator was exactly in between.

None of the Greeks had ever been to the North Pole or to the South Pole, or even to the equator. The Greek scholars knew those places had to be there just the same.

At the equator the sun would be directly overhead. The Greeks always saw the sun in the southern part of the sky. So they thought they must be north of the equator. All the lands they knew were also north of the equator.

Could there be land south of the equator too?

Some Greek scholars thought there must be. They felt that it was only reasonable to suppose that if there was land north of the equator, there ought to be land south of the equator too.

But they thought it might be impossible to visit the land south of the equator. They knew that the farther south one traveled, the hotter it was. Many people thought that near the equator it would be too hot for human beings to survive.

The Greeks of 300 B.C. were good thinkers, but they did not have the technology to travel very far. As technology improved, the Greeks did not play a big role in exploration. Other Europeans were influenced by Greek ideas, but they had another reason to explore the world: greed.

By the 1400's Europeans had traveled through the lands to the East. They crossed the mountains to India and China. They brought back cotton, silk, sugar, spices and other things the people in Europe wanted. They found many wonders in the East, but they did not go near the equator.

The long trip over land made Asian products very expensive. In 1418 a Portuguese prince named Henry had an idea. Why not go to India by sea? Portugal was on the sea just north of Africa. Why not sail around Africa to get to India?

Of course no one in Europe knew how large Africa was or how far south it stretched. There was only one way to find out. Send ships.

Prince Henry brought together experts on building ships and steering them. He began sending out ships. Each one went farther down the coast of Africa than the one before had gone.

In 1460 Prince Henry died. His ships had sailed a couple of thousand miles along the African coast, but they were still far from the equator. They hoped that Africa didn't stretch as far as the equator. They hoped to get around Africa without getting into the area of terrible heat.

In 1482 a Portuguese ship finally reached the equator and passed beyond.

The sailors found out two things. First the equator was not unbearably hot. It could be reached and passed. Second there was land south of the equator, for Africa stretched beyond it.

During the next fifty years European explorers and traders sailed around the globe. They went around the southern tip of Africa, reached India, and "discovered" North and South America and the vast Pacific Ocean.

Some geographers remembered the ancient Greek ideas about land south of the equator. They thought there should be as much land south of the equator as there was north of it. Explorers sailed all over the Pacific and as far south as they could. Two small continents, Australia and Antarctica were all they found.

Travel

Travel, getting from one place to another, has always been very important. In primitive times, people had to travel in search of food. They followed herds of animals and looked for ripened crops. Even now travel is important. Nearly everything we eat is sent to stores. Then we travel to the stores to shop.

When early man wanted to go from one place to another, he walked. His feet were his only means of transportation. In addition, when he had a heavy load to move he carried it. Man was his own beast of burden. He carried wood for his campfire. He carried water from the spring. He carried home the animals that he had killed for food. He did all this on foot at only a few miles per hour.

Fortunately for us, improvements were made in the way man got around. First he tamed animals and made them carry his loads. Then the wheel was invented and traveling got even easier. Changes in ways to travel kept being made. Traveling became easier and easier.

Modern day rides are not at all like those in the olden days. The first wagons, stagecoaches, buggies and carts had wooden benches and wooden wheels. The wooden benches were hard to sit on. And the wooden wheels made for a very bumpy ride over rutted roads. Now, of course, seats are padded and soft. And they can be put into many different positions. Tires, too, have changed. Now they are filled with air.

Rafts, dugouts and canoes gave smooth enough rides - at least when rivers and lakes were calm. But if there was any kind of current the ride changed drastically. Not only did you get bumped around, but there was a good chance you might not make it back to land! You might sink! We don't worry about sinking these days. Nobody even thinks twice about crossing the ocean on an oceanliner. In fact, people take an ocean cruise to relax and to have fun. There is nothing to be afraid of.

The steamboat was a big advance over dugouts, canoes and rafts. Nevertheless, people laughed at the first steamboats. You can see why too. A boy in rowboat could beat a steamboat in a race. And the boy was much quieter. But it didn't take long before the boy in the rowboat would have lost the race. In fact, he would have been left far behind in the steamboat's wake.

Like the first steamboat, the Kitty Hawk, the Spirit of St. Louis and the New Orleans went through many changes. Mostly pilots wanted to travel faster and farther. They wanted to cover greater distances in less and less time. The first flight at Kitty Hawk lasted only 59 seconds and covered only 852 feet. That was in 1903. By 1924, just 21 years later, Lindbergh made the first solo flight across the Atlantic. Now we regularly fly across the ocean. We can circle the globe in record time.

Model Summaries and Model Self Reflection

The Desert - Model Summary

Some living things have adapted to the desert. The desert is a very rough place to live because of the extreme heat and scarce water. Flowers survive dry periods as seeds and sprout when it rains. Cactus store water in their stems. Land animals are active at night when it is cool, and water animals lay eggs that can survive dry periods.

Native Americans - Model Summary

Native Americans are adjusting to mainstream American practices and strengthening tribal economies and culture. When the Europeans came to America, they took over most of the land and forced the Native Americans onto reservations. Recently many Native American tribes have opened businesses on their reservations to reduce unemployment. Their schools now teach their traditions along with modern American ideas. Powwows have become a social and cultural force to hold Native American people together.

Native Americans - Model Self Reflection

The Native Americans described in this article are doing lots of different things to help themselves. They are providing jobs and teaching their children their languages and traditions. My grandparents came to America from Central Europe. They faced unemployment and discrimination. They got help from their country-men. Many immigrants tried to stick together and help others from the same country. Immigrants set up schools in which children could learn the old languages and traditions just as the Native Americans did. We all want to get ahead and be part of America, but we don't want to lose our special identities.

Examples of Posttest Summaries

Expert

The invention of new means of transportation led to improvements in travel. Early people depended on their own strength. Vehicles, which made travel easier, became more comfortable. Boats became safer. Airplanes increased the speed and distance traveled.

Subject # 59: Has thesis, includes most important ideas, excludes all errors; 1 low level invention, 2 mixed inventions, and one high level invention.

Long ago traveling was very difficult, but there has been great improvement with transportation today. In the earlier days man traveled by foot, until he learned to use animals as a way of transportation. The rides back in the days caused too much discomfort unlike the ones we use today. Water rides have advanced a far way because people no longer have a much fear as they did in the earlier days. Steamboats were very fast, but with a little technology airplanes were invented, which were even faster.

Subject # 69 Approximate thesis, includes few important ideas, at median for exclusion; 2 sentences are reproductions, 1 low level invention, one mixed, and 1 high level invention.

Travel, regardless of the fact the reasons for and methods of are changing, is very important. Traveling started on foot, then with the help of animals, then with wheels, wagons, carriages. For travel with water, dugouts, canoes, rafts were used. Now the evolutionary steamboat come into effect. The main desires of people is efficiency and speed.

Subject # 71 No thesis, includes very few important ideas, excludes all errors; 1 sentence is a reproduction, 2 are low level transformations.

The significance of traveling is getting from one place to another. Without the use of traveling resources many had to travel by feet. In modern day society traveling sources has been highly developed.

Subject # 82 No thesis, includes many important ideas, at 23rd percentile for exclusion, 1 combination, 1 extraneous sentence, 2 low level inventions, 2 mixed, and one high level invention.

Travel is important to life. In early times man walked to get his needs. Traveling has been improved but not comfortable. Rafts were dangerous to travel in. The steamboat was created to travel further. Steamboats and pilots were created to reach destination quicker. Now we have planes to cross the ocean in great speed.

Examples of Posttest Summaries

Subject # 84 *No thesis, includes some important ideas, at 93rd percentile for exclusion; one reproduction, one combination, 6 low level inventions and one extraneous sentence.*

Traveling in ancient times and in modern times are very essential in everyday lives. We have to travel to stores to get our food. Though the way we travel has progressed. Instead of walking a few miles on foot to get meat people later on made animals carry the meat. Now we can take a car to the store in five minutes. Also the means of transportation got better. The comfort increased first we had wagons, buggies made out of wood, which now we have everything cushioned. On ocean the transportation improved, the speed increased. As time goes by we improve the means of transportation, though one thing remains the same, the importance of traveling.

Subject # 136 *Has thesis, includes most important ideas, at 40th percentile for errors; 1 sentence is a combination, 4 high level inventions.*

At first getting around was very primitive, as time advanced improvements were made. With the introduction of the wheel man didn't have to carry his bundles. With new technology the steamboats were able get people were able to cover great distances in water in faster time. The greatest distance of all was covered with the introduction of the plane. Now people could travel great distances. Life was no longer primitive.

Script: Argument Repetition/No Self Monitoring**Day 1, Instruction**

Hello, my name is _____. I am working on a study of writing summaries. Summarizing is an important skill for studying, but it is difficult to learn. We are doing a study to find the best way to teach people to write summaries. We have to find out the way that students learn by trying out teaching methods with large numbers of normal students. The methods we will teach you have been successful in the classroom, but have not been written up as an experiment.

I'm going to pass out two forms. The first asks your permission to use the summaries you write for our study. The college requires us to get your permission in writing, so please read this permission slip and sign your name.

We know that your writing may be affected by your personal characteristics as well as our instruction. The second form asks about things that people think may affect students' writing. When we analyze your summaries, we will see whether any of these characteristics affects the summaries, for instance does any method work better for women, or older students.

(Wait a minute or two.)

Okay, please pass in the two forms. I want to thank you for helping us in our study of how people learn to write summaries. I hope our lessons will help you to use this important study skill more effectively.

What do we mean by a summary? I am going to pass out a page with a definition of a summary and the four characteristics a summary must have. Let's read it silently. ... Now lets say the four characteristics aloud: ... This is what

we're going to learn to do.

Students tell me the hardest part of writing a summary is knowing what to put in and what to take out. How can you tell what is most important to the author? There are a number of complex signals in writing, but one straightforward indicator is the number of times the author refers to an idea. (Write repeated references on board.)

This is something you use all the time. For instance if you hear a child saying, (Use wheedling tone) "Mommy can I have a candy? Can't I have a chocolate bar?" and a little while later the child is saying, "Can I have some jelly beans: give me a mint. Pleeese!" What is important to this child?

Lets look at a little story and we'll see that what is most important in the story is something the author refers to over and over. (Pass out slips with story.) What is the story about? Notice the author may have more than one way of talking about something. In this story, what other words or phrases does the author use to refer to Johnny? ((Pick someone to answer.)

(Put up chart of coherence)

You know every written passage has a thesis, the main idea of the whole passage. Everything in the passage will refer to the thesis. Then there will be several major supporting ideas which refer to the thesis and have minor supporting ideas or details referring to them. (Point to chart.) A straightforward way to tell how important an idea is, is how many other ideas refer to it. When you write your summary, you will include the central ideas, the ones that are referred to the most. You will keep out the ideas at the edge that only refer to other ideas. They are important in a persuasive essay like the WAT, but they don't go in a summary.

Lets see how we could use this principle to write a summary. Let's read this article silently. When you finish reading, look up. Then I'll show you how I would write a summary. (Wait.) I'll pass out a set of guidelines for using repeated references to write a summary and show you how I used it to summarize this article. (Pass out guidelines and put up chart of model summary.)

The guidelines say to preview, think, and then read the whole article to be sure you know what it all adds up to, before you start to write. I've read "The Desert". Did I understand the whole article? Yes, I did.

Now lets read step two in the guidelines. (Wait.) The author starts by talking about how hot and dry it is in the desert, but that's not the thesis of the whole article. He goes on to talk about plants and animals. The whole passage talks about survival in the desert. In different ways the paragraphs say that plants and animals had to develop special ways to stay alive. I said that in my own words by saying some living things have adapted to the desert.

Now lets look at step three of the guidelines. Read number three silently, and look up when you are finished. (Wait.) This step tells us how to write the major supporting ideas.

I see that the first paragraph and the second paragraph keep talking about how hot and dry the desert is, and the second paragraph tells how hard it is to live there. I grouped the two paragraphs together because they are about the same aspect of the topic. I didn't write "how hot and dry it is", because saying how doesn't give the information. I said the desert is a very rough place to live, because of the extreme heat and the very low rainfall.

The next two paragraphs talk about plants, but they tell different things about

different kinds of plants, so I wrote a separate sentence for each. Paragraph three keeps talking about flowers. They use seeds to survive. Paragraph four tells about cactus. All through the paragraph we find out about their way of storing water. To tell what their way is, I said they store water in their stems.

Now we have two paragraphs about animals, but they are hard to group together. I said that the land animals are active at night when it is cool, and the water animals lay eggs that can survive dry periods.

Notice that I did not pick out a sentence the author used. I thought about the passage and made up a sentences to give the author's information in my own words. Your English teacher is encouraging you to use topic sentences and thesis sentences when you write, but much of the material you have to read for college is not that well written. As you read each paragraph and think about what is central to it, you can write the central information in one sentence even if the author didn't write a topic sentence.

Now lets try writing a summary together. Here is a passage about Japan. Preview, think, and read it, and start thinking about how you would use the guidelines to write a summary. (Wait)

Step two of the guidelines asks, "What is the topic of the article, what about Japan does the whole article refer to?" (Press for answer relating to working, employment, or business in Japan.) Does the first paragraph give the thesis? Does the whole article refer to Tanaka? Should we give his name in the summary? What is he talking about here? Does the rest of the article refer to how heavenly Japan is? What is the thesis? When we think about the whole article, what is it all saying about (working, employment, or business) in Japan? Lets write the

thesis as the first sentence of our summaries. (Write on board.)

Now step three directs us to look at this passage to see whether there are paragraphs which can be grouped together. What is the first section about? (Have students set up clusters for standard of living, long working hours, shortage of workers, and women's role. Be sure they all mark each cluster of paragraphs with a bracket in the margin. Have students compose a sentence for each, and write them on the board.)

Is our summary finished? What does step four remind us to do? (Select someone to answer, and then guide students through step four.)

Now I'll pass out another article (Native Americans) and some paper, so you can practice using the guidelines to write a summary of your own. Please write your social security number on the page. Write clearly so we can use one copy for our research. Use the way the ideas refer to one another to determine what is most general, most important. We will read your papers and return them with suggestions.

(Allow twenty minutes. After students have finished reading the article, remind them to follow the guidelines step by step in writing their summaries. If students ask for assistance, help them, but explain everything in terms of the guidelines and in terms of repeated references. When you collect papers, be sure students have written their social security numbers on their papers. Ask students to bring the Guidelines, "The Summary," and the article on Native Americans to use in class tomorrow.)

Second Day of Instruction

(Hand back papers with a copy of the model summary. Give another copy of "Native Americans", "The Guidelines" and "The Summary" to anyone who forgot them.) Here are your corrected papers. You did some nice work. Here is the way I wrote a summary of "Native Americans." I found that everything in the article pointed to the changes Native Americans had made to insure their economic and cultural survival, and I wrote that for the thesis. I grouped together paragraphs one to three, four to six, seven and eight, and nine to twelve.

Lets review our definition of a summary. (Have students take out "The Summary") We know more about the four rules a summary must follow, now that we have practiced with the Guidelines. (Tape up chart with this information and point to chart for each rule.) 1. A summary must tell what is most important to the author - how do we find out what is most important? The ideas that the author refers to most often are the most important. 2.It must be short. How short? - one sentence for every paragraph or group of paragraphs. 3.It must be in your own words. - None of our materials have topic sentences; we write the main ideas by figuring out what central ideas the author keeps referring to. 4.It must state the important information. Avoid "How," "the way," or "about"

Lets summarize another passage together. (Pass out thinking and Exploring.) The words in this one are no harder than the others, but I think you will find the ideas a bit challenging. Most people like to take it easy, but people also like to use their minds. That is part of what you will enjoy in college, being able to achieve things that are not easy.

Read this article, and think about how to summarize it using our guidelines.

Then we will write the summary together. (Wait 3-6 minutes. Tell those who finish first to try writing the summary on their own.)

This article is a little harder, because it is about several ideas and how they are related to one another. When we can see the thesis easily, we can use it to figure out the major supporting ideas, but in this article many people really have to clarify the major supporting details before they write the thesis. We can make notes on the side about the major supporting ideas and use them to figure out the thesis.

Which paragraphs would we group together? Which ideas are most central? (Group paragraphs 1-3, 4-6,7,8,9-12, 13, 14-15. Draw a bracket in the margin to mark each group. Major supporting ideas are: ancient Greeks figured out: earth round, equator area where sun is directly overhead, equator very hot, there is land south of equator. Later Europeans traded with Asia - reason to explore. Portuguese prince sent ships around Africa. Portuguese ships crossed equator & found land. Later explorers "found" the continents, South America, Australia, & Antarctica.)

Lots of ideas referred to the ancient Greeks, others referred to explorers in the 1400's. What was the connection between them? What other idea was referred to throughout the passage? (land south of the equator) What is the thesis, the idea that the whole article refers to? (European explorers of the 1400's were influenced by Ancient Greek ideas about land south of the equator.) Now lets write our major supporting ideas in clear sentences to support the thesis.

Now use the guidelines to write a summary of your own. Please write your social security number on the page. Please write clearly. Use the way the ideas

refer to one another to determine what is most central, most important. After you finish your summary, please write whether this passage was hard or easy to summarize, and what made it hard or easy.

(Allow forty minutes. Do not assist with this summary, just remind students to use guidelines. When students are ready to hand in papers, ask them to check their papers to be sure they've followed the guidelines, and to be sure that they've written complete sentences. When you collect papers, check for social security numbers. See that students also wrote why the passage was hard or easy to summarize.)

Script: Argument Repetition/Self Monitoring

Hello, my name is _____. I am working on a study of writing summaries. Summarizing is an important skill for studying, but it is difficult to learn. We are doing a study to find the best way to teach people to write summaries. We have to find out the way that students learn by trying out teaching methods with large numbers of normal students. The methods we will teach you have been successful in the classroom, but have not been written up as an experiment.

I'm going to pass out two forms. The first asks your permission to use the summaries you write for our study. The college requires us to get your permission in writing, so please read this permission slip and sign your name.

We know that your writing may be affected by your personal characteristics as well as our instruction. The second form asks about things that people think may affect students' writing. When we analyze your summaries, we will see whether any of these characteristics affects the summaries, for instance does any method work better for women, or older students.

(Wait a minute or two.)

Okay, please pass in the two forms. I want to thank you for helping us in our study of how people learn to write summaries. I hope our lessons will help you to use this important study skill more effectively.

What do we mean by a summary? I am going to pass out a page with a definition of a summary and the four characteristics a summary must have. Let's read it silently. ... Now let's say the four characteristics aloud: ... This is what we're going to learn to do.

Students tell me the hardest part of writing a summary is knowing what to put in and what to take out. How can you tell what is most important to the author? There are a number of complex signals in writing, but one straightforward indicator is the number of times the author refers to an idea. (Write repeated references on board.)

This is something you use all the time. For instance if you hear a child saying, (Use wheedling tone) "Mommy can I have a candy? Can't I have a chocolate bar?" and a little while later the child is saying, "Can I have some jelly beans: give me a mint. Pleeese!" What is important to this child?

Lets look at a little story and we'll see that what is most important in the story is something the author refers to over and over. (Pass out slips with story.) What is the story about? Notice the author may have more than one way of talking about something. In this story, what other words or phrases does the author use to refer to Johnny? ((Pick someone to answer.)

(Put up chart of coherence)

You know every written passage has a thesis, the main idea of the whole passage. Everything in the passage will refer to the thesis. Then there will be several major supporting ideas which refer to the thesis and have minor supporting ideas or details referring to them. (Point to chart.) A straightforward way to tell how important an idea is, is how many other ideas refer to it. When you write your summary, you will include the central ideas, the ones that are referred to the most. You will keep out the ideas at the edge that only refer to other ideas. They are important in a persuasive essay like the WAT, but they don't go in a summary.

Lets see how we could use this principle to write a summary. Let's read this

article silently. When you finish reading, look up. Then I'll show you how I would write a summary. (Wait.) I'll pass out a set of guidelines for using repeated references to write a summary and show you how I used it to summarize this article. (Pass out guidelines and put up chart of model summary.)

The guidelines say to preview, think, and then read the whole article to be sure you know what it all adds up to, before you start to write. I've read "The Desert". Do I understand the whole article? Yes, I think I do. I'll make a checkmark right here on the paper. This part of the guidelines helps me keep track of what I am doing.

Now lets read step two in the guidelines. (Wait.) The author starts by talking about how hot and dry it is in the desert, but that's not the thesis of the whole article. He goes on to talk about plants and animals. The whole passage talks about survival in the desert. In different ways the paragraphs say that plants and animals had to develop special ways to stay alive. I said that some living things have adapted to the desert. Now I'll use the guidelines to check myself. Read and check off.)

Now lets look at step three of the guidelines. Read number three silently, and look up when you are finished. (Wait.) This step tells us how to write the major supporting ideas.

I see that the first paragraph and the second paragraph keep talking about how hot and dry the desert is, and the second paragraph tells how hard it is to live there. I grouped the two paragraphs together because they are about the same aspect of the topic. I didn't write "how hot and dry it is", because "how" doesn't give the information. I said the desert is a very rough place to live, because of the extreme

heat and the very low rainfall.

The next two paragraphs talk about plants, but they tell different things about different kinds of plants, so I wrote a separate sentence for each. Paragraph three keeps talking about flowers. They use seeds to survive. Paragraph four tells about cactus. All through the paragraph we find out about their way of storing water. To tell what their way is, I said they store water in their stems.

Now we have two paragraphs about animals, but they are hard to group together. I said that the land animals are active at night when it is cool, and the water animals lay eggs that can survive dry periods. Now I'll use the guidelines form to check my work. (Read and check off.)

Notice that I did not pick out a sentence the author used. I thought about the passage and made up a sentences to give the author's information in my own words. Your English teacher is encouraging you to use topic sentences and thesis sentences, but much of the material you have to read for college is not that well written. As you read each paragraph and think about what is central to it, you can write the central information in one sentence even if the author didn't write a topic sentence.

Now lets try writing a summary together. Here is a passage about Japan. Preview, think, and read it, and start thinking about how you would use the guidelines to write a summary. (Wait)

When you think you understand the whole article, check off number one on your guidelines sheet and start number two. What is the topic of the article, what about Japan does the whole article refer to? (Press for answer relating to working, employment, or business in Japan.) Does the first paragraph give the thesis? Does

the whole article refer to Tanaka? Should we give his name in the summary? What is he talking about here? Does the rest of the article refer to how heavenly Japan is? What is the message about (working, employment or business) in Japan? (Write the thesis on the board and guide students in using the checklist.)

Now lets go to part three of your guidelines sheet. Let's look at this passage to see whether there are paragraphs which can be grouped together. What is the first section about? (Have students set up clusters for standard of living, long working hours, shortage of workers, and women's role. Be sure they all mark each cluster of paragraphs with a bracket in the margin. Have students compose a sentence for each, and write them on the board. Then check the checklist.)

Is our summary finished? What does step four remind us to do? (Select someone to answer, and then guide students through step four using the checklist.)

Now I'll pass out another article (Native Americans) and some paper, so you can practice using the guidelines to write a summary of your own. Please write your social security number on the page. Write clearly so we can use one copy for our research. Use the way the ideas refer to one another to determine what is most general, most important. We will read your papers and return them with suggestions.

(Allow twenty minutes. After students have finished reading the article, remind them to follow the guidelines step by step in writing their summaries. If students ask for assistance, help them, but explain everything in terms of the guidelines and in terms of repeated references. When you collect papers, be sure students have written their social security numbers on their papers. Ask students to bring the Guidelines, "The Summary," and the article on Native Americans to

use in class tomorrow.)

Second Day of Instruction

(Hand back papers with a copy of the model summary. Give another copy of "Native Americans", "The Guidelines" and "The Summary" to anyone who forgot them.) Here are your corrected papers. You did some nice work. Here is the way I wrote a summary of "Native Americans." I found that everything in the article pointed to the changes Native Americans had made to insure their economic and cultural survival, and I wrote that for the thesis. Then I grouped together paragraphs one to three, four to six, seven and eight, and nine to twelve and wrote one sentence for each, as the major supporting ideas.

Lets review our definition of a summary. (Have students take out "The Summary") We know more about the four rules a summary must follow, now that we have practiced with the Guidelines. (Tape up chart with this information and point to chart for each rule.) 1. A summary must tell what is most important to the author - how do we find out what is most important? The ideas that the author refers to most often are the most important. 2.It must be short. How short? - one sentence for every paragraph or group of paragraphs. 3.It must be in your own words. - None of our materials have topic sentences; we write the main ideas by figuring out what central ideas the author keeps referring to. 4.It must state the important information. Avoid "How," "the way," or "about"

Lets summarize another passage together. (Pass out thinking and Exploring.) The words in this one are no harder than the others, but I think you will find the ideas a bit challenging. Most people like to take it easy, but people also like to use their minds. That is part of what you will enjoy in college, being able to achieve

things that are not easy.

Read this article, and think about how to summarize it using our guidelines. Then we will write the summary together. (Wait 3-6 minutes. Tell those who finish first to try writing the summary on their own.)

This article is a little harder, because it is about several ideas and how they are related to one another. When we can see the thesis easily, we can use it to figure out the major supporting ideas, but in this article many people really have to clarify the major supporting details before they write the thesis. We can make notes on the side about the major supporting ideas and use them to figure out the thesis.

Which paragraphs would we group together? Which ideas are most central? (Group paragraphs 1-3, 4-6,7,8,9-12, 13, 14-15. Draw a bracket in the margin to mark each group. Major supporting ideas are: ancient Greeks figured out: earth round, equator area where sun is directly overhead, equator very hot, there is land south of equator. Later Europeans traded with Asia - reason to explore. Portuguese prince sent ships around Africa. Portuguese ships crossed equator & found land. Later explorers "found" the continents, South America, Australia, & Antarctica. Use checklist.)

Lots of ideas referred to the ancient Greeks, others referred to explorers in the 1400's. What was the connection between them? What other idea was referred to throughout the passage? (land south of the equator) What is the thesis, the idea that the whole article refers to? (European explorers of the 1400's were influenced by Ancient Greek ideas about land south of the equator.) Let's use the checklist to be sure we have the best thesis. Now let's write our major supporting ideas in

clear sentences to support the thesis. (Write on board.) That seems okay, lets use our checklist to be sure.

Now use the guidelines to write a summary of your own. Please write your social security number on the page. Please write clearly. Use the way the ideas refer to one another to determine what is most central, most important. After you finish your summary, please write whether this passage was hard or easy to summarize, and what made it hard or easy.

(Allow forty minutes. Do not assist with this summary, just remind students to use guidelines. When students are ready to hand in papers, ask them to check their papers to be sure they've followed the guidelines, and to be sure that they've written complete sentences. When you collect papers, check for social security numbers. See that students also wrote why the passage was hard or easy to summarize.)

Script - Generalization / No Self Monitoring**First Day of Instruction**

Hello, my name is _____. I am working on a study of writing summaries. Summarizing is an important skill for studying, but it is difficult to learn. We are doing a study to find the best way to teach people to write summaries. We have to find out the way that students learn by trying out teaching methods with large numbers of normal students. The methods we will teach you have been successful in the classroom, but have not been written up as an experiment.

I'm going to pass out two forms. The first asks your permission to use the summaries you write for our study. The college requires us to get your permission in writing, so please read this permission slip and sign your name.

We know that your writing may be affected by your personal characteristics as well as our instruction. The second form asks about things that people think may affect students' writing. When we analyze your summaries, we will see whether any of these characteristics affects the summaries, for instance does any method work better for women, or older students.

(Wait a minute or two.)

Okay, please pass in the two forms. I want to thank you for helping us in our study of how people learn to write summaries. I hope our lessons will help you to use this important study skill more effectively.

What do we mean by a summary? I am going to pass out a page with a definition of a summary and the four characteristics a summary must have. Let's read it silently. ... Now lets say the four characteristics aloud: ... This is what

we're going to learn to do.

Students tell me the hardest part of writing a summary is knowing what to put in and what to take out. How can you tell what is most important to the author? Fortunately there is a process which will help you shorten your summary while you write what is most important. It is generalizing. When the author gives a list of specific ideas, you can write the general category to which they all belong.

This is something you use all the time. For instance if you hear a child saying, (Use wheedling tone) "Mommy can I have a lifesaver? Can't I have a chocolate bar?" and a little while later the child is saying, "Can I have some jelly beans: give me a mint." You know one word that includes all of these. What is important to this child?

Lets look at a couple of lists and a paragraph, and we'll see that what is most important can be said in one general sentence instead of the author's three or four specific sentences. (Pass out slips with lists and paragraph.) What is one word that sums up the first list? (Get answer.) The second list? (Get answer.) Now, what is the paragraph about? What one general word or phrase includes all the things in the paragraph? (Pick someone to answer.) What is the point the author is making about (chores, housework, ...)? (Pick someone to answer, and repeat answer.) When we write one general sentence to cover a paragraph of specifics, we have the basis for an informative summary.

(Put up chart of hierarchy)

You know every written passage has a thesis, the main idea of the whole passage. The thesis is general enough to cover all the information in the passage. Then there will be several major supporting ideas, categories more specific than the

thesis that give information to support the thesis. These major ideas can be thought of as categories that include the specific minor supporting ideas or details. (Point to chart.)

A straightforward way to tell how important an idea is, is how general it is compared to the other ideas. When you write your summary, you will include the general ideas, the ones that sum up groups of specific ideas. You will keep out the specific ideas. They are important in a persuasive essay like the WAT, but they don't go in a summary.

Lets see how we could use this principle to write a summary. Let's read this article silently. When you finish reading, look up. Then I'll show you how I would write a summary. (Wait.) I'll pass out a set of guidelines for using generalization to write a summary and show you how I used it to summarize this article. (Pass out guidelines and put up chart of model summary.)

Let's read the first step of the guidelines. It says to preview, think, and then read the whole article to be sure you know what it all adds up to, before you start to write. I've read "The Desert". Do I understand the whole article? Yes, I think I do.

Now lets read step two in the guidelines. (Wait.) The author starts by talking about how hot and dry it is in the desert, but that's not the thesis of the whole article. He goes on to talk about plants and animals. The whole passage talks about survival in the desert. In different ways the paragraphs say that plants and animals had to develop special ways to stay alive. A general phrase that includes plants and animals is living things. I said that some living things have adapted to the desert.

Now let's look at step three of the guidelines. Read number three silently, and look up when you are finished. (Wait.) This step tells us how to write the major supporting ideas.

I see that the first paragraph and the second paragraph keep talking about how hot and dry the desert is, and the second paragraph tells how hard it is to live there. I grouped the two paragraphs together, because they are about the same aspect of the topic. I didn't write "how hot and dry it is", because "how" doesn't give the information. I said the desert is a very rough place to live, because of the extreme heat and scarce water.

The general topic of the next two paragraphs is plants, but they tell different things about different kinds of plants, so I wrote a separate sentence for each. Paragraph three keeps talking about flowers. They use seeds to survive. Paragraph four tells about cactus. All the specific steps tell about cactus's way of storing water. To tell what their way is, I said they store water in their stems.

Now we have two paragraphs about animals, but they are hard to group together. I said that the land animals are active at night when it is cool, and the water animals lay eggs that can survive dry periods. Let's use step four of the guidelines form to check my work.

Notice that I did not pick out a sentence the author used. I thought about the passage and made up a sentences to give the author's information in my own words. Your English teacher is encouraging you to use topic sentences and thesis sentences, but much of the material you have to read for college is not that well written. As you read each paragraph and think about what is most general, you can write the general information in one sentence.

Now let's try writing a summary together. Here is a passage about Japan. Preview, think, and read it, and start thinking about how you would use the guidelines to write a summary. (Wait)

Step two of the guidelines asks, "What is the topic of the whole article, what general idea about Japan do the specific ideas add up to?" (Press for answer relating to working, employment, or business in Japan.)

Does the first paragraph give the thesis? Does the whole article give details about Tanaka? Should we give his name in the summary? What is he talking about here? Does the rest of the article tell how heavenly Japan is? Let's write the thesis as the first sentence of our summaries. (Write on board.)

Now we'll go to step three. Let's look at this passage to see whether there are paragraphs which can be grouped together. What is the first section about? (Have students set up clusters of paragraphs for standard of living, long working hours, shortage of workers, and women's role. Be sure they all mark each cluster of paragraphs with a bracket in the margin. Have students compose a sentence for each, and write them on the board.)

Is our summary finished? What does step four remind us to do? (Select someone to answer, and then guide students through step four.)

Now I'll pass out another article (Native Americans) and some paper, so you can practice using the guidelines to write a summary of your own. Please write your social security number on the page. Write clearly so we can use one copy for our research. Use the way the ideas refer to one another to determine what is most general, most important. We will read your papers and return them with suggestions.

(Allow twenty minutes. After students have finished reading the article, remind them to follow the guidelines step by step in writing their summaries. If students ask for assistance, help them, but explain everything in terms of the guidelines and in terms of general and specific ideas. When you collect papers, be sure students have written their social security numbers on their papers. Ask students to bring the Guidelines, "The Summary," and the article on Native Americans to use in class tomorrow.)

Second Day of Instruction

(Hand back papers with a copy of the model summary. Give another copy of "Native Americans", "The Guidelines" and "The Summary" to anyone who forgot them.) Here are your corrected papers. You did some nice work. Here is the way I wrote a summary of "Native Americans." I found that everything in the article pointed to the changes Native Americans had made to insure their economic and cultural survival, and I wrote that for the thesis. I grouped together paragraphs one to three, four to six, seven and eight, and nine to twelve, and wrote one sentence for each group as the major supporting ideas.

Lets review our definition of a summary. (Have students take out "The Summary") We know more about the four rules a summary must follow, now that we have practiced with the Guidelines. (Tape up chart with this information and point to chart for each rule.) 1. A summary must tell what is most important to the author - how do we find out what is most important? The ideas that are most general are most important. 2.It must be short. How short? - one sentence for every paragraph or group of paragraphs. 3.It must be in your own words. None of our materials have topic sentences; we write the main ideas by thinking out a

general idea to sum up the author's specifics. 4. It must state the important information. Avoid "How," "the way," or "about"

Lets summarize another passage together. (Pass out thinking and Exploring.) The words in this one are no harder than the others, but I think you will find the ideas a bit challenging. Most people like to take it easy, but people also like to use their minds. That is part of what you will enjoy in college, being able to achieve things that are not easy.

Read this article, and think about how to summarize it using our guidelines. Then we will write the summary together. (Wait 3-6 minutes. Tell those who finish first to try writing the summary on their own.)

This article is a little harder, because it is about several ideas and how they are related to one another. When we can see the thesis easily, we can use it to figure out the major supporting ideas, but in this article many people really have to clarify the major supporting details before they write the thesis. We can make notes on the side about the major supporting ideas and use them to figure out the thesis.

Which paragraphs would we group together? What general ideas cover the specifics of the article? (Group paragraphs 1-3, 4-6,7,8,9-12, 13, 14-15. Draw a bracket in the margin to mark each group. Major supporting ideas are: ancient Greeks figured out: earth round, equator area where sun is directly overhead, equator very hot, there is land south of equator. Later Europeans traded with Asia - reason to explore. Portuguese prince sent ships around Africa. Portuguese ships crossed equator & found land. Later explorers "found" the continents, South America, Australia, & Antarctica.)

One general topic seems to be the ancient Greeks, another is explorers in the 1400's. What was the connection between them? What other idea was supported by lots of specific details throughout the passage? (land south of the equator) What is the thesis, the idea that is general enough to include the whole article? (European explorers of the 1400's were influenced by Ancient Greek ideas about land south of the equator.) Now let's write our major supporting ideas in clear sentences to support the thesis.

Now use the guidelines to practice writing a summary of your own. (Pass out "Travel" and writing paper.) Please write your social security number on the page. Please write clearly. Use generalization to determine what is most important. After you finish your summary, please write whether this passage was hard or easy to summarize, and what made it hard or easy.

(Allow forty minutes. Do not assist with this summary, just remind students to use guidelines. When students are ready to hand in papers, ask them to check their papers to be sure they've followed the guidelines, and to be sure that they've written complete sentences. When you collect papers, check for social security numbers. See that students also wrote why the passage was hard or easy to summarize.)

Script - Generalization/Self Monitoring**First Day of Instruction**

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thesis that give information to support the thesis. These major ideas can be thought of as categories that include the specific minor supporting ideas or details. (Point to chart.) A straightforward way to tell how important an idea is, is how general it is compared to the other ideas. When you write your summary, you will include the general ideas, the ones that sum up groups of specific ideas. You will keep out the specific ideas. They are important in a persuasive essay like the WAT, but they don't go in a summary.

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Let's read the first step of the guidelines. The guidelines say to preview, think, and then read the whole article to be sure you know what it all adds up to, before you start to write. I've read "The Desert". Do I understand the whole article? Yes, I think I do. I'll make a check mark right here on the paper. This part of the guidelines helps me keep track of what I am doing.

Now let's read step two in the guidelines. (Wait.) The author starts by talking about how hot and dry it is in the desert, but that's not the thesis of the whole article. He goes on to talk about plants and animals. The whole passage talks about survival in the desert. In different ways the paragraphs say that plants and animals had to develop special ways to stay alive. A general phrase that includes plants and animals is living things. I said that some living things have adapted to

the desert. (Point to sentence of the model summary on the chart.) Now I'll use the guidelines to check myself. (Read and check off.)

Now lets look at step three of the guidelines. Read number three silently, and look up when you are finished. (Wait.) This step tells us how to write the major supporting ideas.

I see that the first paragraph and the second paragraph keep talking about how hot and dry the desert is, and the second paragraph tells how hard it is to live there. I grouped the two paragraphs together because they are about the same aspect of the topic. I didn't write "how hot and dry it is", because it doesn't give the information. I said the desert is a very rough place to live, because of the extreme heat and scarce water.

The next two paragraphs talk about plants, but they tell different things about different kinds of plants, so I wrote a separate sentence for each. Paragraph three keeps talking about flowers. They use seeds to survive. Paragraph four tells about cactus. All through the paragraph we find out about their way of storing water. To tell what their way is, I said they store water in their stems.

Now we have two paragraphs about animals, but they are hard to group together. I said that the land animals are active at night when it is cool, and the water animals lay eggs that can survive dry periods. Now I'll use the guidelines form to check my work. (Read and check off.)

Notice that I did not pick out a sentence the author used. I thought about the passage and made up a sentences to give the author's information in my own words. Your English teacher is encouraging you to use topic sentences and thesis sentences, but much of the material you have to read for college is not that well

written. As you read each paragraph and think about what is most general, you can write the general information in one sentence.

Now lets try writing a summary together. Here is a passage about Japan. Preview, think, and read it, and start thinking about how you would use the guidelines to write a summary. (Wait) When you think you understand the whole article, check off number one on your guidelines sheet.

Step two of the guidelines asks, "What is the topic of the whole article, what general idea about Japan do the specific ideas add up to?" (Press for answer relating to working, employment, or business in Japan.)

Does the first paragraph give the thesis? Does the whole article refer to Tanaka? Should we give his name in the summary? What is he talking about here? Does the rest of the article refer to how heavenly Japan is? Let's write the thesis as the first sentence of our summaries. (Write on board and guide students in using the checklist.)

Let's look at this passage to see whether there are paragraphs which can be grouped together. What is the first section about? (Have students set up clusters for standard of living, long working hours, shortage of workers, and women's role. Be sure they all mark each cluster of paragraphs with a bracket in the margin. Have students compose a sentence for each group of paragraphs. Write the sentences on the board. Then check the checklist.)

Is our summary finished? What does step four remind us to do? (Select someone to answer, and then guide students through step four using the checklist.)

Now I'll pass out another article (Native Americans) and some paper, so you can practice using the guidelines to write a summary of your own. Please write

your social security number on the page. Write clearly so we can use one copy for our research. Use generalization to determine what is most important. We will read your papers and return them with suggestions.

(Allow twenty minutes. After students have finished reading the article, remind them to follow the guidelines step by step in writing their summaries. If students ask for assistance, help them, but explain everything in terms of the guidelines and in terms of general and specific ideas. When you collect papers, be sure students have written their social security numbers on their papers. Ask students to bring the Guidelines, "The Summary," and the article on Native Americans to use in class tomorrow.)

Second Day of Instruction

(Hand back papers with a copy of the model summary. Give another copy of "Native Americans", "The Guidelines", and "The Summary" to anyone who forgot them.) Here are your corrected papers. You did some nice work. Here is the way I wrote a summary of "Native Americans." I found that everything in the article pointed to the changes Native Americans had made to insure their economic and cultural survival, and I wrote that for the thesis. I grouped together paragraphs one to three, four to six, seven and eight, and nine to twelve, and wrote one sentence for each group as the major supporting ideas.

Lets review our definition of a summary. (Have students take out "The Summary") We know more about the four rules a summary must follow, now that we have practiced with the Guidelines. (Tape up chart with this information and point to chart for each rule.) 1.A summary must tell what is most important to the author - how do we find out what is most important? The ideas that are most

general are most important. 2.It must be short. How short? - one sentence for every paragraph or group of paragraphs. 3.It must be in your own words. None of our materials have topic sentences; we write the main ideas by thinking out a general statement to sum up the author's specifics. 4.It must state the important information. Avoid "How," "the way," or "about"

Lets summarize another passage together. (Pass out Thinking and Exploring.) The words in this one are no harder than the others, but I think you will find the ideas a bit challenging. Most people like to take it easy, but people also like to use their minds. That is part of what you will enjoy in college, being able to achieve things that are not easy.

Read this article, and think about how to summarize it using our guidelines. Then we will write the summary together. (Wait 3-6 minutes. Tell those who finish first to try writing the summary on their own.)

This article is a little harder, because it is about several ideas and how they are related to one another. When we can see the thesis easily, we can use it to figure out the major supporting ideas, but in this article many people really have to clarify the major supporting details before they write the thesis. We can make notes on the side about the major supporting ideas and use them to figure out the thesis.

Which paragraphs would we group together? What general ideas cover the specifics of the article? (Group paragraphs 1-3, 4-6,7,8,9-12, 13, 14-15. Draw a bracket in the margin to mark each group. Major supporting ideas are: ancient Greeks figured out: earth round, equator area where sun is directly overhead, equator very hot, there is land south of equator. Later Europeans traded with Asia

- reason to explore. Portuguese prince sent ships around Africa. Portuguese ships crossed equator & found land. Later explorers "found" the continents, South America, Australia, & Antarctica.)

One general topic seems to be the ancient Greeks, another is explorers in the 1400's. What was the connection between them? What other idea was supported by lots of specific details throughout the passage? (land south of the equator) What is the thesis, the idea that is general enough to include the whole article? (European explorers of the 1400's were influenced by Ancient Greek ideas about land south of the equator.) We'll write the thesis as the first sentence of our summary and check off step three of our guidelines. Now lets write our major supporting ideas in clear sentences to support the thesis. (Write on board.) That seems okay, lets use our checklist to be sure.

Now use the guidelines to write a summary of your own. (Pass out "Travel" and writing paper.) Please write your social security number on the page. Please write clearly. Use generalization to determine what is most important. After you finish your summary, please write whether this passage was hard or easy to summarize, and what made it hard or easy. (Write these two questions on the board.)

(Allow forty minutes. Do not assist with this summary, just remind students to use guidelines. When students are ready to hand in papers, ask them to check their papers to be sure they've followed the guidelines, and to be sure that they've written complete sentences. When you collect papers, check for social security numbers. See that students also wrote why the passage was hard or easy to summarize.

Script - Self Reference

These students shouldn't practice summaries, just write their own responses to what they read!!

First Day of Instruction

Hello, my name is _____. I am working on a study of writing summaries. Summarizing is an important skill for studying, but it is difficult to learn. We are doing a study to find the best way to teach people to write summaries. We have to find out the way that students learn by trying out teaching methods with large numbers of normal students. The methods we will teach you have been successful in the classroom, but have not been written up as an experiment.

I'm going to pass out two forms. The first asks your permission to use the summaries you write for our study. The college requires us to get your permission in writing, so please read this permission slip and sign your name.

We know that your writing may be affected by your personal characteristics as well as our instruction. The second form asks about things that people think may affect students' writing. When we analyze your summaries, we will see whether any of these characteristics affects the summaries, for instance does any method work better for women, or older students.

(Wait a minute or two.)

Okay, please pass in the two forms. I want to thank you for helping us in our study of how people learn to write summaries. I hope our lessons will help you to use this important study skill more effectively.

What do we mean by a summary? I am going to pass out a page with a

definition of a summary and the four characteristics a summary must have. Let's read it silently. ... Now let's say the four characteristics aloud: ... This is what we're going to learn to do.

In this part of the experiment we want to see whether thinking about what is important to you helps you determine what is important to the author. Read these guidelines for self reflection and look up when you are finished. (Pass out "Self Reflection." Put on board: I see the world reflected in myself. I see myself reflected in the world.)

Here are two short paragraphs. We will use them to practice self reflection. Read each one and see what it says to you personally. What is the first paragraph about? What do you think of when you read it? How is this connected to you? (Do same for second paragraph)

(Distribute Desert and give students time to reread it.) When we read this passage on the desert we will have personal reactions that may be very different from one another. When I read it, I thought about all those different plants and animals and how hard it is to get along in the desert. I noticed that there were lots of different ways they adjusted. I was reminded about one time when it snowed hard and the snow was very deep. Walking was hard and cars couldn't get through. I couldn't push my daughter's stroller through the snow, and she was too big to carry. I got a little plastic sled and pulled her in it. I saw lots of families with sleds and lots of people walking to the subway instead of driving cars. I even saw someone going down the street on skis. The snow required different ways of getting around, the way the desert required different ways of living.

When my friend read about the desert, she said, "In the summer I'm just like

that. I lie around and take it easy all day. I do things in the evening when it is cooler. Then I like to have a cookout. I play croquet, and I go dancing. I'm active at night like the desert animals." Another friend who read about the desert thought about how she would like to visit a place that was so different from New York, and see the plants and animals that live there.

When you read the passage about the desert, what did you think of? (Call on two or three people.)

Sometimes a textbook can be dry and dull. When you are asked to read about the Trojan War or chemicals that combine with carbon, if you are not interested in it right away, you can use self reflection to make it more interesting. When you build a connection between yourself and the passage, it is easier to study, and you learn more.

Now that we built a connection, let's look at the passage to see what the author was getting at. We all noticed that the fact that the desert is hot and dry meant that plants and animals had to develop special ways to stay alive.

Now let's try using self reflection to read a passage on Japan. (Distribute passage and have students read it.) How are you reflected in the passage? How is it reflected in you? Let's start by brainstorming. To brainstorm put your ideas on a piece of scrap paper. We use scrap paper because we want to put down all our ideas. Sometimes six bad ideas will lead us to a good idea. Don't even write sentences. Just put a few words at a time of whatever comes to your mind. It may be directly about the passage, or it may be something in your own life that the passage starts you thinking about. Write down the first eight or nine things you think of. Then write two questions, they don't have to be questions that are

answered in the passage, just things that seemed important to you after you read the passage.

Let's share our ideas to see what struck different people as they read this passage about Japan. We'll go around the room and each pick one idea from your list or one or your questions. (Have all students share an idea; then lead a brief discussion of whatever comes up.)

By brainstorming we got a lot of good ideas. The next step is to look over your ideas and decide which ones are most important to you. Cross out all the ideas that you won't use. Organize the ideas you want to use. Use numbers or arrows to decide what order you'll put them in. Think about how your ideas are related to one another. Write them clearly so someone reading your paper could tell what is important. Be sure you tell what it is in the passage you read that you feel connected to. (Allow time and assist in writing. Then have several students share their papers with the class.)

Now I'll pass out another article (Native Americans) and some paper, so you can practice brainstorming and organizing to write a self reflection of your own. Please write your social security number on the page. Write clearly so we can use one copy for our research. Organize your ideas so someone reading your paper could tell what is important. Be sure you tell what it is in the passage you read that you feel connected to. We will read your papers and return them with suggestions.

(Allow twenty minutes. If students ask for assistance, help them, but explain everything in terms of self reflection and brainstorming and organizing. When you collect papers, be sure students have written their social security numbers on their

papers. Ask students to bring the Self Reflection guidelines, and the article on Native Americans tomorrow.)

Second Day of Instruction

(Return corrected papers. Read the model self reflection for "Native Americans" and have several students read their papers aloud. Then review the self reflection procedures and pass out "Thinking and Exploring". Guide students using the approach given above.)

Now that we have practiced self reflecting, lets see how it affects our summaries. (Read aloud the definition of a summary. Distribute "Travel" and writing paper.) Please write your social security number on the page. Please write clearly. Use the way these ideas are important to you to determine what is most important to the author. After you finish your summary, please write whether this passage was hard or easy to summarize, and what made it hard or easy. (Write these 2 questions on board.)

(Allow forty minutes. Do not assist with this summary. When students are ready to hand in papers, ask them to check their papers to be sure that they've written complete sentences. When you collect papers, check for social security numbers. See that students also wrote why the passage was hard or easy to summarize.)

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