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The Effects of Combining Direct Instruction, Metacognitive Instruction and Co-operative Learning Strategies to Teaching Summarizing to Year 6 Students

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THE EFFECTS OF COMBINING DIRECT INSTRUCTION, METACOGNITIVE INSTRUCTION AND CO-OPERATIVE LEARNING STRATEGIES TO TEACHING SUMMARIZING TO YEAR 6 STUDENTS.

BY

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Bachelor of Education Honours.

At the School of Education, Edith Cowan University.

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Abstract

Summarizing is one of several study skills students are asked to do as evidence of their ability to learn from texts and it is one which students find difficult. Research suggests that part of the difficulty students experience with summarizing is due to the lack of instruction students received in summary writing and the quality of that instruction.

Therefore the purpose of this study was to design an instructional procedure for teaching summary writing to primary school students and to investigate the effects this form of instruction had on students' summaries.

This study involved pre-testing , instruction in summarizing, followed by a Post Test and a delayed summary writing task. The Post Test was administered immediately following the completion of instruction. The delayed summary writing task was administered one month later and was conducted in order to investigate the durability , application and contextual use of skills and strategies learnt from the instruction in summary writing .
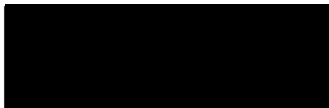
The Instructional format for writing summaries was developed from a review of past research studies which had successfully taught students to summarize. The characteristics of procedures in each of the studies were tabled and the common elements identified. The rationale and theory behind these common elements were found to be similar to that of direct instruction, metacognitive instruction and co-operative learning strategies. Therefore the instruction procedure designed for this study was named the Combined Approach To Summarizing Procedure, or the C.A.T.S. Procedure.

The results indicated that for this sample of 21 Year 6 students both the quantity and quality of information being recorded in their summaries increased. Students in this study improved and maintained the number of main ideas statements being produced in

their summaries and they were found to be combining main ideas and supporting details more frequently. Although immediately following instruction the amount of unimportant information was reduced, and the amount of inferences increased, this was not maintained in the delayed summary writing task.

It was found that there was no difference between the improvements made by lower ability readers and the remaining students in the study, in terms of the amount and type of information being recorded in their summaries.

" I certify that this thesis does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any institution of higher education; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text."

Signature. █████████

Date......22ⁿᵈ June 93

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ACKNOWLEDGEMENTS

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CHAPTER 1

INTRODUCTION

One quality which seems necessary for success in secondary and further education is the ability to learn independently. At the beginning of school, teachers are largely responsible for the content, experiences and direction of learning. As students progress through the school system the reponsibility for learning shifts from the teacher to the student.

One of the first steps often experienced by children in taking responsibility for their own learning occurs in the transition from primary to secondary school. This move is marked by two characteristics. Firstly, there is a decrease in the amount of skills and strategy instruction and an increase in the amount of content to be covered. The lack of skills instruction appears to be more prevalent in reading and writing areas. Secondly, much of what students are expected to learn at secondary school will come from texts. In this way a large portion of the responsibility for successful learning rests on students' abilities to read and write and in particular their abilities to read and write informational texts. Therefore in preparing students for secondary education, the successful development of independent study skills is both desirable and necessary.

Gaining information from texts is often referred to as 'reading to learn' or 'study skills'. In order to read to learn students are required to extract information efficiently and effectively, critically evaluate that information, and organize it so that it may be easily retrieved or recalled. Locke's study (cited in Paris & Myers, 1981) described reading to learn or studying as having " a split mental focus, " because on one hand the focus is on the material itself while on the other hand students must monitor the mental processes used while studying.

Studying involves the ability to plan strategies purposely and to evaluate the effectiveness of those strategies in attaining the original task. The skills commonly associated with reading to learn include being able to locate information , and being able to extract , organize and synthesize information for a variety of purposes. The types of strategies which facilitate reading to learn include reference skills, summarizing, outlining, and note taking . This study investigates the development of one of these strategies , the development of summary writing skills.

1.1 Statement of the Problem

Summary writing was chosen because it is a task students are frequently asked to do as evidence of their ability to learn from texts and because students often appear to have difficulty with this task (Brown, Campione & Day, 1981; Winograd, 1984; Hahn & Garner, 1985). Research into students' difficulties with summary writing suggests students are unaware of the task dimensions involved in summary writing and that this may be the result of the amount and type of instruction they have received .

1.11 Students' Understandings of Summarizing.

Research studies, anecdotal evidence and discussions with teachers in the primary and secondary levels suggests that generally, students are not able to summarize effectively or efficiently (Hill, 1991). While many studies generally confirm that most students are aware that a summary is a shorter version of the original text and that it should contain the important information (Myers & Paris, 1978), this awareness is not evident when students are asked to produce summaries (Hidi & Anderson, 1986).

One of the most common strategies young students employ when asked to summarize texts is to copy large chunks of information verbatim from the original texts (Brown & Day, 1983; Winograd, 1984). There are a number of suggestions as to why students copy text verbatim . Firstly, students often do not understand the task requirements involved in summary writing (Garner, 1984) .   Brown, Day & Jones' study (cited in Baker &

Brown, 1984) suggest students experience difficulty selecting information which is textually important , and other studies have found that students have difficulty reducing text to its "gist" by eliminating superfluous detail (Brown, Campione & Day , 1981). Secondly, students are unaware of other variables which influence their ability to summarize. The types of variables which influence students' abilities to summarize are related to the learners' abilities, interests and experiences and texts' structure , content and complexity. Past research, reviewing the teaching of summarizing, suggests that students' ignorance of the summary writing task is largely due to the quality and quantity of instruction in summarizing (Hill, 1991; Garner, 1984; Brown & Day, 1983; Bromley & McKeveny,1986).

1.12 Current Instruction in summarizing

In reviewing curriculum documents and teachers' guides, available in Australia, there does appear to be a lack of explicit instruction on how to teach summary writing ("Reading K-7 Teachers Notes", 1983; "First Steps", 1992; Hidi & Anderson, 1986; Archer & Gleason, 1992 ; Durkin, 1979). In fact much of the summary writing instruction present in these documents appears to suggest teaching summary writing by descibing what summarizing is, rather than explaining how to teach it. This example is typical of many instructions on teaching summary writing;

> "...give children time to read a paragraph silently then as a group summarize the paragraph. Before going on to the next paragraph blackboard a phrase.
> (presumably one the children have created), that captures the essence of the paragraph. When all the paragraphs have been treated in this way, the blackboarded phrases should present a summary of the story. "
> (Reading K-7 Teachers Notes,1983, p. 81)

In studies where instructional procedures for teaching summarizing were researched (Garner, 1984; Hill, 1991), further evidence can be found to support a lack of quantity and quality of instruction in teaching summary writing. The sort of instruction described by teachers in these studies suggests that both teachers and publishers underestimate the task dimensions involved in summary writing and the time needed in order to become

competent and confident. Bintz (1989) reports that many students and teachers perceive summary writing as a " re-activity ... that is students are invited to reduce, reconstruct, reorganize , reproduce and represent other people's knowledge rather than to meaningfully construct and extend their own knowledge". The quality and quantity of instruction given to summary writing at the present time suggests that many teachers view summary writing to be a " low order skill". That is , summary writing is seen to be either an easy task which students eventually accomplish on their own or it is one which is not important enough to warrant explicit instruction and time. Such a view is contrary to results found in recent research studies(Hidi & Anderson, 1986; Pressley, Johnson, Symons, McGoldrick & Kurita, 1989).

Recent research confirms that summary writing is a far more complicated task than generally thought, particularly when summarizing involves informational texts (Winograd, 1984; Pincus, Geller & Stover, 1986; Anderson & Hidi, 1989; Taylor,1984). Summarizing is described by Winograd (1984) as one of the "higher order" comprehension tasks asked of students. The number of skills and the variety of variables which affect the process of summarizing make it difficult to teach and difficult to perform, but none the less important to study. Summarizing involves comprehension, selection , condensation and transformation of information. The ability to summarize is influenced by variables related to the text, the task, a wide range of skills and strategies as well as influences from the learners characteristics. Studies have found strong indications that summarizing skills are developmental (Brown & Day ,1980; 1983; Hare & Borchardt , 1985). Other studies support the use of summarizing or summary writing as a means of developing vocabulary, promoting critical thinking and comprehension, and improving learning from texts (Hill, 1991). The deliberate and active orchestration of such a variety of skills implicates the use of metacognitive skills in reading (Hill,1991).

Recent studies indicate that while there is a variety of successful summarizing strategies that mature readers use (Pressley et al.,1989), the instructional methods for teaching

them may be the key to students being able to successfully implement these strategies earlier than they may otherwise have done. Generally it can be found that when and where explicit instruction and practice in summary writing has been provided , improvements in the use of strategies and the quality of students' summaries have been found (Kintsch & Van Dijk, 1978; Brown & Day, 1980; Taylor, 1982; Taylor & Beach, 1984; Berkowitz, 1986; Armbruster, Anderson & Ostertag, 1989) . In order for teachers to give explicit instruction in summary writing they must be cognizant of the demands and parameters of the summary writing task. They must also value the use of summarizing enough to be willing to commit the time needed in order to practise and attain mastery of this task.

1.13   Matching the development of summary writing skills to summary writing instruction.

In this regard, the final problem involves matching the students' skills with the instructional program. While the quote, on page 17, taken from a primary school syllabus, indicates that instruction in summary writing begins in the primary school, it is often assumed that by the time students arrive at secondary school they will be able to summarize independently . Past research confirms that mature summarizers orchestrate a number of skills whilst summarizing (Winograd, 1984; Taylor, 1984; Pincus, Geller & Stover, 1986; Anderson & Hidi, 1989). These skills include selection, condensing and transforming of information and that the strategies involved in the selection, condensation and transformation of information from texts are know to be developmental (Anderson & Hidi, 1989; Hare & Borchardt 1985 : Brown and Day, 1983).

Garner (cited in Hidi & Anderson, 1986) suggests the development of summary writing skills occurs in three stages . In the first stage, referred to as the deficiency stage, students tend to write summaries with no particular strategy in mind. They perform similarly to young children. They tend to select information based on its personal interest and intrigue rather than information which is textually relevant. The development

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of summary writing skills begins with students learning strategies which help them in the selection of appropriate information.

When students approach the second stage , referred to as the 'inefficiency' stage, they tend to write summaries using a strategy , but one which is superficially functional, such as the copy-delete strategy identified by Brown and Day (1983). During this stage students begin to learn strategies which help them condense the information they have selected.

In the final stage, referred to as the "efficiency" stage, students apply a variety of strategies to suit the text and content. In this stage students develop strategies involved in the transformation of information, such as inventing topic sentences and reorganizing information. It is this final stage which researchers agree is the most difficult to master and which is often not mastered until well into secondary school (Anderson & Hidi, 1989). In this regard, the assumption that students will have the necessary summarizing skills by the end of primary school places many students in situations where they will be perceived to have inadequate reading and writing skills. It would appear that in order to develop students' summary writing skills, teachers need to be more cognizant of the developmental stages of summary writing skills and to set summary writing tasks with the idea of continuing skills development. With current instruction, students may slowly develop summary writing skills simply by practice, however, teachers responsibilities lie in intervention which will improve students' skills. With the development of more effective skills, students will develop their awareness of the benefits and applications of the summarizing task. Hence, students will be more likely to increase their understandings of the task parameters of summarizing.

1.14 Summary of the Problem.

This study evolved from the general dissatisfaction expressed by secondary school teachers about the summary writing skills of students entering secondary school. These

concerns appeared to be partly legitimate.

Firstly, curriculum documents and teaching guides for primary school teachers provide little instruction in summary writing, and discussions with primary teachers confirmed that little time is spent actually teaching summary writing . This suggests that the lack of instruction in teaching documents may implicitly indicate to teachers that summary writing is either an easy strategy to learn, or it is a strategy which is not as important as other skills given more emphasis in these documents.

Secondly, discussions with secondary teachers suggested they expected summary writing to have been taught by primary teachers. This expectation is largely understandable given the time and curriculum constraints placed on secondary teachers. However as a consequence, students appear to receive little or no instruction in summarizing and hence when asked to write summaries in secondary school, they perform inadequately and somewhat like novices .

Currently , the type of instruction received in summary writing and the time allocated to it , indicates that many teachers are unaware of the task demands of summarizing, the time needed to develop those skills to a level of mastery, and the significance of possessing summarizing skills. Since research has shown that students who are taught explicitly how to summarize and who are given opportunities to apply these skills are significantly better summarizers than students who are not, it would seem that the problem lies in educating teachers as to the importance of being able to summarize as well as showing them how to teach summarizing skills explicitly (Kintsch & Van Dijk, 1978; Day, 1980; Brown & Day , 1983; Bean & Steenwyk, 1989; Hare & Borchardt, 1984; Rhinehart, Stahl & Ericson, 1986) . Again, research has shown that summarizing skills take time to develop (Brown & Day, 1983; Brown, Campion & Day, 1981; Garner, 1984; Hare & Borchardt, 1984). Therefore it is the responsibility of all teachers at all levels and in all subjects to spend some quality time teaching, revising, and practising

skills and strategies for summary writing. This author believes that it is through the development of explicit instructional procedures in summarizing that efficient and effective summarizing skills in students will follow.

1.2 Common Elements Present in Successful Methods of Instruction in Summary Writing.

To design a suitable procedure for teaching summary writing skills to year six students a review of successful research studies involving instructional methods in summarizing was conducted. The review revealed a number of different procedures, which ranged from simple, one sentence / one paragraph models, to more complicated models which included the application of a set of rules; the use of graphic outlines; the construction of maps ; and the use of text structures or frameworks to write summaries (Pressley et al., 1989).

Whilst many of these procedures use different strategies to reach the same ends, there are some common elements relevant to all the procedures reviewed. Firstly, it was found that most of the procedures contained activities classified as *before, during* and *after* summarizing activities. *Before* summarizing activities predominantly involved oral interaction ranging from defining the task of summarizing to activating students' background knowledge and experiences. *During* summarizing activities predominantly involved a set of strategies to apply to the text in order to select and condense information. *After* summarizing activities predominantly involved evaluating the written product.

In reviewing methods of teaching summary writing most procedures had a similar overall objective. That is, each procedure endeavoured to focus students' attentions on selecting important facts, relevant to the author's purpose or meaning. This was generally achieved by identifying the overall topic, and relating the subsequent ideas to that topic in order to determine importance and order. The level of importance and the ordering helped students to select, condense and combine relevant information.

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A further consistent feature found in the procedures was the teacher's role. In each case the procedures for summarizing were explicitly modelled by the teacher so that initially the teacher was responsible for producing the summary. Gradually as the students became more familiar with the procedure they took over from the teacher. This resulted in the the teacher's role being diminished and the students taking full reponsibility for writing the summary.

In all procedures reviewed, there was an emphasis on amount of time given to instruction and practice . Students were given many opportunities to practise summary writing either collaboratively or independently. Students were encourage to spend time re-reading the text, reflecting on the content, comparing and evaluating that content with the overall plan.

In reviewing summarizing procedures, it became obvious that many of the underlying principles had been derived from research into successful reading comprehension instruction. In particular, the successful comprehension instruction related to research on direct instruction, metacognitive instruction and collaborative learning theories. The use of principles from these methods of instruction supports the development of a model of instruction in summary writing which not only instructs students on *how*, *when* and *where* to perform summary strategies, it also instructs students about the *significance* of using certain strategies as well as encouraging students to *self -monitoring* and *self -evaluate* their use of the strategies taught.

1.21 Direct Instruction

Research into the effects of direct instruction methods on reading comprehension have shown favourable outcomes (Paris & Jacobs, 1984; Stevens, 1989). In Brown and Palincsar's study (cited in Brown & Campione, 1984) , three direct instruction strategies were found to be the most effective : i) instruction in comprehension fostering strategies such as , what and how to perform strategies; ii) instruction on the importance and

usefulness of those strategies (where, when and why) ; iii) instruction in strategies which monitor and check the results of implementing such strategies.

In reviewing research in this area, the explicit teaching of what, when, where, why, and how to apply such comprehension strategies suggests that part of successful comprehension processing involves increasing students' awareness and control of what they are doing. This aspect of instruction is related to developing students' metacognitive knowledge of reading and comprehension, which is characteristic of mature and independent readers (Wong, 1986).

1.22 Metacognitive Instruction.

Metacognition refers to the deliberate knowledge and control students have over their thoughts and learning activities, including reading (Brown, 1978; 1980 ; Flavell,1976). The knowledge aspect of metacognition refers to awareness of the skills, strategies and resources needed to perform a task effectively. The control aspect refers to the ability to use self-regulatory strategies, e.g. predicting, planning, checking, monitoring, reality testing, revising, and the co-ordination and control of attempts to study and solve problems (Baker & Brown, 1984). Metacognitive skills therefore include those skills which are deliberately employed to accomplish goals or objectives in thinking or learning. In this study metacognitive instruction in reading is represented by Brown 's tetrahedral model (Brown, 1980). This model is described in Figure 1.1.

In Brown's model the variables of text, task, strategies and learner characteristics are key areas to be considered when designing a plan for learning from texts. In designing the method of instruction in summary writing for this study these areas were found to be both relevant and interdependent.

LEARNER CHARACTERISTICS
I.E PRIOR KNOWLEDGE,
EXPERIENCES & ABILITIES

STRATEGY
I.E RULES &
PROCEDURES

TASK
I.E.ANALYSIS
OF SUBSKILLS

TEXT
I.E STRUCTURE, CONTENT
COHESION
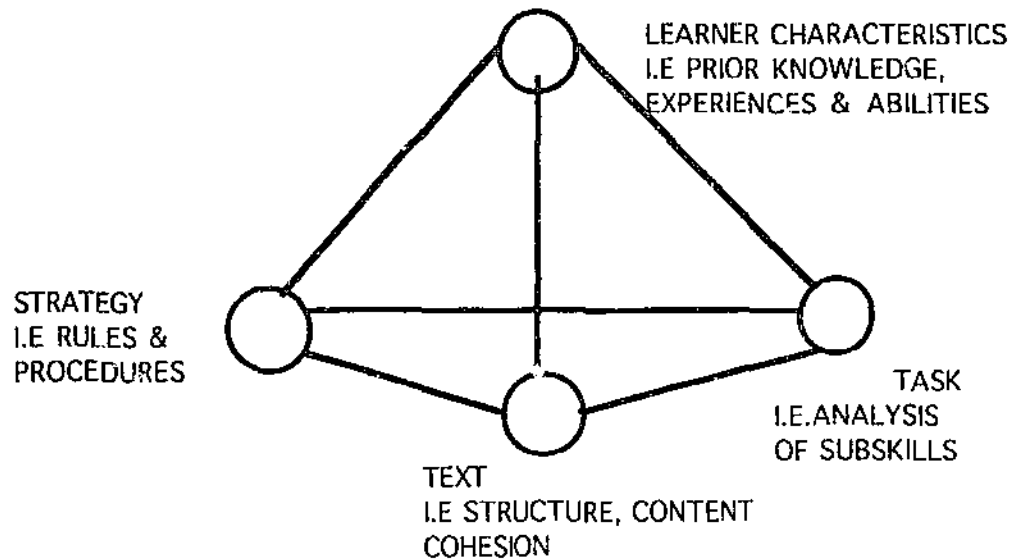
Figure 1.1: A Tetrahedral model for considering problems of learning from texts. (Adapted from Brown & Campione, 1981)

1.2.3 Co-operative Methods of Learning.

In reviewing and researching successful methods of instruction one needs to consider the natural learning contexts of the home. Research into the use of "talking " and co-operative learning techniques suggests that providing students with situations in which they can co-operatively discuss problems and share ideas and solutions allows for a) a greater number of ideas to be processed, b) cognitive functions to be stimulated by discussion and evaluation, c) increased students responsibility and attitude towards learning , d) increased self esteem and e) the provision of a working model of how others think and process (Bruner, 1986; Johnson & Johnson, 1987; Dalton, 1991; Cambourne, 1988). Using 'talk' in this way, students are co-operatively solving problems and have ownership of the solutions. Students are motivated to use their own methods rather than blindly following someone elses' method.

One model of instruction which demonstrates this learning method is Campione's " Gradual Release of Responsibility Model of Instruction" (cited in Slater & Graves, 1989). In this model learning tasks are modelled by the expert, followed by "guided practice" with the novice and the expert acting as a safety net. This continues until the novice can

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independently complete the task and perform the task when needed. Figure 1.2 shows Campione's Gradual Release of Responsibility Model.

Proportion of responsibility
for task completion

All teacher   Joint responsibility   All students

Modelling

Guided practice

Gradual
Release
of Responsibility

Practice
and
application
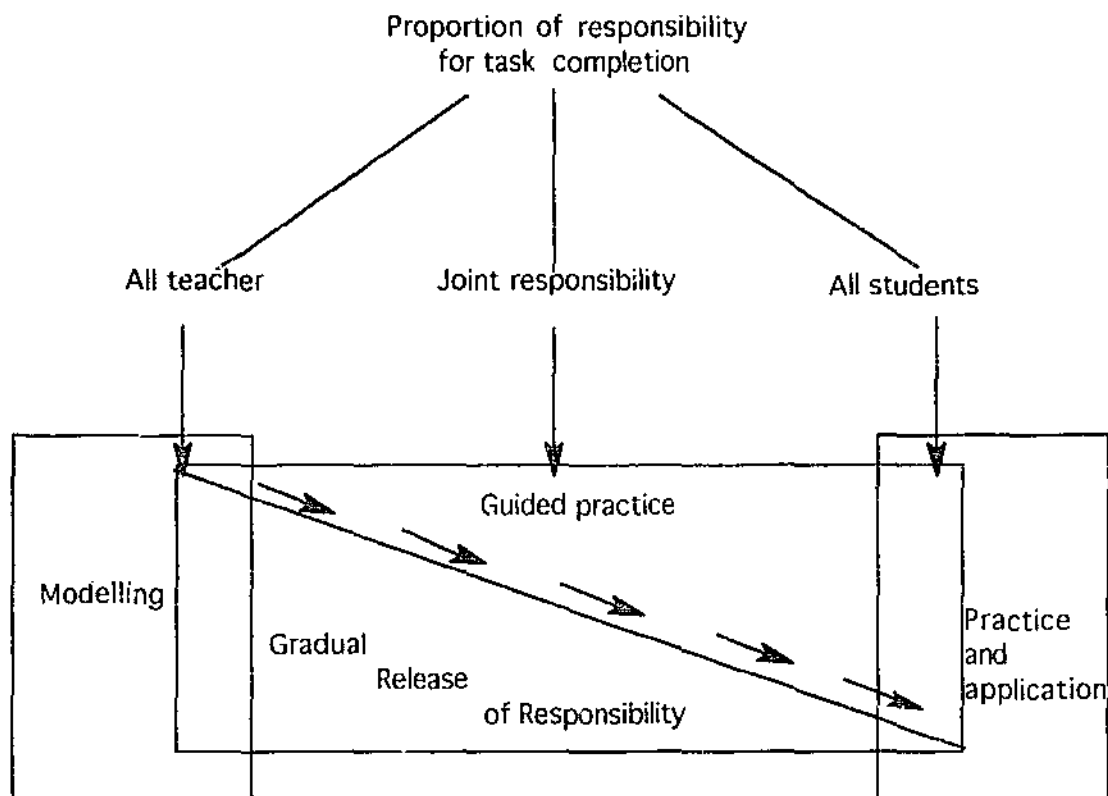
Figure 1.2: The Gradual Release of Responsibility Model of Instruction.
From P.D. Pearson amd M.C. Gallagher. The instruction of reading comprehension, **Contemporary Educational Psychology**, 1983, 8, 317-344

1.24 Combining Successful Instructional Procedures in Summarizing With Direct Instruction, Metacognitive Instruction and Co-operative Learning Theory.

In designing a method for instruction in summary writing it would seem that many of the successful practices found in past instructional procedures in summary writing, stem from the theoretical rationale behind direct instruction, metacognitive instruction in reading and co-operative learning theory . Therefore common procedures found in these studies

were used to design a method of instruction . This method of instruction was named the

Combined Approach To Summarizing Procedure, referred to as the C.A.T.S.

Procedure. In Figure 1.3 the C.A.T.S. Procedure is described diagrammatically.

INTRODUCTION TO SUMMARIZING
- clarify definitions of summary
- identify and classify purposes for summarizing
- identify characteristics of good summaries
- share procedures for summarizing

BEFORE SUMMARIZING
- activate background knowledge use text features.
= circle / note down the title, pictures,
diagrams, noticeable words .
- predict content by organizing the noticeable
features i.e who/what, where & when, how , why.
- predict text structure
= circle/note down headings etc.
i.e graphic outline . If no
    headings use topic sentences.

DURING SUMMARIZING
- read
- confirm / reject prediction, add .
- confirm/ reject/ identify the text's topic
- invent topic sentences in paragraphs
- delete small words rule
- identify important supporting ideas.
- condense lists of names and events
- combine and order topics
· rewrite information

AFTER SUMMARIZING
- self-check summary against text's title
- self-check use of rules
- self-check notetaking
                    - topic + supporting details
                    - brief, use suitable abbreviations
                    - use own words
                    - self check understanding

Groups
of four

GUIDED
PRACTICE

Partner
work

CHARACTERISTICS OF INSTRUCTIONAL PROCESS
- explicitly defined procedures
- strategies modelled by teacher
- collaborative rule formulation
- gradual student responsibility
- guided group practice
- informative feedback
- shared responses
- independent practice

Figure 1.3. The Combined Approach to Summarizing

This procedure for teaching students to summarize combines the successful elements from past research studies with Brown's Tetrahedral Model for metacognitive instruction , and features of co-operative learning theory suggested by Campione's Gradual Release of Responsibility.

Instruction begins with an introduction to summarizing. In the introduction , students define a summary and the specific purposes for summarizing. The actual summary writing procedure is divided into *before, during* and *after* summarizing phases. The strategies to be used within each phase have been organized in the order in which students should summarize. These strategies are further summarized in a list format, so that students can use this as a checklist when summarizing (see Appendix 1) . The diagram on the right hand side of the strategies indicates the student and teacher's role in developing the strategies. A major characteristic of this procedure is explicit teacher modelling and questioning in order to formulate rules for summarizing. This is followed by guided group practice of the summary writing rules. The guided practice includes peer/teacher feedback as well as comparing students' summaries with adults' summaries. This continues until students are familiar and confident enough to summarize independently.

1.3   Purpose of this Study.

Based on the lack of instruction in summary writing, the nature of the task, and the time needed to develop summary writing skills the initial purpose of this study was to design a model for instruction in summary writing which could be easily and realistically implemented in the primary classroom . The design was based on direct and explicit instruction in summary writing in order to increase students' awareness and abilities to control the strategies involved in this task. It is hypothesized that by teaching students how to write summaries using the C.A.T.S. Procedure that they will be able to extract, synthesize and organize information from texts more successfully.

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This study's instructional design was aimed at developing the summary writing skills of students who would be classed in Garner's "deficiency " stage (cited in Hidi & Anderson, 1986). That is, they are students who have little or no experience with summary writing and use random and ineffecient strategies for selecting, condensing and combining information.

While other models of instruction in summary writing have been successful, the C.A.T.S. Procedure has taken the common elements from a large number of ..udies in order to introduce "inefiicient" students to a range of the general strategies needed to write summaries. A future study may be to design a follow-up procedure which would further develop and refine the summary writing skills of older students.

The second purpose of this study was to investigate the effect the C.A.T.S. Procedure had on students' summaries. In other words this study will investigate the quality and quantity of information being recorded in students' summaries before and after C.A.T.S. Procedure. In addition this study seeks to establish whether the strategies taught in the C.A.T.S. Procedure are durable . That is , are students able to maintain the quality of summaries produced immediately after C.A.T.S. Procedure , in a delayed summary writing task.

1.4 Research Questions

The first question was formulated based on the understanding that C.A.T.S. Procedure differs from traditional summary writing instruction in several ways. Firstly, the procedure for summarizing involves explicit instruction on how to select, condense and transform information from the text. Secondly, the method of teaching summarizing involves a combination of direct instruction, metacognitive instruction and co-operative learning instruction. Therefore the following general question arises:

Is there a difference between students' summaries produced before and after instruction in the C.A.T.S. Procedure , in terms of the quantity and quality of information produced in their summaries ?

The research to date suggests that while summary writing strategies are thought to develop slowly and emerge later, teaching students to summarize using either direct instruction, metacognitive instruction or co-operative learning instruction has produced encouraging results . While other studies have used a variety of procedures in summary writing , for example combining direct instruction with metacognitive development, and direct instruction plus co-operative learning instruction , this study combined the common elements of successful summary writing procedures, with three methods of teaching that procedure. This stu   compares the differences between summaries produced before and after the C.A.T.S. Procedure and whether there is any difference between lower ability readers' summaries and successful readers' summaries. This study seeks to answer the following specific question:

Is there any difference between the summaries produced by lower ability readers before and after the C.A.T. S Procedure and other students' summaries before and after C.A.T.S. Procedure ?

Finally, the third area examined in this study involves skills or strategy transfer. That is, transferability involves students applying the learned summary writing strategies in a variety of situations . This implies that students are in control of their learning and they understand when and how to use their summary writing strategies effectively and selectively. The research suggests that instructions which involve inducing a behaviour together with the control or monitoring of it not only enhance comprehension but are more likely to result in transfer of skills and strategies across curriculum areas . The final question therefore seeks to answer the following :

Are students who have been taught how to write summaries using the C.A.T.S.
Procedure able to transfer their summary writing skills to other learning situations?

1.5   Overview of Design.

This was a quasi- experimental study. It involved a small sample of 21 year six subjects. The sample subjects were all in the same class in an independent school.

The subjects were pre-tested in their ability to write summaries. Over a 6 week period the subjects were instructed in summary writing using the C.A.T.S. Procedure . At the conclusion of the 6 week instruction period a Post -test summary was collected.

One month after instruction in the C.A.T.S. Procedure had ceased another summary sample was collected in order to test the durability of the skills taught using the C.A.T.S. Procedure.

The students'summaries from the Pretest , Post Test and delayed summary writing task were examined in terms of the quantity and quality of information presented. The quantity referred to the number of words recorded. The quality referred to the type of information recorded in students' summaries and the type of processing students were engaged in. The difference between the quantity and quality of students' summaries was used to reject or confirm the hypotheses.

1.6   Significance of the Study;

Summarizing is an important skill required for learning from texts in all subject areas, but particulary in secondary and further education. One of the problems experienced by students in secondary schools is that much of the knowledge they are expected to learn has to be extracted from texts. Therefore students' abilities to summarize texts may in turn influence their abilities to learn . Past practices in schools suggest that students are expected to be able to summarize texts without being shown explicitly how to

summarize . The ability to summarize texts , effectively and efficiently , does enhance students' abilities to draw out generalizations, clarify meaning, and relate concepts in texts to each other as well as to the course content. The development of these skills also facilitates independence in learning which is necessary in order to be successful at higher levels of education.

This study is therefore significant because it demonstrates how this approach to summarizing is a means of (a) providing a framework for teaching summarizing (b) highlighting the active role of the reader in learning to summarize (c) encouraging students to take responsibility for monitoring and reflecting on their own skills and (d) developing and facilitating general skills that are more widely applicable.

1.7 Definitions

Summary - a short article which reflects the main ideas of a text in a succinct and organized manner. That is, the main ideas are clearly related to the title and are described using a similiar structural framework to the original text.

Summary writing procedure or summarizing process - a group of activities which enable students to write summaries. Within these activities are strategies which students can employ in order to accomplish the activities.

Summary Writing Strategies- the strategies that students employ in order to select , condense and transform information from a given text. e.g. Selection strategies include deleting information which is irrelevant or redundant.

Informational texts- texts which provide factual information, such as non- fiction material.

Direct Instruction - detailed and explicit instruction involving the subskills necessary to complete a whole task.

Metacognition -is an awareness of what skills and strategies are needed to perform a task, and to control the use of those skills and strategies in order to learn. The control aspect refers to the ability to monitor the effectiveness of the skills and strategies used,

and to employ compensatory skills and strategies if needed.

Metacognitive instruction- is instruction which increases students' understanding of the task demands and any influential variables. Metacognitive instruction aims to increase students' ability to self-monitor and self- evaluate the effectiveness of the strategies employed in order to complete a task.

Task- refers to the acts readers are asked to perform as evidence of their abilities to read.

Text- the materials which readers are asked to read and extract information from.

Learner characteristics- those features of learners which may influence their abilities to perform tasks.

Strategies- Those procedures the learner employs to complete a task.

Variables -those elements of the text, task, learner or strategies that may influence the learning outcome

Main Ideas Statements - information in the text which is central to the authors' plan or macro-structure. In rating texts for main ideas, the adult raters were asked to rate the main ideas in a text as very important information to the texts meaning.

Supporting Details - information which supports the authors' main ideas or points. This information is of a lesser degree of importance . The adult raters were asked to rate ideas in this category as important information.

Trivial information - information which appears in a text but which is not important or relevant. Often referred to as unimportant information, but may also include information which has been repeated or is redundent.

Verbatim copied statements - statements which have been directly transcribed from the original text.

Combined idea statements - statements which combine ideas within or across paragraphs. Information contained in the combined idea statements is either very important or important information.

Inferential statements - statements which are important and relevant to the author's main ideas or supporting details but which are not directly stated by the author. These statements will reflect the summarizers' background knowledge or experiences but they

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must be pertinent to the author's meaning and not simply an unrelated or interesting sideline.

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CHAPTER 2

LITERATURE REVIEW

2.1 Introduction;

In order to design a procedure for instruction in summary writing and to investigate the effects of that design, this study reviewed literature in the area of summarizing, direct instruction, metacognitive instruction and co-operative learning theory.

This section of the review investigates summary writing or summarizing and its relevant definition in terms of this study. The specific purposes for writing summaries are investiga' ed and the type of summary relevant to this study is determined. This is followed by a description of the process involved in summarizing and the development of the process skills as determined by past research studies. A number of variables which affect students' abilities to summarize are identified and their implications to this study are determined. This is followed by a discussion of current summary writing instruction and a review of successful instructional research procedures in summary writing. The common elements present in the instructional research procedures for summarizing were identified. These were used to design the C.A.T.S. Procedure.

In designing this procedure three theoretical rationales for instructional design began to emerge. The rationale behind the C.A.T.S. Procedure was linked through direct and metacognitive instruction in reading and co-operative learning theories. The theoretical background and the major research findings in direct instruction, metacognitive instruction, and co-operative learning are discussed. The background and research findings from these methods of instruction were utilized in the instructional design of the C.A.T.S. Procedure .

Finally ,in order to investigate the effects of the C.A.T.S. Procedure on students' summaries, methods of evaluating summaries were reviewed. From this review , a method was designed for evaluating summaries .

2.11 Summarizing

In reviewing literature related to summary writing there is little variation in the definitions of a summary. The presence of words such as *brief, reconstruction* and *main idea* or synonyms for these appear fairly consistently . Therefore in the context of this study a written summary is defined as the clear and succinct reconstruction of the most important ideas contained in a text.

While summaries may be presented either orally or in a written mode, there are also two distinct sources from which summaries may be constructed. Firstly, students may be asked to summarize something they have experienced, heard about or seen . This type of summarizing usually involves an oral response from students such as a retelling, but it may also be presented in a written manner such as recounting. In the second instance, students may be asked to summarize information from print. This source of summarizing may involve oral summaries , but more often students are asked to produce a written summary. This study is concerned with the production of a written summary based on information from a text.

Within the context of written summarizing there are two general purposes for writing a summary. A summary may be written for others to read or it may be written for oneself. If a summary is written for others to read, it will present information succinctly. It will be short and clear, and the information will be presented in a polished manner such as abstracts, reviews and precis. If a summary is written for oneself it is often written to help recall information, therefore it may be resemble an acronym or non-English statements, such as notes. The information is often used to mould ideas as part of a larger task such as a critique or exposition.

It appears that it is important for students to have the opportunity to summarize for both purposes. However, summarizing for oneself tends to be the easier task because the

emphasis is on the strategies involved in extracting main ideas. Summarizing for an audience involves both extracting ideas and writing in a coherent and acceptable style, therefore it is the more difficult task. In this regard summarizing for oneself is a more suitable starting point, thereafter progressing to audience based summaries.

2.12 The Process Skills of Summary Writing.

Researchers agree that summary writing is a multi-disciplined task which involves high order cognitive operations (Hidi & Anderson,1986 ; Winograd, 1984 ; Pressley et al., 1989). Unlike other writing tasks, summary writing is not primarily concerned with the planning of content and structure. In summary writing the content and the structure are already there in the form of the text. Hidi and Anderson (1986) suggest that the major concerns in summary writing are not how to plan and generate new ideas , but to decide which information to include and which to eliminate; which information can be combined while still maintaining sense; whether the original structure can or needs to be retained, and at the same time monitoring the output in relation to the original intended meaning. In this way a large proportion of summary writing is actually comprehension. In trying to discover the process skills involved in summary writing many preliminary studies investigated and analysed the summaries of young and mature readers (Kintsch & Van Dijk, 1978; Brown & Day 1980; Hidi and Anderson ,1986). While the number of processes and the terminology used to describe these varies between studies, Hidi and Anderson (1986) considered the processes described by Kintsch and Van Dijk (1978) and Brown and Day (1983). They suggest that within each description three broad but common processes can be identified. The major processes involved in summarizing are described as the selection, condensation and transformation of information in a given text.

The selection process involves the decision to include or delete information from a text. While summarizing , readers evaluate the topics or ideas being presented in terms of importance. For example, ideas may be contextually important , that is of interest to the

reader , or ideas may be textually important, such as supporting details for main ideas. Generally, the selection process involves information being classified according to importance to the overall topic. If information is deemed unimportant, repetitive or redundant , it is deleted. However, in deciding whether information is important, it should be texually related rather than being chosen for readers' interests. In this regard the reader must remain objective , and keep the authors' writing purpose in mind rather than their own interest or intrigue.

Another process in summarizing involves condensing information. In order to condense information readers must determine if there are any subordinate or more general terms that can be substituted for the detailed and specific ideas being presented. Again , information is classified , but with the intention of reducing. For example, lists of names or events are reduced to one or two words which describe the list.

The third process involved in summarizing is referred to as transformation or construction. In this process the reader is working at the macrostructural level, that is, attempting to reproduce the meaning and structure intended by the author. Topic sentences may be identified or invented. Ideas may be integrated and combined in order to determine or invent a top-level structure for the text. In the case of a summary produced for oneself, information may be re-arranged and presented diagrammatically . In the case of a summary produced for an audience this stage may involve readers constructing or creating their own sentences which more aptly explains the idea.

2.13 Development of Summary Writing Skills

Having identified the main processes involved in summary writing it is appropriate to consider the development of the skills involved in each process. Current research indicates that generally, summarizing skills develop slowly and that proficiency may not even be achieved by some adult readers. (Brown & Day, 1983; Brown, Campione & Day , 1981; Garner, 1984; Hare & Borchardt, 1984).

Initially , researchers believed that younger students performed the summary writing task poorly because they were not aware of what to do when asked to summarize. However , recent studies confirm that students as young as year 1 are aware that a summary involves the elimination of certain parts of the text, which results in a shorter piece of writing than the original(Winograd, 1984). This understanding was found to continue to some extent into the upper primary level where it was noticed students were beginning to suggest that the information to be eliminated was the information which was unimportant. As students progressed through secondary school it was noted that the definitions of summaries began to include statements about information that was textually relevant as being the more important type of information to include in summaries.

There have been several investigations into students' abilities to summarize. In a series of studies which analysed the summaries of year five, seven, eleven and college students, clear developmental trends were found, (Brown, Campione & Day, 1981; Brown & Day, 1983). These studies reported that college and year eleven students planned ahead, were more sensitive to degrees of importance, paraphrased more and were able to condense and rearrange text more readily. In contrast, younger students tended to write summaries by deleting or retaining the surface elements of the text.

Several studies suggest that the selection process involved in summarizing is the first skill to develop and that this process is developmental. In selecting information which is important, one study found that adults were able to make fine discriminations in rating the important elements of a text and that these choices were made on the basis of structural importance (Brown ,Smiley, Day, Townsend & Lawton ,1977). However they reported that those ideas that children rated as important were different from those of the adults, and that children's choices tended to be guided by personal interest or peculiarity. This difference between adults and children's ratings was supported in a study conducted by Pichert and Anderson (cited in Hidi & Anderson, 1986) . Pichert and Anderson found

that children rated stories similarly to their peers but differently from adults. These studies also confirm that it is not until about 12 years of age that children begin to rate ideas similarly to adults. In Brown and Day's (1980) study (cited in Brown, Campione & Day, 1981), the summaries of year five, seven and ten were analysed and over 90% of the year fives were able to delete both the trivial and redundant information. However the use of the other higher order skills appears to increase with age. In this way, mature summarizers are more efficient summarizers (Hidi & Anderson, 1986) Studies involving the analysis of adult and college students' summaries reveal that mature readers are more sensitive to information which is texually important (Hare & Borchardt, 1984). Hidi and Anderson (1986) reviewed the findings of several studies and suggested that younger students were more likely to construct general representations of meaning(Johnson, 1983), rearrange texts by combining ideas across paragraphs(Brown, Day and Jones, 1983) and use inferential reasoning to accomplish the task (Brown & Day , 1983) .

The process of condensing information appears to develop after the selection process and that this, too ,is developmental. Brown and Day (1983) found that younger children condense information primarily by deleting and copying what remains. Whilst children in their seventh year begin to combine, generalize or find subordinate terms for descriptions and use their own words , this skill develops very slowly. Adults, in contrast, construct general representation and delete specific content for more global terms.

Another characteristic of younger children is the sentence by sentence processing. Hare and Borchardt (1984) suggest that children's summaries generally show very little deviation from the order of ideas presented in the original text. Adults, on the other hand, are more likely to combine ideas across sentences and paragraphs. However, investigations by Hare and Borchardt (1984), suggest that even college students are reluctant to combine ideas across paragraphs and that this skill is characteristic of mature summarizers. The results from these studies suggest that the skill of condensing information is both slow and late in developing (Winograd, 1984).

The selection or creation of topic sentences is a subskill involved in the transformation process. Research confirms that this is not only a slow and late developing skill but perhaps the most difficult to perform. Brown and Day (1983) reported that in the group of college students in their sample, students invented sentences only 50% of the time. This skill is thought to be difficult because the summarizer must search for, and understand, the important elements' relationship to the whole text. This involves manipulation of large chunks of text and co-ordination of textually implicit ideas with the whole text. Some studies suggest that it may be unrealistic to expect children to achieve this skill before adolescence (Anderson & Hidi, 1989).

The results of these studies confirm that strategies for selecting information appear to develop first followed by the emergence of strategies which help condense information. The final process of transformation, combining ideas across paragraphs and /or inventing topic sentences appears to be the most difficult and that , left on their own , such skills evolve gradually and appear much later.

There are several implications for this study. Firstly , in the selection process, Research suggests that students under 11years of age find it difficult to discern texually important information from contexually interesting information. Therefore in reviewing procedures for summariziation, strategies which help students to identify text structure or organization should be incorporated . In this way , students will become aware of the various levels of meaning attached to an article and awareness of these levels will help students decide the degree of importance of an idea unit. Another strategy which would help students understand the difference between textual and contextual importance would be to provide examples of "good" and "bad" summaries for students to discuss and analyse.

Secondly , in the condensing process it would appear that children under year six

predominantly condense by deleting and copying. Students need to be discouraged from using this procedure. One way to discourage the use of delete and copy strategies is to clearly point out the inadequacies. Highlighting text structure or scaffolding rather than strategies which implicitly follow the sequential , sentence by sentence processing of the text may help discourage delete-copy strategies.

Thirdly , in transformation (combining idea statements across paragraphs and inventing topic sentences), research investigating students use of this process suggests that it may be a task beyond the skills of students under year seven. It may also be a skill which takes longer in which to attain mastery. In this way ,regular and guided practice would encourage generalizations to be made about summarizing.

Garner(cited in Hidi & Anderson, 1986) uses summarizing to propose three stages in the development of strategies for summarizing texts. She calls the first stage "deficiency " . In this stage readers use no particular strategies. Readers perform much as novices would, selecting information based on personal interest and with little or no sense of what is textually important. Considering the oral language experiences of younger readers , their personal background could quite logically link the summarizing to retelling a story . In this case the most interesting or unusual parts are usually of the greatest interest.

The second stage is referred to as " inefficiency" . In this stage readers begin to use strategies. However the strategies chosen tend to be only mildy effective. Garner suggests the copy-delete strategy identified by Brown and Day (1983) is a good example of a strategy which is mildly effective . In general the strategy is as follows: a) the text is read sentence by sentence b) each sentences is evaluated for inclusion or deletion and c) if inclusion is decided the sentence is copied verbatim from the text. Taylor(1986) suggests that the decision to include information is often done with regard to its significance to the reader. That is , younger students tend to choose material which is unusual or of interest to them personally. Brown & Smiley (1978) confirm that the same

general strategy is employed by fifth and seventh grade notetakers. There appeared to be little appreciation of the need to extract main points and restate these in their own words. Instead students read the text sequentially, deciding on inclusion or deletion using inconsistent methods, and copying verbatim information they had decided to include. While students at this stage are predominantly employing selection strategies, towards the end of this stage students begin to develop and refine their ability to discern information in terms of its relative importance. In other words , students at this stage are beginning to distinguish between information which is interesting and information in the text which the author intends to be important (Winograd, 1984).

The third stage is referred to as the " efficiency" stage. In this stage readers use effective and efficient strategies in order to complete their summary. This would include being able to a) differentiate important information from trivia, b) identify information which is redundant, c) condense text by combining and re-ordering , d) infer main ideas in paragraphs and e) re-organize or transform information in order to present information cohesively.

Brown and Day (1983) suggest the developmental nature of the process skills in summary writing is consistent with the amount of text manipulation needed to perform each process. For example the first strategy involved in selecting information usually involves students considering the sentences in the text exactly as they appear. Students simply decide what will stay and what will go. Finding a subordinate term requires students to use their own knowledge and reasoning skills to imply a topic . The combining of information and /or inventing topic sentences requires much greater text manipulation, as students need to infer information or add information in attempting to supply a synopsis in their own words.

The target group of this study appears to be at Garner's second stage. According to Winograd's study (1984) students in the upper primary levels are well aware that a

summary is a short piece of writing and that information has to be eliminated. She further suggests that students in this group are beginning to identify information which is unimportant and delete it. Studies by Brown and Day (1983) confirm that in order to eliminate information students in this age group are more likely to use copy and delete type strategies which have been identified as ineffective. With this in mind it is expected that the target students would be summarizing at the "ineffecient" stage of skills development.

Having identified and described the processes involved in summarizing and the proposed development of these process skills when left to current instructional procedures, it is important to consider that even when readers are able to summarize in an expert fashion, there are other variables which influence students' abilities to summarize.

2.2   Variables Which Affect Summarizing.

As described earlier, summarizing is a complex and multidisciplined task. It involves not only an awareness of the processes involved in summarizing but as part of a larger and more whole task, the reader must face other variables which influence or interfere with the process of summarizing. As this study is concerned with designing a procedure for introducing summary writing it is important to consider other variables which may influence students' abilties to summarize. In order to maximise the effect of instruction so that students generalize and become confident with summarizing procedures, this section will identify the main variables and discuss their effect on students' summarizing abilities and the implications for designing an instruction procedure in summarizing.

2.2.1   Text Related Variables

The first group of variables influencing summarizing may be loosely classified as text related variables. That is, those features of the text which may interfere with processing, such as the length, the structure, text complexity and the content or topic.

Hidi and Anderson (1986) suggest that short paragraphs are easier to summarize than longer passages because short paragraphs involve the selection of one or two sentences which best represent the ideas contained in that paragraph. However, in longer passages the processing load is increased and students are required to make more evaluations and decisions about the relevance and importance of content. Summarizing longer passages requires students to integrate a number of deliberate strategies in order to select, condense, and transform the information presented in the text. It is most likely for this reason that many of the training or instructional models for teaching summary writing suggest beginning with shorter texts (Hidi & Anderson, 1986; Hill, 1991).

The structure or genre in which texts may be written is another text related variable which can interfere with summarizing. Many investigations have reported that children find informational texts more difficult to summarize than narrative texts (Hidi & Anderson, 1986; Armbruster , Anderson & Ostertag, 1989; Pincus, Geller & Stover, 1986) . These studies suggest a number of reasons for this. Firstly, children tend to have experienced more narrative texts than informational texts , therefore it is a case of familiarity (Hidi & Anderson, 1986). Secondly, informational texts generally tend to handle more complex ideas , therefore the content may be less familiar to younger readers . Thirdly, and perhaps more significantly, is the organizational aspect of text structure. The organization of a typical narrative is linear in structure, going quite logically from an initiating event to a conflict, to a solution. However, informational texts are less predictable and there are different ways these texts can be organized. Researchers commonly refer to these text structures as the top-level structures (Bartlett, 1984). Informational texts can generally be classified as a) description, b) sequence, c) cause-effect, d) compare and contrast e) problem-solution (Armbruster et al., 1989).

Bartlett (1984) suggests that knowing the top-level structure of a text is a key to understanding the writer's message because it provides the scaffolding which supports the main ideas in the passage. There have been several studies which have investigated the

effect of teaching text structure on students' abilities to summarize. Taylor (1982) reported success in teaching students to use format cues such as headings, subheadings and paragraphs as indicators of the text structure. Armbruster and Anderson (cited in Armbuster, Anderson & Ostertag, 1989)) reported success in teaching students to make concrete, visual representations of the organization of texts. Finally, Ambruster, Anderson and Ostertag (1989) combined the use of a simple generalized framework and a pattern for writing summaries which again resulted in students becoming more apt at finding and remembering main ideas of passages. This study also used the problem - solution text framework, which is considered to be one of the more difficult text structures for students.

The implication for instructional designs seem to suggest that texts which conform to narrative frameworks are easier to summarize. However in preparation for summary writing tasks in the secondary school, informational texts present the more difficult task, as well as being the more likely type of text students will be asked to summarize. Therefore, in the context of summary instruction it would be of more benefit to expose students to the type of text they are most likely to be asked to summarize, such as informational texts.

The research studies on text structure suggest that awareness of text structure aids comprehension because it systematically activates background knowledge allowing comprehension processes such as identification and inferencing to take place (Bartlett, 1984). Since much of summarizing involves comprehension some studies suggest teaching text structure as part of summarizing instruction (Armbruster et al., 1989).

Some studies also suggest that certain types of informational texts are easier to summarize than others (Armbruster, Anderson & Ostertag, 1989). Therefore, it may be more effective to begin instruction in summarizing informational texts with more familiar text structures such as description and sequence formats. This would particularly

apply to early instruction where students are grappling with strategies for summarizing. As students become more efficient and effective at applying summary writing procedures, students could progress to the more difficult cause and effect and problem/ solution text structures.

The research on text structure suggests that the target students of this study , who appear to be at the "inefficient " stage of summary skills' developement, will learn more efficiently, if they develop summarizing skills using descriptive and sequence text structures.

Text complexity is another variable which influences students' abilities to summarize. Text complexity refers generally to the language used in the text. Specifically students may find texts difficult to comprehend at the paragraph or sentence level. Understanding paragraphs can become difficult if the sentence structure is elaborate or if the content is vaguely organized, such as the absence of topic sentences. At the sentence level the use of low -frequency words or subject specific jargon can interfere with students' comprehending the idea or relationship between the sentence and the rest of the text. Interestingly a study conducted by Brown and Day (1983) revealed that as texts increased in difficulty even experts begin to summarize using a linear- paragraph by paragraph approach.

2.2.2 Task Related Variables

The second group of variables is classified as task related . These variables are concerned with the procedural aspects of summarizing which influence the production of a summary, such as the purpose for writing a summary , the time allocated to the task, and the absence or presence of the text while summarizing.

As already discussed the purpose for writing a summary is significant in that the audiences for whom the summary is written will govern what is actually recorded. Summaries

produced for oneself are predominantly concerned with reproducing the author's intended meaning i.e. reading, whereas summaries produced for others requires reading and the additional task of writing. With regard to the number of tasks, producing summaries for oneself has one task, therefore it would be the easier of the two tasks to perform. This has implications for instruction in summarizing, in that, whilst students are learning to summarize the comprehending or reading aspect of the task is the major focus and any additional task such as writing and its conventions, would detract from the task at hand. In this way, the research suggests that it is more effective if students begin instruction in summarizing by writing summaries for themselves and progress to the more demanding task of writing a summary for an audience.

The final task related variable is the absence or presence of the text while summarizing. Hidi & Anderson (1986) proposed that having the text available during summarizing required a different set of cognitive operations than if the text was absent. They further suggested that access to the texts allows readers to scan for information rather than relying on memory. In this way students could attend to the other tasks involved in summary writing such as condensing. Hidi and Anderson suggested that one disadvantage of the text being present was that students were more likely to copy text verbatim when the text was present. Hidi (cited in Hidi & Anderson, 1986) conducted a study which investigated students summarizing under text present and absent conditions. The results obtained were somewhat ambiguous. However, it was found that students who had their text removed, did recall more seven days after the event, and their summaries showed greater deviations from the original text. That is, students were found to combine information more when the text was absent. Hidi concluded that when texts were absent, students were more actively engaged in the cognitive processes involved in summarizing and that students' long-term retention was better than if the students processed information with the text present.

The research suggests that if the purpose for writing summaries is for students to learn

how to extract important ideas from a text and present that information succinctly for others to read, then it is more appropriate to allow students to use the text whilst summarizing.

2.2.3 Learner Related Variables

Of course there are other variables, such as learners' skills, abilities, interests, experiences, and knowledge which can also influence students' abilities to summarize. The nature of these learner related variables makes them difficult to control, and if they were to be controlled the student sample would not be truly representative of the real classroom environment. However there is one variable involved in this group of variables which has recently been given attention by researchers. That is, the background knowledge of the learner. While acquisition of knowlege takes time, the ability to relate what is known to what is read is important in building up new knowledge. Generally older and more successful readers spend less time on known information in order to spend more time on that information which is unknown, difficult or new to them (Ambruster & Brown ,1984). Studies quoted by Ambruster and Brown (1984) revealed that students who were able to use their background knowledge to clarify or make the material more memorable , performed better on comprehension strategies than those students who did not use their own knowledge.

In considering the results from these studies it appears that the ability to activate prior knowledge is an important variable. Activating known information is one method of moving the learner from the known to the unknown. Bransford , Stein, Shelton, and Owings (1980) were able to report success in teaching children to ask themselves questions designed to activate prior knowledge. The use of readers' known knowledge allows them to predict story content and reject or confirm these predictions as they read.

2.3 Current Instruction in Summary Writing

While summarizing has become increasingly important to researchers , the favourable

results and findings of this research have not been readily transferred to the classroom (Hidi & Anderson, 1986). Commercial programmes and teachers' guides, which are the primary sources from which teachers receive information on what and how to teach, provide little or no procedures or guidelines on how to teach summarizing. In a number of current syllabus documents and teachers' guides it was found that "summarizing" was absent from many , and where summarizing was mentioned , the instructions were brief and vague. The following instructions for writing summaries appears in a Western Australian writing syllabus.

" Summarizing
Writers present a general impression of what they have read. In order to do this they must have a clear understanding of the topic and the terminology. Summarizing involves;

. selecting main ideas
. identifying relevant and irrelevant ideas
. extracting key words

Points to Remember
1) Introduce outlining first to the class, then move on to summarizing, which requires more refinement than outlining.
2) Have all children read a paragraph and discuss the main idea being expressed. Extend paragraphs to short articles, then to chapters.
3) Encourage children to use their own language to interpret the information rather than copying or paraphrasing. When they can do this, you know they have understood the topic.
4) Precede writing with oral work.
6) Use small group work to share ideas before making individual notes. Alternatively , individuals can make their notes and then share them with the group."

("Draft-Writing K-7, Teachers Notes" , p174)

Generally, instruction such as this, tends to define summarizing rather than give specific teaching instruction. These instructions centre around the selection process involved in summarizing and they do not provide strategies which help children to identify the main ideas. While this instruction did suggest children learn outlining first, the suggested instructions for outlining involved using a framework in which there is a main idea and several supporting ideas, similiar to a paragraph . However, again these skills involve the selection of information. The remaining instructional suggestions were concerned with the procedural development of summarizing skills. i.e begin summarizing with whole

class , progress to small group work and then individual, with oral summarizing preceding written summaries.

If the above quote is typical of the type of instruction available to teachers, then this supports Garner's (1984) claim that instruction in summary writing is both meagre and inadequate. It is also quite likely that in the absence of more informed instruction in summary writing that teachers refrained from teaching summary writing as a consequence of their own skills, knowledge, confidence or value for summary writing instruction.

2.3.1 Instructional Procedures Involving summarizing.

In contrast to the amount and type of classroom instruction in summary writing, researchers have shown increasing interest in summarizing . Three major trends have emerged in instructional research into summarizing. (Hidi and Anderson ,1986). One trend in summarizing research has been to investigate summarizing as a way of processing texts and monitoring comprehension (Hayes, 1989; Carr & Ogle, 1987; Palincsar, 1984; Palincsar & Brown; 1984 ; Baumann, 1984). Other research has investigated summarizing as a means of learning and recalling content (Hayes, 1989; Taylor & Beech, 1984; Armbruster , Anderson & Ostertag, 1989; Rhinehart, Stahl & Ericson, 1986; Berowitz, 1986) Finally, summarizing research has investigated the effects of teaching students a set of rules for writing summaries (Kintsch & Van Dijk, 1978; Brown and Day, 1983; Hahn & Garner , 1985; Hare & Borchardt, 1985).

A review of instructional procedures for summarizing was carried out. This review included ten research studies and seven procedural designs . The research studies included summarizing procedures which involved investigating the effects of a set of rules for summarizing, summarizing as a process of comprehension and summarizing as a means of learning content. The procedural designs generally used summarizing as a process of comprehending or as a means of learning content.

The type of strategies suggested by these research studies ranged from simple one step strategies, similiar to the type of instruction offered in curriculum documents, to more elaborate and explicit rule applications. The fact that one step procedures have generated some success suggests that any strategy is better than no strategy.

In its simplest form summarizing can be achieved by constructing single sentences which capture the meanings of a paragraph. Doctorow, Wittrock and Marks (cited in Hidi & Anderson, 1989) conducted research using this strategy and found that students abilities to remember text information were improved.

Whilst the advantage of this approach is its simplicity , more complex procedures have produced more impressive results. After investigating the development of summary writing skills, a disadvantage of this approach is that it assumes that all paragraphs are of central importance to the topic, which is not always the case , particularly in longer texts. Encouraging students to process texts sequentially may inhibit the development of skills which combine ideas or transform information.

A second approach to summarizing involves the use of a set of rules. The most notable research involving the use of a set of rules was conducted by Kintsch and Van Dyjk (1978). They suggested six rules that mature summarizers use when writing summaries. Brown and Day (cited in Brown & Day, 1983) studied the summaries of children, and experts and further adapted the rules suggested by Kintsch and Van Dijk. The first two rules involve the deletion of information. They are;

1) differentiate between important information and trivial information and delete the unimportant.

2) Identify and delete information which is redundant.

The next two rules involve condensing the text by combining or rearranging the text. They are;

3) substitute a subordinate term for a list of items .

4) substitute an encompassing action for a list of events.

The final two rules involve ;

5) selection of suitable topic sentences .

6) inferring a topic sentence if there does not appear to be one.

A further study conducted by Brown and Day (1983) investigated the summaries of years 5, 7 ,10 and college students. They found the use of these rules was developmental. That is , younger students used deletion rules with 90% accuracy, whereas the more difficult condensing and invention rules were rarely used by the fifth graders in their study.

Bean and Steenwyk (cited in Pressley et al., 1989) successfully taught year 6 students to summarize using Brown and Day's rules. Students were taught to apply the summarizing rules to single paragraphs. The students given rules training out performed the control group who were not given rules training.

Hare and Borchardt (1984) condensed and rephrased Day's rules so that they were more easily understood by students. They investigated the use of rules training under two conditions, inductive and deductive instruction. Whilst the method of instruction in summary writing will be discussed later, the results from this research suggested that there was no difference between the inductive and deductive instructional methods. However there were significant differences between the experimental groups (inductive and deductive) and the control group. These differences were found to be in the number of main ideas recorded and the use of rules.

In summarizing longer texts Barbara Taylor (cited in Pressley et al., 1989) investigated the use of text headings , subheadings and paragraphs to develop an outline of the text. The

students in Taylor's study were taught to generate main ideas from every paragraph, subsection and section. Students were instructed to generate a key idea which encompassed the entire passage. Whilst the purpose of Taylor's study was to help students study, her results , which reported increased recall of expository passages, are important. Firstly, increasing the ability to recall information in this way reflects a form of concept mapping in which a graphic representation of the ideas is pictured . Students are then able to use the main ideas to trigger off supporting details. This places less strain on the memory and more emphasis on meaning. Secondly, the process involves a high level of comprehension in which students must actively and deliberately use strategies. This skill has been identified as a characteristic employed by mature summarizers (Hidi & Anderson, 1989; Brown & Day, 1983, Winograd, 1984).

Another approach to instructional research in summarizing was designed by Rhinehart, Stahl and Ericson (1986) . This design involved the use of four rules. The first three rules were taken from Kintsch and Van Dijk's(1978) study, which appear on page 53. However, the fourth rule was modelled on Taylor's (cited in Pressley et al., 1989) text related instructional design. In this study, Year 6 students received five 1 hour lessons in summary writing instruction. The instruction included defining a summary, teacher modelling the process of finding main ideas and demonstrating how these relate to the text structure. After all the rules were introduced the students were given practice applying these rules to individual paragraphs. By the end of the training, students increased their recall of main ideas from passages compared to a non-trained control group who read the same passages.

A similar approach to summarizing was devised by Baumann (1984) who used graphic metaphors such as an umbrella or a table top to demonstrate the relationship between the main ideas and the supporting details. Baumann's training improved students' skills at constructing well organized summaries, but reported no difference between the recall ability of trained and no-trained students.

As a progression from Baumann's study, Berowitz (1986) taught Year 6 students to construct maps of passages. Students were taught to write the title of the passage in the centre of the page. They were instructed to survey the text for six other main ideas. Students placed these strategically around the title. Following this, students located two or three important details in the passages that were associated with the main ideas. Students were then taught to draw a box around each main idea and supporting details and to use this graphic summary to self- test. Again overall recall of passages was improved.

A further investigation into instructional procedures for summarizing was conducted by Armbruster ,Anderson and Ostertag (1987). Armbruster et al taught Year 5 students about problem / solution structure which they suggest characterizes many social studies' texts. Students were taught to a) recognize the problem/ solution structure b) take notes on the problem /solution structure using a visual representation called a frame, and c) write a summary of the information using the frame. Students were instructed over eleven consecutive school days for about 45 minutes per day. The instruction featured teacher modelling of explicitly defined procedures, guided practice , teacher monitoring with corrective feedback , and independent practice. Armbruster et al reported improvements in comprehension and summary writing.

Although not scientifically researched, a number of other instructional designs for summariziation have been formulated and suggested in reading education literature. Many of these suggested procedures are based on findings from the major research in summarizing.

Archer and Gleason (1989) have recently published a study skills book with a teachers' handbook. The teachers' handbook provides explicit instruction in a number of study skills, while the students book provides student checklists for the new skills, practice and maintenance examples. Students are encouraged to predict the content and structure of the

text by using text features such the title, subheadings, introduction and the article's summary. Explicit instructions are given in order to help students identify the topic of a paragraph and the supporting details. This is further emphasized by the introduction of notetaking. Students begin instruction with the teacher modelling and working through an expert's summary. This is followed by students working with a partner followed by independent summarizing. Again this method of summarizing is aimed at a summary for each student's purpose, and to help students recall information.

Hayes (1989) designed a similiar procedure to Archer and Gleeson. His procedure was adapted from Manzo's (1968) Guided Reading Procedure, in which the teacher leads students to extract and organize information from the text. Hayes' method includes summary writing instruction therefore it was named Guided Reading And Summarizing Procedure (G.R.A.S.P.). Initially , the purpose for reading is to summarize and this provides another opportunity to further clarify summarizing. In this procedure students ;

- read and brainstorm recalled information.

- reread to add or delete information.

- classify and order the recorded information.

- "polish" notes.

Another procedure developed by Carr and Ogle (1987) is known as K-W-L Plus. In this procedure students work through phases which involve what they already know, what they want to learn, and what is new or learned information. Before summarizing students brainstorm what they know about the topic. The known information is categorized and questions are formulated. Students read the text and record information which is new . This is followed by students answering their questions and discussing what was learnt.

In order to write the summary students use a graphic outline. The answers to their questions are classified under general topics. The topics are ordered and the topic name

becomes the topic sentence and the answer or remaining information becomes the supporting details with irrelevant information being deleted. Carr and Ogle (1987) claim that this procedure helps students with the most difficult aspects of summarizing , the selection and organizing of information, because information is selected in K-W-L and organized and integrated during the mapping . The outline produced in the mapping can be adapted to either learner or audience centred summaries.

2.3.2 Commmon Instructional Activities Found In Summary Writing Research

Whilst this review is by no means comprehensive, a common organization pattern is evident from those procedures reviewed . In many of the procedures, the suggested activities are grouped as *before, during* and *after* summarizing. Therefore in order to identify common activities present in the reviewed procedures this study discussed the activities suggested using those headings. A summary of the procedures reviewed appears in Table 1.

2.3.3 Common Instructional Activities in the *Before* Summarizing Phase.

The *before* summarizing activities are defined as those activities the students are encouraged to participate in before they have read the text. The most common of these summarizing activities include 1) understanding why the text was being read and 2) predicting the text's content and structure by using the text's features to   activate students' background knowledge. Of the eighteen procedures reviewed ; eight procedures suggest instruction should begin with defining and clarifying what a summary is (Hahn & Garner, 1985; Gambrell et al., 1987; Bromley & McKeveny, 1986; Armbruster, Anderson & Ostertag, 1989; Hare & Borchardt, 1984; Rhinehart et al, 1986; Archer & Gleason, 1989; Hayes, 1989) . The most common strategies used to reach this goal included general discussion (controlled teacher questioning) , previewing "good" and "bad" summaries, and identifying the characteristics of "good" summaries.

Table 1

Common Instructional Features Found in the Reviewed Summary Procedures.

RESEARCH   STUDIES

1 Day, 1980
2 Brown & Day, 1983
3 Kintsch & Van Dijk, 1983, 1985
4 Baumann, 1984
5 Hare & Borchardt, 1986
6 Bean & Steenwyk, 1984
8 Hahn & Garner, 1985
9 Rhinehart, Stahl & Ericson, 1986

SUMMARY PROCEDURES

10 Armbruster, Anderson & Ostertag 1979.
11 Hayes, 1989 (GRASP)
12 Carr & Ogle, 1987 (K.W.L)
13 Gambrell, Kapinus & Wilson, 1987
14 Bromley & McKeveny, 1986
15 Dockdrow, Wittock & Marks, 1978
16 Archer & Gleason, 1992
17 Gold, 1990

Procedure & Strategies	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
BEFORE																	
Define summary					●		●										
Identify "good summaries						●							●				
Generate procedures					●												
Establish reason for summary										●		●	●				
Generate questions to answer													●				
Given writing framework										●							
Activate background knowledge													●				
Classify background knowledge													●				
Predict text structure				●												●	●
Model a set of rules																	
DURING																	
Delete unnecessary information	●	●	●		●	●		●	●								
Collapse list of events and names	●	●	●		●	●		●	●								
Combine information	●	●	●			●		●									
Identify topic sentences	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●
Brainstorm remembered facts												●					
Rate importance compared to title					●				●			●					
Order information									●			●	●	●			
Reread to add or delete facts												●					
Classify facts, invent topic headings							●										
Divide texts into units (headings etc)							●					●	●			●	
Record information which is "new"													●				
Paraphrase															●		
Use writing frameworks to select									●								
Use diagrams or metaphors				●													
AFTER																	
"Polish" summary							●	●				●					
Apply an "efficiency" rating							●	●									
Compare with "experts"						●		●				●			●		
Share and discuss with peers										●		●					
Discuss what was learned													●				
Answer questions													●				
Relate to own know/ experience												●					

Another common instructional activity involved in this phase was to identify a context for summarizing. In this regard a context for summarizing becomes complex because on the one hand there is a purpose for reading while on the other hand there is a purpose for writing. As well as establishing a context for reading many of the more recent studies suggest the need to establish a context for writing.

One variable which influences writing is knowledge about the audience. Summaries may be written for the students' themselves , (usually in note form), or they may be written for an audience, in which case they are more "polished" .

In all of the ' *before* ' reading activities , students are encouraged to skim & skan texts for prominent features. These features in turn trigger off ideas from the students' own knowledge and experiences. In this way *before* reading activities tended to highlight the significance of students' background knowledge and the active role they play in summarizing, whilst the text is seen as a "springboard" for ideas .

Generally the teacher' s role in this phase appears to be the preparation of students for reading / writing by providing contexts for reading/ writing . In most cases this is achieved by verbal discussion and questioning, with little reading or writing by the students.

2.3.4 Common Instructional Activities in the *During* Summarizing Phase.

The *during* summarizing phase is defined as those activities in which students engage when reading and summarizing the text. This phase in summary writing instruction presented the greatest range of activities and was the most difficult to tabulate because of the varying order in which similar strategies were applied. Therefore in order to identify common strategies involved in the *during* summarizing phase , the proposed activities from each procedure were further classified into activities involved in the "selection", "condensation" and "transformation" of information.

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The "selection" of information from the text is largely determined by its level of importance and whether it is redundant or repetitive. As texts usually have a title, it was generally agreed that titles be used to determine the overall meaning as well as the degree of relevance or importance of other textual elements (Kintsch & Van Dijk, 1978 ; Hahn & Garner, 1985; Taylor & Beach, 1984; Rhinehart et al, 1986 ; Baumann, 1984 ; Berowitz, 1986; Armbruster et al., 1989 ; Archer & Gleason, 1989). The strategy for overall meaning identification commonly involved answering the question "what is the author talking about ?". The answer to this question was then generally used in a graphic metaphor, but it is at this point that two distinct instructional approaches appear. Most studies appeared to follow on with the author's textual composition (Hahn & Garner, 1985; Hayes, 1989; Carr & Ogle, 1987; Taylor & Beach, 1984; Bromley & McKeveny, 1986; Kintsch & Van Dijk, 1978; Brown & Day, 1983; Rhinehardt et al, 986; Hare & Borchardt, 1984) while two of the reviewed studies identified a "general" text structure and worked with an outline of this (Armbruster et al., 1989; "Secondary Perspectives" ,1990).

In using the author's existing framework , the strategies for identifying overall ideas and main topics ranged from underlining or inventing main topics actually in /on the text , to recording titles /subheadings strategically or diagrammatically on paper. In some cases the students did this prior to reading, in which case after reading they either confirmed , rejected and added information. In other cases this was done after reading , in which they recorded what they could remember and then used the text to confirm, reject and add information. In both cases , once these topics were identified, they were used as measures of relevance or irrelevance for the remaining information.

In "condensing" information students are required to reduce , combine and substitute superordinate terms for subordinate terms. In most of the procedures reviewed this involved grouping information (Hahn & Garner, 1985; Hayes, 1989; Carr & Ogle, 1987;

Gambrell, Kapinus & Wilson, 1987; Taylor & Beach, 1984; Kintsch & Van Dijk, 1978; Brown & Day, 1983; Rhinehardt et al, 1986 ; Baumann, 1984; Hare & Borchardt, 1984) . That is, lists of events or items were collapsed, and between paragraphs, topic ideas were grouped, followed by further selection processing.

The final process involved in summary writing is "transformation". Transformation activities largely involved paraphrasing or " saying it another way". Students were generally encouraged to use existing topic sentences if these were succinct. However to a large extent the identification of overall meaning or the macrostructure was achieved in the earlier selection process.

During summarizing activities included monitoring comprehension, Palincsaremploying meaning getting strategies, identifying top level structure, relating texually important main ideas and supporting details, combining and condensing information ,underlining and/ or notetaking,and organizing information .

2.3.5 Common Instructional Activities in the *After* Summarizing Phase

Not surprisingly with all the activity being in the second phase, the third phase involved a smaller number of activities with less variation. The *after* summarizing phase generally involved comparision and evaluation , although editing skills were important in reader based summaries. Comparison was a common strategy in six procedures(Hahn & Garner, 1985; Hayes, 1989; Bromley & McKeveny, 1986; Armbruster et al., 1989; Rhinehart et al., 1986; Hare & Borchardt, 1984) . That is, students were either encouraged to share and discuss their summaries against their peer's or they were given an expert's summary to self evaluate.

Another *after* summarizing activities involved the use of a checklist or guideline . Five of the reviewed procedures outlined a checklist of summarizing activities for students to follow and check through (Armbruster et al.,1989; Rhinehart et al., 1986; Berowitz,

1986; Hare & Borchardt, 1984; Archer & Gleason, 1992). This phase was characterized by critical evaluation, substantiation and self monitoring.

2.3.6 Combining Common Procedures Found in Summarizing.

In order to clarify the common elements in instructional procedures for summarizing Table 2 was formulated. The summary provided a basis for developing instructional strategies which combine all of the most effective strategies demonstrated through the research.

The ability to summarize has already been shown to be a useful strategy for studying and further education , however in order for students to generalize their summarizing skills to other subjects or real life situations, in other words transfer their skills and strategies, they need to understand not only how to summarize but, when, where and why . In order to present students with more than just a set of rules or procedures to follow blindly, this study further reviewed methods of instruction in reading which have been deemed successful.

Many of the elements present in the instructional research procedures for summarizing suggest that not only is the *what* to do important in designing a procedure for summarizing but the *how* , *when* , *why* and *where* are also important considerations. Many of these successful conditions for learning the *how, when* , *why* and *where* can be related to the theory and rationale behind direct instruction, metacognitive instruction in reading and collaborative / co-operative learning instruction. Therefore in designing a procedure for teaching summarizing the successful instructional characteristics involved in direct instruction , metacognitive instruction and collaborative/ co-operative learning instruction were reviewed. The major principles underlying these forms of instruction have been applied to the instructional procedures involved in the C.A.T.S. Procedure.

Table 2

Summary of the Common Instructional Procedures Found in the Reviewed Procedures.

BEFORE SUMMARIZING
- activate background knowledge using text features.
     = circle / note down the title, pictures, diagrams, noticeable words .
- predict content by organizing the noticeable features
     = who/what, where & when, how or why.
 -predict text structure
     = circle/note down   headings, subheadings i.e graphic outline . Where there are no headings use topic sentences.

DURING SUMMARIZING
- read
- confirm or reject against prediction, add if necessary
- confirm/ reject/ identify the text's overall topic
- confirm/ reject or invent topic sentences in paragraphs
- delete small words rule
- relate remaining information to topic sentence/ overall topic in order
    to identify relevance and therefore support for main ideas. Baumann- condense lists of names and events
- combine and order topics
- rewrite information

AFTER SUMMARIZING
- self-check summary title against text's title
- self-check use of rules
- self-check notetaking - topic + supporting details
                 - brief, use suitable abbreviations
                 - use own words
                 - self check understanding

2.4.1 Direct Instruction

In reviewing the above procedures offered as effective instruction for summarizing , many of the procedures can be associated with direct instruction . Direct instruction is described as " having academic focus, academically engaged time and controlled practice, all of which can be linked to academic achievement gains " (Hare & Borchardt, p 64, 1984).

There are several notable features of direct instruction which the instructional research studies reviewed thus far have indicated . Firstly, as a prerequisite to summarizing instruction the processes involved are clearly and explicitly identified by the instructor (Brown and Day,1983; Rhinehart et al.,1986). Secondly, lessons are developed in order to teach the processes. The development of lessons includes, expert modelling the

processes, clear explanations, instruction in which learners increase their responsibilities for completion of the task , regular and informative feedback, and instruction which develops logically from simple to complex, concrete to abstract, and from control or contrived texts to realistic examples (Taylor, 1982; Armbuster et al., 1987) . Palincsar and Brown (1984) report that the most effective instruction included comprehesion fostering strategies, instruction on the importance and usefulness of strategies and metacognitive monitoring strategies which checked the appropriateness of strategies . Ideally upon the completion of instruction , the learner maintains the skills over time and is able to apply or transfer these new skills to new situations.

Research in direct instruction on a variety of comprehension strategies has shown favourable results (Baumann, 1984; Palincsar & Brown, 1984). Day's study (cited in Brown , Campione & Day, 1981) on summarizing involved training students under four conditions;

1) self-management - students were given encouragement, typical of traditional instruction in summarizing.

2) rules - students were given six rules identified by Brown and Day (1980)

3) rules plus self management - a combination of 1 and 2

4) rules plus monitoring - students were given explicit instructions in the rules and in monitoring the rules i.e. how to check.

In summarizing the results of their study, Brown, Campione and Day (1981) found that students who received integrated self -monitoring with explicit strategies for writing summaries, exhibited greater accuracy in their summaries than the other training groups. This indicates that it is important to provide instruction in monitoring and regulating activities as well as clear instruction about the activity .

Paris and Jacobs (1984) attempted to provide explicit instruction about comprehension strategies. This was done through the use of analogies . For example "reading is like a

puzzle" . The results of Paris and Jacobs' study indicated that students with strategy

training were more aware of comprehension strategies and the importance of using them.

They further confirmed that students with higher strategy awareness performed better on

comprehension measures such as cloze passages and error detection measures. Stevens

and others (1989) suggest that an important aspect of direct instruction training is

explaining the rationale and usefulness of the comprehension strategies being suggested.

A further implication from the results of both of these studies is the emergent use of self

regulatory strategies . Students' abilities to monitor their cognitive activities is referred to

as the" metacognitive aspect of strategic instruction" (Stevens et al., 1989), and this

combination of instructional procedures, which increase students' awareness of the

importance of strategies, seems to promote independent and self-controlled use of these

strategies (Paris & Jacobs, 1984).

2.4.2   Metacognitive Instruction.

Another example of effective instruction in summarizing is that of metacognitive

instruction. Metacognition is referred to as the deliberate and conscious control students

have over their own thinking. Flavell (1976) suggests that metacognition :

> Refers to one's knowledge concerning one's cognitive processes and products
> or anything related to them e.g. the learning- relevant properties of
> information or data. For example, I am engaging metacognition if I notice
> that I am having more trouble learning A than B; if it strikes me that I should
> double check C before accepting if it is a fact; if it occurs to me that I had
> better scrutinize each and every alternative in a multi- choice type task situation
> before deciding the best one , or if I become aware that I am not sure of what
> the experimenter really wants me to do; or if I sense that I had better make note
> of D because I really might forget it .(p. 232)

Within this domain of deliberate engagement,   Flavell (1976) suggests there exists at least

two components. Firstly, the knowledge or awareness of what skills, strategies, and

resources are needed to perform a task effectively. Secondly, the control aspects of the

task which involve self-regulatory strategies such as checking the outcome of an attempt

to solve a problem, planning the next move, evaluating its effectiveness, and remediating

any difficulties by using compensatory strategies (Brown & Baker, 1984).

In applying the concept of metacognition to reading, Wong (1986) proposes that "good" readers are aware of the purpose for reading and differentiate between the task demands by self questioning before reading. Good readers proceed with reading having chosen suitable reading strategies and monitor and evaluate their level of comprehension, taking action when comprehension fails. Anne Brown (1980) suggests mature readers proceed on "automatic pilot", which is largely unconscious - until a "triggering event" alerts them to comprehension failure. They then slow down and deliberately employ "debugging " strategies. (Brown, 1980; Armbruster & Brown, 1984). These debugging strategies are skills of metacognition. Whimbey's (1975) characterization of a "good reader" clearly demonstrates the metacognitive skills under discussion .

> A good reader proceeds smoothly and quickly as long as his understanding of the material is complete. But as soon as he senses he has missed an idea.... he slows down, seeks clarification in the material, examines it for the light it can throw on the earlier trouble spot. If dissatisfied with his grasp, he returns to the point where difficulty began and rereads the section more carefully. He probes and analyzes phrases and sentences for their exact meaning, he tries to visualize....descriptions and through a series of approximations, deductions, corrections. He translates scientific and technical terms into concrete examples. (p. 91)

Metacognitive instruction, therefore refers to instruction which develops students' awareness of what skills, strategies and resources are needed to perform a task and how to involve self -regulatory strategies. When planning an instructional model for reading , Brown (1978) suggests that for effective learning to take place educators need to identify the influences of four variables. These variables are described as a) the text- its characteristics and nature, b) the critical task , c) the strategies or activities in which learners engage and d) learners' characteristics including their abilities, motivations and background knowedge. Brown represents these variables in a tetrahedral model (see figure 1.3). This model was used earlier to identify and determine the influence of such variables on the instructional process of summarizing . However, just as educators have to develop insights into the summarizing task , metacognitive instruction aims to

develop such insights in students (Brown, Campione and Day, 1981).

Many studies have been carried out in order to determine the extent of students' metacognitive awareness in a variety of reading tasks(Flavell, 1976; Brown , 1975;1978; 1980; Brown & Campione, 1978; Clay, 1973). Results generally confirm that the development of metacognitive skills in reading is related to proficiency in learning (Armbruster, Echols & Brown, 1983). Younger and less successful readers have less understanding of the variables involved in the learning situation and how they affect their ability to learn. Furthermore, younger and less successful readers tend not to use what they do know to enhance their learning.

However, since such studies indicate that older and more mature readers do possess metacognitive skills in reading, it is suggested that when left to their own, metacognitive skills develop slowly and emerge later than other cognitive tasks (Armbruster & Brown ,1984). Evidence in favour of this trend is apparent in a study conducted by Myers and Paris (1978). They reported younger students perceived reading as an orthographic - verbal translation problem rather than a meaning construction and comprehnsion task and they tended to focus on decoding goals rather than semantic related goals for reading. Myers and Paris also suggest that some of the current instructional methods in reading actually inhibit metacognitive skills' development . They suggest that teaching students to identify reading goals and therefore how to employ specific reading strategies is crucial to effective and efficient reading skills.

Rowe (1988) suggests one major benefit of metacognitive instruction is that in giving students insights into the parameters of a task they are more readily able to generalise the acquired skills. Brown (1978) identified many areas where students' metacognitive deficiences cause problems in reading, but generally she suggests students tend to follow instructions blindly and are not readily able to self- question . This being the case , metacognitive instruction in summary writing aims to a) increase students awareness of

the variables and their influences on summary writing task, b) promote the need to adapt reading activities to suit the task,the text and the learners' characteristics and c) develop this awareness so that regulatory strategies such as checking and monitoring understanding follow.

While research confirms that skills needed for reading informational texts are generally not highly developed in younger readers, there are a number of successful studies which have focussed on teaching reading strategies using a metacognitive instructional approach (Armbruster, Echols & Brown, 1983; Brown, Campione & Day 1981; Palincsar & Brown, 1984; Nolte & Singer, 1985). As this study is concerned with intervention that will improve student's abilities to write summaries, the six rules adapted by Brown and Day provide basic strategies for instruction in summary writing. The results of studies such as Day's confirm the need for students to receive a) explicit and clear instructions which include where, when and why information , b) expert modelling of appropriate task specific behaviours as well as strategies for coping with other circumstances such as comprehension failure etc, c) opportunities to perform the particular task with the experts providing regular and informative feed- back in terms of encouragement and advice, d) instruction which proceeds logically, for example , activating background knowledge, progressing from known skills and strategies to more effective strategies, progressing from simple descriptive text frameworks to problem solution text types and e) self monitoring of understanding and the effectiveness of strategies.

To ensure that instructional procedures are effective in terms of improving ability, a common characteristic evident in direct instruction and metacognitive instruction models is instruction where the responsibility for carrying out the task gradually moves from the teacher to the student(Brown Campione & Day, 1981; Brown & Palincsar, 1982) . One model of learning which encourages a two fold release of responibility is collaborative or co-operative leanring instruction. In this model , responsibilty for completing the task is gradually achieved when the teacher initially models the task, then asks groups to

practise, thereby releasing responsibility for completing the task to peers in a group situation, and finally the learner has the opportunity to practise and complete the task independently.

2.4.3 Collaborative and Co-operative Learning Theory.

While the term metacognition was often used by developmental psychologists to describe children's awareness of their memory processes, Vygotsky (1962) used the term to describe two phases in the process of acquiring knowledge. Firstly, the aquisition of knowledge is essentially unconscious and automatic. Brown (1980) refers to this as the cognitive aspect of performance. Secondly, there is a gradual increase in the active, conscious control of that knowledge, described as the metacognitive aspect of performance. Vygotsky (1962) suggests that the acquisition of language is essentially achieved through modelling of the activity, practice and feedback. That is, initially the expert is totally responsible for the completion of a task, in this case communicating, while the novice observes. This is followed by a gradual increase in participation by the novice (Vygotsky, 1962). This development of expertise has been described as a form of "cultural apprenticeship" (Renshaw, 1990).

Although this model has been more traditionally associated with the early learning environment of the home, Vygotsky (1962) and others suggest that this learning theory can be applied to the classroom through the use of similar co-operative and or collaborative activities. The claim that learning is a communal activity goes further in suggesting that children do not simply learn from others, but rather through their interactions with others, they begin to internalise and transform what is learned into knowledge. It is this internalization and transformation of knowledge and perhaps experiences, which build up the child's tools for thinking and problem solving (Renshaw, 1990). In applying this co-operative learning theory to the classroom, Vygotsky made the distinction between " spontaneous concepts" (such as language acquisition, in which time and practice are not controlled) and " non-spontaneous

concepts ", in which schools or institutions provide what Renshaw describes as
" organised bodies of knowledge " (mathematics, science etc). Vygotsky warned against
simply delivering knowledge about the non-spontaneous concepts and suggested that
teachers needed to provide or create a "zone of proximal development " . Renshaw
(1990) refers to this as a zone of growth in which the spontaneous concepts are mixed
with the non-spontaneous concepts in order to gain knowledge , skills and strategies
which could / would be internalised and transformed , and therefore generalized. In this
regard , Vygotsky suggests the scientific (non-spontaneous concepts) develop down
through the spontaneous concepts and the spontaneous concepts develop upward through
the scientific concepts, in a form of cultural interchange. The non-spontaneous concepts
while lacking personal meaning are useful tools for organising thinking , while the
spontaneous concepts are meaningful but not particularly useful for developing knowledge
outside of oneself. The role of teaching therefore is to bridge this gap (Renshaw, 1990).
Small group work or co-operative learning situations therefore provide opportunities for
scientific concepts to be used in sponateous concepts, which in turn may develop
thinking and problem solving skills.

In relating the co-operative learning theory to the classroom several elements are needed
in order to facilitate effective learning through co-operation. In applying co-operative
learning to the classroom, skills of co-operation are developed explicitly . Hill and Hill
(1990) suggest the essential elements in any co-operative activity are goal similarity and
positive interdependence. The more similar the goals the more co-operatively the group is
able to work. Positive interdependence means that the goal is attained by working
together. In order to work together groups may assign roles to group members. These
roles may be simply roles so that everyone contributes, but they might also involve the
division of one large task into subtasks. Whichever organizational framework used, the
end results are assessed as an entity. For effective learning and co-operation to be
achieved and developed students are encouraged to reflect on what they and others are
doing, monitor their progress in terms of its effectiveness and to establish trust . The

trust aspect lies in students' abilities to recognise and ask for help, either from their peers or the teacher without the threat of ridicule or criticism. That is, learners need to feel they can express their " tentativeness " with others as they share and negotiate their culture (Renshaw, 1990). Dalton (1985) suggests that when these principles are in effect, they demonstrate a structure for effective learning and co-operation .

Over the past fifteen years , a substantial number of studies have investigated the effects of co-operative learning strategies at various age levels and in various content areas (Stevens, 1989). Generally, results suggest that the use of co-operative learning strategies leads to higher achievement (Slavin, 1980); enjoyment in learning, positive attitudes towards learning, school and relationships with others (Sharan,1980) ; and increased self esteem, a sense of belonging and the development of leadership skills (Hill & Hill, 1990). All of these develop into useful skills applicable to a wide variety of activities outside school life (Hill & Hill, 1990).

Several studies confirm that co-operative learning is particularly important in helping students to master higher cognitive processess because in order for the group to reach their goal students are often required to help others (Palincsar & Brown, 1984 ; Vygotsky, 1978). In particular peer collaboration is effective for mastering skills which are undergoing development but not yet mastered. The use of co-operative learning strategies requires students to reflect on their knowledge to make generalizations in order to convey these to their peers. In order to perform these cognitive functions about a task, students have to relate new knowledge with old , therefore improving the depth of processing (Stevens et al., 1989).

A number of programmes have integrated direct instruction with co-operative learning strategies and Stevens (1989) suggest that these generally follow a similar cycle;

> **Teacher - directed instruction.** The teacher gives explicit explanation and instruction of the new skills and processes.

Team Practice - students work in group to practise the skills taught by the teacher. In practising students assess and check each others' work, they discuss answers, reach a consensus and so on.

Individual Assessments - students receive individual assessment.

Team Recognition - the students scores on the individual assessment are combined and a pre-established reward in recognition of their performance is earned.

These aspects of the cycle have been other studies (Dansereau ,1985; Slavin ,1989; Stevens ,1989). Stevens concluded that instruction which incorporated aspects of direct and explicit strategy instruction and collaborative team practice is an effective method for teaching comprehension strategies.

2.4.4 Combining Aspects of Direct Instruction , Metacognitive Instruction and Collaborative Learning Instruction to the C.A.T.S. Procedure.

As an outcome of the review of direct instruction, metacognitive instruction and co-operative learning , an "introduction to summarizing" , and guidelines for practising the strategies were added to the C.A.T.S. Procedure.

The *introduction* to summarizing was designed in order to identify the purpose and place of summary writing. The *introduction* begins with defining and clarifying the meaning of a summary and relating situations where summaries have been used or seen. Characteristics of "good" written summaries would also be discussed and clarified. Students would be encouraged to share their current procedures or strategies for summarizing and common procedures could be identified. In identifying students' current summarizing procedures students would be able to progress from what was known and familiar to the "new "and more effective strategies.

The second adaptation to the C.A.T.S. Procedure involves the method of teaching students what to do and how to go about summarizing. This refers to the more formal summarizing strategies identified earlier as the C.A.T.S. Procedure. Using a combination

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of co-operative learning, direct instruction and metacognitive instruction students would

be encouraged to identify and formulate the strategies described in the C.A.T.S.

Procedure.

INTRODUCTION TO SUMMARIZING
-clarify definitions of summary
- identify and classify purposes for summarizing
- identify characteristics of good summaries
- share procedures for summarizing

BEFORE SUMMARIZING
- activate background knowledge use text features.
    = circle / note down the title, pictures,
    diagrams, noticeable words .
- predict content by organizing the noticeable
features i.e who/what, where & when, how , why.
-predict text structure
    = circle/note down headings etc.
    i.e graphic outline . If no
        headings use topic sentences.

DURING SUMMARIZING
- read
- confirm / reject prediction, add .
- confirm/ reject/ identify the text's topic
- Invent topic sentences in paragraphs
- delete small words rule
- identify important supporting ideas.
- condense lists of names and events
- combine and order topics
 - rewrite information

AFTER SUMMARIZING
- self-check summary against text's title
- self-check use of rules
- self-check notetaking
        - topic + supporting details
        - brief, use suitable abbreviations
        - use own words
        - self check understanding

CHARACTERISTICS OF INSTRUCTIONAL PROCESS
- explicitly defined procedures
- strategies modelled by teacher
- collaborative rule formulation
- gradual student responsibility
- guided group practice
- informative feedback
-shared responses
-independent practice

Groups
of four

GUIDED
PRACTICE

Partner
work
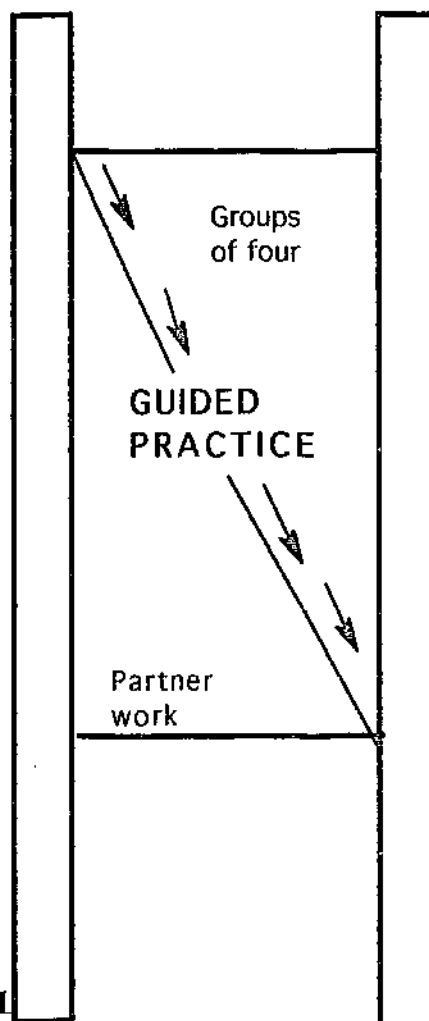
Figure 2.1 The Combined Approach to Summarizing

Through direct instruction , collaborative and metacognitive approaches students would be used to identify the strategies involved and the order in which they should be done summarizing. Following the formulation of summary writing rules , students would begin summarizing. Initially the teacher would be responsible for the completion of the summaries , with students, collaboratively , helping to compile the summary. Gradually students would work in groups of four . Finally, students would become independent summarizers and their summaries would be assessed by group members in the form of peer tutoring or evaluation. Therefore the Combined Approach To Summarizing procedure used in this study appears in Figure 2.

2.5 Reviewing Research Methods of Evaluating Students' Summaries.

In order to determine the effects of this study a review of methods for evaluating summaries was conducted. Generally , the methods of evaluating students' abilties to summarize appear to be dependent upon the purpose. Studies whose purpose was to use summarizing as a means of improving recall or comprehension tended to evaluate students by multiple choice questioning. However studies which investigated methods of writing summaries also evaluated students' summaries in terms of the product and the process . This form of evaluation appeared to be more relevant to this study.

Firstly, the summary *product* was evaluated. A number of studies evaluated students' summaries based on the amount of important and trivial information which they recorded (Garner, 1982; Hare & Borchardt, 1984). Generally the information in the testing passages was rated in terms of main ideas, supporting details and unimportant information. The rating of ideas was used as a marking key when evaluating students' summaries.

Secondly, the *process* was evaluated. In the case of Garner (1982) and Hare and Borchardt(1984), students' summaries were evaluated in both the product and the process. The process criteria were determined by the use of Day's (cited in Brown,

Campione & Day, 1981) rules. Each of the testing texts was scrutinized to determine the possibilty of the rules being applied. Students' summaries were evaluated in terms of the approriate use of the rules.

In several other studies summaries were scored using a system which identified which ideas from the original text were included in the summary and what transformations had been performed on those ideas (Winograd, 1984). Transformations were classified as reproductions, combinations, run-on combinations (careless combinations) and inventions. In Winograd's study (1984) two independent raters classified the transformations from the students summaries and a test for inter-rater reliability was conducted. Winograd used this system because it was simplier for raters to use as they did not have to determine the level of importance of the ideas recorded by students.

A final process approach to marking students' summaries involves rewriting testing texts so that they contain opportunities for students to apply each of the summarizing rules (Brown & Day, 1983). The students' summaries are evaluated in terms of their use of the rules. One difficulty with this approach is that students are being asked to summarize contrived texts. Texts are written for a variety of purposes and one of those reasons is not specifically for summarizing. In this way, the testing texts are being modified to suit the summarizing purpose, thereby presenting a somewhat contrived situation which might actually emphasize the five rules use.

One study conducted by Taylor (1986) combined the process and product approach to evaluating students summaries. Taylor selected a panel of judges, who independently rated each summary based on the criteria suggested by Taylor. The criteria were ; a) accuracy and clarity of details recorded, b) the degree to which subjects focussed on main ideas, c) the length of the summary and the ability to condense and d) the degree to which the subjects used their own words. In each of the criteria the subjects received a score of 1, 2 or 3 - the 3 meaning the subject 's summary was accurate and clear.

In order to design a suitable evaluation scale for summaries produced using the C.A.T.S. Procedure the aims of such a procedure need to be considered. The aim of the C.A.T.S. Procedure was to improve the quantity and quality of students' summaries. Since past studies reveal that younger and less experienced students tend to delete and copy extracts from the original text when summarizing, this study would be looking for students' summaries to improve in two ways. Firstly, it was hypothesized that the C.A.T.S. Procedure should improve students' abilities to condense and combine ideas, therefore the quantity of words in students summaries should decrease. To evaluate the quantity, and therefore length of students summaries, it would be necessary to record the number of words.

Secondly, in determining the quality of the summaries, the C.A.T.S. Procedure aims to enable students to record ; a) the most important information and b) related and relevant supporting details. Therefore, in order to compare the ideas in students' summaries with the main ideas and supporting details of the testing passages, a marking key for each passage would need to be prepared. Each sentence in the testing passage would be rated as very important, important and unimportant. In order to control reader bias and reliability a number of independent adults would need to rate the testing passages.

As the C.A.T.S. Procedure aims to improve students' processes for summarizing, the use of selection, condensing and transforming rules would also need to be evaluated. Each of the sentences in students' summaries would be rated according to its similarity to the original text (Winograd,1984). That is, statements which are a direct or almost directly copied from the original text would be deemed as verbatim statements. Statements which combine more than one important idea either within a paragraph or across the text will be deemed as combined statements. If students recorded statements which were relevant but which were not explicitly stated, this would be classified as an inference.

Students' summaries would be scored in terms of the number of words, main ideas,suppoung details, unimportant information , verbatim statements, combined statements and inferences. These scores would be compared in order to investigate the effects of the Combined Approach to summarizing procedure and to confirm or reject the hypotheses.

2.6. Hypotheses

The hypotheses for this study were generated from the research questions. Hypotheses 1 and 2 deal with the number of words produced in Pretest , Post Test and delayed summary writing task. Hypotheses 3 - 8 deal with the type of information being recorded in the Pre and Post Test conditions . Hypotheses 9-14 deal with the type of text processing being employed in Pretest and Post Test conditions. Hypothesis 15 deals with the effect of the C.A.T.S. Procedure on different ability groups.

Based on the research discussion, it is hypothesized that prior to the C.A.T.S. Procedure students will record more , in terms of the number of words because they will be focusing on the surface elements of the original text and they will be more likely to copy information verbatim. Also it is hypothesized that prior to instruction students would be limited in their ability to discern the various types of information. Therefore students would be able to record some of the main ideas but they would record only a small number of supporting ideas. Also , it is expected that this inability to discern the type of information present in a text would mean that students would be inclined to focus on information which is personally important rather than textually important , thereby recording more trivial information.

The lack of active processing prior to instruction, is expected to inhibit students' abilities to perform more effective strategies such as combining ideas and making inferences. Therefore it is expected that prior to instruction students will be more dependent on using copy -delete strategies rather than combining ideas within and across paragraphs and / or making inferences . In this regard, there will be a lesser number of combined idea statements and inferences in the Pretest summary.

Following the C.A.T.S. Procedure it is expected that, in terms of the number of words being recorded students would reduce the amount of information being recorded. It is expected that the C.A.T.S. Procedure will because provide students with more effective

strategies for identifying the types of information present and processing that information to a concise and factual recount. Therefore, it is expected that in terms of the type of information being recorded students will :

      1) increase the amount of main ideas being recorded.

      2) increase the amount of supporting details being recorded.

      3) decrease the amount of trivia being recorded.

In terms of the type of processing being engaged by students, it is expected that students will;

      4) decrease the amount of verbatim copied statements.

      5) increase the amount of combined idea statements.

      6) increase the amount of inferences being made.

A further consideration in this study is that after the C.A.T.S. Procedure has developed these "more effective and efficient skills in students, that these skills will be applied to a more general and functional delayed summary writing task. Therefore, the improvements made immediately after the C.A.T.S. Procedure are expected to be maintained.

Finally, previous studies have shown that younger and less successful readers perform similarly to novice readers. They tend to concentrate on decoding rather than comprehension strategies, and they apply rules and strategies inefficiently and haphazardly. The C.A.T.S. Procedure aims to explicitly explain the "how ", "when", "where " and "why" of summary writing and in this way, encourage less successful readers to "take on board " strategies rather than blindly follow techniques. Therefore, it was predicted that in terms of the improvements made by all students in the type of information recorded and the types of strategies used, that the less successful readers would make the greatest improvement.

2.6.1 Hypothesis 1.

Hypothesis 1 states that students given the C.A.T.S. Procedure will perform significantly better,by showing a decrease in the number of words being recorded in their summaries than they did before having been given the C.A.T.S. Procedure.

Mean number of words in Pretest > Mean number of words in Post Test .

2.6.2 Hypothesis 2

Hypothesis 2 states that students given the C.A.T.S. Procedure will perform significantly better in a delayed summary writing task, by showing a decrease in the number of words produced in their summaries than they did before having been given the C.A.T.S. Procedure.

Mean number of words Pretest > Mean number of words in delayed summary writing task.

2.6.3 Hypothesis 3 .

Hypothesis 3 states , students given the C.A.T.S. Procedure will perform significantly better, by showing an increase in the number of main idea statements being recorded, in their summaries than they did before having been given the C.A.T.S. Procedure.

Mean number of main idea statements Pretest < Mean number of main idea statements Post test .

2.6.4 Hypothesis 4.

Hypothesis 4 states that students given the C.A.T.S. Procedure will perform significantly better, by showing an increase in the number of main idea statements being recorded in their summaries than they did prior to the C.A.T.S. Procedure.

Mean number of main idea statements Pretest < mean number of main idea

statements in delayed summary writing task.

2.6.5 Hypothesis 5

Hypothesis 5 states that students given the C.A.T.S. Procedure will perform significantly better in the Post Test , by showing an increase in the number of supporting details being recorded in their summaries than they did prior to the C.A.T.S. Procedure.

Mean number of supporting details Pretest < Mean number of supporting details Post test

2.6 .6 Hypothesis 6.

Hypothesis 6 states that students given the C.A.T.S. Procedure will perform significantly better, by showing an increase in the number of supporting details being recorded in their summaries than they did prior to the C.A.T.S. Procedure.

Mean number of supporting details Pretest < mean number of supporting details in delayed summary writing task.

2.6.7 Hypothesis 7

Hypothesis 7 states that students given the C.A.T.S. Procedure will perform significantly better ,by showing a decrease in the number of trivial ideas being recorded in their summaries than they did prior to the C.A.T.S. Procedure.

Mean number of trivial ideas Pretest > Mean number of trivial ideas Post test

2.6.8 Hypothesis 8

Hypothesis 8 states that students given the C.A.T.S. Procedure will perform significantly better, by showing a decrease in the number of trivial ideas being recorded

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in their summaries than they did before having been given the C.A.T.S. Procedure.

Mean Number of trivial ideas Pretest > Mean number of trivial ideas delayed summary writing task.

2.6.9 Hypothesis 9

Hypothesis 9 states that students given the C.A.T.S. Procedure will perform significantly better, by showing a decrease in the number of statements copied verbatim from the text than they did before having been given the C.A.T.S. Procedure.

Mean number of verbatim statements in Pretest > Mean number of verbatim statements in Post test .

2.6.10 Hypothesis 10

Hypothesis 10 states that students given the C.A.T.S. Procedure will perform significantly better in the delayed summary writing task , by showing a decrease in the number of verbatim statements produced in their summaries than they did before having been given the C.A.T.S. Procedure.

Mean number of verbatim statements Pretest > Mean number of verbatim statements in delayed summary writing task.

2.6.11 Hypothesis 11

Hypothesis 11 states that students given C.A.T.S. Procedure will perform significantly better, by showing a increase in the number of combined ideas statements than they did before having been given the C.A.T.S. Procedure.

Mean number of combined idea statements in Pretest < Mean number of combined idea statements in Post test .

2.6.12 Hypothesis 12

Hypothesis 12 states that students given the C.A.T.S. Procedure will perform significantly better, by showing a increase in the number of combined idea statements produced in their summaries than they did before having been given the C.A.T.S. Procedure.

Mean number of combined idea statements in Pretest < Mean number of combined idea statements in delayed summary writing task.

2.6.13 Hypothesis 13

Hypothesis 13 states that students given the C.A.T.S. Procedure will perform significantly better in the Post test, by showing an increase in the number of inferences made in their summaries than they did before having been given the C.A.T.S. Procedure.

Mean number of inferences Pretest < Mean number of inferences Post test

2.6.14 Hypothesis 14

Hypothesis 14 states that students given the C.A.T.S. Procedure will perform significantly better in the delayed summary writing task .by showing an increase in the number of inferences being recorded in their summaries than they did before having been given the C.A.T.S. Procedure.

Mean number of inferences Pretest < Mean number of inferences delayed summary writing task.

2.6.15 Hypothesis 15

A final area of investigation is the effect that the C.A.T.S. Procedure has on the different

ability groups. The amount and type of information is already being recorded in hypotheses 1 - 14. It is expected that the lower the ability of the reader as ascertained by P.A.T. Reading Comprehension scores, the greater the difference between the Pretest and Post Test means of the;

-Number of words recorded

-Number of main idea statements recorded

-Number of supporting details

-Number of trivial facts

-Number of verbatim statements

-Number of combined idea statements

-Number of inferences recorded

Therefore Hypothesis 15 states that of all the students in this sample who were given the C.A.T.S. Procedure, the lower the ability of the reader, the more they will improve, in terms of the amount and type of information recorded. It is hypothesized that the lower the P.A.T. score the greater the improvement from Pretest to Post Test.

CHAPTER 3

METHOD.

3.1. Subjects

The subjects for this experiment were 21 Year 6 female students . The mean age of these students at the time of the Pretest was 10 years 5 months. The subjects' age range was 10;2 - 10;11 years.

3.2 Instruments and Materials.

3.2.1 -Instruments used in Testing.

3.2.1.1. The Progressive Achievement Tests of Reading Comprehension :

The Progressive Achievement Tests of Reading Comprehension- Form A (Australian Council for Educational Research, 1973) was selected as a test of reading comprehension ability.

The P.A.T. uses a normal distribution curve to indicate where students are positioned in terms of their general abilities compared to the true population e.g. above average, average and below average. The norms represent primary school children from 104 schools in Australia including independent schools. A detailed account of data collection and interpretations are presented in the Teachers' Handbook (A.C.E.R. ,p. 2) Tests on split-half reliability and equivalent forms tests are available. The part six comprehension Form A test has a reliability co-efficient of .89 for equivalent forms, and .92 for split-half tests.

Administration of the test requires no special training, but the user must be familiar with the directions prior to the test . Instructions and exact wording appear in the handbook. Marking the test includes a prepared score card. Scores are norm referenced and given in both percent and stanines.

3.2.1.2. Readability of Summary Testing Passages

For testing, three passages were selected as the Pretest , Post test and the delayed summary writing task. These articles were again related to class themes, at the time of testing, but were not restricted to science topics . Each testing article was under 700 words and rated according to Fry's Readability Scale (1977).

Readability scales are problematical , since they tend to focus on word and sentence length, rather than cohesion and conceptual levels of the text. Fry's Readability Scale was selected as it tests the difficulty of the written materials by sampling the mean number of sentences and the mean number of syllables in the sentences and results in an approximate year readability level. Whilst readability scales generally , are not strong in reliability or validity, the purpose for their use in this study is to control for text difficulty interfering with student's abilities to write summaries. Fry's readability graph has been validated by several studies, (Fry, 1968; 1969; Dulin, 1969) which confirm that this graph produced similar scores for prose examples to other formulae. This readability scale has also been tested using judges (Singer, 1975; Carver 1975-1976) with high correlational analysis between four other readability techniques. Table 3 shows the content area and the readability levels of the testing passages. As the number of words in each passage varied, a cut off point of approximately 400 words was used.

Table 3
Summary of Testing Materials

Title	Discipline Area	Number of Words	Readability Level
Flowers	Science	400	9 years
Electricity	Science	400	13 years
Benefits of Exercise	Health	400	14 years

3.2.1.3 Marking Keys

To prepare a marking key for student summaries copies of the summary testing passages plus "rating versions " were given to 8 independent teachers. The teachers were asked to read and rate the sentence units in each article in terms of very important, important or not important to the main idea. This information was used to control for researcher bias in marking students' summaries. The ratings obtained from the eight teachers were collected and the majority vote was used to determine the rating of each sentence. From these ratings a marking key for the student's summaries was prepared.

3.2.2 Nature of Instructional Materials.

For this experiment , a set of nine factual passages was needed. The content of the instructional passages was governed by class themes , in particular the topic *Flight* . The length of the instructional passages was limited to under 700 words with the initial instructional passages being smaller in length than passages used at the end of the training. Table 4 shows the range of titles and number of words in each instructional passages.

Table 4
Titles of Training Materials and Number of Words.

Title	Number of Words
One day When Lessons Really Were Hot	115
The Story of Flight- Bird Men	216
The Story of Flight - The Hot Air Balloon	220
The Story of Flight - The Hydrogen Balloon	225
The Story of flight - The First Airship	207
The Story of Flight - Early Gliders	198
The Story of Flight - The First Aeroplane	225
Still Flying By the Seat of Her Pants	620
The Early Days (of the Airforce)	637

3.3 Design

The basic design for this experimental study is a one group Pretest - Post Test design and is illustrated in Figure 3.1.

<u>Figure 3 .1.</u> Basic Design of Study

P.A.T & Pretest		Post Test	Delayed summary Writing Task
	INTERVENTION	**NO INTERVENTION**	
	(6 weeks)	(4weeks)	

(10 weeks)
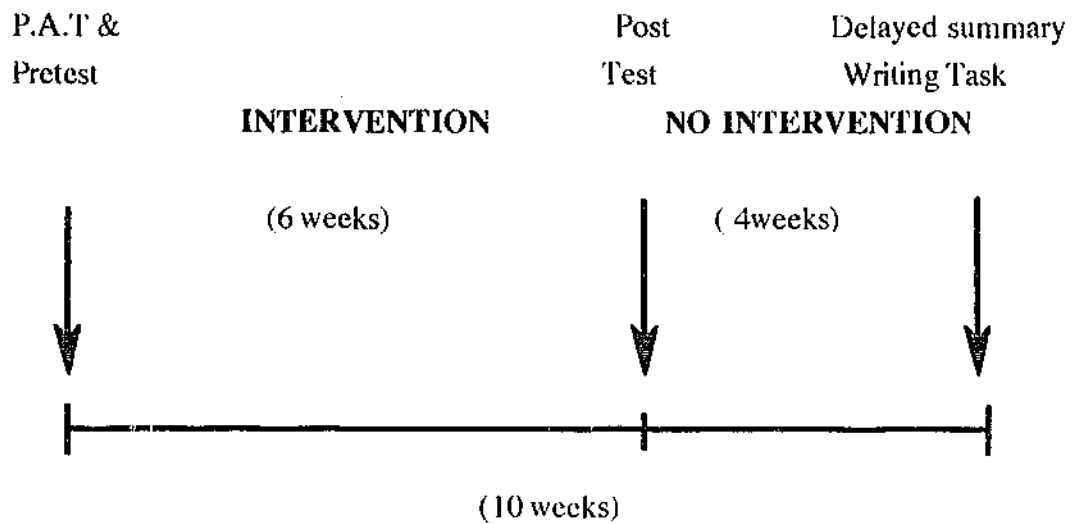
All students were pretested to establish   baseline data with regards to the amount and type of information recorded after reading and summarizing a given text . The students were instructed using the Combined Approach To Summarization Procedure over a 6 week period. Immediately following the completion of instruction a Post test was administered.

A second delayed test was administered one month after the completion of training. Students were given a task which required them to summarize a given text. This summary was collected to determine if the summary writing skills taught were readily and independently used by students .

3.4 Procedure

<u>3.4.1 Pretesting</u>

1) The Progressive Achievement Test - Form A (1973) was administered to the Year 6 students by the researcher. The instructions for testing were followed in accordance with the P.A.T. Teacher's Manual. The test involved a testing time of 50 minutes, which was broken up into 10 minutes reading and example questions, followed by

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40 minutes of individual reading and question answering. Permission was sought from the principal to administer the test. Individual students' performances and personal identity remained anonymous. The students' Progressive Achievement Tests were marked and the students were assigned a student number. The P.A.T. raw scores were tabulated.

2) The text "Flowers" and its rating version was administered to eight voluntary teaching staff. The researcher also rated the text. The teachers were asked to read the passage and rate the idea units in terms of very important, important and not important. The teachers were allowed unlimited time to complete the task. The teachers' names were not required on the rating version and personal teacher anonymity was guaranteed.

As the rating versions for "Flowers" were returned, a marking key was devised using a tally from the ratings of idea units. For example the first sentence in "Flowers" was rated as follows; 7 voters considered this sentence as very important, and 1 voted the sentence as not important, therefore this sentence was given a very important rating in the marking key. If voting produced a draw, e.g. 4 voted very important and 4 voted important or trivial, the researcher's rating acted as the deciding vote.

3) One week later the summary writing Pretest was administered. The students were asked to define a summary. After hearing several suggestions an agreed definition was decided upon. E.g. " a shortened version of the original text" . Students were told their task was to read the passage so that they could write a summary based on it, and they were free to use any method they wished to help them write their summary. The students were given several pieces of lined paper and the Pretest passage entitled "Flowers" . The students were given unlimited time to complete their summary.

Students' summaries together with copies of their texts were collected. A student identification number , which corresponded with their P.A.T. student identification number was allocated to both texts and summaries.

4) The students' summaries were marked. The total number of words and statements were recorded. Each sentence in the students' summaries was analysed in order to determine :

    a) the level of idea importance according to the marking key,

    b) if the statements were directly copied verbatim from the original text,

    c) if more than one very important or important idea had been combined.

    d) if the sentence indicated an inference . That is, where students used language and ideas which were not presented in the original text, but which were relevant (as deemed by the researcher) to the topic.

5) The results of students' summaries were tabulated.

3.42 Intervention

The intervention procedures were organized into modules. An overview of the objectives, materials and instructional techniques for each module follows. The duration of the each module varied , but generally the instructional sessions lasted 40 minutes. Fourteen lessons were conducted, ' nd these lessons were divided into modules. Modules 1 and 2 (lessons 1-5) introduced students to summarizing. Module 3 involved students identifying rules and strategies for summarizing and modules 4 and 5 were used to practise the C.A.T.S. Procedure . In the practice sessions students gradually increased their personal responsibility for summarizing by working firstly in groups of four, then partners, and finally independent summary completion. Altogether students summarized nine texts.

3.4.2.1. Module 1- Introduction.

Objectives:

Students will be able to :

1:1 - define and identify a summary.

    - identify the characteristics of a summary.

1:2 - identify the functions of a summary.

1:3 - identify that a process is involved when writing summaries.

- Identify the process they currently use when writing a summary.

-evaluate the most useful strategies involved in summary writing.

<u>Materials :</u>

Module 1:1 Sentence cards - 1 sentence is a summary of the other.

        Paper, pencils

        Cardex for charts, text

Module 1:2 Worksheet - function of a summary

<u>Module 1-instructional procedure.</u>

Lesson 1

1) Students define a summary . These definitions were recorded on the black board . Following a discussion about the common elements of the definitions a collaborative definition of a summary was compiled.

2) Students in pairs, were given 2 cards containing sentences. One of the sentences was a summary of the other.

e.g. **Sentence A** - The kangaroo rat is a small desert animal which belongs to the same family of animals as mice, rats and squirrels.

      Sentence B - The kangaroo rat is similar to animals such as mice and squirrels.

Students were asked to differentiate between those that were summaries and those that were the main texts. Students were asked to substantiate their choices .

3) Students , in groups of four, collaboratively identified the types of words absent from the original texts. The students were given 5 minutes. Each group presented their findings and the class results were tabulated.

When reporting to the class, students could acknowledge that they had found similar ideas to others but students were instructed not to repeat ideas already mentioned. Students were instructed to tick off the responses of others as they were mentioned to avoid repetition of ideas.

5) Using the tabulated results students decided on the types of words which were not needed in a summary . The specific characteristics of a "good" summary were

identified . The results of the discussion were recorded in a class journal.

6) Students recorded their own personal journal in order to reflect on what they
have learnt.

Lesson 2

1) Revise objectives from lesson 1

2) Students in groups of four are given a work sheet containing two questions ;

Why do we write summaries ?   What are summaries used for ?

3) Students , individually and silently brainstorm and record answers to these
questions for 1 minute.

4) Sheets are passed to the student on the left. Students are given 2 minutes to
read and add responses to their peers' sheet. Answers were allowed to be
repeated if they were not already written on their peers' worksheet. This was
repeated until students were returned their original paper. e.g. 4 rotations.

5) Each group reported their responses to class and these were blackboarded .

6) The uses for summaries were discussed and priority ordered.

7)A class journal was recorded using the headings;

A summary is...........

Summaries contain........

We use summaries when....

7) Students completed personal journal entries.

Lesson 3

1) Students volunteered personal procedures for writing summaries. E.g.
What they did first etc.

2) Each volunteered procedure was recorded on the blackboard . Students were
asked for any different methods not already recorded.

3) Collaboratively, students identified the most common strategies for
summarizing and organized these into one procedure for writing a summary.

4)The strategies suggested by the class were classified in order to identify and introduce the process skills of summarization. E.g. Selecting, condensing and transforming (However the word combining was used instead of transforming as it is more representative of students' language.) The method suggested by the class was recorded on a chart. As students progressed through the subsequent modules their procedures would be evaluated and information added or deleted from this chart.

5) Students completed a journal.

3.4.2.2. Module 2- Before Summarizing

Objectives:

The student will be able to ;

2:1 - use text features to activate their own background knowledge in order to predict content and organization of a given text.

Materials:

Overhead transparency of "One Day When Lessons Really Were All Hot Air" (1985, October) The Courier Mail

Newspaper articles glued on to large sheets of butcher's paper

highlighters

Module 2 - Instructional Procedures.

Lesson 4:

i)The text was placed on overhead transparency, revealing only the picture from a newspaper article.

2) Students were directed to predict the content of the article and substantiate with questions like; "what gave you that idea ....?

3) The title of the article was presented . Students confirmed and rejected ideas which were not consistent with the title. Any new predictions were added.

4) Students were presented with all of the text . Before reading, students survey and identify the characteristics of the text which stood out :

E.g. SCIENCE - upper-case letters

Serge Lindegger - person/subject

23, 24 students - other subjects and numbers .

Nambours Burnside State School - place/ setting

These features were used to confirm , reject or add to predictions about the text.

E.g. Possible prediction; *Serge Lindegger and 24 students from Nambours Burnside State School were able to go up in a hot air balloon for their science lesson.*

5) Students silently read article. Students recall of story details was compared to their predictions and discussion followed using questions such as :

How close were our predictions?

What features helped the most in predicting the content ?

At which point were you most confident about your predictions ?

Did predicting the content make the reading easier? Why / Why not?

6) Students were given an orange chart with "footprints" going from one corner of the chart to the other. (The colour of the chart is symbolic to traffic lights , orange for get ready. The chart was called Getting Ready to Read. Charts which follow are coloured green and red , and the analogy is discussed later) On the "footprints" students listed the text features which helped them to predict the content.

7) Students evaluated the benefits of surveying the text in order to predict the content of a text before reading e.g. Activates known content knowledge, identifies anticipated vocabulary, style, and structure , focuses on main ideas. Complete class journal.

8) Students, in groups of four, were given different newspaper articles glued to large sheets of butcher's paper and highlighters. Students practised predicting the content of articles using the text features listed on the Getting Ready to Read chart.

9) Each group shared their predictions, the "actual" meaning of the article, as well as any new but useful text features they had discovered. The newly discovered

features were added to the chart.

10) Display Getting Ready to Read chart. Students complete personal journals.

3.4.2.3 Module 3- During Summarizing

Objectives:

Students will be able to :

Lesson 5 - revise how to activate prior knowledge with a new text.

- identify the overall topic or idea.

- identify information which is important and relevant to main topic

- identify information in a text which is irrelevant and redundant.

- combine and synthesize information to form a topic sentence.

Lesson 6 - identify subordinate terms for lists of events and objects.

- identify the purpose for reading, and the importance of knowing the purpose.

- work collaboratively on class summary

Materials:

Overhead transparency of "One Day When Lessons Really Were All Hot Air " (1985,

October) The Courier Mail

Getting Ready to Read chart

Red cardex, marker pens

Instructional Procedures:

Lesson 5

1) Students recalled their predictions about the text- " One Day When Lessons Really Were All Hot Air".

2) Students revised their definition of a summary and discussed ways of shortening a text and deciding which information was not needed. These ideas were recorded .

3) A number of students were given a card with a word written on it. The students were asked to make different sentences with them.

E.g. The Lazy boy ran quickly over the crooked bridge tripping on a loose plank.

4) Students were asked to identify the types of words in the sentence. E.g. verbs, nouns etc. Each student which represented that particular type of word was asked to sit down and the remaining information and the effect of the missing words was determined . The "small" and "describing" words were found to make the least difference to the meaning when they are deleted. Students were asked to turn this into a rule which would help them to identify trivial information .

E.g. Take out all the small words (such as prepositions and articles)

Example; *The* kangaroo rat *is a* small desert animal which belongs *to the* same family *of* animals *as* mice, rats *and* squirrels. Kangaroo rat *is a* good name *for this* animal.

5) The "new" rule was applied to the overhead transparency of " On Day When Lessons Really Were All Hot Air " (1985, October) The Courier Mail .

6) Students were asked to evaluate the information remaining. Some of the phrases remaining also contained information which was not important therefore students discussed ways of deciding the importance of information. These ideas were recorded and another rule was formulated :e.g. Reread the sentences left, and delete words or phrases which are a) not related to the main idea or b) repeated or mean the same thing.

Example; - Kangaroo rat - *small,* desert animal - *belongs* - same - *family -animals* - mice, rats, squirrels. *Kangaroo rat - good name - animal.*

7) The second rule was applied to the text.

8) the remaining text was further examined and students were asked "how they could tidy up the text ?" e.g. Rewrite the information left, in their own words. These suggestions were used to formulate the third rule; e.g. Formulate or invent a topic sentence.

Example; The kangaroo rat is a desert animal similar to rats and squirrels.

10) Students , in groups of four, rewrite the phrases into small meaningful

sentences .

11) The rules were discussed and recorded in class journal.

12) Students wrote personal journal entry .

The summaries were collected in order to find examples where students had used the subordinate terms rule.

Lesson 6

1) Distribute " summaries" from lesson 5 . Students were asked to share their first sentence , other groups with the same were congratulated. Groups which had different versions were encouraged to share their ideas and explain how their sentences were different and what they had done.

2) Students' attentions were directed to summaries which had substituted subordinate terms. E.g. Lists of events ,objects or subjects being given one name such as canary, finch, parrots = birds. Where these examples were demonstrated by students , they were asked to formulate a rule to describe what they had done .

E.g.. Change lists of events, or objects into one name.

Example : *In the* cool *of the* night *the* kangaroo rat comes out *of its* burrow. *It* closes *the* door *at* night *too. This is the* time when *it* gathers *its* food. *It* eats some *of its* food *and* takes some *of it* back *to its* burrow *to* store.(Italics indicate use of other rules.) These statements can be condensed into;

While the kangaroo rat is nocturnal , it also stores some of its food.

3) Revise , order and chart the strategies or rules formulated on a green chart

4) The significance of the colours of the 2 charts (analogy to traffic lights) were explained to student e.g. knowing the purpose for reading (to summarize), getting ready for reading (predict from text features) and strategies for summarizing (selection, combining and condensing strategies)

5) Students were asked to predict what the red chart would be about.

6) The purpose of summarizing for oneself and rules for note taking were

discussed. A procedure for identifying topic sentences and supporting details was formulated .

E.g.

- identify main idea

- indent and list supporting details

- keep notes brief

- use abbreviations

5) Students recorded the three charts as a checklist in preparation for their first group summary.

3.4.2.4. Module 4 - Guided Practice

Objectives:

Students will be able to:

- practise before, during and after strategies for summarization in groups of four

- practise before, during and after strategies for summarization with a partner

- practise before, during and after strategies for summarization independently

Lesson 7

1) Students are given jobs with specific roles . (The roles were to be rotated each time the group of four did a new summary) Delayed summary writing test. For example;

The checker - responsible for using the checklist , recording a tick next to the strategies as they were used by members of the group.

The communicator - was responsible for carrying out the group's decisions, i.e. Crossing out, drafting topic sentences etc.

The manager - was responsible for keeping the team on task, and using time effectively.

The reporter - was responsible for writing up the final summary.

2) Distribute text " Birdmen"

3) Getting ready to read strategies were revised - students proceeded in groups of four.

4) Summarizing rules were revised - students proceeded in groups of four.

Lesson 8 : As for lesson 7 -distribute text- "The Hot Air Balloon "

Lessons 9 -11: As for lesson 7 - students begin working in partners to write summaries.
Using texts - " The Hydrogen Balloon"

- " The First Airship"

- "Early Gliders"

3.4.2.5. Module 5 - Independent practice.

Lessons 12 -14 : as for lesson 7 students worked independently to write a summary
using texts - " The First aeroplane"

- " Flying By The seat Of Her Pants"

- " The Airforce - Then and Now"

3.4.3 Post testing

3.4.3 1. Post Test

The Post test was administered under the same conditions as the Pretest. Students were
not given checklists. The text *Electricity* was used .

3.4.3.2 Delayed Summary Writing Task

One month after the Post test , students were given the delayed summary writing task in
the library. Students were informed that as part of their health topic, they were required
to design a personal fitness program. Prior to designing their fitness program, students
were asked to read and summarize an article , which contained ideas about planning
fitness programs . The text , *The Benefits of Exercise* , two pieces of lined paper A4
and a blank sheet of A3 were distributed to the students. The activity took place in
the final 75 minutes of the school day. Students' summaries were collected. Those who
had not finished their fitness program were told it could be finished the following day.

The teacher photocopied students' summaries for the purpose of analysis.

The original purpose of the Post Test was to observe if students transferred to a 'real' context, the summary writing skills learnt using the C.A.T.S. Procedure. There was some difficulty in designing a test to demonstrate this, because summarizing in context often means that the act of summarizing is secondary to the main task (i.e. critical reviews or incorporating ideas from multiple sources). In this regard the task(designing a fitness program) gave students a purpose for summarizing, whilst in the Pre-test and first Post Test students were simply asked to summarize the texts.

3.4.4 Data Analysis

Information from each student's Pretest, Post test and the delayed summaries were analysed . For each summary the total number of words was recorded , together with a record of the number of very important , important and trivial ideas, the number of statements which were copied verbatim, the number of statements which contained more than one idea, and the number of inferences .

A repeated measures analysis of variance was applied to each of these sets of figures to determine whether there was any significant differences between the Pretest and Post Test scores. The areas of difference and their respective levels of significance were used to reject or accept Hypotheses 1-14 . This data analysis is represented in Table 5.

A Pearson r correlation analysis was used to determine whether the differences between Pretest and Post Test scores were related to ability. The differences between the number of words and the type of information being recorded , were correlated with the subjects scores on the P.A.T. The results of this correlation were used to test hypothesis 15 . This data analysis is represented in Table 6.

Table 5.

Table Showing Data Analysis For Hypotheses 1 -14

VARIABLES	Pretest	Post Test	Delayed test

Repeated Measure Analysis of Variance

Total number of words

        hypothesis 1

        hypothesis 2

Number of Very Important
ideas

        hypothesis 3

        hypothesis 4

Number of Important ideas

        hypothesis 5

        hypothesis 6

Number of trivial
ideas

        hypothesis 7

        hypothesis 8

Number of Verbatim
Statements

        hypothesis 9

        hypothesis 10

Number of Combined
idea statements

        hypothesis 12

        hypothesis 12

Number of inferences

        hypothesis 13

        hypothesis 14

Table 6

Table Showing Data Analysis for Hypothesis 15.

Variables	P.A.T.
	Pearson's r correlational analysis
Number of words	Pretest - Post Test
Number of main idea statements	Pretest - Post Test
Number of supporting details	Pretest - Post Test
Number of trivial ideas	Pretest - Post Test
Number of verbatim statements	Pretest - Post Test
Number of combined idea statements	Pretest - Post Test
Number of Inferences	Pretest - Post Test

CHAPTER 4

RESULTS.

4.1 Hypotheses

Firstly, the results of each hypothesis will be discussed individually. However, the hypotheses are organized in pairs because the same variables are being tested but, whereas the odd numbered hypotheses consider the differences between the Pretest and Post test the even numbered hypotheses consider the difference between Pretest and delayed summary writing test. A summary follows the results of each pair of hypotheses. Secondly, a general summary of the effects of the C.A.T.S. Procedure on students' summaries follows. The type of information students recorded was compared with the type of information present in the testing passages. Finally the effects of the C.A.T.S. Procedure on students' abilities to summarize is evaluated in terms of what students were inclined to do prior to, immediately following and 1 month after instruction.

4.11 Hypothesis 1.

Hypothesis 1 stated that students given the C.A.T.S. Procedure would perform significantly better by showing a decrease in the number of words recorded in their summaries than they did prior to being given the C.A.T.S. Procedure. This was hypothesized because prior to instruction children would be inexperienced with summarizing. They would more likely have little or no strategies for summarizing and they would therefore be more likely to focus on the surface elements of the original text rather than the main or supporting details.

To test this hypothesis, a repeated measures analysis of variance was carried out on the number of words in the Pretest , Post test and the delayed summary writing task, and a significant effect was found, F (2,40) = 13.00, $p < .001$. Figure 4.1 shows the means for each testing time.

The number of words recorded at Pretest ($M = 73$) was significantly *less* than the number of words in the Post test ($M = 134$), F (120) - 15.88, $p < .001$. Therefore Hypothesis 1 is rejected.
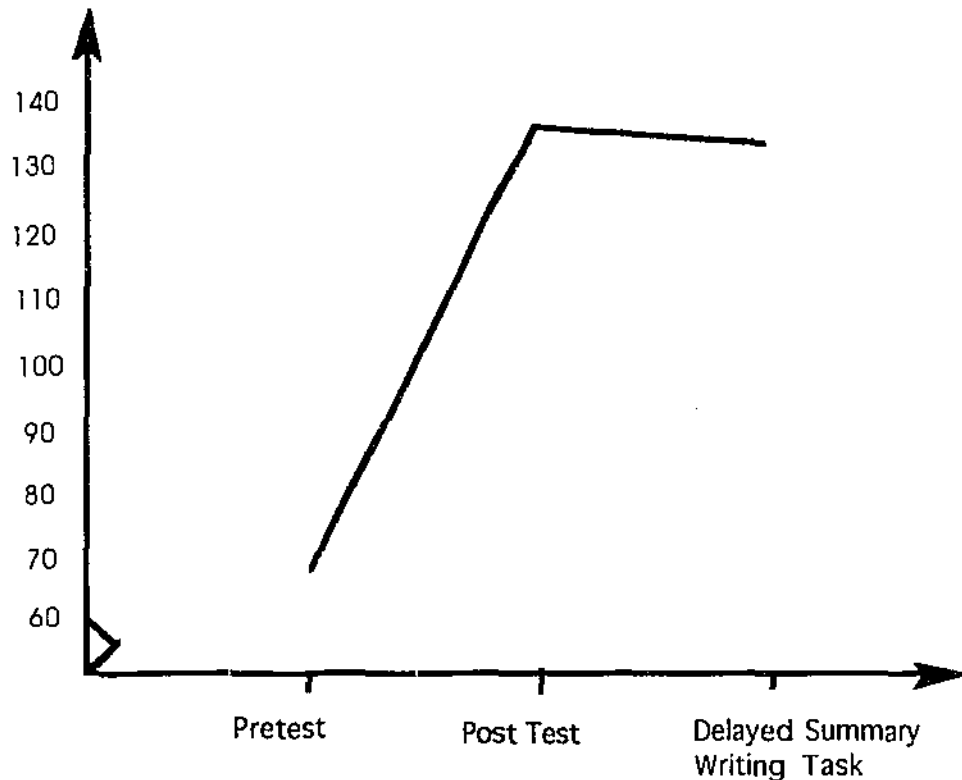
Figure 4.1 . Mean number of Words Recorded in Pretest and Post Test and delyed Summary Writing Task.

4.1.2 Hypothesis 2

Hypothesis 2 stated that the number of words produced in the Pretest would be greater than the number of words in the delayed summary writing task. However the number of words at Pretest ($M = 73$) was again found to be less than the number of words in the delayed summary writing task ($M = 132$), F (1, 20) = 36.24, $p < .001$. Therefore Hypothesis 2 is also rejected.

4.13 Summary of Hypotheses 1 and 2.

The results indicate that the number of words increased after the C.A.T.S. Procedure and remained greater in the delayed summary writing task. There are several possible reasons for the number of words increasing. Firstly, students could be using the delete and copy strategy for summarizing , therefore recording more information than is necessary. Secondly, students may believe that the quantity of writing is more important than the quality, for example "more is better". Thirdly, students may have increased the number of words recorded because they were selecting more of the important and relevant information as a consequence of instruction. To evaluate this hypothesis more effectively an analysis of the type of information being recorded needs to be considered. This information is investigated in Hypothesis 3-14, and the cause of this increase in quantity is further analysed in the Discussion .

4.2.1 Hypothesis 3 .

Hypothesis 3 stated that , prior to children being given C.A.T.S. Procedure, the number of main idea statements being recorded in the Pretest would be significantly less that the number of main idea statements being recorded at Post test. This was hypothesized because students were being given explicit instructions and training in relating information to the "gist " of the text, and in the deletion of information which was irrelevant, repetitive and redundant.

To test this hypothesis , an analysis of variance was carried out, and a significant difference was found between the Pretest, Post test and the delayed summary writing task . F (2, 40) = 28.67, p < .001. Figure 4.2 shows the means for each testing time.

The number of main idea statements at Pretest ($M = 2$) was significantly less than the mean number of main idea statements at Post test ($M = 5$) , F (1,20) = 53.80, p < .001. Therefore Hypothesis 3 is accepted.
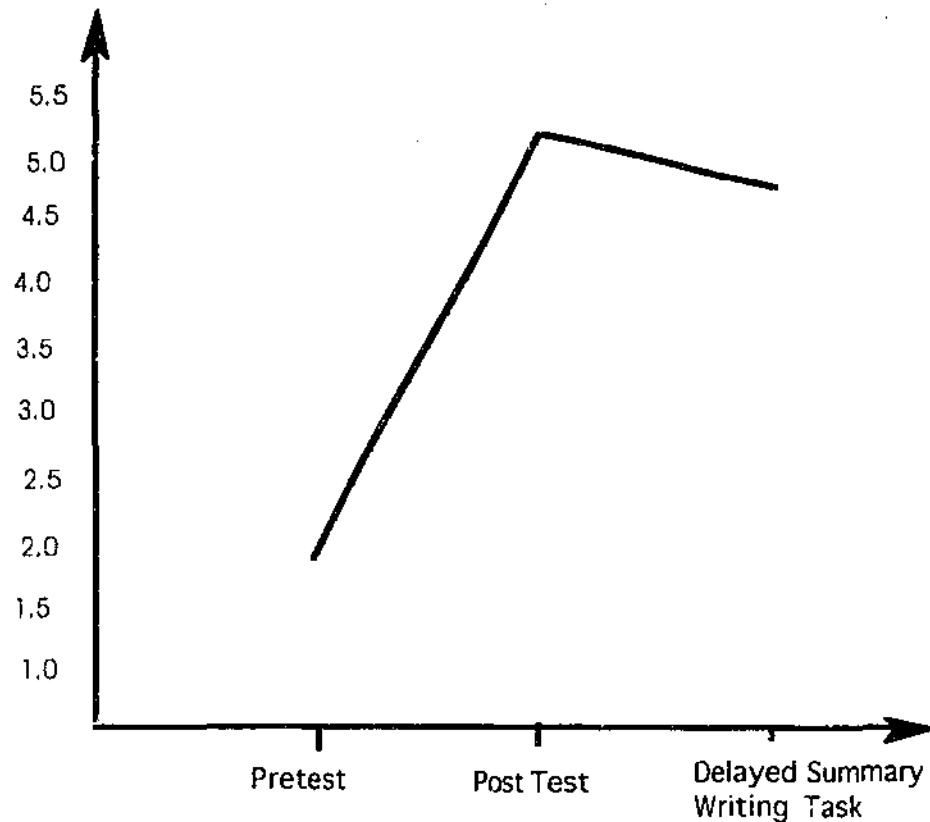
Figure 4.2. Mean Number of Main Ideas Statements Recorded in Pretest , Post Test and Delayed Summary Writing Task.

4.2.2. Hypothesis 4

Hypothesis 4 stated that the number of main idea statements being recorded at Pretest would be less than the number of main idea statements being produced at the delayed summary writing task.

The number of main idea statements recorded at Pretest ($M = 2$) was found to be significantly less than the number of main idea statements recorded in the delayed summary task ($M = 5$) , F (1,20) = 42.26 , $p > .001$. Therefore Hypothesis 4 is accepted.

4.2.3. Summary of Hypotheses 3 and 4.

The results indicate that following instruction in the C.A.T.S. Procedure, the number

of main idea statements being recorded in students' summaries increased significantly and that this trend was continued in a delayed summary writing task one month after the C.A.T.S. Procedure had ceased.

4.3.1. Hypothesis 5.

Hypothesis 5 states that, prior to children being given the C.A.T.S. Procedure, the number of supporting details produced in the Pretest would be significantly less than the mean number of important ideas produced in Post test. This was hypothesized because students were being given explicit instructions and training in relating information to the "gist " of the text, and in the deletion of information which was irrelevant, repetitive and redundant.

To test this hypothesis, an analysis of variance was carried out, and there was found to be no significant difference between the Pretest, Post Test and the delayed summary writing task . $F (2, 40) = .72$, $p>.05$. Figure 4.3 shows the means for each testing time.

The number of supporting details being recorded at Pretest ($M = 4.47$) was not significantly different from the mean number of supporting details being recorded in Post Test ($M = 4.49$) , $F (1,20) = .29$, $p > .05$. Therefore Hypothesis 5 is rejected.

4.3.2. Hypothesis 6

Hypothesis 6 stated that the mean number of supporting details produced in the Pretest would be significantly less than the mean number of supporting details produced in the delayed summary writing test. However there was found to be no significant difference between pre test and delayed summary writing task , $F (2, 40) = .72$, $p >.05$. Therefore Hypothesis 6 is rejected.
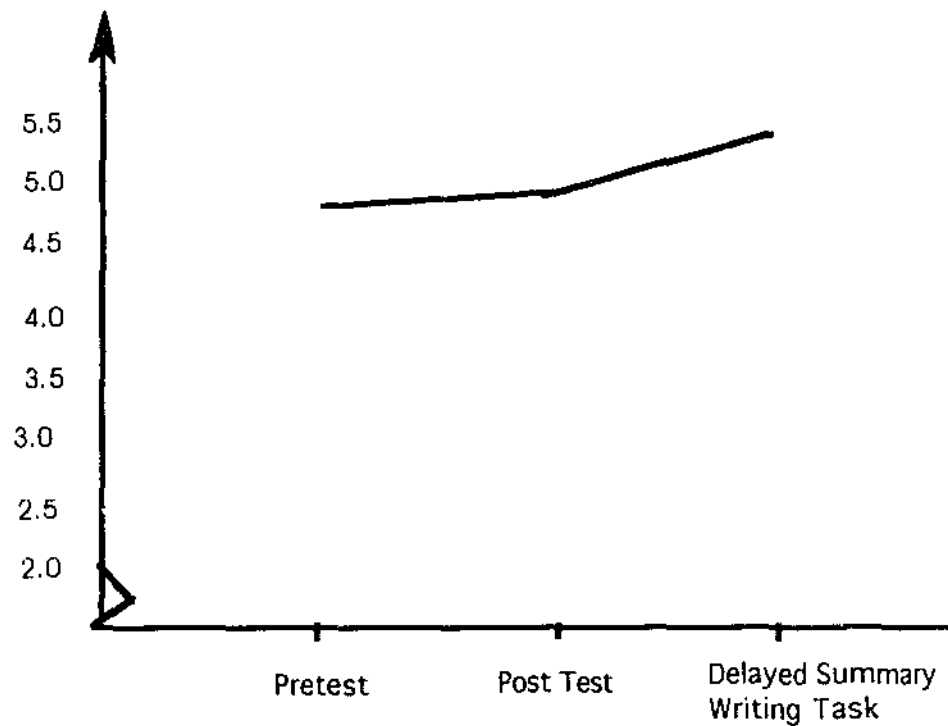
Figure 4.3. Mean Number of Supporting Details Recorded in Pretest. Post Test and Delayed Summary Writing Task.

4.3.3. Summary of Hypotheses 5 and 6

With regards to the number of supporting details being recorded in students' summaries, the C.A.T.S. Procedure appears to have made no significant difference to the number supporting details being recorded .

4.4.1. Hypothesis 7.

Hypothesis 7 states that, prior to children being given the C.A.T.S. Procedure, the mean number of trivial ideas recorded at Pretest would be greater than the mean number of trivial ideas recorded at Post test. This was hypothesized because the procedures being introduced proposed to give students strategies for determining the level of importance of information being presented.
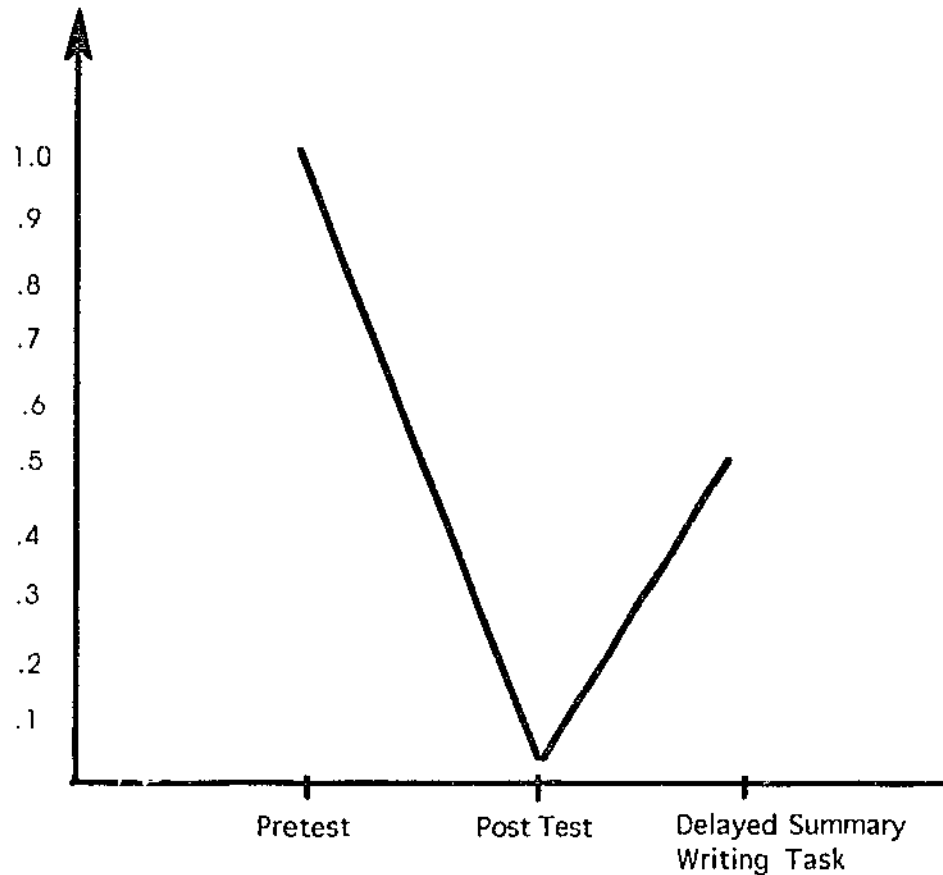
Figure 4.4. Mean Number of Trivial Ideas Recorded in the Pretest , Post Test and Delayed Summary Writing Task.

To test this hypothesis , an analysis of variance was carried out, and a significant difference was found between the Pretest, Post test and the delayed summary writing task . F (2, 40) = 28.67, p < .001. Figure 4.2 shows the means for each testing time.

The number of trivial ideas being recorded in the Pretest (M = .95) was significantly more than the mean number of trivial ideas in Post Test (M =.04), F (1,20) = 11.53, p < .01. Therefore Hypothesis 7 is accepted.

4.4.2 Hypothesis 8

Hypothesis 8 stated that the number of trivial ideas being recorded in the Pretest would be significantly more than the number of trivial ideas produced in the delayed summary

writing task. However the number of trivial ideas being recorded in the Pretest (M = .95) was not significantly difference from the mean number of trivial ideas recorded in the delayed summary writing task (M = .52) , F (1,20) 2.08, p > .05 . Therefore Hypothesis 8 is rejected.

4.4.3. Summary of Hypotheses 7 and 8

These results indicate that the number of trivial ideas being recorded immediately after training decreased significantly . However this trend was not continued in the delayed summary writing task, where there was found to be no significant difference between the number of trivial ideas recorded in Pretest and the delayed summary writing task. It appears that the learning procedures shown in Hypothesis 7 were not maintained or that the delayed summary writing task placed other cognitive demands on the children which made them focus on other aspects of this task.

4.5.1 Hypothesis 9.

Hypothesis 9 states that, prior to children being given instruction in the C.A.T.S. Procedure, the mean number of verbatim statements made in the Pretest would be significantly more than the mean number of verbatim statements made in Post Test . This was hypothesized because the C.A.T.S. Procedure proposed to give students explicit instructions on how to select textually important information, and condense and combine information .

To test this hypothesis , a repeated measures analysis of variance was carried out and there was no significant difference between the mean number of verbatim statements recorded in the Pretest , Post test and delayed summary writing task, $F(2,40) = 1.16$, p >.05 . Figure 4.5 shows the means for each of the testing times.

The mean number of verbatim statements recorded in the Pretest (M = 5.09) was not significantly different from the mean number of verbatim statements made in the Post

Test ($M = 4.71$), $F (1, 20) = .18$, $p > .05$. Therefore Hypothesis 9 is rejected.

Figure 4.5. Mean Number of Verbatim statements Recorded In Pretest, Post Test and Delayed Summary Writing task.

4.5.2 Hypothesis 10

Hypothesis 10 stated that the mean number of verbatim statements made prior to instruction would be significantly more than the mean number of verbatim statement made in the delayed summary writing task. However, the number of verbatim statements recorded in the Pretest ($M = 5.09$) was not significant different from the mean number of verbatim statements in the delayed summary writing task ($M = 3.66$), $F (1.20)$ 4.26, $p > .05$. Therefore based on these results, Hypothesis 10 is rejected.

4.5.3 Summary of Hypotheses 9 and 10.

The results indicate that, although the mean number of verbatim statements decreased in

each test, the C.A.T.S. Procedure did not reduce significantly the number of verbatim copied statements recorded by students in their summaries.

4.6.1 Hypothesis 11.

Hypothesis 11 states that, prior to children being given instruction in the C.A.T.S. Procedure, the mean number of combined idea statements made in the Pretest would be significantly less than the mean number of combined idea statements made in the Post test. This was hypothesized because the C.A.T.S. Procedure proposed to give students explicit instructions on how to synthesize information and begin to combine ideas within paragraphs and across the text.

To test this hypothesis, a repeated measures analysis of variance was carried out and there was a significant difference between the mean number of combined idea statements recorded in the Pretest, Post test and delayed summary writing task, $F(2,40)$ $=21.90$, $p < .001$. Figure 4.6 shows the means for each of the testing times.

The number of combined idea statements recorded in the Pretest ($M= 1.42$) was significantly different from the mean number of combined idea statements made in the Post test ($M = 4.90$), $F(1,20) = 23.15$, $p < .001$. Therefore Hypothesis 11 is accepted.

4.6.2. Hypothesis 12

Hypothesis 12 stated that the mean number of combined idea statements made prior to instruction would be significantly less than the mean number of combined idea statements made in the delayed summary writing task.
The number of combined idea statements recorded in the Pretest ($M = 1.42$) was found to be significantly different from the mean number of combined idea statements in the delayed summary writing task ($M = 6.14$), $F(1,20) = 44.81$, $p < .001$. Therefore Hypothesis 12 is accepted.
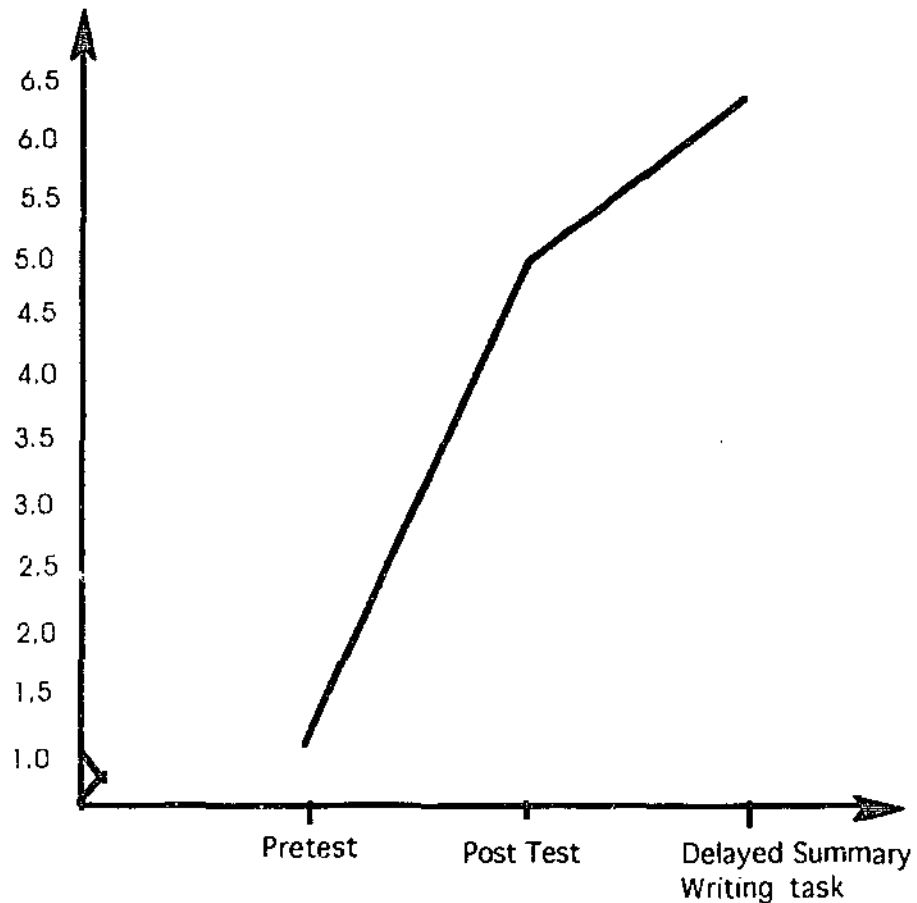
Figure. 4.6 Mean Number of Combined Idea Statements Recorded In Pretest. Post Test and Delayed Summary Writing task.

4.6.3 Summary of Hypotheses 11 and 12.

The results indicated that the number of combined idea statements made by students after the C.A.T.S. Procedure was significantly more than prior to instruction and that this trend was maintained in a delayed summary writing task.

4.7.1 Hypothesis 13

Hypothesis 13 states that, prior to children being given instruction in the C.A.T.S. Procedure, the mean number of inferential statements made in the Pretest would be

significantly less than the mean number of inferential statements made in the Post test . This was hypothesized because the C.A.T.S. Procedure proposed to give students explicit instructions on how to activate and utilize back ground knowledge in order to invent topic sentences.

To test this hypothesis , a repeated measures analysis of variance was carried out and a significant difference was found between the mean number of inferences recorded in the Pretest , Post test and delayed summary writing task. F (2,40) = 4.98, $p <.05$. Figure 4.7 shows the means for each of the testing times.
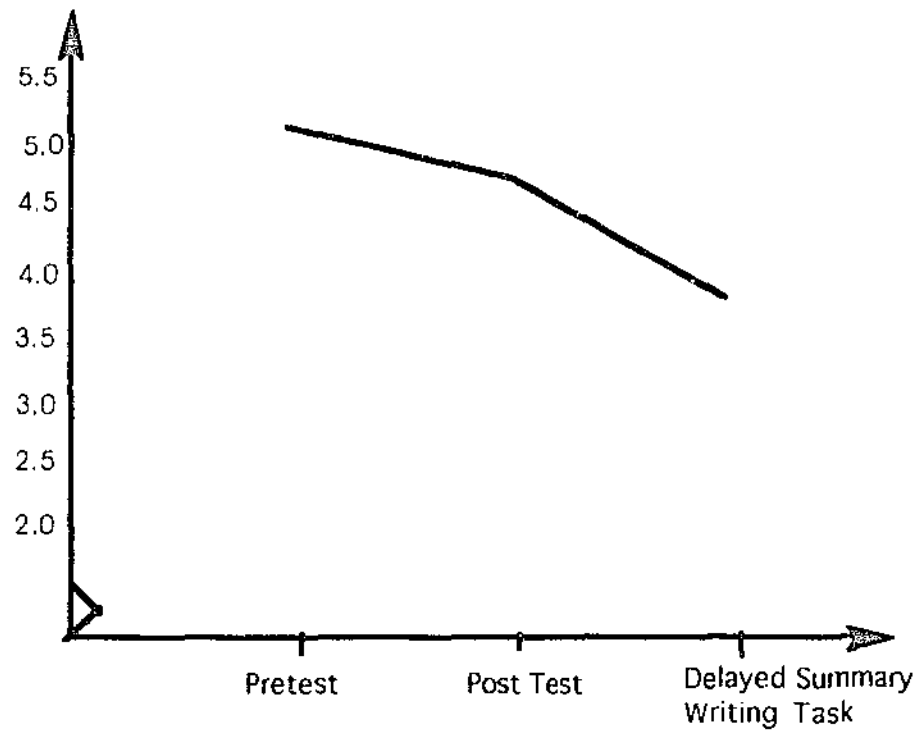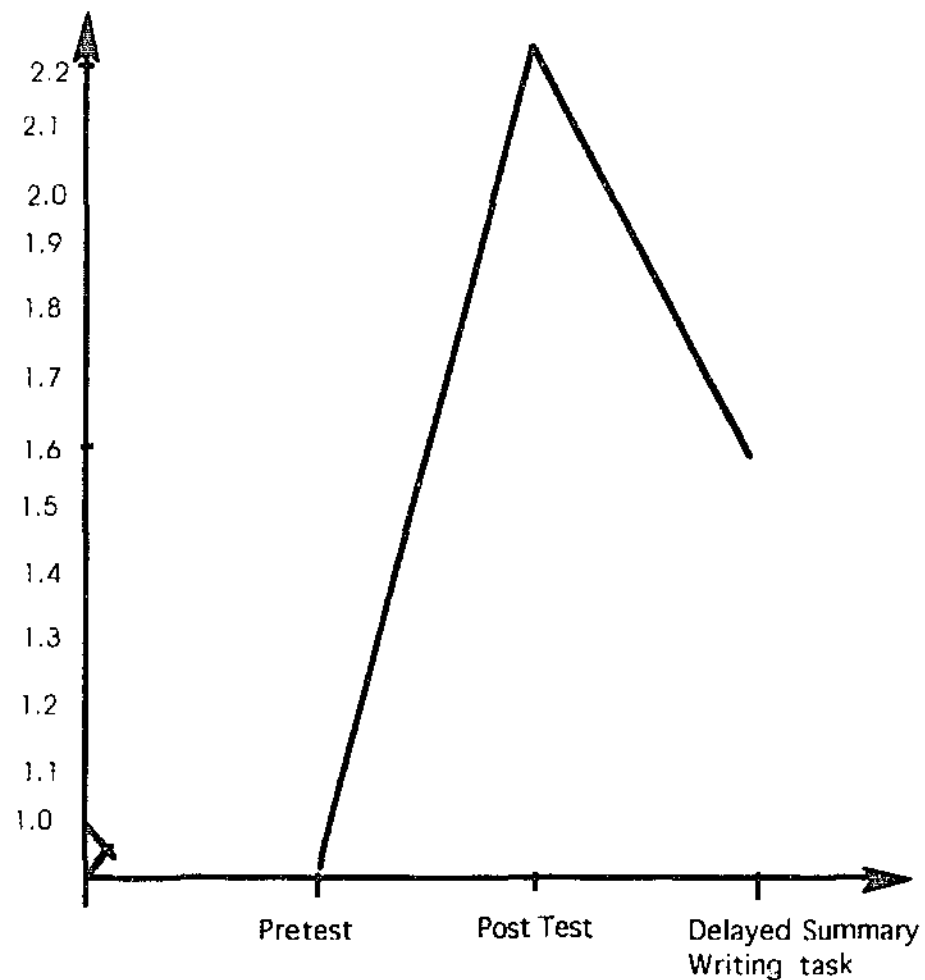

Figure 4.7 . Mean Number of Inferential Statements Recorded In Pretest, Post Test and Delayed Summary Writing task.

4.7.2 Hypothesis 14

Hypothesis 14 stated that the mean number of inferences made prior to instruction would be significantly less than the mean number of inferences made in the delayed summary writing task. However, the number of inferences recorded in the Pretest ($M = 1.04$) was not significantly different from the mean number of inferences in the delayed summary writing task ($M = 1.61$), F (1,20) 1.88, $p > .05$. Therefore Hypothesis 14 is rejected.

4.7.3. Summary of Hypotheses 13 and 14.

The results indicate that whilst the number of inferences being recorded in students' summaries increased immediately following the C.A.T.S. Procedure, this trend was not maintained in the delayed summary writing task.

4.8.0 Hypothesis 15.

Hypothesis 15 states that there is a relationship between reading ability and the amount of improvement made after the C.A.T.S. Procedure. It is hypothesized that the lower the ability of the reader , as determined by P.A.T. Reading Comprehension Tests, the greater the improvement , in terms of the amount and type of information being recorded.

This hypothesis was tested by carrying out a correlational analysis .i.e. Pearson r, between the students' abilities on a Progressive Achievement Test (A.C.E.R., 1973) and the differences between their Pretest scores and the Post Test scores, in terms of the amount and type of information being recorded. It was found that there was no relationship between ability and the amount of improvement. This data are presented in Table 7 .

Table 7

Showing The Correlation Coefficients between P.A.T. Results and the Number of Words, and Type of Information.

Variables	P.A.T.
Words	0.37
Main Idea Statements	-0.60
Supporting Details	0.16
Trivial Information	0.00
Verbatim Statements	0.36
Combined Idea Statements	-0.00
Inferential Statements	-0.07

4.9. Summary of Results

Overall, the C.A.T.S. Procedure affected students' summaries in several ways. In the amount of information included in summaries, students were found to increase the number of words and statements being recorded. In terms of the types of information , students increased the number of *main idea* and *combined idea* statements being recorded immediately following instruction. The delayed summary writing task showed that the number of *main idea* and *combined idea statements* being recorded in the Post Test were maintained . The C.A.T.S. Procedure made no difference to the amount of verbatim copied statements, nor the amount of supporting details being recorded. However, immediately following instruction the amount of trivial information being recorded was reduced and the amount of inferences increased, however neither of these results was maintained in the delayed summary writing task.

The improvements made in terms of the type of information being recorded and the type of processing being engaged in, were found to be the same regardless of reading ability, as determined by the P.A.T. Reading Comprehension Test.

CHAPTER 5

5. DISCUSSION

The amount and type of information recorded in students' summaries were analysed in order to determine if the quantities and qualities of summaries were improved after having experienced the C.A.T.S. Procedure.

In considering the results of this study, it became obvious that the quantity of information was the least important variable under investigation, and that in fact it may be rather a redundant variable when considered with the type of information being recorded. The length alone , does not show the type of information being recorded nor the skills used . Obviously the length of the summary should be less than the original text, but, the length of a summary is not governed by the length of the original text. Rather the length of a summary may be governed by the (a)the structure, vocabulary and content of information presented in the original text , (b) the purpose or use for the summary or, (c) the prior knowledge , experience and ability of the summarizer. In this way, the quantity of information is not necessarily related to the quality of the summary. In fact , research suggests that younger students tend to write more redundant and trivial information because of the types of strategies they use and their inexperience with text and the task variables (Brown & Smiley, 1978; Brown et al., 1977; Taylor, 1986; Brown & Day, 1983; Armbruster, Anderson & Ostertag, 1991) . For these reasons the number of words recorded can not be considered in isolation and it is probably for this reason that other studies have not considered the number of words as a variable.

However, the amount of information was recorded to determine if students were keeping to the idea of a summary being " a concise abstract " of the original text. It was hypothesized that students' summaries would decrease in size because of several factors. Firstly, it was hypothesized that students would write more prior to instruction because they did not understand the task of summarizing. That is, students' summaries would contain more information copied verbatim from the original text and thus sentences

recorded would contain less condensed and synthesized information . Secondly, it was hypothesized that the summary size would decrease after instruction as a consequence of students' increased understanding of the summary writing task. For example, it was proposed that students would be using more effective selection criteria for information and they would increase their use of higher level skills such as topic sentences identification or invention, condensing and combining information. However, the results reveal that in fact the number of words recorded in students' summaries increased. Therefore in order to determine a cause for the increased quantity of information, this quantity of information is discussed in relation to the type of information being recorded.

As mentioned earlier, the quality of students' summaries was determined by the type of information and the type of processing apparent in their summary samples. The type of information present in students' summaries was rated as main ideas (very important information) supporting details (important information) and trivial information (unimportant). The type of processing involved rating students' statements according to their resemblance to the original text. That is , statements were rated as (a) verbatim copied statements if they used the wording in the original text , (b) combined idea statements if more than one main or supporting idea appeared in one statement and (c) inferences if the ideas were relevant and important but not mentioned in the original text.

In order to discuss the effects of the C.A.T.S. Procedure on students' abilities to write summaries , the results of this investigation considered the qualities and characteristics of students' summaries prior to , immediately following and one month after instruction in the C.A.T.S. Procedure.

5.1 Results from the Pretest.

Prior to being given the C.A.T.S. Procedure it was hypothesized that students would be inexperienced with summarizing . That is, they would have a general understanding of

what a summary was but that students would not be able to demonstrate many strategies which would enable them to effectively and efficiently select, condense and combine important information. Therefore students' summaries were expected to reveal several characteristics. Firstly it was expected that the Pretest summaries would reveal relatively small amounts of each type of information and that there would be little difference between the amount of main idea, supporting details and trivial information. Secondly, that students would be more inclined to copy verbatim portions of the original text, and in this way there would be very little combining, condensing or inferring of ideas. Finally as students were expected to copy text rather than condense, combine or infer, it was also expected that students would record more information than was necessary therefore the total number of words would be greater than after instruction.

In terms of the type of information being recorded the first expectation was confirmed. In a comparison between the types of information adult raters suggested were present in the Pretest passage "Flowers", it was found that students recorded approximately one third of the main ideas statements, approximately one quarter of the supporting ideas and reported one sixth (or less than 1) of the trivial ideas. This information is presented in Table 8, which illustrates the number of ideas present in the testing passages as rated by the teachers and the number of similar ideas present in the students' summaries.

Whilst this suggests that a relatively small number of main ideas and supporting details were in fact being recorded, it also suggests students tended to record less supporting details than main ideas. In a comparison between the amount of trivial information present, students recorded approximately one sixth of the trivial ideas proposed. In this regard, there was a difference between the type of information being recorded. It would appear that at the commencement of this study students in this sample were quite apt at leaving trivial information out of their summaries, but they found it more difficult to select main ideas and supporting details.

Table 8

<u>Table Showing The Number Of Idea Units Present In the Testing Passages As Rated by The Adult Teachers and Mean Number Recorded By Students</u>

		Main Ideas	Support Detail	Trivial	Statements
Pre Test	Students	2.0	4.7	.9	7.3
	Adults	6.0	16.0	6.0	
Post Test	Students	5.3	4.5	.0	10.1
	Adults	9.0	13.0	2.0	
Delayed	Students	4.7	5.3	.5	10.0
Summary	Adults	9.0	19.0	1.0	

In terms of the type of processing students engaged in, it was found that in the Pretest, the mean number of statements recorded by students was 7.3 statements. Of these statements, approximately 71% were verbatim copied statements, 14% were combined idea statements and 14% inferential statements. This suggests that students were relying on the surface elements of the original texts rather than combining ideas or making inferences.

From this evidence it was concluded that at the commencement of instruction most of the students were in Garners'(cited in Hidi & Anderson, 1986) "deficiency" stage . That is, students exhibited behaviours similar to a "novice". The summarizing strategies employed were (a) relatively ineffective in enabling students to select or differentiate main ideas and supporting details and (b) they were confined to surface level processing such as copying the original text rather than combining or condensing ideas and inferring information.

5.2 Results from Post test or Immediately Following C.A.T.S. Procedure .

Immediately following instruction in summarizing it was expected that students' summaries would be characterized by an improved quality and an reduced quantity of information. In terms of the types of information, it was expected that students would increase the number of main ideas and supporting details and decrease the number of trivial ideas. In terms of the types of processing it was expected that students would be less inclined to copy verbatim statements and instead combine ideas more and make inferences. It was expected that this would result in a decreased quantity of information, in other words a reduced amount of words and statements.

In terms of the type of information it was found that students increased the number of main idea statements and reduced the amount of trivial information whilst there was no change in the amount of supporting information. In a comparison between the type of information adults suggested was present in the testing passage "Electricity", it was found that students were recording approximately one half of the main ideas, approximately one third of the supporting details and a negligible amount of trivial information ($M = .04$) Therefore , immediately following instruction students were able to improve the quality of information being recorded.

However, the number of supporting details was not found to be significantly different from the Pretest summaries. Either students were already recording most of the supporting details or they were not able to engage in this more refined selection process. To determine which was the case, the mean number of supporting details recorded by students was compared with the adult ratings of the types of information present in the text. Table 8 shows the results of this comparison. In the Pretest text "Flowers", the mean number of supporting details (as selected by the independent raters) was 16.00 . The mean number of supporting details being recorded by students was 4.47.

Immediately following instruction , in the text "Electricity", students mean number of supporting statements remained similar (M = 4.49) but the raters suggested that the second passage "Electricity " contained 13 supporting details. Whilst the ratio may have improved slightly, students were generally still not selecting many of the supporting details. In this regard it is concluded that students' abilities to select supporting details were not improved and that at this stage students in this sample were still not able to discriminate the finer levels of importance. Therefore the C.A.T.S. Procedure did not improve students' abilities to discern supporting details.

Similarly , other studies have reported that children under Year 6 were highly apt at discerning main ideas from trivial information, but that idea units of lesser importance such as supporting details were harder for children to discriminate (Brown , Campione & Day, 1981; Brown, Smiley & Lawton,1978 ;Brown , Campione & Barclay,1979; Hidi & Anderson, 1986; Winograd, 1984, Brown & Smiley, 1978; Johnson & Johnson, 1987). The study done by Brown et al.(1981), suggested that to extract information that was to a finer degree of importance meant that the reader needed to be in tune with not only the demands of the task (i.e. what information do I require) but aware of their own memory capacity in order to perform at a "split mental " level required in reading to learn. Other studies (Brown, Campione & Day ,1981) have found similar results and have suggested that the ability to select finer degrees of importance in idea units is also , developmental. The results of this study supports this suggestion because the amount of supporting details recorded by students remained stable through out the study, suggesting that attention to the finer degrees of importance requires deeper processing and text manipulation. Therefore, consistent with findings from other studies it would appear that selection of most important and least important information is easier and therefore the first skill to appear or develop.

In terms of the type of processing taking place immediately following instruction , students were found to increase the number of combined ideas statements and the

number of inferences. However, since the number of verbatim statements remained the same as the Pretest summaries it was necessary to evaluate whether the level of copying was reasonable or excessive. A comparison was made between the number of verbatim statements and the total number of statements. It was found that in the Post test the number of verbatim statements represented approximately 43 % of the total statements made by students. This was considered to be excessive in terms of students dependence on the wording of the original text.

Since the amount of verbatim copied statements was not found to be significantly different from the Pretest this suggests that students continued to rely on copying directly from the text. One reason for this may have been the nature of the text. For example, texts written for young audiences tend to represent important ideas and content in an already concise and succinct form.

Another reason for this reliance on text wording could be related to the amount of text manipulation required in order to paraphrase. Students must process at the macro and micro structural levels and relate what they are processing to what they know. Bearing in mind the characteristics with which these students began the study, the task of paraphrasing may have simply been too difficult a task for them to engage in at this point. The learners' characteristics such as a lack of content knowledge and background experiences may also be preventing students from being able to process information at this level.

Several other studies also found that in the early development of summary writing skills students tend to rely on the surface elements of the text and applied inadequate strategies such as deleting trivia and copying the remaining information verbatim (Brown & Smiley, 1978;Brown & Day, 1983). In the present study, the number of verbatim statements was recorded in order to determine if students were engaging in delete -copy strategies and if the C.A.T.S. Procedure could in fact stop the use of this inadequate

strategy. It was found that the C.A.T.S. Procedure did not make any difference to the verbatim copying.

In terms of the quantity of information, immediately following instruction, students increased the amount of information being recorded. The quality of students' summaries revealed that the number of main ideas increased and the number of trivial information decreased . Students made inferences more often than prior to the C.A.T.S. Procedure. The number of supporting details and verbatim copying remained constant, however the amount of verbatim copied statements represented 43% of the recorded information . In this regard, the increase in quantity was most likely due to the increases in main ideas and inferential information. However, one point to be made is that whilst students were more aware of the main ideas of the passage they still relied on the text's wording of those main ideas because of all the statements recorded in the Post test almost half were copied verbatim. This suggests that the selection of information appears to develop first, whilst the ability to condense and refine that information develops later.

From these results it was concluded that immediately following instruction most students were found to be operating in Garner's (cited in Hidi & Anderson, 1986) second stage referred to as the "inefficient" stage. That is, students were able to record most of the main ideas and leave out information which was irrelevant or trivial. Students were using relatively ineffective strategies such as delete and copy, but that students were beginning to combine ideas within paragraphs and make inferences from their reading.

5.3 Results From the Delayed Summary Writing Task .

The delayed summary writing test was designed to test for durability of skills learned during the C.A.T.S. Procedure therefore the delayed summary writing test was conducted one month after training had ceased. It was hypothesized that the improvements made in the Post Test would be maintained in the delayed summary writing task. Therefore it was expected that in terms of the types of information and the type of

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processing , students would maintain the improvements made in that Post Test and that the increased amount of information being recorded would also be maintained.

In discussing the type of information being recorded, the Pretest and Post Test analysis of the number of main ideas being recorded, an increase was found and this was maintained in the delayed summary writing task . In the Pretest and Post analysis of supporting details no significant difference was found and this was also the case in the Pretest and delayed summary writing task. The number of trivial details being recorded in the Pretest and Post test analysis was reduced , but this was not maintained in the delayed summary writing task. Students appeared to revert back to the Pretest conditions, the mean number of trivial details in the Pretest was .95, which represented one sixth of amount present in the text. In the Post test the mean number of trivial information was .0, and in the delayed summary writing task the mean number of trivial information was . 52. In this regard , students were able to discern and disregard most of the trivial information prior to instruction but they performed more like "experts" in the Post test. This more " expert" like performance in the Post test was not maintained in the delayed summary writing task. Therefore , except for the amount of trivial ideas. the type of information being recorded in the Post test was maintained in the delayed summary writing task.

In terms of the type of processing , it was found that in the Post test students recorded more combined statements and inferences, but the amount of verbatim statements remained similar to the Pretest. In the delayed summary writing task it was found that the improved number of combined ideas statements was maintained. The amount of verbatim copied statements was found to be constant through out the study, therefore the amount of verbatim statements being recorded was maintained. However the amount of inferences recorded in the Post test was increased whilst in the delayed summary writing task this was not maintained. The amount of inferences being recorded returned to the pre test conditions. Therefore , except for the amount of inferences, the improved type of text

processing evident in the Post test was maintained in the delayed summary writing task.

With regard to the quantity of information, it was also found that the increased quantity of information recorded in the Post test was maintained in the delayed summary writing task. Since the improvements made in the Post test were generally maintained in the delayed summary writing task it is suggested that the increased quantity of information was due to the same reasons as in the Post test.

It was suggested that immediately following instruction in the C.A.T.S. Procedure students had increased the quantity and quality of their summaries and that they had progressed to the second stage of summary writing skills development suggested by Garner (cited in Hidi & Anderson, 1986). Since the quality and quantity of students summaries was generally maintained in the delayed summary writing task, the students have also remained in the "Inefficiency" stage of summary writing skills development. Therefore the skills and strategies learned in the C.A.T. S. Procedure were durable one month after instruction had ceased.

5.4. The Effects of the C.A.T.S. Procedure On the Various Ability Groups.

It was hypothesized that this procedure for teaching summarizing would be of greatest benefit to the less able reader. It was believed that because of the explicit nature of its instruction (direct and metacognitive instruction rationales) and the non-threatening method of learning which utilizes and evaluates the students' known strategies and knowledge (collaborative learning theory), that the less able reader would be provided with explicit strategies and practice which would result in their improvements being greater than the remaining students. This was not found to be the case. It was found that there was no difference between the amount of improvement made by the less able readers and the remaining subjects. There are several reasons why this was so. Firstly, at the beginning of instruction all students were found to be relatively inexperienced in summary

writing and generally employing little or no strategies to help them select, condense or combine information. Therefore after 6 weeks of instruction and practice, it would be expected that some improvement would be made by all students.

Secondly, the improvements in students' summaries were found to be in their ability to select and discern main ideas and trivia and to combine ideas. These skills and strategies were found to be consistent with other studies in that they are the first and possibly easiest skills / strategies to develop. The length of the study, the amount of practice and the type of instruction could have been responsible for all students developing those early skills. It is suggested that the nature of the C.A.T.S. Procedure, that is in particular the collaborative summary writing, continually reinforced the explicit strategies being used. In this way less able students were able to improve their summary writing strategies similarly to other students. In contrast, when students write summaries alone, they have no one to remind them of the rules or strategies, so that if they forget to use these rules or strategies they are not being reinforced. The "two heads are better than one" theory in teaching summary writing allows students access to an increased body of knowledge and an effective non-threatening monitoring system.

However, on a cautionary note, the sample was small. There were only 2 readers classified as less able, that is, they obtained a raw score of less than 10 on the P.A.T. Reading Comprehension Test. The distribution of reading abilities as suggested by the P.A.T. Reading Comprehension Test A can be found in Figure 5.

In the correlational analysis between the 2 less successful readers and the remaining students, the lack of difference between the less able readers and the others may have been due to the size of the sample. It may be necessary to compare the differences between the less able, average and more able readers in order to identify which type of reader is best catered for in this instruction. In Brown and Day's study, the less successful readers were found to benefit more from the explicit instruction, whilst the

more able readers required less assistance (Brown & Day, 1983) .

Raw scores in P.A.T. Reading Comprehension Test
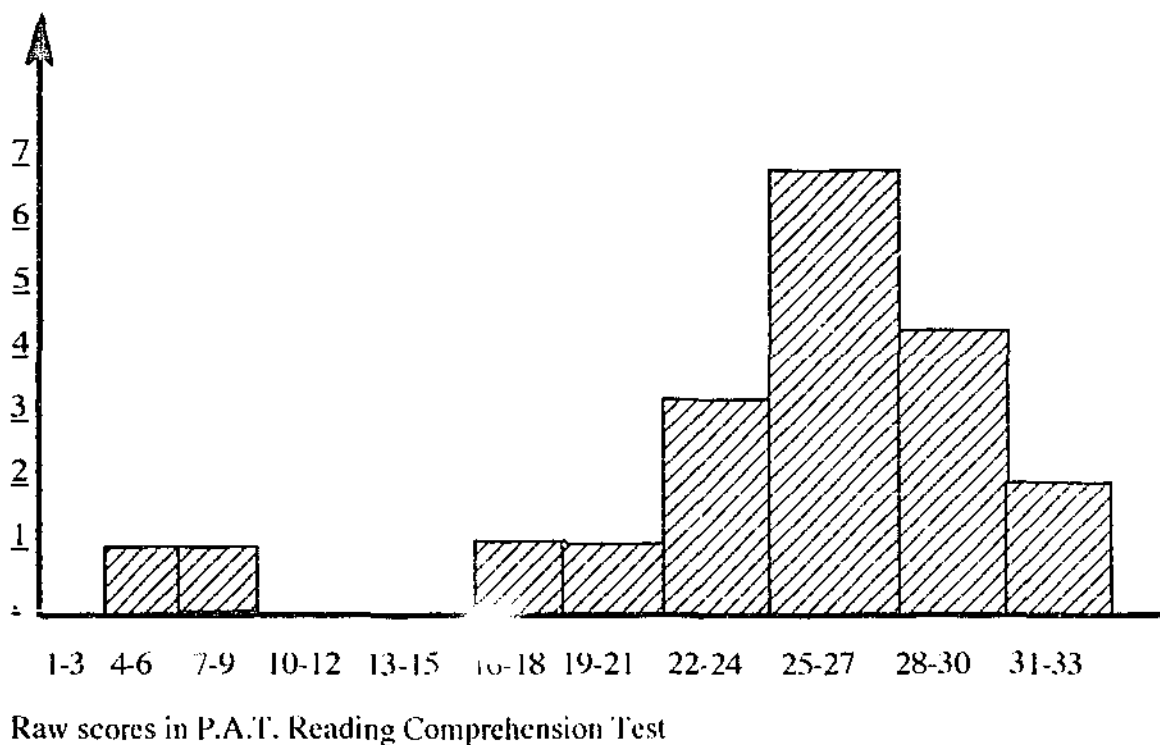
Figure 5

Frequency Distribution of P.A.T. Reading Comprehension Raw Scores.

If a strategy such as the C.A.T.S. Procedure is to be used in a classroom, the maximum effect should be that all ability groups benefit from the instruction. A minimal effect would be that one group benefits greatly , whilst the others remain the same.   Since students did improve the quality of their summaries, and there was no marked difference in terms of the amount of improvements made by students, the effect of the C.A.T.S. Procedure can be seen as positive.

5.5 Summary of Results

In summarizing the results, it is relevant to reiterate the purpose for this study. As

indicated in the statement of the problem, students find summarizing difficult and this study identified three reasons for this. Firstly, the lack of students' knowledge about the task requirements of summarizing, which is most likely a consequence of the lack of summary writing instruction received from teachers. Secondly, the lack of instruction in summary writing is most likely a consequence of the lack of instructional material available to teachers about teaching summary writing. Thirdly, the lack of instructional materials available to teachers has resulted in meager instructional techniques, low priority status of summarizing skills, and therefore a lack of instruction and guided practice which would result in the effective development of summary writing skills in students. There also appeared to be a clear discrepancy between primary and secondary teachers as to who was responsible for teaching summary writing. It appears that each group of teachers believed that the other was responsible for teaching summary writing. This again demonstrates the lack of understanding or awareness of the developmental nature of summary writing skills and the time needed to develop these skills.

In this regard, the aim of this study was to design an instructional format for teaching summary writing. Since, the development of summary writing was seen to be the responsibility of the primary teachers, primary school students were the focus for investigating the effects of the designed procedure. The literature suggested that summary writing skills develop slowly and emerge later, however with intervention, it was proposed that summary writing skills would be improved and whilst still developmental, these skills could be taught so that they appear at an earlier stage than if left to develop on their own.

Firstly, in discussing students' understanding of the task requirements of summarizing the question arises as to how effective the C.A.T.S. Procedure was, in improving students' understanding of the summary writing task. The task requirements of summarizing include the ability to select appropriate information, condense / combine that information and transform it into a concise format. Whilst the improvements in

students' abilities did not place them in the Garner's " efficiency" stage , the improvements made were significant in that they were accomplished in a relatively short period of time and students were beginning to demonstrate the use of higher processing strategies. The C.A.T.S. Procedure was able to improve and maintain students' abilities to select main ideas and to combine ideas .

Two areas remained constant throughout the study, seemingly not affected by the C.A.T.S. Procedure. Firstly, the ability to discriminate finer degrees of importance, such as supporting details, remained unaffected . Other studies have found this skill to be developmental and not apparent in students under Year 7. (Brown, Smiley & Lawton ,1978; Brown and Campione ,1979). Another reason for students not attending to supporting details may have been due to "newness " of some strategies being introduced in the C.A.T.S. Procedure and the cognitive demands this placed on students.

A second area which did not seem affected by the C.A.T.S. Procedure was the number of verbatim statements being recorded, these remained constant throughout the study. The fact that not only were many statements copied verbatim from the original texts, but students' summaries closely resembled the order of the original text, both confirms text dependency. Strategies such as delete and copy are ineffective but are employed by students because of their lack of confidence. This lack of confidence may be due to students' lack of familiarity with the task or students' perceptions that printed material presents information "better" than they can . A further variable influencing the verbatim copying may be the nature of the testing passages. In particular, the style and readability levels of many primary school texts are already written in simple and concise forms. To determine if this was the case, a comparison between the number of verbatim statements recorded by adult summarizers would be needed.

Finally, two areas improved immediately following instruction but were not maintained in the delayed summary writing task. Firstly, the ability to discriminate and ignore

unimportant information was found to be improved immediately following instruction. This suggests that students may have been more inclined to record unimportant information because of its personal interest rather than textual importance prior to C.A.T.S. Procedure. However, immediately following instruction they appeared to be more able to ignore this type of information and were in fact exhibiting behaviours demonstrated by experts. This behaviour was not continued in the delayed summary writing task suggesting that this skill was developed as a consequence of the C.A.T.S. Procedure. The fact that it was not continued in the delayed summary writing task further suggests that this selection skill was still in the developmental phase.

A second area which improved immediately following instruction but which was not maintained, was the ability to transform information and make inferences. The ability to transform information is considered a high order skill because it suggests that students are beginning to deliberately and actively engage their own knowledge with that in the text. Whilst not critically analysing the information, it does demonstrate that students were relating what was known to what was read. This connection between the "spontaneous" and "non-spontaneous" concepts supports the fact that the C.A.T.S. Procedure was able to create a "zone of proximal development" in the use of transformation skills. The fact that it was not maintained suggests that this skill was most likely initiated by the instructional design and format, and that full internalization of this skill had not been developed enough for students to employ this strategy independently.

Another reason for students finding summary writing difficult was the lack of instruction in summary writing which is most likely a consequence of the lack of instructional material available to teachers about teaching summary writing. In this regard, the present study aimed to design a procedure for teaching summary writing which would not isolate the summary writing task but incorporate it into either a content or language area. In this way, teachers would not require any extra curriculum space to teach summary writing.

This approach involved integration with a content area subject, which is of no consequence to the instructional design, therefore teachers may choose one or more subjects in which to integrate content with the C.A.T.S. Procedure. The nature of this form of instruction is that of collaboration between the teacher and the students in a) identifying what they are doing, b) evaluating its effectiveness and c), suggesting/ sharing more effective or efficient methods to replace those deemed ineffective. In adopting this procedure teachers have only to keep in mind the processes and objectives involved in summary writing. The collaborative or co-operative means by which students arrive at that goal is relatively unrestricted. Therefore, using the C.A.T.S. Procedure to teach summary writing, teachers in both the primary and secondary sectors of education can *introduce* summary writing without losing either content or whole language teaching such as are currently being employed in many primary classrooms.

The complexity of the summary writing task has been identified in both the literature review and the C.A.T.S. Procedure modules, however the proposed perceptions of summary writing as a " low priority skill" has not really been addressed in this study. It is suggested that in using the C.A.T.S. Procedure teachers would increase their awareness of the task parameters of summary writing and the time needed to develop these skills. Perhaps if the C.A.T.S. Procedure had measured the content knowledge recall as well as the summary writing skills, and had found this to also improve, this may enhance teachers' perceptions of the summary writing as a valuable tool for study. One difference perceived between the Pre and Post Test summaries which was not measured in this study but which was visually obvious was the degree of organization present in the Post Test summaries. Several organizational features became evident in students' summaries. For example, in the Pretest, the use of underlining was generally random and unorganized. In contrast, the Post Test and delayed summary writing task summaries showed more underlining and writing in the margins. There was evidence of rule usage, in that either the "little " words were crossed out or the key words were highlighted. In terms of the students' summaries, there was also more evidence of

formal paragraphs. This is discussed further in Recommendations for Futures Studies.

The results of this study indicate that although students were able to improve some of their skills in summary writing, some skills were not being transferred. In this regard, those skills which were developed as a consequence of the instruction, but were not maintained in the delayed summary writing task indicated that more time and practice was needed. It is this issue of time which is important. As with many skills in other areas, it is important to provide not only practice when developing skills but in order to maintain levels of expertise the practice must be continued and regular. The nature of the C.A.T.S. Procedure is particularly flexible in this regard because it was developed with integration in mind.

Finally, this study was able to show that the C.A.T.S. Procedure was able to promote the early development of some of the more " higher order skills ". The fact that some of these higher order skills were beginning to be demonstrated suggests that with further practice these skills would become internalized and generalized by students. Therefore, it the responsibility of primary teachers to begin instruction and practice in summary writing skills, but it is also the responsibility of secondary teachers to continue that instruction and provide guided practice.

The success in training students to write better quality summaries highlights the need for teachers to plan language programmes with consideration to a) the influences of task, text, learner characteristics and strategies, b) identifying the processes involved in any comprehension skill such as summary writing in order to emphasize the strategies needed to perform the task effectively, c) explicit instructions in order for students to identify and experience success with the strategies, d) using collaborative and co-operative teaching methods which allowed students to work from their own baseline in non-threatening situations with peers while at the same time promoting "learning" as a negotiating and sharing of culture between teachers and students, e) providing a context

in which the skills will be applied naturally and more realistically in order for skills to be internalized and become transferable.

From these results it can be seen that by combining direct instruction, metacognitive instruction and co-operative learning students were successful in attaining summary writing skills previously considered 'developmental'. More importantly, that intervention which involved increasing teacher awareness of the task parameters and careful planning procedures which included opportunities for students to identify, practise and develop skills collaboratively, were able to improve students' summary writing abilities.

5.6 Limitations of this Study and Implication for Further Studies.

This study is limited by a number of factors. Firstly, the sample size was small and the sample was from one class only. Therefore, the results obtained in this study may not be representative of the population. In this regard it would be advisable to increase the sample size and to include a control group. This study asked students to summarize a total of 12 passages. Whilst this study and secondary teachers do not consider current summary writing instruction to be adequate, in order to determine if the improved skills developed as a consequence of the C.A.T.S. Procedure and not simply as a consequence of " practice", a control group should also be asked to summarize the same passages.

Secondly, in rating the idea units of the testing passages, teachers expressed difficulty rating ideas as very important etc., because they were unsure of the purpose for the ratings. Some teachers suggested they rated the ideas based on what they thought children should include in their summary, whilst others rated the ideas based on what they thought should appear in a summary. It is suggested that any future studies ask teachers to rate ideas as either main ideas, supporting details or trivial information because, the terms " very important, important and unimportant" are somewhat more vague and open to

different interpretations as experienced by the raters in this study. However, one advantage of this study was the use of 8 adult raters as compared to other studies which only employed 2 adult ratings.

Thirdly as the type of information to be extracted from a text is governed by the purpose, it may be more realistic for teachers to summarize the testing passages and for the information presented in the adult summaries to be compared to the students. It would still be necessary for the ideas units in the passages to be rated in order to determine differences in the type of information being recorded. It is suggested that adults be asked to summarize the testing passages and that frequency with which ideas appear be given ratings.

Another limitation in this study is the use of similar genre types in the testing and practice passages. The texts were intentionally untouched in both the content and styles. They were not controlled in any way because this study was designing a procedure for primary classroom teachers to use. Therefore the types of texts were considered to be representative of the texts available to primary classroom teachers and in curriculum content areas or topics. The texts were chosen as they would be chosen by primary classroom teachers, that is they were chosen because of their applicability to classroom themes and content. It may be that in designing a programme of instruction which extends the summary writing skills to lower secondary students that a greater variety of genre types be introduced.

Whilst this study investigated the durability of the summary writing skills being taught under the C.A.T.S. Procedure, it must be recognised that as with any new skills being developed, if the skills are not practiced regularly then those skills developed and the level of expertise attained will drop off. One of the main reasons for developing the C.A.T.S. Procedure was to provide teachers with a framework in which a) to teach summary writing and b) to practice summary writing. In this regard a framework has been

provided, but the 6 week learning programme must be developed further in order for students' skills in summary writing to also develop. The 6 week C.A.T.S. Procedure developed some of the basic skills necessary for summary writing, but not all of them. Teachers or researchers need to determine the levels of skills attainment and move students on to the more complicated, higher order skills. Therefore, in order to develop effective and efficient summarizing skills in students it may be necessary to draw up a summary writing skills continua. Within the continua, phases could be developed which include a) key behaviours, obvious and overt, apparent in the development of the main skills and b) strategies students engage in when developing summary writing skills. It is felt that a summary writing continua could greatly benefit instruction in summary writing because it would show the development of the process skills and students indicators which could be used to identify where particular students were in relation to becoming proficient summarizers. Plotting children on a continua would also have diagnostic value in that, knowing where a student was on the continuum provides a individualized learning programme.

Therefore future studies could look to developing a summarizing continua and investigate the reliability of placing students on it. The placing of students on such a continua would in turn provide focus and direction in the teaching of summarizing. Once students were placed on a developmental continua, procedures such as the C.A.T.S. Procedure could be evaluated and their applicability to certain phases in the development of summary writing skills determined. It may well be that the C.A.T.S. Procedure would fit more comfortably in the earlier phases of summary writing skills development, and strategies such as Armbruster et al.(1987) problem- solution frameworks would be more suitable towards the end of the summary writing continua.

Finally, the data collected in this study focused on the type of information and strategies performed by students, when summarizing. It was felt that this study contained potentially valuable qualitative information which was not measured but which also

suggested students' learning outcomes. For example when students summarized the testing passages , their use of the original text was not considered . However the original texts clearly showed whether students were applying the rules taught or if they had progressed to underlining or note-taking. Also the class journal and the students' personal journals contained potentially important information which was not used in these results. Therefore it would be recommended that some of the more qualitative aspects of the study be utilized as evidence of students' learning.

REFERENCES.

A.C.E.R. (1973). <u>Progressive Achievement Tests,</u> Teachers Handbook.

Anderson, V., & Hidi, S. (1989). Teaching students to summarize. <u>Educational Leadership</u> , <u>46</u> (4) , 26-27 .

Andre, M. E. D. A., & Anderson, T.H. (1978-79) . The development and evaluation of self-questioning study technique . <u>Reading Research Quarterly</u> , <u>14</u> , 605-25.

Anstey, M. (1988) . Helping children learn how to learn . <u>Australian Journal of Reading</u> , <u>11</u> (4), 269-77.

Archer, A., & Gleason, M. (1989) . <u>Skills For School Success</u> (Book 5). Australia : Hawker Brownlow Education.

Armbruster, B.B., & Anderson, T.H. (1980). <u>The effect of mapping on free recall of expository text.</u> (Technical Report No. 160). Urbana - Champaign: University of Illinois, Centre For the Study of Reading.

Armbruster, B. B., Anderson, T.H., & Ostertag, J. (1989) . Teaching text structure to improve reading and writing. <u>The Reading Teacher</u> , <u>43</u> (2), 130-137

Armbruster, B.B., & Brown, A. L. (1984) . Learning from reading - the role of metacognition . In R.C. Anderson, J. Osborn & R.J. Tierney (Eds.), <u>Learning to Read in American Schools</u> (pp. 273-81) Hillsdale, New Jersey: Laurence Erlbaum.

Armbruster, B. B., Echols, C.H., & Brown, A. L. (1983) . <u>The role of metacognition in reading to learn: a developmental perspective.</u> (Report No .40). Illinois : Centre for Study of Reading.

Baker, L. (1979) . Comprehension monitoring- Identifying and coping with text confusions. Journal of Reading Behaviour , 11 , 363-74.

Baker, L., & Brown, A.L. (1984) . Metacognitive skills in reading. In D.Pearson (Ed.), Handbook of Reading Research (pp. 353-94) . New York: Longman.

Bartlett, B. (1984) . Comprehending Expository text . In J.McNeil (Ed.) , Reading Comprehension, New directions for Classroom Practice (pp. 73-78) Scott Foresman.

Bean, T.W., & Steenwyk, F.L. (1984). The effect of three forms of summarization instruction on sixth grade summary writing and comprehension. Journal of Reading Behaviour , 16 , 297-306

Berkowitz, S.J. (1986). Effects of instruction in text organization on sixth grade students' memory for expository reading. Reading Research Quarterly , 21 , 161-178.

Bintz, W.P. (1989). Reconceptualizing summary writing: From evaluative ending point to instructional starting point. Australian Journal of Reading , 12 (1), 31-38.

Bransford, J.D., Stein, B.S., Shelton, T.S., & Owings, R.A. (1980). Cognition and adaption: The importance of learning to learn. In J. Harvey (Ed.) Cognition, Social Behaviour and the Environment . Hillsdale, N.J.: Erlbaum.

Baumann, J.E. (1984). The effectiveness of a direct instruction paradigm for teaching main idea comprehension. Reading Research Quarterly , 20 , 93-115.

Brown, A. L. (1975) . The development of memory: knowing, knowing about knowing, knowing how to know . In H.W.Reese (Ed.) , <u>Advances in Child Development</u> (vol. 10 , pp. 103-51) . New York : Academic Press.

Brown, A.L. (1978). Knowing when, where, and how to remember. A problem of Metacognition. In R. Glaser (Ed.), <u>Advances in Instructional Psychology</u> (pp. 77-105) . Hillsdale, New Jersey : Lawrence Erlbaum .

Brown, A. L. (1980) . Metacognitive development and reading . In R.J. Spiro, R.C. Bruce & W.F. Brewer (Eds.). <u>Theoretical Issues in Reading Comprehension,</u> (pp. 453-79) . Hillsdale New Jersey : Lawrence Erlbaum .

Brown, A.L., & Baker, L. (1984) . Cognitive monitoring in reading. In J. Flood (Ed.) . <u>Understanding Reading Comprehension,</u> (pp. 21-44) . Newark, Delaware : International Reading Association.

Brown, A.L., & Campione, J.C. (1978) . Permissable inferences from outcomes of training studies in cognitive development. <u>Research Quarterly Newsletter of the Institute for Comparative Human Development</u> , <u>2</u> , 46-53.

Brown, A. L., & Campione, J. C. (1984) . Three faces of transfer: implications for early competence, individual differences, and instruction . In M.Lamb, A.E. Brown, & B. Rogoff (Eds .) , <u>Advances in Developmental Psychology</u> (vol. 3, 143- 192). Hillsdale New Jersey : Lawrence Erlbaum .

Brown, A. L. , Campione, J. C. & Barclay, C. R. (1979) . Training self-checking routines for estimating test readiness: generalization from list learning to prose recall . <u>Child Development</u> , <u>50,</u> 501-512.

Brown, A. L., Campione, J. C. & Day, J. D. (1981) . Learning to learn : on training students to learn from texts . <u>Educational Researcher</u> , <u>10</u> , 14-21.

Brown, A. L., & Day, J. D. (1980) . <u>Strategies and knowledge for summarizing texts: the development of expertise.</u> Unpublished manuscript . University of Illinois.

Brown, A.L., & Day, J.D. (1983) . Macro-rules for summarizing texts: The development of expertise. <u>Journal of Verbal Learning and Verbal Behaviour</u> , <u>22</u> , 1-14.

Brown, A.L., Day, J.D., & Jones, R. (1983). The development of plans for summarizing texts. <u>Child Development</u> , <u>54</u> , 968-979

Brown, A. L., & Deloache, J. S. (1978) . Skills, Plans and self regulation. In R. Seigler (Ed.) , <u>Children's Thinking - What Develops ?</u> . Hillsdale , New Jersey : Lawrence Erlbaum .

Brown, A.L., & Palincsar, A.S. (1982). Inducing strategic learning from texts by means of informed self-controlled learning. <u>Topics in Learning and Learning Disabilities</u> . <u>1</u>, 1-17.

Brown, A. L., & Smiley, S. S. (1978) . The development of strategies for studying texts. <u>Child Development</u> , <u>49</u> , 3-35 .

Brown, A.L., Smiley, S. S., Day, J. D., Townsend, M. A. & Lawton, S. C. (1977) . Intrusion of a themantic ideas in children's comprehension and retention of stories . <u>Child Development</u> , <u>48</u> , 1454-66 .

Brown, A. L., Smiley, S. S & Lawton, S. C. (1978). The effects of experience on the selection of suitable retrieval cues for studying text. <u>Child Development</u> , <u>49</u> , 829-835.

Bromley, K.D., & McKeveny, L. (1986) . Precis writing: Suggestions for instruction in summarizing. Journal of Reading , 29 (5) , 392-95 .

Bruner, J. (1986). The inspiration of Vygotsky . In Actual Minds, Possible Words . Cambridge, Mass.: Harvard University Press.

Cambourne, B. (1988) The Whole Story . Sydney: Ashton Scholastic.

Campione, J. (1981) . Learning, academic achievement and instruction. Paper presented at the Second Annual Conference on Reading Research of the Study of Reading, New Orleans.

Carver, R.P. (1975-1976) . Measuring prose difficulty using the Rauding Scale. Reading Research Quarterly, 11 (4), 660-685.

Carr, E. , & Ogle, D. (1987) . K -W -L Plus : A strategy for comprehension and summarization. Journal of Reading , 30 (7) . 626 - 31.

Clay, M. M. (1973) . Reading: The patterning of complex behaviour. Auckland. N.Z. : Heinemann Educational Books.

Cohen, R. (1983) . Self-generated questioning as an aid in reading comprehension. Reading Teacher , 36 , 770-75.

Dalton, J. (1985) , Adventures in Thinking. Creative Thinking and Cooperative Talk in Small Groups. Melbourne: Nelson.

Dansereau, D.F. (1985) . Learning strategy research. In J. Segal, S.Chipman, & R.Glaser (Eds.) Thinking & Learning Skill: Relating Instruction to Basic Research. New Jersey: Erlbaum .

Day, J. D. (1980) . Training summarization skills ; a comparison of teaching strategies. Unpublished doctoral dissertation, University of Illinois.

Dewey, J. (1910) . How Do We Think. Boston : Heath .

Doctorow, M., Wittrock, M.C., & Marks, C. (1978). Generative processes in reading comprehension. Journal of Educational Psychology , 70, 109-118.

Draft: Writing K-7, Teachers Notes. (1986). Education Department of Western Australia , Curriculum Branch.

Dulin, K. (1969) . Readability levels of adult magazine material. In G.Schick, & M.May (Eds.) , 18th Yearbook, National Reading Conference. Clemson, S.C.:Clemson University.

Durkin, D. (1979) . What classroom observations reveal about reading comprehension. Reading Research Quarterly , 14, 481-533.

Fischer, P. M. & Mandl, H. (1982) . Metacognitive regulation of text processing: aspects and problems concerning the relation between self-statements and actual performance. In A. Flammer & W. Kintsch (Eds.) , Advances in Psychology, North Holland : North Holland Publishing Company.

Flavell, J. H. (1976) . Metacognitive aspects of problem solving.
In L.B. Resnick (Ed .) , The Nature of Intelligence. Hillsdale, New Jersey,
Lawrence Erlbaum .

Flavell, J. H. (1978) . Metacognitive development. In J.M. Scandura & C. J.
Brainerd (Eds.) . Structural Prose Theory of Complex Human Behaviour. The
Netherlands: Sijthoff & Noordhoff.

Forest, D. L. & Waller, T. G. (1979) . Cognitive and metacognitive
aspects of reading. Paper presented at the meeting of the Society for Research in Child
Development , San Francisco.

Fry, E.B. (1963) . Teaching Faster Reading: A Manual. Cambridge : University
Press.

Fry, E.B. (1968). The readability graph: validated at the primary level. The Reading
Teacher , 22 (60 , 632-638.

Fry, E. B. (1977) . Fry's readability graph : Clarification , validity and extension to
level 17. Journal of Reading , 21 (3), 242 - 252.

Gambrell, L.B., Kapinus, B.A. , & Wilson, R.M. (1987) . Using Mental imagery
and summarization to achieve independence in comprehension. Journal of Reading , 30
(7) , 638-42 .

Garner, R. (1984) . Rules for summarizing texts: Is classroom instruction being
provided ? Journal of Educational Research , 77 (5), 304- 07 .

Garner, R. , Belcher, V., Winfield, E., & Smith, T. (1985) . Multiple measures of text summarization proficiency: What can sixth graders do? Research in the Teaching of English , 19 , 140-153.

Garner, R. (in press) Strategies for reading and studying expository text.

Goetz, E. T. & Armbruster, B. B. (1980) . Psychological correlates of text structure. Theoretical Issues in Reading Comprehension , Hillsdale , New Jersey: Lawrence Erlbaum.

Hare, C. V., & Borchardt, K.M. (1985) . Direct Instruction of Summarization Skills. Reading Research Quarterly , 20 (1) , 62-78 .

Hahn, A.L., & Garner, R. (1985) . Synthesis of research on students' ability to summarize text. Educational Leadership , 42 (5) , 52-55 .

Hayes, D.A. (1989) . Helping students GRASP the knack of writing summaries. Journal of Reading , 33 (2) . 96-101 .

Helfeldt, J. P. & Rosary, L. (1976) . Reciprocal student- teacher questioning . Reading Teacher. 30 , 283-87.

Holt, J. (1964) . How Children Fail . New York : Deli.

Hidi, S., & Anderson, V. (1986) . Producing summaries: Task demands, cognitive operations and implications for instruction. Review of Educational Research , 56 (4) , 473-93.

Hidi, S. (1984). The effect of summary writing on children's learning from actual school texts. Paper presented at the meeting of the American Educational Research Association, New Orleans.

Hill, M. (1991). Writing summaries promotes thinking and learning across the curriculum - but why are they so difficult to write. Journal of Reading , 34 (7) , 536-539

Hill, S., & Hill, T. (1990). The Collaborative Classroom: A guide to co-operative learning. Victoria : Eleanor Curtain Publishing.

Johnson, D.W., & Johnson, R.T. (1987). Learning together and alone: Co-operative, competitive and individualistic learning. London : Prentice Hill Inc. Chapter 3 .

Johnson, N. (1983). What do you do if you can't tell the whole story? The development of summarization skills. In K.E. Nelson (Ed.) , Children's Language : Vol 4 , (315 -383) Hillsdale, N.J.: Lawrence Erlbaum.

Kintsch, W. & van Dijk, T. A. (1978) . Toward a model of text comprehension and production. Psychological Review , 85 , 363-394.

Locke, E. Q. (1975) . A Guide to Effective Study. New York : Springer.

Manzo, A. V. (1968) . Improving reading comprehension through reciprocal questioning. Unpublished doctoral dissertation. Syracuse University.

Morris, A., & Stewart-Dore, N. (1984) . Learning To Learn from Text: Effective Reading in the Content Areas. N.S.W : Addison-Wesley.

Myers II, M., & Paris, S.G. (1978) .   Children's metacognitive knowledge about reading. Journal of Educational Psychology , 70 (5) , 680- 690 .

Nolte, R. Y. & Singer, H. (1985) . Active Comprehension: Teaching a Process of reading Comprehension and Its Effects On Reading Achievment. The Reading Teacher. , 24-31 .

Palincsar, A. S. & Brown, A. L., (1984) . Reciprocal teaching of comprehension fostering and comprehension monitoring activities. Cognition and Instruction , 1 (1) , 117-175.

Palincsar, A. (1984) . The quest for meaning from expository texta teacher guided journey. In G. Duffy, L Roehler, J Mason (Eds.) , Comprehension Instruction Perspectives and Suggestions . New York : Longman.

Palincsar, A. (1980) . Directed feedback and strategy training to improve comprehension of poor readers. Unpublished manuscript, University of Illinois.

Paris, S.G., & Jacobs, J.E. (1984) . Benefits of informed instruction for children's reading awareness of comprehension skills. Child Development , 55 , 2083-2093 .

Paris, S. G. & Myers I I, M. (1981). Comprehension monitoring , memory and study strategies of good and poor readers. Journal of Reading Behaviour, 13 (1), 5-22.

Paris, S.C., & Myers II M. (1981) . Comprehension monitoring, memory and study strategies of good and poor readers. Journal of Reading Behaviour , 13 (1) , 5- 22 .

Pichert, J. , & Anderson, R. (1977) .Taking different perspectives on a story. Journal of Educational Psychology , 69, 309-315.

Pichert, J. (1979). Sensitivity to what is important in prose. (Technical report No.149) Champaign: University of Illinois, Centre for the Study of Reading.

Pincus, A.R.H., Geller, E.B., & Stover, E.M.(1986) . A technique for using story schema as a transition to understanding and summarizing event based magazine articles. Journal of Reading , 30 (2) , 152-58.

Pressley, M., Johnson, C.J., Symons, S. , McGoldrick, J.A. & Kurita, J.A. (1989) . Strategies that improve children's memory and comprehension of text. The Elementary School Journal , 90 (1p) , 3-32 .

Reading K-7 Teachers Notes. (1983). Education Department of Western Australia, Curriculum Branch.

Rhinhart, S.D., Stahl, S. A., & Ericson, L.G. (1986) . Some effects of summarization training on reading and studying. Reading Research Quarterly , 21 , 422-438.

Rauch, M. (1989) . Increasing Student Awareness of What is Involved in Reading. Journal of Reading , 33(3), 220-28.

Rowe, H. (1988) . Metacognitive Skills: Promises and Problems. Australian Journal of Reading , 11 (4)

Renshaw, P., (1989). The psychology of learning and small group work. Unpublished paper, Murdoch University.

Sharon, S. (1980). Co-operative learning in small groups: Recent methods and effects on achievement, attitudes and ethnic relations. Review of Educational, Research , 50 (2) , 241-271.

Singer, H. (1975) , The S.E.E.R. technique: A non-computational procedure for quickly estimating readability levels. Journal of Reading Behaviour , 7 (3) , 255-262.

Slavin, R.E. (1989) Co-operative Learning Methods. In R.E. Slavin (Ed.) School and Classroom Organization , Hillsdale, N.J. : Erlbaum.

Sloan, P. & Latham, R., (1989) . Text type approaches to teaching of informational and narrative texts. Unpublished Manuscript, W.A. Ministry of Education.

Smith, H.K. (1967) . The responses of good and poor readers when asked to read for different purposes. Reading Research Quarterly , 3, 53-83.

Smith, F. (1973) . Pscholinguistics and reading. New York : Holt, Rhinehart Winston.

Stevens, R.J. (1989). The effects of co-operative learning and direct instruction in reading comprehension strategies on main idea identification. (Report No 44) Baltimore, Centre for Research on Elementary and Middle Schools.
Summarizing (Secondary Perspectives). (1986). Journal of Reading , 33 (4), 300-02 .

Taylor, B.M. (1982) . Text structure and children's comprehension & memory for expository texts. Journal of Educational Psychology , 74 , 323-340 .

Taylor, B.M., & Beach, R.W. (1984). The effects of text structure instruction on middle grade students' comprehension and production of expository text. Reading Research Quarterly, 19, 134-146.

Taylor, K. (1986). Summary Writing by young children. Reading Research Quarterly, 21 (2) 193-208.

Taylor, K. (1984). Teaching summarization skills. Journal of Reading, 27 (5), 389-93

Thorndike E.L. (1917). Reading as reasoning: a study of mistakes in paragraph reading. Journal of Educational Psychology, 8, 323-332.

Vygotsky, L.S. (1962). Thought and Language. Cambridge, Mas: M.I.T. Press.

Vygotsky L.S. (1978). Mind in society: The development of higher psychological process, (M.Cole,V.,John-Steiner, S.Scribner & E. Souberman, Eds, and trans.) Cambridge, MA : Harvard University Press.

Whimbey A. (1975). Intelligence can be be taught. New York : Dutton.

Winograd, P. (1984). Strategic difficulties in summarizing texts. Reading Research Quarterly, 19 (4), 404-25.

Winser, B. (1988). Readers getting control of reading. Australian Journal of Reading, 11 (4).

Wong, B. (1988). Self-questioning strategy training: from theory to practice. Australian Journal of Reading, 11 (4).

Wong, B. Y. L., & Jones, W. (1981) . Increasing metacomprehension in learning-disabled and normally- achieving students through self- questioning training. Unpublished manuscript. Simon Fraser University.

Wong, B.Y.L.(1986) . Metacognition & special education: A review of a view. Journal of Special Education , 20 , 9-29.

APPENDIX 1

Raw Data From Students Summaries									
FLOWERS (Pretest)									
Student	P.A.T		words	very imp ideas	important ideas	not imp ideas	verbatim copied	combined ideas	inferences
1	5		71	3	5	0	7	1	0
2	29		9	1	0	0	1	0	0
3	23		53	2	3	0	4	1	1
4	24		71	2	5	1	1	5	1
5	25		103	3	6	2	8	4	3
6	27		27	3	0	0	0	3	2
7	32		122	0	7	3	10	0	1
8	28		90	1	6	0	7	0	0
9	26		127	2	10	0	1	2	1
10	19		47	3	3	0	6	0	0
11	29		16	1	1	0	2	0	0
12	27		95	2	5	2	6	1	1
13	25		137	3	7	3	9	5	5
14	23		41	3	2	0	4	0	1
15	26		50	1	2	1	4	1	0
16	9		106	2	4	2	5	1	0
17	28		60	2	8	1	5	1	1
18	25		82	2	5	0	6	1	0
19	33		52	3	4	0	6	2	3
20	18		65	2	6	2	6	1	2
21	27		115	2	5	3	9	1	0

student	words	very imp id ideas	important id ideas	not imp ideas	verbatim copied	combined ideas	inferences			
ELECTRICITY (Post Test)										
1	229	4	8	0	12	0	0			
2	130	5	5	1	2	6	2			
3	182	8	6	0	6	7	2			
4	172	6	8	0	8	2	4			
5	234	8	9	0	8	7	2			
6	151	6	8	0	8	7	4			
7	97	5	1	0	1	6	3			
8	71	6	3	0	2	4	2			
9	91	3	5	0	2	4	0			
10	88	4	1	0	2	3	1			
11	73	5	2	0	1	4	2			
12	47	3	1	0	0	3	4			
13	97	2	5	0	5	4	2			
14	147	7	5	0	3	8	1			
15	221	7	10	0	7	9	2			
16	148	6	3	0	6	9	4			
17	106	4	5	0	2	6	2			
18	130	7	7	0	4	8	1			
19	63	3	0	0	4	0	4			
20	200	7	5	0	6	4	1			
21	140	6	7	0	10	2	4			

EXERCISE(Delayed Summary Writing Task)									
student	words	very imp id ideas	important id ideas	not imp ideas	verbatim copied	combined ideas	inferences		
1	61	3	3	1	5	2	0		
2	85	6	7	0	0	11	3		
3	175	6	7	1	1	8	2		
4	113	4	7	0	2	4	1		
5	220	8	10	0	10	10	1		
6	133	6	5	0	2	7	4		
7	100	3	4	0	1	6	4		
8	155	5	8	1	8	9	1		
9	162	6	7	1	3	8	0		
10	196	3	3	1	9	6	0		
11	69	1	6	1	2	5	2		
12	134	6	8	0	2	6	0		
13	160	6	5	1	6	6	2		
14	167	4	4	1	3	8	3		
15	123	4	7	0	6	1	0		
16	169	2	2	1	2	4	4		
17	131	6	5	0	5	8	2		
18	134	5	4	1	1	5	2		
19	70	3	1	0	0	5	1		
20	81	4	3	0	5	1	0		
21	149	8	7	1	4	9	2		

APPENDIX 2

STUDENT CHECKLIST FOR
C.A.T.S. PROCEDURE

NAME;...

DATE;.........................

GETTING READY TO READ:	
Use the picture Use the title Use words that stand out (capital letters, dates, italics) Predict story type Predict what you will read about. Predict how it will be organized.	
SUMMARIZING:	
Get rid of the little words Get rid of words that mean the same Get rid of lists Select or make up topic sentences Select important information that supports topics.	
AFTER SUMMARIZING:	
Do topics relate to one another & title Are the paragraphs in good order Do sentences relate to the topics Is there too much description Does it make sense. Proof read	