AN INVESTIGATION AND COMPARISON

OF THE READING COMPREHENSION

STRATEGIES OF REMEDIAL

READERS DESIGNATED FOR

A PSEN PROGRAM AND

READERS NOT DESIGNATED

FOR PSEN

THESIS

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Abstract

The comprehension strategies of ten remedial readers selected for a PSEN program and ten randomly selected non-remedial readers were studied to see if and how comprehension strategies differed for good and poor readers. The subjects were tested individually using the Thinking-Out-Loud (TOL) procedure and instructed to read a story sentence by sentence. Instructions, with minimal guidelines, were given to each subject to read each sentence and discuss thoughts occurring before proceeding to the next sentence. Responses for the two groups were tabulated, analyzed and categorized separately according to the type of response given and then compared and contrasted with each other.

Differences between the groups were found in the total number of elaborations for all categories and the total number of each category. Total overall elaborations were higher for the good readers than for the poor readers. Good readers gave a significantly higher number of responses in all categories except three. Good readers generally gave more responses in categories requiring higher level thinking skills. The three categories which ranked higher in response level for the poor readers were categories requiring a

lower-level of reading skill.

The results indicated that good readers approach the reading task differently than poor readers and are able to use comprehension strategies more effectively. Recommendations for classroom applications and suggestions for future research were given.

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Chapter I

Statement of the Problem

Purpose

The purpose of this study was to determine
whether remedial readers designated for a PSEN program
use different comprehension strategies when reading a
story than those readers not designated for a PSEN
program.

Need for the Study

Currently there is a renewed and vigorous
interest in reading comprehension research. An
exciting aspect of this is that the enthusiasm is not
only on the part of reading educators and researchers
but is shared by those outside the reading field such
as those involved in cognitive psychology,
linguistics, psycholinguistics, educational psychology
and artificial intelligence.

Although much has been learned about the skills
necessary to comprehend print, there is still much
that needs to be learned in order to design programs
and materials that will aid all students in the
comprehension process. Because most studies of
reading comprehension have measured what a reader

remembers from text, reading has been thought of as a product rather than a process.

Effective reading comprehension is contingent on many things. Peters (1981) as cited by Fisher and Peters (1981) stated, "The author imposes organization and structure on text while the reader utilizes world knowledge, attention and learning strategies to extricate meaning from it" (p. 81). Numerous studies have compared how good and poor readers process text. Johnson and Lefton (1981) as cited in Fisher and Peters (1981) state, "Studies have consistently shown that skilled comprehenders, regardless of age, use strategies that are best adapted to extracting meaning from text in the most economical fashion" (p. 124).

Although researchers are aware of the many perceptual and cognitive skills that are used to comprehend text, it is not understood what thought processes a skillful comprehender uses when reading. Since readers do not reveal themselves while reading, it is difficult to analyze what is occurring in the reader's mind as he reads. It is easier to test the results of comprehension by having the reader answer questions or do a written exercise. With this type of comprehension checking, it is difficult to

tell whether memory or actual comprehension is being tested.

Some researchers have analyzed comprehension, as it is occurring, by studying eye movements during reading and sentence by sentence reading times. This type of analysis is called real time analysis in that data is collected as the subject is performing the task. The thinking-out-loud method is another way of collecting systematic data about the thinking that occurs during reading. In the thinking-out-loud (TOL) task, subjects are asked to report what they are thinking about right now, not what they remember thinking about.

By studying the comprehension process as it occurs, researchers and educators can better understand thought processes occurring in the reader's mind while proceeding through a text. It can be determined how these thought processes differ in the fluent and not so fluent reader. By noting these differences, more effective instructional programs can be designed to aid the not so fluent reader and enrich the quality of instruction for all readers. Educators and researchers will better understand the comprehension process and will be better able to help the reader when comprehension fails.

Question to be Answered

Do remedial readers use different comprehension strategies than those readers not designated as remedial?

Definition of Terms

Thinking -Out-Loud (TOL) - A method to analyze cognitive processes as they occur in real time. The subject thinks out loud while reading a text.

PSEN students - Pupils With Special Educational Needs. These students fall below the state reference point in reading and are placed in a compensatory program.

Remedial students - Students who are in a compensatory reading program.

Metacognition - One's awareness or knowledge of one's own cognitive capacities and knowledge of how to regulate and direct these cognitive processes.

Reading comprehension - Product of the strategies readers use to derive meaning from a text.

Comprehension strategy - Purposeful means of comprehending the author's message.

Cognition - Using knowledge possessed.

Limitations of the Study

Since the sample used in this study was limited to ten PSEN students and ten non PSEN students in a

suburban school, the conclusions drawn from this study
can apply only to this particular group of subjects.
It is important to note that each subject was tested
only once and read one story selected by the
researcher.

The TOL protocol is subject to certain
limitations because of the nature of the technique.
Because instructions were given prior to the task,
the subjects could be influenced by them and somewhat
guided in their thinking. Because analysis of the
data is subject to the interpretation of the
researcher, results could be subjective. Placing each
elaboration in a specific category can be difficult
since occasionally responses seem to fit more than one
category.

Some subjects provide more data than others
because they elaborate or talk more. This does not
necessarily mean that they are thinking more as they
read. Results of using the TOL procedure can be
dependent on the mood or willingness of the subject to
participate.

Because thinking out loud or reading a story
sentence-by-sentence is not a natural process while
reading, it is important to remember that results and
conclusions obtained by the researcher can only be

inferred from the data collected. It is important that this data be used in conjunction with other real time measures such as the study of eye movements while reading and sentence by sentence reading times.

Summary

The Thinking-Out-Loud procedure is one technique the researcher can use to reveal thought processes that occur during the act of reading. By better understanding the components of the reading process and how fluent and not so fluent readers differ in the use of comprehension strategies, better instruction can be provided for all readers.

Chapter II

Review of the Literature

Purpose

The purpose of this study was to determine whether remedial readers designated for the PSEN program use different comprehension strategies when reading a story than those readers not designated for a PSEN program. The literature will be reviewed with the following five areas as the basis for review and discussion.

> Reading comprehension theories
>
> Comprehension skills and strategies
>
> Comparisons of good and poor comprehenders
>
> Methods of measuring comprehension
>
> The Thinking Out Loud (TOL) process

Reading Comprehension Theories

The current surge of interest in reading comprehension research by linguists, psycholinguists, psychologists, artificial intelligence experts and others outside the reading field has enhanced the findings of educational research by providing enlightenment into the workings of the human mind. Thus teachers and educational researchers have been able to utilize the findings of those in other fields

to implement reading methods and programs that are based on sound research.

Reading professionals generally agree that the goal of reading is to derive meaning from text and the interaction between the reader and text is the prime component of the comprehension process. Although there is general agreement that meaning is the goal of reading, the problem lies in the fact that universal agreement does not exist as to what comprehension actually is and how the teacher can be certain when or if it has occurred. According to Devine (1986), comprehension has been defined in various ways such as remembering what has been read, categorizing ideas or reading for meaning or understanding. Devine states that "one reason teachers are not always successful in attempts to develop and redefine specific strategies for teaching is that they have always been at least somewhat befuddled by what they and their colleagues mean by comprehension" (p. 8).

Recent research has transformed the understanding of the comprehension process on the part of the theorists and educators. Before the 1940's, researchers such as Buswell (1920), Swanson (1937) and Anderson (1937) considered the purpose of reading to gain meaning from the printed page (Golinkoff 1975-76). More attention was paid to comprehension

and less attention to problems like word
identification.

Later reading researchers believed that
comprehension depended on word identification and that
if the individual could decode, comprehension would
occur. According to Johnson and Lefton as cited in
Fisher and Peters (1981), "early proponents thought
comprehension occurred as the reader became adept at
coding individual words" (p. 118). Gates (1947)
stated that, "the ability to read by thought units was
the result of increased efficiency of recognizing
individual words" (p. 118).

The contributions of linguistic and
psycholinguistic research has generated a different
focus on reading comprehension. Reading teachers have
benefited from an increased understanding of language
and the vital role it plays in comprehension.
Wardhaugh (1969) assesses this understanding on the
part of reading teachers by stating "it should allow
them to avoid vague statements and at the same time
should be testable, capable of refinement and in
accord with current hypothesis and language behavior"
(p. 96). The linguistic contribution emphasized that
reading should be taught within a total language
program integrating the various aspects of it such as

reading, writing, listening and syntax. Numerous and varied experiences with language is the key to the linguistic and psycholinguistic perspective.

Cooper and Petrosky (1976) observe that linguists and psycholinguists such as Frank Smith and Edmund Burke Huey contend that "word identification has little to do with the actual process of reading and that word identification loses importance when one reads for meaning" (p. 186). The psycholinguists profess that meaning lies in the mind of the reader rather than the language of the printed page. Therefore comprehension is understanding the deep or cognitive level of language.

The interactive theory of reading comprehension is now widely accepted and proposes that meaning is discovered and reconstructed through interaction between the reader and text. This theory is more encompassing that earlier theories such as the bottom up theory that assumes comprehension is text driven or the top down theory that assumes that comprehension begins in the mind of the reader and knowledge in the reader's head is more important than the text. According to Randall, Fairbanks and Kennedy, "the goal of reading is to construct actively, not to receive, decode or reconstruct passively. When readers do not

interact successfully with texts, they fail to build meaning and poor comprehension results" (p. 240).

The key to the interactive theory of reading comprehension is schema theory, a theory that proposes that comprehension is as dependent on the knowledge in the reader's mind as on the printed page. The message given by the author is reconstructed in the mind of the reader. It is now generally agreed by theorists and researchers that prior knowledge is paramount to reading comprehension and should be identified and used by the teacher when present and developed when lacking.

Comprehension Skills and Strategies

Certain perceptual and cognitive skills must be available to the reader in order for meaning to be derived from the printed page. Johnson and Lefton (1981) as cited by Fisher and Peters (1981) identify the following skills as essential to good comprehension: the ability to identify letters and words; make systematic eye movements over the text with an appropriate number of fixations and regressions; have some knowledge of language structure and meaning; syntax and semantics; remember and integrate what has been recently read; and apply a world view and experience to each new text (p. 126).

It is emphasized that these skills alone are not sufficient for good comprehension. The proficient reader must develop automaticity of perceptual and cognitive skills to "allow words and sentences to be processed in a complex, integrated and meaningful way" (p. 126).

It is not certain whether all these skills are employed by all readers or exactly how the skills are utilized in the comprehension process. This lack of agreement as to what specific skills are used in comprehension and how they are used prevents the existence of a universal understanding of the comprehension process. Johnson and Lefton (1981) as cited by Fisher and Peters (1981), state "this lack of agreement stems primarily from the fact that readers do not reveal much of themselves while studying a text; therefore analyses of overt reading behaviors can provide only a partial understanding of the overall comprehension process" (p. 116). Seemingly one way to better understand what strategies are needed to better comprehend text would be to study the processes used by the fluent reader.

Johnson and Lefton (1981) discuss the difficulty in analyzing the skills employed by the skilled comprehender. This difficulty occurs because the

skilled reader's comprehension skills may not include
all the original components that went into acquiring
that skill. Johnson and Lefton (1981) as cited by
Fisher and Peters (1981), state that "focusing on the
skilled reader may provide different variables in
comprehension than those obtained while analyzing the
beginning or poor reader's performance" (p. 117).
Olson, Duffy and Mack (1983) assess the difficulty the
researcher has in assessing what is going on in the
skilled readers mind by concluding that:

> Reading is a cognitive task involving a host of
> hierarchically interrelated subskills operating
> in parallel The events occurring in the mind
> are internal with only occasional observable
> correlates. Mainly psychological processes
> important to comprehension occur outside of any
> awareness (p. 95).

Comparisons of Good and Poor Comprehenders

Researchers are attempting to understand the
comprehension process by comparing the strategies used
by good and poor comprehenders. Such comparison
studies could help researchers understand what skills
are essential and how they are used. There have been
numerous studies comparing good and poor
comprehenders. Golinkoff (1975-76) states that :

> A comparison of good and poor comprehenders may
> help researchers select issues of pragmatic
> importance. If certain aspects of the process
> seem more difficult than others, researchers may
> gain insight into the more critical components

> of the skill. They may also gain information on how subskills are integrated. Finally contrasting good and poor comprehenders may have pedagogical implications (p. 626).

If the skills that are present in the skilled reader but lacking in the less skilled reader could be identified, a more complete picture of the skilled comprehender would emerge. Golinkoff (1975-76) believes that if it could be discovered at what points in the comprehension process good and poor comprehenders do and do not diverge, better reading instruction could be designed for the beginning and remedial readers.

Comparing good and poor comprehenders is not without difficulties. This is especially apparent when examining models of reading behavior. There have been a variety of reading models proposed to explain reading behavior. Johnson and Lefton (1981) as cited by Fisher and Peters (1981) discuss the difficulty in comparing skilled and less skilled readers by stating that "reading behaviors prevalent in one group may be less obvious or absent in the other group, making conclusions difficult" (p. 117). The many studies contrasting good and poor comprehenders have investigated various areas such as decoding, the ability to form images, the ability to read phrases, memory skills and the ability to employ strategies to

extract meaning.

Recent discoveries in cognitive psychology have shown that an individual may become an active participant in learning through self awareness of learning patterns. This awareness and active participation can enable the learner to more effectively use existing comprehension strategies, adapt other useful strategies and monitor comprehension. Thus comprehension monitoring has been found to be a significant factor in skillful reading. Meyers and Paris (1981) found that poor readers engaged in significantly less monitoring than good readers and scored lower on evaluations. Studies have shown that fluent readers know about the reading process and use appropriate comprehension strategies while less fluent readers do not. This knowledge, called metacognition, guides the effective selection and implementation of task relevant skills (Meyers and Paris, 1978). Metacognition enables the reader to know what strategies must be used to gain knowledge from text. The fluent reader uses this comprehension monitoring to adjust reading style to the type of text being read.

The fluent reader more frequently uses reading strategies such as predicting, linking, rereading and reading ahead to clarify meaning in the text. Knowing

how and when the fluent reader uses these strategies could aid the teacher in instruction of the not so fluent reader. According to Johnson and Lefton (1981) as cited by Fisher and Peters (1981) adaptability was the most consistent finding in characterizing the fluent reader. The fluent reader adjusts reading rate and types of strategies employed to the kind of text being read. Less fluent readers tend not to make those adjustments. Randall, Fairbanks and Kennedy (1986), state that "research indicates that more proficient readers tend to use the same strategies as less fluent readers but tend to use them more flexibly, appropriately and effectively" (p. 247).

Methods of Measuring Comprehension

There are different ways to investigate the reading process such as analysis of printed materials and the overall structure of text. There are methods used for linguistic analysis of sentences and text. Most of the research has been done in areas such as these. According to Olson, Duffy and Mack (1983) these investigations provide rich data about aspects of the reading process but are less useful for studying the thinking that occurs as part of skilled reading. These investigations do not address themselves to the predictive problem solving that

readers engage in while reading through a story.

Memory measures such as those that measure recall provide useful information about knowledge sources and representations used in comprehension but tell us little about strategies employed. Olson, Duffy and Mack (1983) contend that most of us are aware of thoughts occurring during reading but it is difficult to analyze these thought processes. Simons (1971) as cited by Olshavsky (1976-77) states that "the major limitation of introspection and some retrospection studies is that they are dependent on the subject's verbal description and actual mental process" (p. 662). Simons emphasizes that the delay between reading and responding is a major limitation of retrospection studies and this delay may cause the reader to forget or mix current and past knowledge when responding. Thus reliable data can be difficult to obtain.

One way to investigate the thinking processes of the reader while reading is to collect data as the text is being read. This type of data collecting while the subject is performing a task is called analysis of a process in real time. Real time analysis has been used to study eye movements to see how these movements relate to the processes occurring

during reading. It has also been used to analyze the time it takes to read sentences of varying length and difficulty. Real time analysis has provided useful information about reading and comprehension. In studying real time processes we infer what the reader is thinking from the data obtained. "We are less interested in the statistical properties of eye movements or reading times than we are in the comprehension processes which generate these properties" (Olson, Duffy and Mack as cited in Kieras and Just, 1984 p. 254).

One widely used method employed in the study of reading in real time is miscue analysis. Miscue analysis was a contribution of the psycholinguists and provides valuable insights into reading strategies. Oral reading errors are analyzed thus determining the strengths and weaknesses of the reader. According to Swaby (1984):

> One of the most important contributions that miscue analysis has made to the field of reading instructions is the concept that all miscues are not qualitatively the same; some are more significant than others. A miscue is viewed as significant if it results in loss of meaning. It is not significant if it retains the meaning of the passage (p. 223).

Protocol analysis, another method for studying the reading process in real time is a valuable tool for determining how the reader interacts with text.

Randall, Fairbanks and Kennedy (1986) define protocols as detailed descriptions of subjects "sequenced behavior while performing certain tasks" (p. 241). The reading protocol requires subjects to think aloud while reading a text thus providing insight into the thought processes used while processing text. Protocol analyses can provide the teacher and diagnostician with valuable insights into the nature of the reading process. Randall, Fairbanks and Kennedy (1986) state that:

> Teachers need a diagnostic tool that allows them to trace the process by which readers make meaning and interact with the text. In our work with protocol analysis we have discovered that thinking aloud protocols are powerful diagnostic tools that the teacher/diagnostician can use to collect valuable information about the interactive nature of the reading process (p. 241).

From protocol analysis, researchers have learned about strategies readers employ while reading a text. Information such as how, when and if readers make inferences, predictions, link information or use other techniques can be extremely useful in improving comprehension or remediating difficulties.

The Thinking Out Loud (TOL) Process

The Thinking Out Loud (TOL) method, used to study cognitive data in real time, is valuable for obtaining information about comprehension as the

reader proceeds through a text. According to Olshavsky (1976) the TOL protocol goes beyond miscue analysis because it "identifies strategies on the basis of what the subject can verbalize about behavior while reading. It allows identification of several strategies such as inferencing and hypothesizing which reflect developed thoughts and would not be revealed through oral reading" (p. 673).

The TOL method has the potential to examine the thought processes of the reader while reading. By learning what strategies the reader uses to comprehend a text, better techniques can be developed to facilitate comprehension for the poor reader. Meyers and Lytle (1986) claim that "a critical feature of think-aloud protocol analysis is that processes are assessed using a valid school task, reading. Use of school tasks increases the potential for appropriate recommendations for interventions resulting from assessment" (p. 8).

The focus of the TOL task is to obtain the reporting of thought processes by subjects during reading. Olson, Duffy and Mack (1984) as cited by Kieras and Just (1984) describe the TOL task as being one in which immediate awareness is tapped as opposed to what the subject remembers thinking about. Olson,

Duffy and Mack (1984) state that "TOL" provides a sample of what's on the subjects mind during the task. But they will not necessarily reveal the strategies, knowledge sources or representations actually used. The theoretical constructs must be inferred from the TOL data" (p. 254).

Olson, Duffy and Mack (1983) emphasize that advantages to using this method are that it is one of the few techniques available to study higher level comprehension processes. It appears to correlate with other forms of reading behavior such as sentence by sentence reading time. it is a useful indicator of processes that may be an important part of comprehension. It is a simple method to administer and studies the processing of the reader in detail. It must be remembered that processing is only one aspect of comprehension and that there are many other aspects that this method does not tap. Practical applications for using this method have included computer test editing, feedback to writers and metacognitve applications.

There are different ways to collect TOL data that have been used successfully. One method was to have subjects read a story sentence by sentence and record reading times. The subjects wrote a brief

summary of the story. Another method required subjects to recall stories after being presented with a brief descriptive title. One study required subjects to read stories and cross out fifty percent of the words, phrases and sentences that seemed least important. This provided a measure of the relative importance of each sentence. The specific goal of the researcher will determine which TOL task will be most useful.

The sentence by sentence task has proved useful for tapping the kinds of informational needs a reader encounters while proceeding through text. The subject reads a story sentence by sentence. As each sentence is read and understood, the author elaborates on it and comments on its relationship to previous information and information not yet seen. Some researchers have only the current sentence available and others allow the subject to see all the information before the current sentence. The single sentence mode is good for applicating the role of the current sentence in the text.

This method was used successfully by Olson, Duffy and Mack (1983). They found that the method worked best when there were well focused instructions and a simple, well structured story that fits into

story grammar conventions. Folktales and fairytales work well for this task.

Use of the TOL method may be valuable in providing insights into the comprehension processes of the fluent and not so fluent reader. Data obtained from using the TOL protocol could be used to help less fluent readers improve and change their comprehension strategies. Discoveries resulting from TOL studies could have significant impact on the teaching of reading.

Summary

This chapter reviewed and discussed the following five areas: reading comprehension theories; comprehension skills and strategies; comparisons of good and poor comprehenders; methods of measuring comprehension and the thinking out loud (TOL) process.

Reading comprehension theories have changed and continue to change as a wealth of new research keeps coming, due to a new and vigorous interest in comprehension. Lack of agreement on exactly what skills are necessary, how they are used and how it can be determined when and if comprehension has occurred, has made comprehension research difficult. Although researchers continually add to the body of knowledge, much more needs to be learned to create a nation of good readers.

Chapter III

Design of the Study

Purpose

This study was designed to assess whether remedial readers designated for a PSEN program use different comprehension strategies when reading a story than those readers not designated for a PSEN program.

Methodology

Subjects

The subjects were twenty fourth, fifth and sixth grade boys and girls in a suburban elementary school. There were six fourth graders, two fifth graders and two sixth graders who were students in the PSEN program at school. A corresponding number of students from each grade level was chosen from students who were not designated for the PSEN program.

The students who were not in the PSEN program were randomly selected from one of the heterogeneously grouped classrooms at each grade level. There were six fourth graders, two fifth graders and two sixth graders who were not classified as PSEN students. The only criterion for the nonremedial group was that the

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students were not classified as PSEN students.

Instruments

Before conducting the study, a pilot study was administered to five students who would not be included in the study. This was done to test the prepared instructions so they could be altered if they were inadequate for the task. Since each subject was tested only once and the PSEN students were predetermined for the study, it was vital that the instructions produce useable data. It was important that the researcher feel comfortable with the instructions so that the subjects would feel comfortable.

The Thinking-Out-Loud (TOL) protocol is one method currently being used to investigate comprehension strategies of the reader while reading a text. The reader reports thoughts while reading a text. Thus immediate awareness is tapped rather than a report of what the reader remembers thinking about. The TOL procedure is one of the few techniques available to study higher level comprehension processes such as the predictive problem solving that is involved in the comprehension process.

There are various methods used to conduct a TOL study but the single sentence mode was used in this

study. This method allows the subject to relate the sentence being read to the text as a whole. By reading one sentence at a time, the subject reacts to each individual sentence separately while proceeding through a text. This enables the researcher to determine how the current sentence relates to previous sentences and those not yet read by the subject.

Selection of a Story

The story, Lazy Jack, was carefully selected according to criteria that researchers had found to be important for yielding rich TOL data. Olson (1982) and Olson, Duffy and Mack (1980) describe an appropriate story as one that is not too long and is told from a single point of view. The story elements should fit the overall plan and the plan must have a clear resolution. The story should be similar to the known world but yet can depart from reality in certain ways. There would be an orderly flow and all information presented should be there for a reason. Basically the story should fit the story grammar conventions that researchers use to analyze story structure.

Lazy Jack is a simple folktale that fits the criteria researchers designate for producing the best

results for the TOL task. The story has thirty three lines and has a predictable pattern. Since comprehension strategies were being tested and not reading ability, it was necessary that that the story be one that could be read by both the PSEN students and the non PSEN students. The story, <u>Lazy Jack</u> is in Appendix A.

Task Directions

Although there are other ways to conduct the TOL task, the sentence-by-sentence method has proven to be a useful and simple method for proceeding through a text. The subject reads the story sentence by sentence. As each sentence is read and understood, the subject elaborates on it and comments on its relationship to previous information and information not yet seen.

Each of the thirty-three sentences in the story, <u>Lazy Jack</u>, was typed on a separate card. The subject read one sentence at a time and commented on each sentence after it was read aloud. The subject had no access to previous sentences or sentences that would follow. Only the current sentence was available for consideration.

Each subject was given a regular set of instructions, similar to a script, before proceeding

with the task. The research has shown that the TOL task produces richer data when some basic instructions are given rather than when no instructions are given.

Minimal instructions were given so that the subject would have ideas about what to think about but they were not so explicit as to guide the subject's thinking. It was emphasized in the directions that these are some things the subject might think about but the subject was free to comment on anything he wanted to. The following instructions were given:

I would like you to read a story today so I can see what you are thinking about as you read. However, instead of reading the whole story at once, you will be asked to read it aloud sentence by sentence. After you read each sentence, I would like you to think out loud. You may talk about anything you are thinking about as you read the sentence. After each sentence is read, I will put my finger on the period. That will be the signal to think out loud. The following are examples of the types of thoughts that might occur to you.

1. When you read this sentence what thoughts come to your mind?

2. Has this sentence changed your ideas or given you new thoughts about the story so far?

3. What will be happening in the story?

Do you understand what you are to do? Are there any questions? The directions may be repeated if necessary.

Data Analysis

Since the purpose to the task was to determine

the kinds of responses elicited by the subjects, the categories were purposely not designate before data collection.

Upon collection of the data, responses were analyzed by the researcher and categorized according to types of responses. Categories used in a study by Olson, Duffy and Mack as cited in Kieras and Just (1984) were used as a guide. It was found that responses fit into several categories chosen by Olson, Duffy and Mack and five were added because responses fit the added categories. The first seven categories listed in the category definitions were those used by Olson, Duffy and Mack. Confirmation of predictions was changed to include non confirmation of predictions. The last five were added by the researcher because responses fit into these categories. The categories are listed and defined in Appendix B.

The researcher placed each response in the appropriate category. Data for the PSEN and non PSEN students was recorded and tallied separately. The number of responses for the PSEN group was tallied for each category as well as the non PSEN group and placed on separate grids. Then the results for the PSEN and the non PSEN were compared.

Summary of Procedures

The Thinking-Out-Loud procedure was used to compare the reading comprehension strategies of PSEN students with those of non PSEN students. Each subject was tested individually while reading a story selected according to criteria determined by research to produce rich TOL data.

The story was presented with one sentence at a time typed individually on a card. The subject had access only to the current sentence and was instructed to think out loud after reading the sentence aloud. Prior to the task, instructions were given regarding possible aspects to consider when thinking out loud but it as stressed that the subject could talk about anything.

The procedure was tape recorded and responses were typed in order to analyze the data and place responses in appropriate categories. Purposely the categories were not chosen ahead of time but were determined according to responses given. The responses for the PSEN and non PSEN students were compared by noting the number of responses in each category for the PSEN and non PSEN students. The data were analyzed and results for each group were compared by noting the dominant patterns for each group.

Chapter IV

Statistical Analysis

Purpose

Using the Thinking-Out-Loud (TOL) procedure,
responses from PSEN and non PSEN readers in grades
four through six were collected, tabulated and
analyzed to determine if and how the comprehension
strategies used by good and poor readers differed.
The responses from the PSEN and non PSEN readers were
categorized and analyzed separately and then compared
and contrasted.

Data Analysis

PSEN Readers

Table 1 shows that the PSEN readers totaled 386
elaborations in all categories. Of all categories,
the most responses were in predictions with inferences
and paraphrasing second and third respectively. These
were followed in order of the total number of
responses by judgments, no comment, references to
antecedent information, misinformation, comments on
the subject's own behavior or feelings, questions,
associations, comments on structure and confirmation
and nonconfirmation of predictions

TABLE 1

Non PSEN Results

SUBJECTS

	1	2	7	8	9	10	13	14	18	19	Total
Predictions	3	8	8	12	1	24	4	10	8	19	97
Questions	2	4	0	10	1	3	1	0	0	0	21
Comments on Structure	0	0	1	0	0	0	0	1	0	0	2
Comments on own Behavior and Feelings	1	5	3	5	5	1	1	2	13	1	37
Conformation or non-Conformation of Predictions	0	0	1	2	0	1	0	1	3	2	10
Reference to Antecedent Information	5	5	9	5	1	3	5	2	2	0	37
Interferences	11	6	7	0	22	10	15	9	17	4	101
Associations	1	0	5	0	1	4	1	0	1	12	25
Judgements	15	6	11	6	2	7	5	21	4	0	77
Paraphrasing	6	3	2	0	8	1	3	1	1	0	25
Mis-Information	0	0	0	0	0	0	0	0	0	0	0
No Comment	1	2	0	6	1	1	3	0	0	1	15

It might be expected the PSEN readers would have a greater number of responses in predictions and paraphrasing since these are not considered higher level reading skills. These skills do not necessarily require the reader to draw conclusions or apply knowledge.

PSEN readers had a low level of responses in categories where new information was linked to previous information. These categories included associations, confirmation and nonconfirmation of predictions and comments on structure. This would fit the expectations for a PSEN reader since not linking previous information with new information could contribute to weak comprehension.

Table 2 shows that some PSEN students had a high number of responses in one category and few responses in other categories. Student number three had 14 responses in inferences and and 6 or fewer in all other categories. Student four had 19 predictions and 6 or fewer responses in all other categories. In 6 of student four's categories there was no response. Student six had 25 responses in paraphrasing and no more than three in any other category. Seven of the twelve categories had no response. Subject sixteen had 19 responses in

predictions and no more than 7 in any other
category. It is interesting to note that seven
categories had no response and two had only two.
Subject twenty made 20 inferences and no more than 6
responses in any other category. Four of the
categories had no response.

TABLE 2

PSEN RESULTS

SUBJECTS

	3	4	5	6	11	12	15	16	17	20	Total
Predict	6	19	4	3	2	8	12	19	12	3	88
Questions	0	0	0	0	2	1	4	0	2	1	10
Comments Structure	1	0	0	0	0	0	0	0	0	0	1
Comments on own Behavior Feelings	0	2	0	0	2	2	2	0	3	0	11
Conformation or non-Conformation Predctions	0	0	0	0	0	1	0	0	0	0	1
Reference to Antecedent Information	4	0	0	1	1	1	3	2	3	0	15
Inferences	14	3	12	2	2	7	15	2	2	20	79
Associations	0	0	0	0	0	7	0	0	0	1	8
Judgements	2	6	2	0	19	4	5	7	7	5	57
Paraphrasing	6	5	17	25	18	1	1	0	0	3	76
Mis-Information	1	0	1	2	2	0	2	0	0	1	12
No Comment	2	2	2	0	0	5	1	5	5	6	28

It should be pointed out that students 3, 4, 6, 16, 17, and 20 (over half the total) responded mainly in one category. Of these students, three had the greatest number of responses in prediction, two in inferences and one in paraphrasing.

Three of the subjects gave a significantly higher number of responses in two categories than the other ten. Of those subjects, there were no more than five responses in any other category. Subject five's responses were highest in paraphrasing and inferences. Subject eleven was highest in judgments and paraphrasing and subject fifteen's highest categories were inferences and predictions. Only subject twelve had a more even distribution of responses among the categories with the greatest number in inferences and associations. Five responses were in the category called no comment.

The tendency of the subjects to offer predominantly one or two types of responses would raise the question as to whether remedial readers tend to use one or two comprehension strategies or if a reader tends to follow through with one kind of strategy once starting with it.

Non PSEN Readers

Table 3 shows that non PSEN subjects totaled 447 elaborations in all categories. The category with the most responses was inferences (101) with predictions in second place with 97 responses. Third highest was judgments with 77 responses, and tied for fourth and fifth with 37 responses each, were comments on own behaviors and feelings and references to antecedent information. Paraphrasing received 25 responses. Questions received 21 responses and confirmation and predictions of predictions received 10. The category called comments on structure had only 2 elaboration and there were no instances of misinformation.

TABLE 3

Summary of Data

CATEGORIES	PSEN	NON-PSEN
Predictions	88	97
Questions	10	21
Comments on Structure	1	2
Comments –Own Behavior and Feelings	11	37
Confirmation Non-Confirmation of Predictions	1	10
Reference to Antecedent Information	15	37
Inferences	79	101
Associations	8	25
Judgments	57	77
Paraphrasing	76	25
Misinformation	12	0
No Comment	28	15
Total	386	447

It is interesting to note that inferences and predictions accounted for the highest number of responses. It might be expected that good readers would make inferences since inferencing is a skill that requires the reader to think beyond the literal level and draw conclusions based on information in the story. Predicting would seem to be a skill that would be used in this type of story since this story fits into story grammar conventions and has a predictable pattern to it. Judgments about character or situation were made frequently as were comments on one's own feelings or behaviors and references to anecedent information. Of interest, is the fact that there were no instances of misinformation and only two comments on story structure.

Six of the non PSEN students had a high frequency of responses in one of the twelve categories and a low number of responses in the other eleven. Three of the six (subjects 9, 13, 18) elicited a high number of inferences while three (subjects 8, 10, and 19) made a high number of predictions in comparison to the other categories. Two subjects (1 and 19) had two dominant categories and six or fewer responses in the other ten

categories. Two subjects (2 and 7) had responses distributed more evenly over the categories. Although subject 2 had four categories with no response and seven subjects had two such categories, the non PSEN subjects tended to use one or two types of comprehension strategies predominantly and only two subjects used more than two types of strategies.

Comparison of PSEN and Non PSEN Readers

The non PSEN subjects had a higher total of elaborations than the PSEN subjects (about 13% higher). As would be expected in better readers, the non PSEN group inferenced more (about 20% more) than the PSEN group. Although predictions was the category with the greatest frequency of responses for the PSEN readers, the good readers made more predictions than the PSEN readers. Inferences and predictions were categories with the greatest number of responses for the non PSEN readers as they were for the PSEN readers. However, the order was reversed for the two groups and the total number of responses in each category was greater for the non PSEN readers.

In all categories except paraphrasing, misinformation and no comment, the number of responses made by non PSEN readers was greater. The non -PSEN readers asked about twice as many questions

as the PSEN readers. The good readers commented on personal behavior and feelings more than three times as frequently as the PSEN readers. The non PSEN readers referred to antecedent information two and one half times more frequently. The non PSEN readers associated information in the story with known information or familiar stories more than three times more often than the PSEN readers. The PSEN readers made judgments about characters or situations three fourths as frequently as the non PSEN readers.

The three categories having a higher number of responses by PSEN readers than non PSEN readers were paraphrasing, misinformation and no comment. The PSEN students paraphrased the sentences three times more often than the non PSEN readers. PSEN readers elicited misinformation twelve times while non PSEN readers gave no responses in the misinformation category. The PSEN readers gave no comment almost twice as frequently as the non PSEN readers.

In both the PSEN and non PSEN group there were a large number of individuals producing a high number of responses in one or two categories and few responses in other categories. Nine PSEN subjects fir this description because six subjects had the majority of responses in one category and few or no

responses in other categories while three subjects
had the majority of responses in two categories and
few or no responses in the others. Only one PSEN
subject elicited responses that were more evenly
distributed among the categories. Six non PSEN
subjects generated the most responses in one category
and two subjects in two categories. Two of the non
PSEN subjects elicited responses that were more
evenly distributed among all the categories. The
PSEN and non PSEN readers were alike in the tendency
to elicit the most responses in one or two
categories.

Summary

The data show that PSEN and non PSEN readers
approach the reading task differently. Non PSEN
readers more frequently used strategies that require
inferencing, the linking of new information to known
information and using prior knowledge. The non PSEN
readers tended to more frequently use strategies that
involved a lower level of thinking such as
paraphrasing. The non PSEN readers did not use or
have available the strategies that require a high
degree of interaction between the author and text.
Overall the results show that a greater number and
variety of comprehension strategies are used by good
readers than poor readers.

Chapter V

Conclusions and Implications

Purpose

The purpose of this study was to determine whether remedial and non remedial readers use different comprehension strategies when reading a story. The Thinking-Out-Loud (TOL) method was used with PSEN and non PSEN readers in grades four through six. The responses from the two groups were categorized, analyzed separately and then compared and contrasted.

Conclusions

The fact that the total number of elaborations and the number of elaborations in each category except for paraphrasing, misinformation and no comment were higher in all categories for good readers would tend to show that good readers are able to extract more meaning from print than poor readers. In the categories with a higher number of responses by good readers, there were generally two to three times more responses by the good readers. The difference, as noted in Table 3, is not as great in the categories of judgments, inferences and predictions. Confirmation or nonconfirmation of

predictions had ten times the number of responses by non PSEN student as PSEN students. Perhaps the good readers tend to link previous information to current information, reflect on previous events in a story or think of the story as a whole unit where events or information are dependent on previous events or information.

The three categories in which the PSEN readers scored higher were paraphrasing, misinformation and no comment. It is interesting to note that the poor readers paraphrased three times more frequently than good readers, demonstrated misinformation almost twice as often and did not comment after the sentence twice as frequently.

It would be expected that good readers would produce a greater number of responses in the categories that require higher level thinking skills such as making inferences and linking new information to existing information. Examples of these categories are predictions and reference to antecedent information. The good readers seemed to relate personal feelings to those of characters and situations or events in a story. This is evident by the fact that good readers made three times the number of associations and commented on personal

behaviors and feelings more than three times more
frequently. Good readers made judgments about a
character or situation twenty five percent more
frequently and asked questions more than twice as
often.

These findings would tend to support the
generalization that good readers expect to gain
meaning from print and use strategies to gain and
clarify meaning when necessary. Good readers may
know when questions are needed to clarify meaning or
may be willing to ask the necessary questions. By
bringing personal reactions and prior knowledge to
the printed page, good readers tend to interact with
the author and reconstruct the author's message more
frequently than poor readers.

By paraphrasing the sentence read three times
more often than good readers, the poor readers showed
a strong reliance on usage of a skill that does not
require thinking beyond the literal level.
Paraphrasing, often used to signify meaning, was the
category with the second highest number of responses
for the poor readers and the sixth highest number of
responses for good readers.

The fact that misinformation was exhibited
twelve times by poor readers and not at all by good

readers would tend to show that poor readers fail to obtain meaning and understand how ideas and events are woven together in a story. If some ideas or happenings are misunderstood in a discourse, this could affect the reader's comprehension of the story as a whole. The fact that there were no instances of misinformation by good readers could signify that good readers employ effective strategies to gain meaning from print. Perhaps the good readers realize that obtaining meaning is the goal of reading and poor readers are not willing or able to implement effective strategies to use when meaning is not readily apparent.

By not responding after a sentence twice as frequently as good readers, poor readers may not be willing or able to reveal thoughts or feelings as readily as good readers. Perhaps, for the poor reader, the sentence does not stimulate thoughts or maybe the reconstruction of the author's message is not as important to the reading process as it is to the good reader. It is difficult to analyze without further research why the poor readers did not comment twice as frequently but it is significant.

It is interesting to note that, in both the PSEN and non PSEN groups, a high number of subjects

made the majority of responses in one category and
very few responses in the other categories. Two or
three subjects from each group gave the majority of
responses in two categories with few responses in the
others. Only one or two subjects from each group
gave responses that were more evenly distributed
among the categories. This pattern would raise the
question as to whether both good and poor readers
tend to rely on one type of comprehension strategy or
continue with a particular strategy once starting
with it. Perhaps the strategy or strategies used
would be dependent on the type of material being read
or perhaps the strategy or strategies used are the
ones the subject has been taught or with which the
reader feels comfortable.

Implications for Research

Results of this study indicate that further
research needs to be conducted to better understand
how the comprehension process occurs, and the reasons
why some people are good comprehenders while others
have difficulty. Studies, similar to this, could be
conducted using subjects of varying ages, abilities
and socioeconomic backgrounds. These studies could
deal with different kinds of stories, factual texts
and essays to learn more about the comprehension

process. TOL studies could be done using techniques that are different from the sentence by sentence method used in this study.

Research could be conducted to determine why some subjects tend to use one or two kinds of strategies predominantly while proceeding through a text using the sentence by sentence method. It would be useful to know whether these are strategies the subjects feel comfortable with or if the strategy the subject started with was the one used throughout the testing session. If a strategy was predominantly used while reading one story, would it apply to another story or discourse style? Gaining information about this could be used as a basis for teaching subjects alternate comprehension strategies to use, as needed, for proceeding through a text.

Comparisons could be made between good and poor comprehenders as to socioeconomic background, intelligence, prior knowledge and other factors. Correlations between these factors and comprehension skills could be conducted to determine what the relationship between comprehension ability and some of these factors mentioned are.

Future studies might involve combining some of the twelve categories into fewer and broader

categories. For example, in this study it was sometimes difficult to distinguish whether a response should be placed in the category of inferences or judgments. Perhaps categories could be devised according to whether the elaborations were on a literal, inferential or applied level. Visualization might be a category to consider since this skill contributes to comprehension ability and was used by some subjects in this study. A category based on the schema of the reader might be another one to consider since background and knowledge played an important role in some responses. Since a large number of responses were in the category called inferences, further studies could be conducted to determine what kinds of inferences were made and whether they were correct or incorrect. It would be useful to know how and why subjects make the inferences made so that the cognitive processes of the reader could be better understood.

Using the TOL sentence by sentence protocol, it would be informative to conduct a sentence analysis to compare the types of responses for each sentence in the story. The kinds of responses made for each sentence could be examined and compared. By doing this, the researcher would learn more about

the thinking process of the reader while reading a particular type of sentence. Comparing the sentence by sentence responses of remedial and non remedial readers might prove to be an informative study.

Although progress is being made in understanding the comprehension process, much more needs to be learned in order to provide more effective instruction for all readers. By studying and comparing comprehension strategies of good and poor readers, it can be learned how these comprehension strategies differ. Once there is a better understanding of what strategies are needed for effective comprehension and how they can best be taught, all readers will benefit.

Implications for Classroom Practice

Results of this study indicate that there are definite differences in the use of comprehension strategies used by good and poor readers. If, as this study shows, remedial readers fail to effectively use strategies involving higher level thinking skills such as inferencing and association, then methods must be implemented to teach these skills. If, as this researcher believes, meaning is the goal of reading, then all readers must have strategies available to use when meaning is unclear.

It must be realized that these strategies such as rereading, reading ahead to clarify meaning, and visualization must be taught to all readers regardless of ability.

Rather than testing comprehension and checking answers as is done in many classrooms according to Durkins's findings (1977), comprehension should be taught as an ongoing process that requires interaction between the reader and the author. The reader must be made aware that active participation on the part of the reader is vital for comprehension to occur.

The teacher should model effective comprehension to the student so the student can see what strategies the teacher uses. The teacher can think out loud while reading discourse, thus demonstrating strategies to use when meaning is not clear. This will give the student techniques that can be used to enhance comprehension. It should not be taken for granted, as frequently has been done in the past, that comprehension evolves naturally and is a matter of the teacher checking for correct answers.

The Thinking-Out-Loud (TOL) procedure can be used by the teacher to understand the reading process of the student. By having the student think out loud

while reading, the teacher can gain insight into the thought processes and strategies used by the student. This information can be used to diagnose reading difficulties and provide effective instruction.

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Appendices

Appendix A

Lazy Jack

Once upon a time there was a boy whose name was Jack, and he lived with his mother. They were very poor, and the old woman got her living by spinning, but Jack was so lazy that he would do nothing but bask in the sun in the hot weather, and sit by the corner of the hearth in the winter-time. So they called him Lazy Jack. His mother could not get him to do anything for her, and at last told him, one Monday, that if he did not begin to work for his porridge she would turn him out to get his living as he could.

This roused Jack, and he went out and hired himself for the next day to a neighboring farmer for a penny. But as he was coming home, never having had any money before, he lost it in passing over a brook. "You stupid boy," said his mother, "you should have put it in your pocket." "I'll do so another time," replied Jack.

On Wednesday, Jack went out again and hired himself to a cowkeeper, who gave him a jar of milk for his day's work. Jack took the jar and put it into the large pocket of his jacket, spilling it all,

long before he got home. "Dear me!" said the old
woman; "you should have carried it on your head."
"I'll do so another time," said Jack.

So on Thursday, Jack hired himself again to a
farmer, who agreed to give him a cream cheese for his
services. In the evening Jack took the cheese, and
went home with it on his head. By the time he got
home the cheese was all spoilt, part of it being
lost, and part matted with his hair. "You stupid
lout," said his mother, "you should have carried it
very carefully in your hands." "I'll do so another
time, " replied Jack.

On Friday, Lazy Jack again went out, and hired
himself to a baker, who would give him nothing for
his work but a large tom-cat. Jack took the cat, and
began carrying it very carefully in his hands, but in
a short time pussy scratched him so much that he was
compelled to let it go. When he got home, his mother
said to him, "You silly fellow, you should have tied
it with a string, and dragged it along after you."
"I'll to so another time," said Jack.

So on Saturday, Jack hired himself to a
butcher, who rewarded him by the handsome present of
a shoulder of mutton. Jack took the mutton, tied it
to a string, and trailed it along after him in the

dirt, so that by the time he had got home the meat
was completely spoilt. His mother was this time
quite out of patience with him, for the next day was
Sunday, and she was obliged to do with cabbage for
her dinner. "You ninney-hammer," said she to her
son; "you should have carried it on your shoulder."
"I'll do so another time," replied Jack.

On the next Monday, Lazy Jack went once more,
and hired himself to a cattle-keeper, who gave him a
donkey for his trouble. Jack found it hard to hoist
the donkey on his shoulders, but at last he did it,
and began walking slowly home with his prize. Now it
happened that in the course of his journey there
lived a rich man with his only daughter, a beautiful
girl. But she had never laughed in her life, and the
doctors said she would never speak till somebody made
her laugh. This young lady happened to be looking
out of the window when Jack was passing with the
donkey on his shoulders, with the legs sticking up in
the air, and the sight was so comical and strange
that she burst out into a great fit of laughter, and
immediately recovered her speech. Her father was
overjoyed, and fulfilled his promise by marrying her
to Lazy Jack, who was thus made a rich gentleman.
They lived in a large house, and Jack's mother lived
with them in great happiness ever after.

Appendix B

Definition of Categories

PREDICTION: The foretelling of events to come in a story, anticipation of future actions of a character.

QUESTION: An inquiry about happenings in a story, often an attempt to understand the significance of happenings.

COMMENTS ON STORY STRUCTURE: Patterns of a story, reference to the subject's expectations of story structure.

COMMENTS ON OWN BEHAVIORS OR FEELINGS: The relating of one's own behaviors or feelings to those of a character or to the events in a story.

CONFIRMATION OR NONCONFIRMATION OF PREDICTIONS: Ascertaining whether or not a subject's earlier predicitons were or were not verified.

REFERENCE TO ANTECEDENT INFORMATION: Alluding to information or events occurring in a previous part of a story.

INFERENCES: Conclusions based on facts in a story, knowledge possessed by the reader or both.

ASSOCIATIONS: The linking of one's own experiences or feelings with events or characters in a story.

JUDGMENTS: Positive or negative opinions or feelings about a character or event in a story.

PARAPHRASE: To state stated information or an idea from a story in one's own words without changing the meaning of the information or idea.

MISINFORMATION: Ideas or information in a story that is not correctly understood.

NO COMMENT: Having nothing to say.