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A STUDY OF FOURTH GRADE STUDENTS' COMPREHENSION OF BASAL
READER WORKBOOKS

The University of North Carolina at Greensboro

Ed.D. 1986

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A STUDY OF
FOURTH GRADE STUDENTS'
COMPREHENSION OF BASAL READER WORKBOOKS

by

Shirley B. Owen

A Dissertation Submitted to the
Faculty of the Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

Greensboro
1986

Approved by


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APPROVAL PAGE

This dissertation has been approved by the following committee of the Faculty of the Graduate School at the University of North Carolina at Greensboro.

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The purpose of this study was to assess fourth grade students' abilities to read and comprehend fourth grade basal reader workbooks at an independent reading level. A second purpose of the study was to analyze the types of reading errors they made in comprehending the workbook materials.

The subjects were 330 randomly selected fourth grade students. The students completed two cloze tests which were made from the fourth grade workbook materials and were scored by the exact word method. All incorrect responses were categorized into six syntactic and semantic error types.

The relationships between the two cloze instruments and the three reading levels (frustration, instructional, independent); between the two cloze instruments and the six error types; and between the reading levels and the error types were computed with the statistical procedures of Analysis of Variance and the Chi-Square Test of Independence.

The study revealed that there were significant differences in the fourth grade students' abilities to read the two basal reader workbook cloze passages ($p < .01$). On Instrument Number One, the students read on a frustration reading level. There was a small relationship ($p < .001$) between the students' reading levels and the types of errors made in comprehending the cloze passages. The

study revealed a significant relationship ($p < .001$) between the difficulty levels of the passages and the error types made. More syntactically and semantically appropriate responses occurred on Instrument Number One, whereas more semantically and syntactically inappropriate responses occurred on Instrument Number Two. Syntactic problems encountered were the use of referents, pronouns, conjunctions, prepositions, confusion with tense forms and singular and plural nouns, and the insertions of two words for deletions. Semantic problems encountered were a failure to use prior text and bilateral context, to connect meanings of adjoining words and phrases, to recognize sentence patterns, and direction words, and random guessing.

In conclusion, the results indicate that the fourth grade students could not read the reading workbook passages at an independent reading level, and that they either used syntax and semantics well, or not at all.

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Chapter I

Introduction

Rationale

For many years reading researchers have debated the issue of independent practice in reading instruction. In a typical classroom the teacher provides direct instruction on specific reading skills which is followed by application and reinforcement in meaningful materials. In a basal reading program, this reinforcement can occur through the use of the basal reader, skill sheets, workbooks, computer software and other ancillary materials. The underlying principle is "that which the student practices, he tends to know the best." The practice of reading skills allows the learner to perfect the skills and concepts, to reinforce knowledge, and to develop fluency in the use of the skills. Repetition also provides a sense of security in using the skills.

Students spend a considerable portion of the time allocated for reading instruction in independent practice. Researchers, including Fisher, et. al. (1978) and Anderson (1984), report that up to 70% of instructional time is spent in practice with reading workbooks or skills sheets. Reading educators are not only concerned about the disproportionate amount of time spent in practice versus direct instruction, but also with the types of materials used in the practice.

Limited research on reading workbooks is available at present. Three computer searches revealed only ten major studies on reading workbooks. Osborn (1981, 1984) had the most detailed studies that analyzed the purposes, uses and content of workbooks. She believed that because workbooks are a regular feature of instruction in reading, their sufficiency, efficiency and effectiveness should be examined. Osborn's analysis of several workbooks and classroom observations produced guidelines for workbook tasks that educators should use to improve the quality and use of workbooks. Durkin (1974) studied the use of workbooks by observing classrooms and found that in the time used for reading instruction, basal readers and workbooks were used almost exclusively. She also calculated that in most classrooms the students spent as much time reading and writing in their workbooks as they did interacting with their teachers.

Seymour, et. al. (1983), Fitzgerald (1979, 1980), Stensen (1982) and Moyer (1979) studied the readability of reading workbooks by looking at the variables of vocabulary difficulty and sentence length and concluded that (1) large percentages of the words were first met in the workbook

exercises (not introduced in the basal lesson), (2) that direction words for the exercises were difficult and often vague, (3) that fourth grade workbooks deviated the most from their designated levels by up to three grade levels, and, in general, (4) the majority of the selections were too difficult for the average student to use independently for practice.

Since some of these studies have researched the readability of reading workbooks and found them to deviate markedly from their designated levels, it would seem appropriate to look at the factors affecting readability, namely syntax and semantics. A reader's ability to look at information in a text and to see how the units of language or words are combined into sentences (syntax) and to further see how these thoughts communicate meaning (semantics) determines how well he or she comprehends the message intended by the writer. Several studies report specific syntactic cues used by the reader such as sentence patterns, signal words, word endings, and syntactic patterns (Burmeister, 1983; Zintz, 1975; Reichek, et. al., 1983; Stoodt, 1972 and DeStefano and Valencia, 1980). Other researchers identified semantic cues such as context clues, vocabulary, signal words, and figures of speech used by readers to derive meaning (Legenza and Elijah, 1979; Stoodt, 1981; Goodman and Burke, 1980; Wildman and Kling, 1978-79 and Reichek, et. al., 1983). These

studies support the relevance and use of both syntax and semantics in comprehending text.

In view of the limited literature on basal reader workbooks and their prevalence of use in providing practice in reading skills, the present study is warranted. In this study, there are two basic constructs underlying the practice of skills with reading workbooks. One construct is the learning principle of mass versus distributed practice. The second construct pertains to the "fourth grade slump" experienced by the majority of fourth grade students. The construct of practice was advocated by psychologists (Good and Brophy, 1977) as a specific principle of learning for improving reading performance. Their belief is that practice becomes more important as learning becomes more complex. Therefore, distributed practice involving frequent review of small amounts of content is usually more effective than mass practice over a large amount of material. Their second belief is that practice generates inquiry skills in the cognitive domain and helps in establishing relationships between stimuli and responses in the behavioral domain. A third principle is that practice should occur shortly after the skill has been taught initially; it should be repeated within twenty-four hours, and it should be practiced subsequently over a period of several weeks. This procedure places the skills in the learner's long-term memory for recall at any given time.

Systematic teaching of the reading components followed by practice in the context of reading selections as well as periodic review and independent reading help to ensure success in reading (Stoodt, 1981 and Reichek, et. al., 1983).

The second construct of this study is that at the fourth grade level, students begin to experience a "slump" or transition between the primary and intermediate grades. The changes in fourth grade, according to Chall (1983), are in the areas of physical, mental and emotional growth, as well as changes in the curriculum and in instructional materials. The development of eye movements, eye-voice span, word recognition, and phonics which are begun in the primary grades reaches a plateau at grade four. These fourth graders enter a "world of knowledge" in printed form which is only acquired by knowing how to read the textbooks that contain it. Prior to the fourth grade level, the reader has been concerned with words, developing fluency with the words and "ungluing" from the print. Now the reader must read to learn the new knowledge, information, thoughts and experiences. The ability to relate the print to ideas is imperative at the fourth grade level since the readability of the material shows a higher vocabulary range and more complex syntax as well as ideas and language of a more abstract and literary nature.

The fourth grade slump, according to Chall, occurs because the student can read the basal but not the content textbooks, or because he or she has poorly developed decoding skills and fluency. The review of related literature points out that the reading levels of basal reader workbooks at the fourth grade deviate from the publishers' designated levels by up to three grade levels. Therefore, these two constructs provide a foundation for close scrutiny of basal reader workbooks and their match with the students and their ability to read and comprehend them.

Purpose of the Study

Since practice is reinforcement for reading skills and basal reader workbooks are a tool for providing this practice, a careful analysis of their readability is needed. The major purpose of this study was to assess fourth grade students' abilities to read and comprehend fourth grade level basal reader workbooks at an independent reading level and to analyze the types of errors they made on the cloze procedure.

The cloze procedure, a reading comprehension assessment tool which is a reading passage with every nth word deleted and the first and last sentence left intact, was used. The reader reads the passage and uses background experiences and

knowledge of the language to supply the deleted words, thereby interacting with the text and reconstructing the whole through the sum of its parts.

Objectives of the Study

The objectives of this study were to investigate the following questions:

1. Can fourth grade students read workbook materials from fourth grade basal reader workbooks at an independent reading level? [see p.14 for definition]
2. Is there a relationship between the fourth grade students' reading levels and their reading error types when reading cloze passages based on published fourth grade basal reader workbooks?
3. Is there a relationship between the difficulty level of the fourth grade reading workbook cloze passages and the types of reading errors made when reading cloze passages based on published reading workbooks?
4. What were the specific syntactic difficulties of the fourth grade students in reading and comprehending the fourth grade basal reader workbook cloze passages?

5. What were the specific semantic difficulties of the fourth grade students in reading and comprehending the fourth grade basal reader workbook cloze passages?

Design

To achieve the objectives of this study, basal reader workbooks were surveyed in order to select workbook materials from which to develop cloze passages to measure fourth grade students' comprehension. A student population was selected to participate in the study. The cloze tests were administered to the students and scored. Finally, the results were analyzed to answer the questions proposed in the study. Fourth grade reading workbooks from four publishers were surveyed and the Fry Readability Formula was used to determine their readability levels. Passages of 250-300 words were selected and made into cloze tests by leaving the first and last sentence intact and deleting every fifth word using a 15-space line replacement. From these four cloze passages, two were selected for the study that contained identical comprehension skills, 250-300 word passages on a single workbook page and a readability level at or near the fourth grade.

The sample population for the study was 330 fourth grade students from forty schools in two school systems in the south central portion of North Carolina. Both metropolitan areas and rural areas were represented in the sample population. A range of socioeconomic levels, achievement levels and racial/ethnic groups was represented.

Each student was asked to complete two cloze passages from the two fourth grade reading workbooks. The two instruments were scored using the exact word scoring procedure. Each student's responses to the cloze passages were categorized either as correct or as one of six error types: (1) syntactically and semantically appropriate with no alteration in meaning, (2) syntactically and semantically appropriate with an alteration in meaning, (3) syntactically correct, semantically incorrect, (4) semantically correct, syntactically incorrect, (5) syntactically and semantically inappropriate, and (6) blank responses. These procedures are fully explained in Chapter III.

The questions proposed for this study were tested through the use of the Scientific Time Sharing Corporation (APL) Statistical Library Program. The students' responses were totaled to ascertain the students' reading levels on each of the two workbook passages. The error types were totaled and used to determine the relationships between the

two instruments and the reading levels; between the two instruments and the error types; and between the reading levels and the error types. When differences or relationships were rejected, the .01 level of significance was used.

Assumptions

There are some basic assumptions in this study of fourth grade students' comprehension of reading workbooks. First, the cloze procedure is a valid instrument to use in assessing reading comprehension. Numerous research studies have investigated the validity of the cloze procedure and found it to correlate highly with other comprehension measures (Fletcher, 1959; Bormuth, 1962, 1964, 1967, 1968; Taylor, 1953, 1956; Jenkinson, 1957; Friedman, 1964; Rankin, 1957; Ruddell, 1965; Schneyer, 1965; Gallant, 1965; Potter, 1968).

Second, the comprehension errors made by the students are representative of the reading strategies they normally use in reading and comprehending written text because the deleted words are words they would meet on a daily basis in reading workbooks or skill sheets.

A third assumption is that the pattern of performance and the directions for administering the cloze tests were followed closely by the three research assistants under all circumstances, assuring uniformity in the data collection.

Limitations of the Study

Like all research studies, this study, too, has its limitations. The first one is that only two cloze passages from fourth grade reading workbooks were used to assess the fourth grade students' reading comprehension. More passages from fourth grade workbooks might have yielded different results in reading levels, error types and syntactic and semantic reading difficulties.

The second limitation is that since no completely objective way to qualitatively analyze the types of errors exists, there may have been subtle and unrecognized biases on the part of the scorers in categorizing the fourth grade students' errors.

The third limitation is that more school systems in the region and/or state should have been tested to secure a broader range of student comprehension levels, although the size of the sample population was adequate to achieve a 90-95 percentile confidence level.

The fourth limitation is that all the subjects were removed from their classrooms and placed in a different room for testing. Whether or not such special attention interacted in some way with the cloze test results can only be answered by further research.

The final limitation deals with the testing schedule. In order to insure that the subjects had the benefit of maximum time in the fourth grade (tested in May), waiting until the end of the school year may have influenced the results. The students may have been anxious to be finished with class work and may not have given a true picture of their reading comprehension skills.

Operational Definitions of Terms

To insure a better understanding of the findings of this study, selected terms that may be unfamiliar to the reader are defined. These definitions evolved from the reading and study of literature related to this investigation.

Reading Workbook: A practice book accompanying a basal reader for the purpose of extending and reinforcing the skills taught in the basal reader by asking the reader to read sentences and paragraphs and to write words, sentences and paragraphs, and by providing a sequential match with the skills in the reader.

Designated Reading Level: The grade level at which the publisher has identified the workbook for use. This is listed in the state adopted textbook list.

Measured Reading Level: The reading level of the reading workbook material determined by the use of the Fry

Readability Formula which averages the word length (number of syllables) and the sentence length (number of words per sentence) and plots the averages on a graph to produce an approximate reading level.

Readability: "The difficulty of the text evidenced by the interaction of the reader's emotional, cognitive and linguistic backgrounds with each other, the topic, the purposes for reading and the author's choice of syntactic and semantic structures" (Hittleman, 1976, p. 4).

Syntactically Appropriate: The replacement word is grammatically correct in the sentence. The word does not have to make sense [e.g., The dog chased the building. The word "building", though not making sense, is grammatically correct.]

Semantically Appropriate: The replacement word makes sense within the meaning of the sentence. [e.g., "The dog chased two cars." If the reader put boy, it makes sense but does not fit the sentence grammatically. If the reader put balls, it makes sense and it fits the grammatical structure.]

Frustration Reading Level: This level indicates that the material is far too difficult for the reader to cope with, even if the teacher is available to help with the reading.

There is little potential for success in comprehending the material which is reflected by cloze scores of less than 44 percent accuracy.

Instructional Reading Level: This level indicates that the material should be used for instructional purposes with teacher guidance since the reader cannot read it well enough to understand it without help. New vocabulary and concepts should be reviewed prior to reading the material. This level is reflected by cloze scores of 45-56 percent accuracy.

Independent Reading Level: This level indicates that the workbook material can be read with relative ease with a high degree of understanding without teacher assistance. Virtually all vocabulary is recognized and the concepts are comprehended. The material is appropriate for homework assignments, seatwork and independent projects. This level is reflected by cloze scores of 57-100 percent accuracy.

Summary

The purpose of this study was to determine if fourth grade students could read and comprehend fourth grade workbook cloze passages at an independent reading level and to analyze the types of errors they made. The relationships between the reading levels of the workbook cloze passages, the difficulty levels of the workbook cloze passages, and the

error types on the workbook cloze passages were determined. Data were collected from the sample population and analyzed to support the questions of the study.

This study assumes that the cloze procedure is a valid instrument to use in assessing reading comprehension; that the comprehension errors made by the students are representative of reading strategies they normally use in reading comprehension; and that the directions for administering the cloze tests were followed closely by the research assistants under all circumstances.

Chapter II

Review of Related Literature

Overview

The major purpose of this study was to assess fourth grade students' abilities to read fourth grade basal reader workbook passages at an independent reading level and to analyze the types of errors they made in comprehending the passages. A thorough search of related literature helped in developing a theoretical framework for the study. The most pertinent findings of the literature search are given in this chapter. These categorized studies are as follows: (a) Basal Reader Workbooks, (b) Readability of Workbooks, (c) Syntactic and Semantic Features of Reading Comprehension, (d) Cloze Procedure, and (e) Transitional Fourth Grade Students. A brief summary of each area of literature is included at the end of each section, with a full summary at the conclusion of the chapter.

Basal Reader Workbooks

Basal reader workbooks are common tools used by classroom teachers to provide students with reading skills practice. Fisher, et. al. (1978) found that students spend up to 70% of the time allocated for reading instruction

in independent practice with most of this time spent on workbooks and skill sheets.

Workbooks are designed to reinforce and extend the skills taught in teacher-directed reading lessons. Through practice the skills are applied and hopefully retained longer by the learner. This practice should occur regularly through repeated review. Therefore, the practice should be distributed throughout the pages of a workbook. The majority of the pages are usually assigned as independent practice which means that they are completed with a minimum of assistance by the teacher. Since students' workbooks are completed independently, they provide practice on specific skills at an individual student's rate of learning without teacher help. Students' success with workbook activities gives the teacher important diagnostic and prescriptive information. Well-designed workbook activities can aid the teacher when introducing new skills as well as in maintaining previously taught skills. (Osborn, 1984.)

In spite of the broad usage of reading workbooks, limited data is available on their purpose, uses, content, readability and students' ability to comprehend their content. Three computer searches produced only seven major researchers and a total of ten studies on basal reader workbooks (Osborn, 1981, 1984; Fitzgerald, 1975, 1979, 1980;

Moyer, 1979; Seymour, 1983; Stensen, 1982; Wilson, 1979; Willins, 1977).

Osborn (1984) identified the purposes and functions of reading workbooks which include: (1) a means of practicing details of the reading lesson contents; (2) extra practice on difficult aspects of learning to read; (3) intermittent review of the reading program skills; (4) activities for synthesizing learnings or applying them to new situations; (5) a sense of accomplishment if the exercises are worthy, challenging and have "payoff"; (6) practice in following directions; (7) practice in a variety of formats used in test-taking; (8) practice in working independently without the help of the teacher (begun in the primary grades and extended in the upper grades); and (9) practice in writing -- words, sentences, paragraphs. Osborn (1981) feels that workbook activities are a bridge between the requirements of "pure reading" and those of "pure writing."

According to the review of literature, prospective teachers in education programs have limited exposure to the contents of and proper use of reading workbooks. Osborn (1984) surveyed twelve reading methods books and found that discussions of workbooks ranged from one line to four pages. She reported that Spache and Spache (1978) listed some strengths such as "stress sequential learning"; "help develop skills"; "aid in diagnosing difficulties"; "save teacher

factual"; "emphasize mechanics and word recognition more than comprehension"; "often too hard for the lower third of the class but not challenging enough for superior students"; and "often lacking in clarity of directions and explanation of the purpose of the activity."

Functions of Workbook

Carnine and Silbert (1980) recommended that teachers consider several factors in examining workbooks such as (1) adequacy of practice on critical comprehension skills, (2) sufficiency of workbook exercises, (3) control of vocabulary in the exercises, and (4) the likelihood that the exercises can be done independently. Heilman (1971) feels that workbooks can have educational value if they are used as diagnostic instruments. Error patterns reveal areas needing further instructions. Zintz (1977) believes that workbook exercises should (1) be related to the reading lesson of the day; (b) be matched to the reading levels of the students using them; (c) be used for a small portion of the reading instruction time; (d) be used discriminatingly; (e) be used for appropriate reading skills; and (f) be matched to the student's ability.

Critics of workbooks, however, contend that (1) they serve teachers rather than students; and (2) they provide practice in trivial and boring activities, because if the student does not know how to do the task, he will only be frustrated and nonproductive. (Osborn, 1984.)

Durkin (1974) studied teachers' use of workbooks in reading instruction. She reported classroom observations that indicated (1) teachers were spending time on unnecessary and erroneous instruction, and (2) instruction was based on the uncritical use of the basal reader manuals, readers, and workbooks. She found that each lesson event was based upon workbook content and it was carried out because "the children have to know it in order to fill out the next two pages in the workbook." Durkin (1984) reported again that further classroom observations of reading instruction revealed more of the same. Of 16 teachers who used the manuals, 15 of them assigned all the written practice suggested in skill development sections (workbook pages and worksheets). None of the 15 teachers referred to the manual while giving the assignments, but each teacher checked with the manual directions prior to assigning the workbook pages.

Durkin's observations (1984) yielded evidence that teachers were not assigning workbook exercises on the basis of need. First, numerous assignments were made on every practice page without regard for any relationship among

assignments. For example, one teacher gave her students a series of assignments on the skills of exaggeration, multiple word meanings, bar graphs, medial vowel sounds, and main ideas. Secondly, assignments showed a lack of relationship between the topic of the assignment and the selection just read. For example, a map activity on South America was followed by an activity on an event preceding the American Revolution. It was significant in Durkin's study that 15 of the 16 teachers (1) never told why a particular assignment was given; (2) went over an assignment only if the written directions were unclear or if the format differed from prior exercises; (3) never explained how the topic of an assignment and the ability to read were related; and (4) seemed most concerned that students finish the assignments and get right answers.

Anderson (1984) observed the same type of instruction and assignments. She concluded that (1) assignment explanations seldom included statements about what is learned or practiced; (2) teacher explanations are usually procedural; and (3) teacher feedback is usually concerned with neatness or correctness.

Osborn (1983) observed 90 classrooms in grades 1-6 in three different school districts. She recorded that during periods allocated for reading instruction, the adopted basal materials (readers, workbooks, charts and other supplements)

were used almost exclusively. Also, workbooks were a regular feature of instruction in every classroom. Students spent as much or more time reading and writing in their workbooks as they did interacting with their teachers. Teachers, as a whole, tended to use workbooks because they considered them an important component of the reading program.

Durkin (1984) concluded that the most apparent and widespread pattern of instruction in reading was the generous use of written practice. She cited a study by Fisher, et. al. 1978 that showed 70% of the reading period was spent doing such assignments. Another study by Anderson (1984) showed 30-60 percent of the students' time was spent on doing some form of seatwork. Duffy and McIntyre (1980) concluded that there is very little evidence that any of the observed teachers taught anything about reading by first determining the students' need and then planning a lesson to teach it. Teachers instead tended to ask students to recite answers to workbook pages as if the students ought to already know how to read. Durkin's 1974 studies revealed that teachers are "assignment givers", not teachers of reading. It is interesting to note that a decade later in 1984, her observations led to the same conclusions.

Osborn (1981) showed concern for the fact that workbooks are a part of a delivery system of reading instruction. She questioned the sufficiency, efficiency, and effectiveness of

reading workbooks. Osborn studied twenty reading workbooks from several publishers, analyzed hundreds of their tasks, and observed their use extensively in classrooms. She developed a set of guidelines for workbook tasks which include: (1) an analysis of the review of previous instruction; (2) the relevance of the instruction and reinforcement to the rest of the reading lesson; (3) the extra practice activities for those students needing them; (4) the vocabulary and concept level; (5) the relatedness of the content to the rest of the reading program; (6) the consistency in the language; (7) the clarity and brevity of the directions; (8) the utility of the pages; (9) the layout of the pages; (10) the amount of practice to reinforce skills; (11) the accuracy and preciseness of content; (12) the consistency in response modes; (13) the amount of writing involved in the response; (14) the details of the artwork and relatedness of it to the task; and (15) the application of skills in meaningful materials. Osborn developed these guidelines to help educators and publishers improve the quality of workbooks. She terms workbooks as the "forgotten children" of the basal reader program because students spend many hours practicing skills in them without sufficient quality control.

Osborn (1984) also expressed concern about the lack of research regarding (1) the relationship between the content

of the workbooks and the information in the teacher's manual; (2) the sequence of tasks in the workbooks; (3) the design of the tasks; (4) the quality of the workbook activities or (5) the relevance of the workbook activities to the acquisition of reading.

In summary, while limited research studies have investigated the purposes, functions and uses of reading workbooks, most of the research has dealt with the teachers' and students' uses of the workbooks. The research indicates that workbook pages can provide important practice and review of reading skills, and they also give independent practice of reading skills. Prospective teachers are provided with limited information regarding workbooks. Therefore, beginning as well as more experienced teachers tend to assign the workbook pages for drill without regard for the students' needs. The research shows that, on the average, teachers do not (1) question the use or need for workbook pages; (2) provide feedback on the particular skill emphasized and are more concerned with neatness or correctness; and (3) spend a proportionate amount of time interacting with the students versus workbook practice. The major concern by the researchers is that workbooks can serve a valuable role in reading instruction if their tasks are analyzed and used appropriately. Workbooks are one of several tools to guide students as they learn to read.

Readability of Workbooks

Since basal reader workbooks provide exercises that must be completed by the students independently, it is imperative that these exercises are written on a level commensurate with the student's reading level. For example, a student who reads independently at a fourth grade level (4.0) and is given a workbook task on a sixth grade (6.0) readability level will operate at a frustration level on the task. Since the purpose of the workbook task is practicing a skill previously taught by the teacher, the student will not actually be practicing the skill. Instead, he will guess at words, comprehend very little, and usually mark answers just to finish the task and move on to another activity. The proper match between the text readability level and the student's reading level promotes success in the workbook exercises or material in use.

Researchers and writers define the term readability in a variety of ways. Dale and Chall (1949) said it is "the sum total of reader interaction and all the given elements in a piece of printed material that affect the success a reader has with it." Success is determined by the reader's understanding, ability to read at an optimum speed, interest in the material, skill, intelligence, experience, maturity and purpose in reading. Tinker and Paterson (1942) define readability as "the speed with which people can read printed

material and the reader's judgment of its legibility." Carroll (1971) states that "readability is the ease with which linguistic material is decoded with regard to the given cognitive or emotional characteristics of the content, style and presentation of the material." Hittleman (1976) believes that readability is "a moment at which the reader's emotional, cognitive and linguistic backgrounds interact with each other, with the topic, with the proposed purposes for engaging in the reading, and with the author's choice of semantic and syntactic structures -- all within a particular setting. The reader's characteristics and the elements of the situation, actual and perceived, merge and have meaning for the reader.

Factors Influencing Readability

Rye (1982) gives several factors that affect the readability of a passage. They are (1) the child's ability and desire to read, (2) the physical environment of the child, (3) syntax of the passage, (4) length of sentences, (5) word length, (6) word frequency, (7) subject matter of the passage, (8) organization of the material, (9) the angle at which the book is held, (10) the column size, (11) line spacing and (12) the type of print. Rye says that some of these factors are obviously more important than others.

Regardless of their relative importance, the task of trying to measure them is extremely difficult. Rye believes that a gauge of the factors of the text and the factors of a reader are important, but some sort of measurement of the interaction between the reader and the text is essential to better understand the process of reading comprehension.

Klare (1963) concentrated on three specific aspects of readability: (1) legibility (typography and format), (2) ease of reading (interest value and pleasantness), and (3) ease of understanding or comprehension (style of writing). He feels that the specific elements of vocabulary load, sentence difficulty, density of concepts, syntax, semantics, patterns of writing, format and organization, and imbedded inferences contribute to the readability of the passage.

Haugh (1976) concurred with Klare that vocabulary is of central importance. He gives three aspects of a word that affects its understanding in a passage. First, the difficulty of a word is usually determined by its frequency of use. The assumption is that words appearing more frequently are easier to understand. Second, the length of a word is an indicator of its difficulty. Since syllables and affixes are counted, the assumption is that a word containing both a prefix and a suffix is more difficult than a word having one affix. The simplest word has neither affix. Third, the length of the

sentence is related to the ease of understanding by the reader. The assumption is that the longer the sentence, the more difficult it is to understand. An analysis of the kinds of sentences, simple to complex, also determines their readability. Qualitative measures of a passage's readability are determined by counting the prepositional phrases, verbals (infinitives), modifiers (adjectives and adverbs), personal pronouns, concrete words, and abstract words.

Dale (1949) identified many of the same aspects of readability, but added idea difficulty (the degree of remoteness of an idea from the reader's past experiences), multiple meanings, sight vocabulary and the match between the material and a given word list such as the Thorndike list.

Klare summarized his findings on readability in his 1975 study by saying that the familiarity of the material is word or its repetition, and a high correlation between the sentence length and the sentence complexity.

Several research studies support the readability variables identified by Rye (1982), Haugh (1976), and Klare (1963). Moyer (1979) studied the two variables of word length and sentence length in workbooks with ten widely used basal readers. Her results with the Fry formula and a 2 x 5 analysis of variance with grades 3-6 showed the mean readability levels were significantly higher, an average of

one and one-half grade levels more than the companion basal reader. The largest difference was more than five grade levels for one sixth grade level reader and workbook. Only six of the 55 text pairs had workbooks at a lower readability than the basal reader. In grades 3-6 the vocabulary control of the basal reader was not evident in the accompanying workbook. (1) A larger number of syllables per 100 words was evident in the workbooks denoting more difficult vocabulary. (2) The sentences in the workbooks were longer than those in the basal reader at all levels. Moyer did not assess the difficulty of individual words in the exercises. She suggests that more research is needed here as well as in the value of the exercises and activities. Moyer concluded that basal reader instruction is group oriented while workbooks are completed independently. Therefore, workbooks should be written at a level to permit fluent reading and comprehension.

Another study by Fitzgerald (1979) checked the readability of forty-two reading workbooks at grades 3-6 using the Fry formula to obtain means for prose selections. The population means showed the majority of selections were too difficult for average students to use independently and suggested that lower level students would be frustrated. Only three of the 42 workbooks had means that agreed with their respective grade designations. In grades 3-5,

deviations from the designated grade levels were three whole grade levels. Fourth grade workbooks had the most serious deviations of 1.2 to 3.3 grade levels; sixth grade workbooks had .1 to 1.5 grade level deviations and third grade workbooks had .8 to 2.9 grade level deviations.

In 1980, Fitzgerald studied the word difficulty in basal workbook exercises and found that (1) frequently encountered difficult vocabulary items were not part of the customary vocabulary reviews in the workbooks; (2) difficult word items could not be located in the readers, and (3) it was not always clear that the workbook tasks were strengthening the reading skills taught in the reader. She concluded that some of the exercises appeared independent of the accompanying basal readers.

These findings prompted Fitzgerald to lift out vocabulary items to determine their difficulty and appropriateness. Fifty-five basal workbooks from ten basal series at grades 3-6 were checked against the Dale O'Rourke Vocabulary Inventory. Over 2,000 sample words were selected, using a table of random numbers. The results showed (1) good control at third grade; (2) a serious lack of control with fourth grade workbooks (two or more levels above grade level); (3) reasonable control at fifth grade; (4) the most serious lack of control at sixth grade (61% of the words ranged from the eighth to sixteenth levels); and (5)

population means disagreed with publishers' grade designations by up to three grade levels. Fitzgerald concluded that many words in the workbooks were chosen to satisfy the exercise design rather than the usefulness to the reader.

Seymour, et. al. (1983) examined vocabulary difficulty in primary level workbooks of three current basal reading series. Their belief was that if workbooks are followup practice, one percent or less of the words should be unknown because of form or meaning. Workbook exercise vocabulary were matched with lists of words taught at each grade level. The exercise vocabulary selected did not appear in the grade level list or in a previous workbook or reader, and they included proper names, contractions, possessives, plurals and compound words.

The results showed large percentages (43 - 84 percent) of the words in all three series were first met in the workbook exercises. Vocabulary load and passage length varied among the three series ranging from 391 words on 95 pages to 999 words on 117 pages. Other noticeable problems with the three series were new words in tests that were not previously introduced, direction words containing multiple meanings, the extensive use of affixes, unclearly stated directions, and pictures/illustrations not easily interpreted. These findings supported Fitzgerald's 1979 study.

Stensen (1982) replicated Fitzgerald's study of 1979 by using the Dale-Chall formula on grades 1-3 workbooks and the Spache formula for grades 4-6 with control checked by the Fry formula. Four pages from each level of three leading workbooks were selected with one sample from each quartile. She calculated the readability using the Minnesota Interactive Readability Approximation Program and found a major jump in reading difficulty in grade four at a seventh or eighth grade level. She confirmed Fitzgerald's results with all three formulas and suggested that a new set of criteria be developed to attend to the material's concept load, the length of sentences, and the word difficulty.

Wilson (1979) compared the 1969 and 1976 editions of the Ginn Series and the 1971 and 1976 editions of Houghton Mifflin Series at first grade level to determine whether the vocabulary in written directional statements in the workbooks and worksheets was included in the controlled vocabulary in the basal texts. The results revealed that the Ginn Series included more extra words in their statements in their exercises, thereby inhibiting pupil achievement in independently assigned activities. Wilson says that the first year level materials need close examination to determine if direction statements could be written with fewer words and more of the controlled vocabulary.

Willins (1977) investigated the effects of variable written directions and formats in third grade reading workbooks. A 3 x 5 split-plot factorial design was used on randomly selected workbooks from three leading basal series. Forty-eight third and fourth grade students with reading accuracy comprehension scores of 3.0 were randomly placed in one of three Direction Readability Levels. The results of the DRL showed (1) shorter directions produced the highest response level and the lowest use of visual cues and fewest direction errors, (2) long directions produced the most direction errors and the lowest response levels, (3) long directions gave the highest use of visual cues, and (4) comprehension errors were not affected by changing the length of directions.

The results of the four format variables showed that (1) variations in the format produced highly significant effects for the response levels and visual cue use in each Direction Readability Level, (2) the formats containing an example produced the highest response level and use of visual cues, and (3) formats unfamiliar to the subject produced the highest direction errors and the least use of visual cues.

This review of the literature on reading workbook readability has focused on some definitions of readability, the factors affecting readability such as the reader's ability, the subject matter of the passage, and the

legibility and density of concepts. Evidence of the importance of vocabulary load to the reader's comprehension was presented, and investigations of the effects of sentence length on the readability level of the passage were reviewed. Studies of the match between the reading workbook and its accompanying basal reader in regard to vocabulary, direction words and formats of exercises were also reviewed.

In general, the findings have shown that there is a significant relationship between the reader's reading level and the designated versus the actual reading level of workbook exercises. The research showed that the readability levels of the majority of workbooks are several grade levels higher than the levels designated by the publishers. Many passages are too difficult for average readers to read independently, which suggests a frustration level for below average readers. The studies supporting close scrutiny of reading workbooks regarding their concept load, word difficulty, and sentence length have led to the conclusions that fourth and sixth grade workbooks have the most serious lack of vocabulary control and length of sentences, and that fourth grade workbooks have significant jumps in readability as compared to the primary grade level workbooks. Another conclusion was that vocabulary control is lacking in the workbooks as compared to the basal readers since many

difficult words appeared only in the workbooks not in the basal readers. Several studies supported the importance of clearly stated directions which contain fewer words and more controlled vocabulary, and a variety of formats for exercises that contain an example of the correct way to complete the exercise and familiar patterns to enable the reader to use available visual cues and to respond successfully. The readability level of workbook passages is a major determinant in the reader's success in comprehending the information while reading independently.

Syntactic and Semantic Features of Reading Comprehension

The role of syntax and of semantics in the reading comprehension of written material have been studied extensively. Most researchers who examine syntax and semantics agree on the following definitions of these two terms:

Syntax is a set of rules governing how units of language or words are combined into sentences with the relationship between the words or sentence elements helping to clarify the meaning. The relationships are known as syntactic cues.

Semantics is the study of meanings communicated through the relationships in the language which are known as semantic cues.

Goodman and Burke (1980) say that speakers of English are aware when a sentence does or does not sound right. This is known as an "intuitive knowledge of language". When a reader looks at written material with a familiar sentence structure, he or she can predict the language and know if the sentence sounds appropriate. Even if faced with nonsense words, he or she can identify the function of each word. Burmeister (1983), Zintz (1975) and Reichel, et al (1983) concur with this idea and list some of the commonly used syntactic cues, such as:

- (1) Sentence patterns (a. noun, verb (NV); b. noun, verb, adjective (NVAd.); c. noun, verb, noun (NVN); d. noun, verb, noun, noun (NVNN); and so forth.
- (2) Signal words/structure or glue words (noun markers, verb markers, phrase markers, clause markers, question markers - empty words with little meaning by themselves).
- (3) Suffixes (endings that make a change in the word's part of speech).
- (4) Transformation of sentences (negative statements, passive changes, tense changes, sentence expansions, combined sentences and so forth.)
- (5) Syntactic patterns (patterns to help the reader along such as definition or explanation, example, appositive, contrast.)

These syntactic cues guide the reader in comprehending and in completing content cloze passages.

DiStefano and Valencia (1980) investigated the effect of syntactic complexity on comprehension and readability by studying the performance of seventh graders' reading at the independent, instructional and frustrational levels with some interesting findings. They expected that those students for whom passages were exceedingly easy (independent level) or difficult (frustration level) would not be influenced by variations of syntactic complexity within a given grade level. Syntactic complexity was measured by sentence weights or assigned values to the sentence parts. The length of the sentence and the modifications within the sentence accounted for higher sentence complexity. Based upon Christiansen's (1963) work, the simplest sentence, or base sentence, has no modifiers such as adjectives, adverbs, participles, clauses and so forth. Major words such as nouns and verbs each had a weight of 1. For example, the base sentence, "John owns a car", when modified to read, "John owns a bright blue car", receives a weight of "3" for bright. The total sentence weights were divided by the number of words used in the weighting to give an average sentence weight. Graded reading passages from the Spache and Silvaroli Individualized Reading Tests were made into cloze passages. All passages at a grade level had the same readability level, but the sentence

weights varied from 2.10 to 2.70. All subjects took untimed cloze tests for the baseline passage and two of the four test passages. Bormuth's percentages of 57% and above (independent level), 44-56% (instructional level) and 0-43% (frustration level) were used to rank the scores.

Their findings were as follows: (1) the mean scores of the subjects at the instructional level decreased as the sentence weights of the passages increased; (2) subjects at the frustration level did poorly on all four tests; (3) subjects at the independent level did well on all four tests and their mean scores remained the same. These findings supported the hypothesis that syntactic complexity does influence comprehension ability.

Another study by Stoodt (1972) explored the relationship between fourth grade readers' understanding of conjunctions and their reading comprehension. A stratified random sample of fourth grade students were administered four instruments: (A Multiple Choice Comprehension of Conjunctions Test, A Cloze Comprehension of Conjunctions Test, The Stanford Achievement Test and the Pintner Mental Ability Test) to obtain data on the comprehension of conjunctions, general comprehension and mental ability. Analysis of the data showed a significant relationship between reading comprehension and comprehension of conjunctions ($p < .02$). An analysis of variance on three cloze tests containing a high

number of conjunctions, half as many conjunctions, and no conjunctions were all highly significant ($p < .001$). The nine most difficult conjunctions were when, so, but, or, where, while, how, that and if. The easiest ones were and, how, for and as. Correlations between sex and measures of comprehensions showed that girls achieved higher than boys. High positive relationships were shown between socio-economic level and comprehension and between comprehension of conjunctions and intelligence quotient. These two studies by Stoodt and DiStefano and Valencia support the significance of syntax as an aspect of comprehension in the cloze procedure.

A reader's ability to predict the language through the use of syntax and semantics has been researched considerably. Rye (1982) says that the fluent reader is able to use the factors of language that make letters and words predictable in order to construct hypotheses about what may be coming next in the language sequence. As he reads he is able to confirm or modify the language as he scans the context of information. Stoodt (1981), Reichek, et. al. (1983), Zintz (1975) Goodman and Burke (1980) suggest specific semantic cues the reader uses to predict the content, such as context clues, figures of speech, vocabulary (synonyms, antonyms, multiple meanings), analogous relationships (part to whole, whole to part) and persuasive words.

Two specific studies support the importance of these semantic cues in completion of cloze passages. Legenza and Elijah (1979) analyzed student cloze passages to determine if consistent error patterns occurred within the independent, instructional and frustrational levels of second and fourth grade students. The second graders completed second grade readability cloze passages with 35 deletions and the fourth graders completed fourth grade readability cloze passages with 50 deletions. Each deletion was scored by the exact word method and each error was placed into one of four categories:

1. logical substitutions which were semantically and syntactically acceptable
2. grammatical errors in tense, number or gender
3. illogical substitutions in the same or different part of speech
4. blank responses or no words inserted

The percentages used to determine reading levels were (a) 58 -100% correct (independent), (b) 44 - 57% correct (instructional) and (c) less than 43% correct (frustrational).

Two-way analyses of variance showed significant reading level effects and error-type effects at both grade levels (.001). Predictable patterns emerged on all three reading levels with key errors in logical and illogical

substitutions. More logical substitutions occurred at the independent level; (75% at grade two and 51% at grade four). High levels of illogical substitutions occurred at the frustrational level (52% at grade two and 56% at grade four), with no significant differences at the instructional level. In all of the comparisons there were no significant differences between blank responses and grammatical errors.

The implications of this study are that (1) teachers can use the cloze procedure to place students in materials more accurately by combining an analysis of error types and cloze percentages and (2) teachers can use the error analysis system as a diagnostic teaching model to both assess and teach comprehension.

A second study by Wildman and Kling (1978-79) is a compilation of previous studies on the semantic, syntactic and spatial anticipations of good comprehenders. Their conclusions after a review of studies were that a reader (1) enhances high word recognition by using prior text to anticipate semantic characteristics; (2) generalizes predictions about word meanings rather than making specific predictions; (3) seeks out and predicts critical grammatical relationships between sentence components; (4) perceives subject-verb relationships as a critical part of sentence comprehension; and (5) uses spatial cues of word shape, word length, and empty spaces to focus on the line of print to

gather information. This review supports the relevance and use of both syntax and semantics in comprehending text.

A final study by Isakson and Mille (1976) looked at the sensitivity of good and poor comprehenders to syntactic and semantic cues. They cited previous research by Crome (1968) who conceptualized two types of poor comprehenders -- the deficit poor reader who has a deficiency in vocabulary and word identification skills whereas the difference poor reader has word identification skills but can not comprehend sentence or passage meaning. Isakson and Miller also cited further studies by Cromer (1970); Oaken, Wiener and Cromer (1971); Steiner, Wiener and Cromer (1971) using the same conceptualization. They concluded that there is a group of readers who fail to comprehend because they do not integrate the meanings of separate known words to arrive at the meaning of an entire sentence.

Two other studies by Clay and Imlach (1971) and Weinstein and Rabinovitch (1971) were cited as additional support for the view that poor readers seem to process only one word at a time and do not make use of syntactic and semantic cues.

Isakson and Miller (1976) used groups that were equivalent in word recognition ability but different in comprehension ability in their study. Syntactic and semantic agreement between the main verb and other key parts of the

sentence were manipulated. This technique is known as the disruptive effect or the degree to which the probability of the occurrence of oral reading errors is increased by the inclusion of an unknown or confusing word in written context. The fourth graders were asked to read sentences orally that contained errors in the two words preceding and following the verb, the one word preceding and following the verb, and the verb itself. Errors noted were omissions, substitutions, insertions and repetitions. The Newman-Keuls test showed no significant differences in mean errors for low comprehenders, whereas the high comprehenders had significant increases in errors in the verb position across the sentence types. This study shows that good comprehenders are sensitive to language constraints in sentences while poor comprehenders are not and tend to ignore the syntactic and semantic cues and treat words as individual entities. The study further shows that the word position under manipulation (the verb) is the most sensitive to disruption experienced by the reader.

In general, the preceding studies on the role of syntax and of semantics in reading comprehension indicate that there is a relationship between the reader's intuitive knowledge of the language and his ability to predict the printed page and, thereby, comprehend the writer's message. The reader uses syntactic cues such as sentence patterns, signal words, word

endings, and syntactic patterns (examples, appositives), and semantic cues such as context clues, vocabulary, figures of speech, analogies and persuasive words to predict the content. Results of the research studies on syntax showed that as the sentence complexity increases, comprehension decreases. Significant relationships were seen between the comprehension of various conjunctions or connectives and reading comprehension.

Studies supporting semantic cues have led to the determination of predictable patterns of errors by readers at the independent, instructional and frustrational levels. Independent level readers have a larger vocabulary base and can predict the language in the text or give reasonable synonyms, whereas frustrational level readers have less predictive ability and substitute illogical words or phrases in the text. Instructional level readers use a combination of both prediction methods. Studies which analyzed both syntax and semantics concluded that good comprehenders use prior text to anticipate meaning ; make general rather than specific predictions; see subject-verb relationships; gather information from word shape and word length; integrate meanings of separate known words to comprehend the entire sentence and are sensitive to the language constraints within sentences. The research indicates that the better reader seems to have command of the language which enables him or her to predict the written text.

Cloze Procedure

Research on the readability of written text, including workbooks, has been more extensive over the past four decades, with considerable attention to the elements of syntax and semantics. Various devices are used to assess readability. Readability formulas which are used to assess passage difficulty by analyzing variables such as vocabulary and sentence difficulty are widely used. A second readability assessment technique, the cloze procedure, requires the reader to reconstruct the whole through the sum of its parts. In other words, the reader uses his prior knowledge of passage content and the syntax and semantics of the passage to predict the content of the missing blanks. Thereby, the reader's comprehension level as well as the readability level of the passage are determined. For example, in this cloze passage [A few minutes later (the) police arrived. Mom, Dad (and) I stood at the (window) and watched.], the reader must look at the words preceding and following each blank and his prior experiences to predict the content of each blank and to comprehend the passage.

The first comprehensive statement of the new research method known as the cloze procedure and its theoretical background were introduced in 1953 by Wilson L. Taylor in an article in the Journalism Quarterly. He said that the term "cloze" is derived from the word closure, a concept borrowed

from the Gestalt School of Psychology. Their "law of closure" states that when a familiar object is presented with some detail lacking, there is a psychological tendency to see that object as a whole unless a deliberate attempt is made to find a missing part. Taylor saw this occurring with respect to written materials. If there are missing pieces in the text, there is a psychological tendency of the reader to fill in the gaps to complete the whole. The familiarity of the language and context of the sentence make the reader want to close or complete the sentence. Therefore, the testtaker must look at a mutilated sentence and decide upon the correct word to complete the sentence or finish the language pattern. In order to satisfactorily complete a cloze passage, the reader must first know the meanings (the patterns or symbol-meaning relationships) the forms (patterns of letters) of most or all of the words involved, and also the meanings of the given combinations of both in a particular sentence structure. In other words, the reader must think of what the mutilated sentence means as a whole and then complete its pattern accordingly.

Rye (1982) concurs with Taylor's viewpoint by stating that "cloze is essentially a cognitive task in that the reader must think and construct suggestions to fill in the gap or deletion on the basis of evidence derived from the context." Rye also said that "there is evidence to show that

sentences are not just the sum total of individual word perceptions. The eye does not focus on every letter when reading. Neither does it always focus on every word. There are influences on words which help the reader predict what may be coming in a given sequence."

Rye (1982) continues by saying that when a reader completes a cloze passage, he samples the context information, constructs a response, and then checks this response with the available context. He must think through the reasons for a choice of a particular word by using (a) grammatical sense, (b) his own understanding of word meanings (semantics) and (c) his previous experience of words occurring together in a certain order (coefficient of usage). Grammatical sense refers to the part of speech needed; semantics means that the context helps to determine certain words as being unsuitable and other words highly probable; and coefficient of usage denotes a pulling from prior experience and the listening to sequences of language which enable the mind to remember them easily. Four categories fall under coefficient of usage. They are (1) collocation - "up and down", (2) rhythmic - "once upon a time", (3) alliterative reinforcement - "stand still", and (4) consonantal reinforcement - "white lie", "black magic." Rye states that these constraints on words operate on the reader at a subconscious level, but they do help the reader to anticipate what is coming next in the text.

Both Taylor (1953) and Rye (1982) agree that cloze is a way of measuring how familiar the reader is with the language and content of the material to be read. It is also a way of measuring the closeness of the language and the background of the author and reader. The difficulty level of the text is determined by the reader's understanding of and response to the language structure. Cloze measures a personal response to linguistic variables. Since cloze measures this interaction between the reader and the text instead of concentrating on features in the text, it is a much more subtle measure.

Language is sequential, according to Rye (1982), and in the normal course of reading, the beginning of a sentence sets up expectations about what is to follow. The reader forms hypotheses on the basis of information received from the beginning of the sentence. These are confirmed or rejected depending upon further information that the mind receives. Once the words in the first half of a sentence are read correctly, the remainder of the sentence follows quite easily. Words at the beginning of a sentence are more difficult to predict if removed than words of equivalent class later on in the sentence. Also, the previous sentence(s) does not always provide helpful context to help the reader's anticipation. Words at the ends of sentences are more predictable than words of equivalent class deleted

from the beginning. The reader's hypotheses are continually confirmed or modified as he progresses along the sentence. Semantic and syntactic foundations behind the prediction of words at the end of the sentence are stronger. The last word in the sentence is not the most predictable, however, because it is rarely a structure word (an article, auxiliary verb, preposition or conjunction).

Aborn, et. al. (1959) and Fillenbaum et. al. (1963) found an order of difficulty of prediction according to word class by giving large numbers of undergraduates cloze passages with every nth word deleted. An analysis of the responses showed structure words (articles, auxiliary verbs, prepositions, conjunctions) were easier to predict because there are fewer of them to choose from and success is statistically higher. They also occur more frequently than any other class. Next in order of predictability are content words (nouns, verbs, adverbs, adjectives). Nouns and verbs convey important meanings. If adjectives and adverbs are deleted some of the content is lost, but at least the actors, actions, processes and states remain.

The class frequency of occurrence of words, as found by Aborn, et al. (1956), shows an inverse relationship, however. As a broad class, structure words occurred more frequently than any other class in sentences taken from American popular magazines. The reasoning given for this relationship is that

greater familiarity with a possible correct answer makes the selection of the answer much easier.

The cloze procedure differs from the typical sentence completion test in that the deleted words are not pre-evaluated and selected according to their relative importance in the sentence. Instead, the cloze deals with a contextually interrelated series of blanks, not isolated ones.

Pikulski and Tobin (1982) compared the use of the cloze procedure and the use of a readability formula in assessing readability and comprehension. They concluded that the cloze allows a more direct assessment of the interaction of the reader with the reading materials since it considers the reader's background of experience. In addition, they noted that the formulas can not measure factors such as the use of an unusual meaning for a common word, symbolic language, awkward and confusing sentence structures, the rate at which new ideas are introduced, or the use of illustrations to support the development of ideas. Each of these factors can be ascertained in the cloze procedure because they are determinants in the reader's successful completion of the deleted words.

Rye (1982) concurred with Pikulski and Tobin's (1982) premise regarding the reader's background experience. He also stated that the formulas tend to ignore factors

associated with the reader's motivational state at the time of reading and specific aspects of text production such as the size of the print. Rye believes that formulas can not accurately assess the effects of short words and their concept load on the readability of a passage, but the cloze measures text difficulty in terms of the reader's understanding and response to the language structure of the text.

Advantages of the Cloze Procedure

Some additional advantages of the cloze procedure over other readability assessment procedures are given by Bortnick and Lopardo (1976). First, the cloze test is the most psychometrically sound test available because it is objectively derived directly from the written material. This indicates that different test writers can produce reliable and equivalent instruments over the same material. Therefore, the difficulty of the test is directly dependent upon the difficulty of the written material. Second, the cloze is a simple and convenient tool to develop, administer and score. It can be produced in a short period of time, and it is also easy to obtain alternative test forms for each passage by beginning the deletion of every fifth word with a different word in the second sentence of the passage. For

example, one form could start with word three and then every fifth word, another form with word four, and so on. Third, in developing the cloze, the test constructor does not need to possess a knowledge of the subject matter to produce a content-valid test. A fourth advantage of the cloze is that the test takes a short period of time to give and it can be given to large groups. Also, scoring is fast and objective because a scoring key using the exact word criterion is easily made and used.

Some further advantages of the cloze cited by Pikulski and Tobin (1982) are:

- (1) It can be teacher-constructed rather than being in published form.
- (2) It can be constructed from materials that might be used for instructional purposes.
- (3) It uses pre-established standards to judge the adequacy of an individual's performance rather than comparing performance with normative standards.
- (4) It yields information helpful to making decisions about levels at which the student might best profit from instruction.

Pikulski and Tobin (1982) also recommend the cloze as a method for placing a student in basal reader materials and other types of graded instructional materials. The test materials are constructed by selecting one or more passages

from each text considered for instructional use. The test administrator can estimate the student's independent and frustration levels. Cunningham and Cunningham (1978) and Jones and Pikulski (1974) found an agreement of 70-80 percent between the use of the cloze and the use of an informal reading inventory to determine the instructional level of materials. Therefore, the cloze procedure is a reasonable screening device for instructional placement in reading materials, especially workbooks.

Construction of the Cloze

Researchers differ in the proper procedures for constructing random deletion cloze passages. Taylo (1953), Bortnick and Lopardo (1976) and Pikulski and Tobin (1982) recommend the following procedure:

- (1) Select a passage of 250-300 words from a given text. If the text becomes progressively more difficult, select a passage from the second quarter of the book.
- (2) Inspect the passage to see that it is not heavily dependent on information presented earlier in the text. (i.e., anaphoric words with referents found in earlier sections - it, this, these, etc.)
- (3) Keep the first and last sentences intact.

- (4) Randomly choose one of the first five words in the second sentence without any regard for the function or meaning of the specific word. Delete the word and every fifth word until 50 words have been deleted. Numbers such as 1980 are deleted as a single word. Hyphenated words are two separate words unless the prefix can not stand alone.
- (5) Replace the deleted words with a blank space of uniform length and number each blank consecutively.
- (6) Reproduce the mutilated passage and prepare an answer sheet for recording responses.
- (7) Ask the subjects to complete the passage with directions such as these:

Some words have been left out of these sentences. Your task is to fill in as many of the missing words as possible. Some of the later sentences may give you clues about the earlier ones. Read through all sentences first, then go back to the beginning and try to fill in the blanks. Only one word goes in each blank. No one is expected to answer all items correctly. Spell each word the best you can. Wrong spellings will not count against you.

The justification for the random deletion method used by Taylor (1953) is based upon the fact that if enough words are deleted, the blanks will come to represent proportionately all kinds of words represented in the passage. Taylor (1953) suggests that cloze scores appear to be the measure of all factors that interact to effect the match between the language patterns of the sender (the text) and those of the receiver (the reader).

The rationale for the 250-300 word passage according to Bormuth (1975) is that the 50 items of cloze can be expected to yield a reliability coefficient of .85. To have a statistical level of confidence, the coefficient should be at least .90. However, to raise the coefficient to .90 would require the number of test items to be doubled. Also, a 250-300 word passage fits easily on a single sheet of paper. Lastly, it is easy to calculate the percentage scores on a 50-item test by simply multiplying the number of items by 2.

Haugh (1975) also recommends the use of a passage containing over 250 words so that the student will have to supply words in at least 50 blanks. Shorter passages may produce spuriously high or low scores.

Bormuth (1965a) found that increasing the number of items in a cloze test reduces error more rapidly than adding the same number of students to the sample. Short passages with fewer than 30 items give scores that are not

sufficiently reliable to judge how well a given individual understood a passage.

The selection of the words to be deleted in a passage differs among various researchers. Taylor (1953) said that most research employs the deletion of every fifth word, but every nth word, words at random, or just the words of a given type may be deleted. The only restriction is that whatever words are deleted must be selected entirely by an objectively specifiable process. Any other selection procedure would classify the passage as a common completion test.

Experiments with the number of words left between the cloze items have varied. A larger number of items from a text was obtained by leaving fewer words between the items and the number of test forms was reduced. Leaving too few words between items introduces the possibility that items will exhibit statistical dependence so that the subject's response to an item is dependent upon adjacent items. The existence of appreciable statistical dependence prevents test scores from being treated with conventional statistical procedures. (Bormuth 1967).

Aborn, Rubenstein and Sterling (1959) raised the question of whether the constraints upon words in continuous discourse were cumulative. By exploring the constraints within complete cloze paragraphs, it was concluded that the influence of context upon a particular word choice in English

prose decreased rapidly as the distance of the context from the word increased to five words. Beyond that point the distance between blanks seemed to have little effect on cloze scores.

MacGinitie (1961) studied the problem by varying the number of words of text left intact on either side of a set of cloze items. He was unable to detect any dependence among items when four or more words of text were left between items.

McLeod (1966) deleted every eighth word in three fiction selections and four prose passages, and later modified blanks evoking ambiguous responses. The tests were given to grades 3-7 using alternate forms of the same test. The relationships were linear when the redundancies were plotted against each other. It was shown that skillful readers found the passages to be virtually completely redundant. This pointed out how questionable it is to select deletions on other than a mechanical formula.

Fillenbaum et. al. (1963) deleted every second, third, fourth, fifth and sixth word in passages and found the greatest differences in constraint between passages with every second and third word deleted. Little differences were seen in the fourth, fifth or sixth word deletions. Alderson (1979) found bilateral context of up to ten words affected the reader's ability to predict the content. Rye (1982) recommends a bilateral context of about eight words as a

minimum when dealing with children. He emphasizes that teachers should be more concerned with the class of the deleted word and the word's position in the sentence in determining the text constraints.

For subjects who may not be familiar with the cloze procedure, Pikulski and Tobin (1982) recommend the development and administration of a practice test of a 5 to 10 item cloze passage on fairly easy-to-read material before taking the actual test.

The passages may be given to subjects who have not read the passage earlier or to subjects who have already been exposed to the passage. Validity studies indicate that it makes little difference which method is used. Taylor (1956) found scores on tests administered after subjects had read the passages exhibited slightly greater variances and slightly higher correlations with comprehension tests than cloze tests given to subjects who had not read the passage.

Rankin (1957) found the same results in similar studies. Therefore, when greater validity or reliability are desired it is more economical to increase the number of items in the cloze test and give the tests to subjects who have not read the passage.

Scoring the Cloze

In scoring cloze tests, the exact word deleted is the criterion for correctness most often used. Haugh (1975) reported experiments in which only the exact word of the author of the passage had been counted as correct and others where a synonym was correct. He emphasized that if only the exact word is counted as correct the scores will be lower, but this method has the advantage of higher reliability because scoring will not vary from one scorer to another.

The scoring procedures of Taylor (1953), Pikulski and Tobin (1982) and Bormuth (1967) require the scorer to total the correct number of responses for each passage and to consider these totals readability scores. The passage with the highest score is the most readable, the second highest is the next most readable, and so on. The scorer looks for the exact word, the stem of the exact word, or the uninflected form of the word. Taylor (1953) found that scores obtained by counting synonyms, in addition to responses of exact words, were no better than scores obtained by counting only responses of exact words when the scores were used to discriminate passage difficulty. Rankin (1957) and Ruddell (1963) found that scores of synonyms plus exact words resulted in slightly increased variances on reading comprehension test scores. All scores obtained by counting

grammatically correct responses exhibited positive correlations with each other.

Responses that were inflected differently from the deleted word, whether the stem of the response, a synonym, or semantically unrelated, were analyzed. Positive correlations were obtained - .84 for exact words; .64 for synonyms and .56 for semantically unrelated responses between standardized reading tests and cloze tests. Multiple regression analyses of these data showed that scores on exact words, in both inflections and word stems, accounted for 95 percent of the comprehension test variance predicted from the cloze test scores.

Gallant, 1964; McKenna, 1976; Miller and Coleman, 1967; Ruddell, 1964; Taylor, 1953 compared exact replacement scores with various types of synonym counts and concluded that the latter are not worth the extra time and effort. Synonym counts yield slightly higher correlations with other measures of reading comprehension, (Gallant, 1964; McKenna, 1976), but they tend to be less reliable since they are based upon subjective judgments of what is and is not an acceptable response. The primary reason for recommending only exact placements is that there are no available guidelines for determining students' functional reading levels when more subjective scoring procedures of accepting synonyms are adopted. Higher criterion scores would be needed if synonyms were considered acceptable responses.

Therefore, the most valid method of scoring cloze tests is the exact word method. Most investigators score misspellings correct when the response is otherwise correct. Illegible written responses have not been studied to any extent.

Interpretation of the Cloze Procedure

The interpretation of cloze test scores should help in more accurately matching the text to the reader. The scores represent a level of achievement possessed by the reader based upon some criterion level of performance. Bormuth (1966) suggests the use of the 75 percent criterion score which has a long tradition of acceptance (Thorndike, 1917). According to this criterion a passage is suitable for use in pupil instruction if he responds correctly to 75 percent or more of the questions asked about the passage. Bormuth used multiple choice tests and silent reading passages in the second study. In both studies a cloze score of 44 percent was comparable to the 75 percent criterion. The exact word method of scoring was used. In other investigations, cloze tests were constructed from passages which had been designed for use in standardized reading tests. In all cases cloze scores between 40 and 45 percent were comparable to the 75 percent criterion. (Bormuth 1967.) Rankin and Culhane (1969)

replicated Bormuth's study by comparing the cloze with other multiple-choice tests and reported similar results.

Bormuth suggests that because of variables, such as the novelty of the material and student's willingness to read, that cloze scores should fall within the range of 49 to 59 percent when the material is being considered for instructional purposes.

The criteria for determining the reading levels of the material is given as follows by Pikulski and Tobin (1982):

Independent Level - Student scores at a 50% criterion level. No teacher guidance with the material is necessary. The material is appropriate for homework assignments and independent projects. The independent level is where the student can read without any teacher direction or support; can recognize virtually all the vocabulary and comprehend readily a vast majority (90 percent or more) of the concepts presented. (Bowman 1981.)

Instructional Level - Student scores at a 30-50% criterion level. Some teacher guidance is necessary to master the demands of the material. The instructional reading level is where help and support is needed from the teacher; new vocabulary and concepts should be reviewed.

Frustration Level - Student scores less than the 30% criterion level. The material will be too challenging with little potential for success. The frustrational level is where the material is completely frustrating and almost no comprehension occurs.

Coleman (1966) set out to determine what level of passage difficulty resulted in the greatest amount of information gain in the students reading the passages. He typed the passage on a transparency; covered the words with strips; projected the passage; asked the student to guess and write down the first word; exposed the word; asked the student to guess the next word; and repeated the procedure. The difference between the scores on the two trials was a measure of information gain. Passage difficulty was scored on a matched group of subjects using cloze tests. The results showed that maximum information gain occurred on passages with difficulties of close to 44 percent, and the cloze score was comparable to the 75 percent criterion.

The simplest method of reporting difficulty scores is to report the mean difficulty of the text and the proportion of subjects whose score exceeded the criterion score. However, it is difficult to draw subjects so that a representative sample is selected from the total population of the school with whom the materials are to be used.

An easier method is to use the results when a grade placement number is given to the text. The subjects' scores on the cloze tests are correlated with their scores on a reading achievement test. The regression prediction formula is used to calculate the achievement scores corresponding to the cloze criterion score. The grade placement score is interpreted as the average achievement of subjects able to attain the criterion level on the cloze tests. Other schools who use the same achievement test can estimate the appropriateness of the text for their students by seeing what proportion of the pupils achieve scores exceeding the passage grade placement reported. (Bormuth, 1967)

Error Analysis

The cloze results not only indicate the readability of the written material and the subject's performance, but it also can provide diagnostic information. By examining the patterns of the subject's incorrect responses, a researcher can gain insight into the subject's knowledge of the language. Goodman (1969) and Rye (1982) say that students do not make random errors. The errors or miscues reflect language knowledge and learning strategies. Each error has a cause, or a series of causes that represent an imperfect match between the print and the language generated by the

reader. By analyzing this mismatch, insight can be gained into the subject's reading behavior and language production. The cloze procedure reflects a deeper probing into the child's linguistic ability and tends to reveal areas of weakness not shown in oral reading. The subject can sit and reflect about the meaning and can search the whole passage for clues. Since cloze is a constructive language task, analyzing the errors shows the weaknesses in the construction process. Errors on several cloze passages should be analyzed to provide more errors for an accurate diagnosis.

Rye (1982) believes further that the word the subject places in the deletion is of more value than the original word. He recommends placing errors into categories in order to delineate problem areas. The categories are: Type I semantically and syntactically acceptable, Type II syntactically appropriate but semantically inappropriate, Type III semantically acceptable but syntactically unacceptable, Type IV totally unacceptable either syntactically or semantically. Therefore, a pattern of errors can guide the teacher in remediating reading problems.

Each type of error signals specific needs. For example, Type I errors indicate a failure to make a precise linguistic match with the writer's language. Type II indicates an appreciation of syntax but not understanding of the text.

Type III indicates inability in selecting the precise form of the word even if it is in the correct class, or a failure to channel an understanding of the text into the appropriate syntactic pattern of the context. Type IV indicates a failure to use either syntax or semantics to understand the text. Type IV errors may need further individual diagnosis. A high level of no response errors suggests inadequate sight vocabulary and poor phonic ability. If Type II errors are accompanied by Type I and III, the subject needs to learn how to infer meaning from existing information.

This type of analyses helps the teacher determine the most serious problem area(s). Further examination of each error, in context with a given subject's cloze passage, provides a clearer understanding of the problem area. For example, subject X's paper showed an insertion of the word round instead of the word out in this excerpt: coming ----- of the school gate. He ignored the word after the deletion. Remediation could include several cloze samples in which the subject must read and underline the word following the deletion to determine the appropriate word for the blank. Training in using the existing clues before and after the deletion could raise the subject's level of awareness and success rate.

Other examples of error analysis were shown in Bortnick and Lopardo's study (1976). An error in which the student

substituted an acceptable synonym (e.g., we for people) was analyzed as "no alteration in the meaning of the passage". The student understood syntactic, semantic, and language constraints. Another example given was an inflectional error (e.g., offices for office), and the implication for instruction was to teach the student how a verb form signals the singular or plural form of a noun. From these studies, it can be concluded that an extended analysis of a student's cloze responses yields valuable diagnostic information.

The reliability and validity of cloze tests have been investigated extensively. Fletcher (1959) and Bormuth (1962) determined that the tests contain a number of very difficult as well as very easy items which tend to contribute to high correlations between cloze tests and other measures. These types of items may be an asset because they contribute to the test's validity with a variety of subjects over a wide range of difficulty levels. Skewed distributions are infrequently reported when cloze tests are carefully administered.

Bormuth's study in 1967 sought to prove that cloze tests measure the reading comprehension abilities of students. He analyzed two concepts of comprehension - post-reading knowledge and knowledge gain. Post-reading knowledge is defined as a measure of comprehension whereby the reader reads a passage and is then tested on his knowledge of the content. The scores actually measure both the person's

knowledge acquired from reading the passage and the knowledge he possessed before reading the passage. Knowledge gain is defined as a measure of the reader's comprehension before and after reading the passage by comparing the differences between scores on a test before reading and after reading.

An experimental study by Bormuth (1962) in which he made a cloze and multiple choice test over each of nine passages. The passages varied systematically in subject matter and language complexity. Both tests were given to fourth, fifth and sixth graders. The results showed significant and proportionate main effects and interaction between language complexity and subject matter on the cloze readability and multiple choice scores.

Other studies used identical passages for cloze tests and comprehension tests, Taylor (1956) found a correlation of .76 using Air Force trainees; Jenkinson (1957) found a correlation of .82 with high school students; Bormuth (1962) found correlations of .73 and .84 with elementary students; and Friedman (1964) got correlations ranging from .24 to .43 with college students on comprehension tests of 8 to 12 items.

Research on the comprehension concept of knowledge gain is reported by Bormuth (1967) as scant. Taylor (1956) and Rankin (1957) both found that subjects who read intact passages before taking cloze tests made from the passages

achieved higher scores than subjects who had not read the passages.

Bormuth (1962) concluded that the reliabilities of the nine, 31 item, multiple choice tests used in his study were equal to those of the nine, 50 item, cloze readability tests made from the same passages. Gallant (1964), however, found a sharp reduction in cloze test reliability when the tests were used with first-grade children.

Ruddell (1965) wrote six passages - three of high frequency patterns and three of low frequency patterns - which matched the oral language of fourth grade children. High frequency passages showed higher cloze scores than low frequency passages (.01). Cloze scores also related to the Stanford Reading Test scores, parents' educational level, I.Q. and chronological age of subjects ($r=.61 - .72$). The reliability of the cloze test passages was .85 - .90.

Bormuth (1962) compared the scores of 150 subjects on a special test consisting of words known by 80 percent of a similar population of fourth graders. Three cloze passages from literature, three from social studies, and three from science were used with fourth, fifth and sixth grade subjects - one passage of each per grade level. Correlations between the comprehension tests and the cloze scores were statistically significant (.946). In 1964 Bormuth used the same cloze passages with a deletion rate of 1.5 so all words

were deleted in one of the five forms. The differences in the difficulty of the cloze test forms on the same passage diminished as the test length increased.

Three later studies by Bormuth in 1964 and 1965 used the same type of passages and compared the scores with the Stanford Reading and California Achievement Tests. A 1.5 deletion rate was used in all five different cloze tests. No significant differences were found between test forms. Separate scores were calculated for three linguistic variables: word, phrase, passages. An analysis of regression of words and phrases showed a curvilinear relationship. Correlations between linguistic variables and comprehension difficulty were significant. An exact word scoring criterion accounted for 95 percent of the variance in cloze scores. Grammatically correct and synonyms responses correlated highly with exact word scores and accounted for the increase in mean scores. Correlations increased as a function of the similarity of the meanings of the responses to deleted words.

A more recent study by Bormuth (1968) compared oral reading test scores and cloze scores to California Reading Achievement Test scores for grades four, five and six. Cloze scores of 44 percent were found to relate to reading achievement test scores of 75 percent, while cloze scores of 57 percent related to 95 percent on the reading achievement

tests. Comprehension and word recognition criterion score were not comparable, because on the oral reading tests cloze scores of 33 and 54 percent were comparable to 75 and 95 percent criterion scores. Large differences in cloze and oral reading scores were found.

Cloze tests were compared with scores on the California Mental Maturity and the Gates Reading Survey by Schneyer (1965). A controlled group of sixth graders read in the regular basal program and the experimental group of sixth graders read the basal plus a cloze passage from a basal with every tenth word deleted or noun-verb deletions. The results showed no significant differences between the two groups in comprehension, however, I.Q. related significantly to the cloze scores.

Louthan (1965) tested seventh graders on cloze passages to determine their comprehension by using passages with every tenth word deleted (nouns, verbs and adjectives) and some passages with no deletions. The control group with the undeleted passages had superior scores to the experimental group with the deleted passages. Cloze scores surpassed the deleted groups on function words (prepositions, conjunctions). Therefore, content words such as nouns and modifiers were more difficult than function words.

Bloomer (1965) compares scores of four groups of students using (1) a pretest and undeleted material, (2) only

deleted material, (3) a pretest and deleted material, and (4) only undeleted material. Those with "only deleted material" performed significantly better than the other groups. Later, in 1966, Bloomer gave multiple choice tests after cloze exercises with fifth grade readability to fifth, seventh, ninth, and eleventh graders. He found that cloze tests with easy material was less motivating than materials closely matched with the grade level.

Miller and Coleman (1966) used three deletion methods to measure the reliability of cloze scores: (1) a mechanical rate of every fifth word; (2) one word per passage; (3) a constraint system where every succeeding word is guessed and then revealed to the subject. The highest standard deviation was with the first method; the highest mean with the second method; whereas, sequential constraint was strong within sentences but not across sentences. High correlations were noted between methods one and two, (.95) one and three (.87), and two and three (.87). It was concluded that cloze scores reliably measured readability from first grade to adult level.

An original study of the reliability and validity of cloze tests conducted by Taylor (1953) based on deleting the tenth word and random 10% deletions and scored with both the exact word and synonym replacements showed these findings: (1) cloze scores were comparable to readability formulas in

ranking passages, (2) both deletion methods were reliable, (3) the 1:10 deletion rate discriminated better than fewer blanks, and (4) synonym scorings yielded identical scores. Taylor later validated the findings of the study and concluded that the cloze method could assess reading abilities.

Fletcher (1959) studied the ease of preparing the cloze procedure and its validity and reliability by using an exact word scoring criterion on cloze passages using a deletion rate of 1:5. He found (1) a positive relationship between the subject's ability to use context clues and comprehend rapidly, (b) a significant relationship between I.Q. and the use of context clues, and (c) that the cloze can measure a reader's ability to use context.

Hafner (1963) studied different methods of scoring cloze tests such as scoring connectives only, content words, connectives/content words, grammatically correct, and responses off base with language patterns. He then compared these course grades in reading, experimental tests and standardized measures and found that cloze scores correlated positively and significantly with all standardized measures and off-base responses correlated negatively with discrimination power.

Gallant (1965) studied the validity of cloze tests with first, second and third graders and found the tests were

reliable for these age groups at .90 - .97 with significance of .01.

Potter (1968) summarized the research on the reliability and validity of the cloze tests by enumerating eight specific features the tests should have:

- 1) every nth mechanical deletion system,
- 2) a passage length of at least 250 words,
- 3) a deletion rate of 1:10 and 1:12 in longer passages,
- 4) a deletion of 50 words to insure adequate sampling,
- 5) the exact-scoring criteria,
- 6) scoring of content or function words give specific information,
- 7) other scoring systems (synonym) give less inter-scorer reliability and require more time.

Potter (1968) cautioned readers about generalizing findings of cloze research because subject populations are usually not large, information on subjects is insufficient, data on passage difficulty and test instructions are not reported, test scores are reported on reading achievement or I.Q. He warns that generalizations on these are not appropriate.

Bormuth (1967) summarized cloze research by stating that the use of the cloze readability procedure seems to result in reliable and valid measurements of the comprehension difficulty of written instructional materials. Correlations

between cloze and conventional comprehension test scores are high. Passage difficulties determined by the cloze correspond closely to the difficulties obtained by using other measures. Cloze test items are easily made and do not inject irrelevant sources of variance into the measurement of difficulty. Therefore, the cloze procedure more accurately matches the reader with the text.

In summary, the review of the literature on the cloze procedure included extensive studies on the definition of the cloze, the uses and advantages of the cloze, the development of cloze instruments, scoring procedures, interpretation of the cloze test results, and the reliability and validity of the cloze. Researchers define the cloze procedure as a tool to determine how well the reader can reconstruct the whole through the sums of its part. This occurs when the reader reads a written passage with every nth word deleted and attempts to fill in the gaps by looking at the whole context and determining the words or parts that make sense. The reader's prior experiences/knowledge plus his understanding of the patterns of language and word meanings enable him to predict the content, thereby comprehending the passage. The research studies show a variety of uses for the cloze such as determining (1) the readability level of written materials, (2) the placement of students in basal reader materials, (3) the comprehension level of readers (independent,

instructional and frustrational) and (4) the use as a diagnostic instrument to assess reading miscues and linguistic ability. Researchers who compared the cloze with readability formulas in assessing readability and comprehension conclude that the cloze measures the interaction between the reader and the text, as well as background experience and numerous other variables. While researchers differ on the procedures for constructing the cloze, they agree on several points such as deletions, line length and scoring procedures. Researchers favor the exact word scoring procedure over various types of synonym counts because of validity, reliability and higher correlations with standardized reading comprehension levels, passage difficulty, knowledge of words and language, and the use of syntax and semantics. Cloze test scores also provide diagnostic data useful in planning further instruction in reading comprehension. The reliability and validity of cloze tests are shown consistently by researchers with high correlations between and among standardized comprehension tests, multiple choice tests and oral reading tests with all levels of readers except first grade. The literature shows that the cloze procedure is an acceptable tool for assessing a reader's comprehension of a passage.

Transitional Fourth Grade Students

When students enter the fourth grade, their focus in reading instruction shifts from "learning to read" to "reading to learn". Early (1984) says that "reading to learn" involves reading in order to learn new knowledge, information, thoughts, and experiences by relating the print to ideas. Reading at this level is dependent upon knowledge of word meaning and the use of contextual clues to derive meaning, the reader's prior knowledge or background of experiences on a variety of topics, and the ability to locate information in a paragraph, a chapter, a book, or other source in an efficient manner. Chall (1983) states that students at this stage of reading start on the long course of reading to "learn the new" - new knowledge, information, thoughts, and experiences. Because their background knowledge, vocabulary and cognitive abilities are still limited at this stage, the first steps of this stage of reading are best developed with materials and purposes that are clear, within one viewpoint, and limited in technical complexity. Prior to this stage, the reader has been learning to read by relating print to speech, whereas now he is reading to learn by relating the print to ideas. Reading now begins to compete with other means of knowing besides listening and watching.

The need to know some new things becomes greater if more is to be learned from reading. Word meanings and prior knowledge and experiences are necessary to learn from the reading. Also important is the need to learn to process - how to find what one is looking for efficiently.

Research over the past fifty years, cited by Chall (1983), shows that the fourth grade is the time for starting the study of subject or content areas - social studies and science - because children will have previously mastered the literacy skills to deal with books that teach about times and places and ideas removed from their direct experience. Fourth grade level materials and above begin to go beyond the elemental, common experiences of the unschooled or barely schooled. Simple informative written material that presents ideas that the reader does not already have requires a readability level of at least fourth grade. Chall states further that fourth grade students meet material with more unfamiliar, "bookish", abstract words and a higher proportion of long and complex sentences. The task is to master all these ideas coming from several content areas by learning how to learn from reading from only one point of view. Chall expands this stage by saying that reading to learn is essentially for facts, concepts and how to do things. Reading to learn also requires higher level thinking processes or reasoning more on an inferential level (reading

between the lines) rather than on a literal level requiring simple recall of the information.

From research in the area of psychology, linguistics and educational practice, Chall (1983) gleaned significant information about fourth grade students. In the area of psychology, she noted four specific findings. First, fourth graders' peripheral vision appears fully established because they use visual information not directly in their focus. The processing of surrounding information in the text is needed for reading fluency to develop. Second, their attentional processes to printed material continues to increase as they coordinate shifts in attention to various components of the reading process. For example, if the fourth grader puts too much attention on the process of decoding words, comprehension may be affected resulting in poor reading. The reader needs to shift from decoding to comprehending without a loss of meaning. Third, their ability to use knowledge of spelling patterns and phonological rules becomes more efficient at fourth grade which helps to facilitate more mature reading. Fourth, their use of semantics (word meanings) and syntax (grammatical structure) helps them to integrate the decoding skills and the use of contextual clues.

Chall (1983) investigated the eye movements of fourth graders. She found their eyes have reached a mature size

and that their rate of eye movement slows down. The number of fixations on a word and the regressions to prior words continue to decrease as the fourth grader reads while the fixation time remains constant.

Chall (1983) reviewed the literature on eye-voice span (the distance the eye is ahead of the voice during oral reading) and found that the eye-voice span increased with age and grade placement. The research showed that the more advanced the age and grade, the longer the eye-voice span. Eye-voice span also related to text readability in that the more difficult text created a shorter eye-voice span while the easier text created a longer eye-voice span. The better reader at the fourth grade possesses a longer eye-voice span. Therefore, in order to read fluently and to comprehend the text, the reader views rapidly beyond his voice so as not to lose the meaning of the passage.

In the area of linguistics, Chall's (1983) review of the research pointed out that beginning at the age of 10 or 11 the child's word knowledge goes through a qualitative change. The number of words and the difficulty of the words increases as they become less common and more abstract. The greatest change, however, is in the way words are defined. The definitions change from the concrete to the more abstract and general. Younger children define words by use and

demonstrations, while fourth graders give more synonymous explanations (i.e., an apple is defined as a "fruit" instead of "what you eat".) This change in word knowledge parallels with the content subjects (history, science, geography), and the more bookish, abstract materials in the fourth grade curriculum as the students begin "reading for the new information".

Chall's (1983) review of educational practices centered upon readability measurement, and "the fourth grade slump". The readability of materials in the primary grades involves simpler vocabulary and syntax, and familiar ideas and things, whereas fourth grade materials begin to resemble adult, natural writing. Only at fourth grade and higher are the materials information-type reading and narrative of a substantial nature.

The "fourth grade slump", termed by Chall (1983) means that the fourth grade readers are in a state of transition and are meeting a milestone in their education. Fourth grade is a plateau where development continues but at a much slower pace. Reading is used increasingly as a tool for new learning. The readers may read the stories in the reader but not understand the message of content textbooks containing more extensive vocabulary, concept load, and background knowledge. Improper development of decoding skills in earlier grades can hamper fluency in reading these new

technical terms and concepts, in comprehending the information by relating it to background knowledge, and in reasoning processes on a more mature level.

Many classroom teachers will attest to the fact that students face this "fourth grade slump" referred to by Chall. It would, therefore, seem appropriate to study comprehension at the level where this slump or stumbling block occurs.

In summary, the review of the literature on transitional fourth grade students looked at the shift in reading focus from "learning to read" to "reading to learn" the new knowledge, information, thoughts and experiences by relating the print to ideas. Materials used in this new focus must be clear, contain one viewpoint and have limited technical complexity. Word meanings and location skills take on new significance as the readers face bookish, abstract materials with a high information load and longer, complex sentences. Higher level thinking processes are required to interpret the abstract information in fourth grade reading materials. The psychological research indicated significant growth by the fourth grader in peripheral vision, attentional processes, knowledge of spelling patterns and phonological rules, and the use of semantics and syntax to derive meaning from the text. Further research in psychology revealed that the fourth grader's eye has reached mature size; the rate of eye movement slows down; and the eye-voice span lengthens to

facilitate reading fluency. The research in linguistics concluded that the fourth grader's word knowledge increases not only in number and in difficulty but by definitions of words as the focus shifts from the concrete to the abstract in the technical content area materials.

The research on educational practices indicated that the readability levels of fourth grade materials increase to accommodate an adult writing style, so the reader faces a "slump" or transition in the ability to handle extensive vocabulary, concept load and reasoning processes by relating the information to background experiences.

Summary

This chapter has reviewed the literature on five specific areas that serve as a basis for the theoretical framework of this study. These areas are: (a) Basal Reader Workbooks, (b) Readability of Workbooks, (c) Syntactic and Semantic Features of Reading Comprehension, (d) Cloze Procedure, and (e) Transitional Fourth Grade Students.

Although there is limited research available on basal reader workbooks, the focus of the existing research centered upon teachers' and students' use of the workbooks with little emphasis on their purposes or functions. The research showed that reading workbooks are unquestionably used by teachers as

a tool to provide independent practice of skills taught during direct instruction, that the practice pages are not assigned based upon students' needs; and that the amount of time spent doing workbook pages is disproportionate to the amount of time the students spend interacting with the teacher. The researchers agree that workbooks can be a meaningful tool for reading instruction and practice if the workbook tasks are analyzed to determine their relevance, their vocabulary and concept load, their relatedness to the rest of the reading program, the response modes elicited, how the skills are applied and the correlation of the workbook pages with the basal reader.

In general, the research findings on the readability of reading workbooks indicated that there was a significant relationship between the reader's reading level and the designated versus the actual reading level of workbook exercises. Workbooks were typically found to be two to five grade levels higher than the designated publisher's reading level. Several studies showed that many readers operate on a frustrational level. Therefore, the pages assigned for completion on an independent reading level with minimal assistance by the teacher are done haphazardly and with minimal success. The research studies that analyzed the concept load, word difficulty and sentence length found major discrepancies in basal workbooks on grade levels 3-6 with the most serious discrepancies at grade four and six. The

vocabulary control of the basal reader was not seen in the accompanying workbooks, especially in the number of new words met only in the workbook and in the direction statements for completing the workbook activities.

The reported literature on the role of syntax and semantics in reading comprehension has shown a relationship between the reader's knowledge of the language and the ability to predict the message conveyed by the author. Syntactic and semantic cues are major determinants in the prediction process and in reading comprehension. Significant relationships were shown between sentence complexity and comprehension, and sentence connectors and comprehension. Predictable patterns of errors at the independent, instructional and frustrational levels indicated that good readers use prior text, make general predictions, use word shape and length, use grammatical relationships and language constraints in the sentences to derive meaning from the printed text.

Findings from the review of literature on the cloze procedure as a means of assessing a reader's comprehension revealed agreement in several aspects. The cloze requires the reader to reconstruct the whole of the passage in completing the deletions. The reader's prior experiences and knowledge of language patterns enable successful prediction

of the content. The cloze has multiple uses in the instructional program from assessing the readability level of materials to providing diagnostic information. Disagreement by researchers was seen in the development of cloze instruments, but agreement was reached on deletion procedures and scoring procedures. Cloze test data were seen as valuable for teachers to use in assessing comprehension levels, passage difficulty, word knowledge and the use of syntax and semantics. Researchers found cloze tests as reliable and valid in comparison with standardized reading tests and oral reading tests.

The review of the literature on transitional fourth grade students indicated that fourth graders experience a "slump" as they shift from primary school and "learning to read" to the middle grades and "reading to learn". The "slump" occurs because the reading materials become more bookish and abstract, and resembles adult writing; locating information is a vital skill in these more technical materials; visual skills are intensified as the eye reaches its mature size, eye movement slows down, eye-voice span lengthens; and linguistic demands of written text increases in word number, difficulty, and types of definitions. Therefore, the fourth grader is faced with a transition between the old, familiar narrative materials and the new technical expository materials and the ability to comprehend

information by relating it to background experiences and higher level thinking processes.

The review of the literature for this study warrants the conclusions which follow:

- Basal reader workbook passages contain information that can enable the reader to practice reading skills but these passages must be scrutinized carefully to better match them with reader needs and reading levels.
- The readability levels of basal workbook passages are a major determinant in how successful the reader uses and comprehends the practice materials.
- There is a significant relationship between the reader's knowledge of the language (syntax and semantics) and the ability to predict the message intended by the author.
- The cloze procedure measures the interaction between the reader and the text and it provides a reliable and valid measurement of the comprehension difficulty of written instructional materials.
- Fourth grade students experience a "slump" or transition time between "learning to read" and "reading to learn" and, therefore, need practice materials in reading on their independent reading level to experience reading success.

Chapter III

Procedures

Introduction

The purpose of this study was to assess fourth grade students' abilities to read fourth grade workbook materials at an independent reading level and to analyze the types of errors they made in comprehending the passages. Limited research and expert opinion are available regarding students' abilities to understand and complete basal reader workbooks. Since fourth grade students experience a transition time between "learning to read" and "reading to learn" and need practice materials on an independent reading level, they were subjects of this study. Fourth grade students were asked to read cloze passages based upon fourth grade workbooks. Reading levels were derived from the students' responses to the cloze workbook passages.

In order to study the students' comprehension of the workbook passages, several procedures were necessary. First, measures were selected and developed that would assess fourth graders' reading levels. Second, a student population was selected. Third, the cloze instruments were administered. Fourth, the collected data were analyzed using the Scientific Time Sharing Corporation (APL) Statistical Library Program. This chapter describes the procedures employed in the study.

Instrumentation

Two measures were used to describe fourth grade students' performance with the reading workbooks. The first measure was a readability formula which assessed the text difficulty by looking at the variables of vocabulary (word length) and sentence difficulty (sentence length). The second measure was the cloze procedure which involved the systematic deletion of words from a workbook passage. The subjects read the cloze procedure and wrote the deleted words in the blanks.

Readability Formula

Readability formulas are tools for determining the readability of printed material. These formulas can predict readability by assessing the variables of word length (number of syllables) and sentence length (number of words). The Fry Readability Formula was used in this study for a variety of reasons. First, it measures a wide range of reading levels from first grade through college level materials. Second, it is a relatively quick assessment tool. Third, it is a reliable and validated research formula. Finally, it reflects an instructional reading level which means a reader can read and comprehend it with the assistance of a teacher.

Therefore, it was used to assess the readability of fourth grade reading workbooks used in this study.

Initially, fourth grade workbooks from four publishers (Harcourt Brace Jovanovich, Scott Foresman, Ginn, and Houghton Mifflin Co.) with current copyrights were examined. Three 100-word samples were chosen from the beginning, middle and end of each workbook to determine the average number of sentences and the average number of syllables per 100 words. Sentence numbers were determined to the nearest tenth of a sentence. These figures were plotted on the Fry Readability Graph to determine the approximate grade level of the passage. The data for each workbook are in Table 1.

Table 1
Fry Formula Readability Data for
Four Publishers' Reading Workbooks

	<u>Average of Syllables</u>	<u>Average of Sentences</u>	<u>Reading Level</u>
Harcourt Brace	120.6	9.4	4.0
Scott Foresman	124.0	8.4	4.0
Ginn	133.0	7.7	6.0
Houghton Mifflin	137.6	8.0	6.0

The approximate readability levels of the four workbooks ranged from fourth grade up to sixth grade or a three grade level span.

Cloze Procedure

The second measure used to determine how well fourth graders read fourth grade workbook passages was the cloze procedure. In this procedure the reader reads a passage containing systematically deleted words and inserts the words he thinks the author used in expressing the ideas, thereby revealing the receiver's understanding of the communicator's concepts. The reader calls upon his background of experiences and understanding, self-concept, linguistic abilities, intelligence, and word attack knowledge. He or she reconstructs the whole through the sum of its parts. Taylor (1953), the developer of the cloze procedure, describes it as:

a method for intercepting a message from a transmitter, mutilating its language pattern by deleting words and administering it to receivers in such a way that their attempts make the patterns whole again, potentially yielding a measure of their ability to deal with the general meaning and form intended. (p.416)

The cloze procedure involves the selection of a 250-300 word passage on a specific reading level. This size passage is needed to get 50 items of cloze, which Bormuth (1975) found yielded a reliability coefficient of .85. A 250-300 word passage also fits easily on a single sheet of paper and it facilitates the calculation of percentage scores by multiplying the 50 items by 2. The first and last sentences are left intact and every fifth word is deleted and replaced by a 15-space line.

The cloze passage is given to a student who has never read the passage and his task is to complete each blank with the word he thinks was deleted. The blank is scored correct if it exactly matches the word deleted. The difficulty of the passage is determined by the student's percentage score on the test. The proportion of students inserting the correct word in the blank is a measure of the word difficulty. Taylor (1953) used the following criteria for determining the readability of the passage:

57% or above accuracy	= independent reading level
45-56% accuracy	= instructional level
44% or below accuracy	= frustrational level

There are three major advantages of the cloze procedure. First, it can be constructed by teachers from materials used for instructional purposes. Second, it uses pre-established standards for judging students' performance, such as the number correct or the percentages correct. Third, it yields information helpful in making decisions about the levels of materials students need to feel successful during reading instruction and aids in placing students in basal reader materials (Pikulski and Tobin, 1982).

Statistically, the cloze procedure is valid and reliable because it takes into account many variables affecting passage readability (Rankin, 1957; Fletcher, 1955; Bormuth

1962; MacGinitie, 1961). Significant correlations between cloze scores and multiple choice comprehension tests have been shown (Bormuth, 1962; Jenkinson, 1957; Taylor, 1976). The cloze test has a 70-80 percent agreement with an informal reading inventory in determining the instructional level of materials (Cunningham and Cunningham, 1978; Jones and Pikulski, 1974). Therefore, the use of the cloze procedure as an assessment instrument for the comprehension of fourth grade students' readability of fourth grade workbook passages appears viable because of its reliability, validity, and its ease in administration and scoring.

The procedures of Bormuth (1975) were used to develop the cloze instruments in this study. Each of the 250-300 word passages identified in each reading workbook contained written directions and reading text as well as a skill exercise at the bottom of the page. The exercise was included to enable the subjects to view the entire workbook page, but the exercise was not included in the cloze passage. However, the subjects could read the entire page to gather clues for the deleted words.

Developing Cloze Procedures

The criteria for the selection of two of these four workbooks for use in this study included (1) identical

comprehension skills, (2) 250-300 word passages on a single page, excluding the workbook exercises and (3) readability at or near the fourth grade level. Several of the workbook pages across the four publishers contained identical skills, but often the 250-300 word passage would have to include the exercise. After matching this criteria with the four cloze instruments, the workbook passages from the Scott Foresman Co. and Houghton Mifflin Co. materials were selected for use in this study. (Appendix A.)

Practice cloze exercises from easy reading workbook materials were developed to acquaint the fourth grade students with the cloze test. (Appendix B.) Two short cloze tests were made of five deletions (every fifth word) with the first and last sentence intact from the Scott Foresman Focus Series, grade four workbook. This series is designed for below-average readers and it has a readability level of 3.0 according to the Fry Readability Graph.

Selection of Study Population

The sample population of this study consisted of a random selection of fourth grade students from two school systems in the South Central part of the State of North Carolina. School System I served students from a medium-sized town with a population of 36,700. The schools

were located both within the town limits and in the surrounding rural areas. The students came from households where parents were employed in large industries and agriculture. School System II served students from a mixture of rural and suburban areas with a large concentration of military students from local Army and Air Force bases (population 282,000). Occupations of these households were agriculture, industry, blue collar and white collar positions. Both school systems had a range of socioeconomic, achievement and racial/ethnic groups. Table 2 shows a demographic representation of these levels and groups.

Table 2
Demographic Data of Sample Population

	<u>School System I</u>	<u>School System II</u>
1. Socioeconomic Levels (Average Per Capita Income)	\$ 9,078.	\$ 8,572.
2. Achievement Levels (Total battery of Third Grade California Achievement Test 1983-84)	68% Percentile 4.3 Grade Equiv.	65% Percentile 4.2 Grade Equiv.
3. Racial/Ethnic Composition	77% Caucasian 23% Negro	60% Caucasian 35% Negro 2% American Indian 1.5% Hispanic 1.5% Asian

A sufficient number of fourth grade students was available to provide a sample population. Based upon the sample size table produced by Krejcie and Morgan (1970), a population of 3,131 students required a sample size of 341 to produce a confidence level of 95 percent. School System I had six schools and School System II had thirty-four schools containing fourth grade students. Using a table of random numbers, the author selected 400 numbers which were then matched with an alphabetical and numerical listing of fourth graders from each the two school systems. School System I had a total of 522 fourth graders of which 66 were selected, and School System II had a total of 2,609 fourth graders of which 334 were selected. Table 3 contains the description of the selected population by sex, race, school number and school system.

Table 3
Distribution of Subjects

<u>School #</u>	<u>Total Students</u>	<u>Sex</u>		<u>Race</u>				<u>School System</u>	
		(M)	(F)	(W)	(B)	(I)	(A)		(H)
1	6	2	4	4	2				I
2	21	9	12	15	6				I
3	7	2	5	5	2				I
4	10	9	1	7	3				I
5	6	5	1	1	5				I
6	6	5	1	1	5				I
7	17	9	8	7	7		2	1	II
8	9	7	2	6	2			1	II
9	13	7	6	4	8			1	II
10	10	3	7	4	5		1		II
11	12	8	4	3	9				II
12	5		5	4		1			II
13	9	4	5	3	5		1		II
14	10	4	6	7	2	1			II
15	8	5	3	4	4				II
16	7	2	5	3	4				II
17	10	5	5	6	4				II
18	8	4	4	6	2				II
19	3	2	1	2	1				II
20	9	4	5	2	6	1			II
21	8	3	5	7	1				II
22	11	4	7	8	3				II
23	7	5	2	6	1				II
24	6	3	3	1	5				II
25	12	7	5	4	6		2		II
26	6	5	1	1	5				II
27	4	3	1	2	1			1	II
28	8	5	3	4	4				II
29	4	1	3	3	1				II
30	6	2	4	3	3				II
31	6	3	3	3	3				II
32	1	1		1					II
33	13	6	7	8	5				II
34	11	6	5	3	7			1	II
35	6	2	4	3	3				II
36	4	1	3	2	2				II
37	13	4	9	7	6				II
38	3		3	2	1				II
39	8	1	7	5	3				II
40	6	4	2	2	4				II

	330	160	170	170	146	3	6	5	
=====									

W = White
 B = Black
 I = Indian
 A = Asian
 H = Hispanic

Permission to conduct the study was granted by the Human Subjects Committee of the University of North Carolina at Greensboro and by the Superintendents' offices in School Systems I and II. A letter describing the study and the procedure for selecting the subjects was sent to each superintendent. (Appendix C.)

Meetings were held with all administrators to explain the study and to clarify questions and understandings. All of the forty principals agreed to the inclusion of their schools in the study. Each principal agreed to distribute the parental consent form (Appendix D.) via the students; to set up an appropriate testing site in the school; and to release the subjects for testing on two scheduled dates.

Of the 400 students in the random sample, 390 received parental permission to participate in the study and 330 completed the two instruments. Sixty subjects were dropped from the study because of failure to complete both cloze instruments, absences, transfers, and rescheduling conflicts at the local school level.

Collection of Data

In order to facilitate the administration of the cloze instruments, three research assistants were selected. A graduate student, a retired classroom teacher and a former

school psychologist were chosen because of their interest and prior experiences in research, their experience in teaching reading comprehension and their knowledge of testing and evaluation procedures. All three assistants were trained in the appropriate testing procedures and in the cloze instruments.

Identical printed detailed procedures for administering the instruments were used by each research assistant. (Appendix E.) The assistants rotated their testing schedules in the 40 schools on a fixed schedule. (Appendix F.) The researcher observed each assistant on five separate occasions to assure uniformity in testing procedures. These observations were scheduled so that the researcher could meet each subject and school principal on at least one of the two testing dates. (Appendix G.)

All subjects were tested during a five-week period in May and June, 1985. School System I was tested during the first two weeks of May, and School System II was tested during the second, third and fourth weeks of May with some makeup tests scheduled during the first week of June. Each testing session began with a practice cloze test which was completed independently by each subject. Each item was then discussed orally with the group to determine the available clues to each deleted word. Written directions for the instrument were given to the subjects and were read orally by

the research assistant. (Appendix H.) No time limit was imposed, and the majority of the subjects completed each instrument in a 20-40 minute time period.

Two of the research assistants and an additional elementary reading teacher were trained in the scoring procedures. They were given answer keys to the exact word replacements in both cloze instruments (Appendix I.) and a scoring sheet including fifty numbered blanks (ten rows of five blanks per rows) to eliminate marks on the instruments and to facilitate entry of the data into the computer. (Appendix J.) The assistants were guided in scoring the errors using the following categories of errors:

(An adaptation of Neville and Pugh, 1974 and Rye, 1982)

- Type 0 - The correct, exact word replacement
- Type I - Incorrect response that is semantically and syntactically correct; makes sense in the context of the passage and fits into the syntax of the sentence; may or may not be a synonym which does not alter the sense of the sentence. (e.g., He didn't look (seem) seriously injured (synonym). The police then (officers) got out of the car (not a synonym).)
- Type II - Incorrect response similar to Type I but is not a synonym; alters meaning of sentence. (e.g., It was a cold October day (month)).
- Type III - Incorrect response that is syntactically appropriate but semantically inappropriate; usually of the same class as the original word; acceptable in terms of tense, person, case and number. (e.g., Please take him to the nearest (largest) zoo).

- Type IV - Incorrect response that is semantically acceptable but syntactically unacceptable; shares the same word stem as the missing word; inappropriate in tense, person, case and number. (e.g., The man had fallen (fell) into the ditch.)
- Type V - Incorrect response that is totally unacceptable either semantically or syntactically; usually an "off-the-wall" response. (e.g., It (Then) ran down the driveway and (then) onto the road.)
- Type VI - Blank response in which the student made no response at all.

After the initial independent scorings of the two instruments, two additional independent scorers (a university reading professor and the researcher) evaluated each item for which there were not two out of three scorer agreements. The qualifications of the scorers are given in Appendix K. For the discrepancies remaining after the five scorings, the fourth and fifth scorers met to resolve these discrepancies. They were able to agree on all of the discrepancies.

After all responses on an instrument were categorized, the number of correct responses were tallied for each instrument. Each subject's instrument was classified at one of three levels using the following criteria:

Comprehension Level (Frustration)(Instructional)(Independent)

Cloze Score % 0<----->44 <----->57 <----->100

Independent Reading Level - 29 or more correct responses (57-100%)

This level indicates that the workbook material can be read with relative ease with a high degree of understanding without teacher assistance. Virtually all vocabulary is recognized and the concepts are comprehended. The material is appropriate for homework assignments, seatwork and independent projects.

Instructional Reading Level - 23-28 correct responses (45-56%)

This level indicates that the material should be used for instructional purposes with teacher guidance since the reader can not read it well enough to understand it without help. New vocabulary and concepts should be reviewed prior to reading the material.

Instructional Reading Level - 22 or less correct responses (44% or below)

This level indicates that the material is far too difficult for the reader to cope with, even if the teacher is available to help with the reading. There is little potential for success in comprehending the material.

Analysis of Data

In order to answer the questions posed in this study, collected data were analyzed with the Scientific Time Sharing Corporation (APL) Statistical Library Program. The totals and percentages of the following data were computed:

- (1) students scoring on each reading level
- (2) responses in the six categories of error types
- (3) errors of each type for each of the fifty deletions on each cloze instrument
- (4) responses for each part of speech included in the deletions
- (5) deletions occurring at the beginning, middle and end of the sentences in the cloze instruments
- (6) errors on the direction word replacements in the cloze instruments
- (7) errors in syntax and semantics

One-way analysis of variance (ANOVA) was used to compare the student's scores on the two cloze instruments to determine if the fourth grade students could read the cloze passages at an independent reading level.

The Chi-Square Test of Independence was used to answer the question posed on the relationships among the six error types in reading comprehension (Type 1 - uses syntax and semantics without altering the meaning of the passage, Type 2 - uses syntax and semantics but alters the meaning of the passage, Type 3 - uses syntax but not semantics, Type 4 - uses semantics but not syntax, Type 5 - uses neither syntax nor semantics, Type 6 - blank responses) and the three reading levels (frustration, instructional, independent). In addition, Chi-Square was used to test the relationship between the types of errors and the difficulty level of the

level of the passages (fourth grade passage verified as fourth grade readability and fourth grade passage verified as sixth grade readability). The .01 confidence level was used to test the significance of these questions. Observed differences that were found to be significant at the .01 level of confidence indicates that the difference would have occurred by chance in one or fewer times in 100 times.

Summary

This chapter has described the methodology used to investigate whether fourth grade students could read workbook materials from fourth grade basal reader workbooks at an independent reading level, and to analyze the types of errors they made on the cloze procedure passages. Included in the chapter was a description of the variables, a description of the cloze instruments, information regarding the subject population who participated in the study, and explanation of the methods used in the data collection. Complete information regarding the analysis of the data is recorded in Chapter IV of this study.

Chapter IV

Findings

Introduction

The major purpose of this study was to assess fourth grade students' abilities to read fourth grade workbook materials from basal reader workbooks at an independent reading level and to analyze the types of errors they made on the cloze procedure passages. A random sample of 330 fourth grade students from two school systems took two cloze tests developed from fourth grade reading workbook passages. The tests were scored using the exact word method scoring procedure. The Systematic Time Sharing Corporation (APL) Statistical Library Program was used to analyze the cloze test results. The totals of the students' responses were matched with the three reading levels - frustration, instructional, and independent -(Appendix L).

The following information was tabulated and the percentages were determined to answer the questions posed in the study:

- (1) the numbers of students scoring on each reading level;
- (2) the numbers of responses in the six categories of error types;

- (3) the numbers of errors of each type for each of the fifty deletions in each cloze instrument;
- (4) the responses for each part of speech occurring in the deletions;
- (5) the counts of the deletions occurring at the beginning, middle and end of the sentences in the cloze instruments;
- (6) the total errors on the direction word replacements in Instrument Number Two; and
- (7) the errors in syntax and semantics.

A one-way analysis of variance (ANOVA) was used to compare the fourth grade students' scores on the two cloze instruments to see if they could read the reading workbook materials on an independent reading level.

Chi-Square analyses were used to determine the relationship between the six error types and the three reading levels, and the difficulty level of the reading materials.

The major emphases of the investigation were directed toward answering the questions which follow:

1. Can fourth grade students read workbook materials from fourth grade basal reader workbooks at an independent reading level?

2. Is there a relationship between the fourth grade students' reading levels and their reading error types when reading cloze passages based on published fourth grade basal reader workbooks?
3. Is there a relationship between the difficulty level of the fourth grade reading workbook cloze passages and the types of reading errors made when reading cloze passages based on published reading workbooks?
4. What were the specific syntactic difficulties of the fourth grade students in reading and comprehending the fourth grade basal reader workbook cloze passages?
5. What were the specific semantic difficulties of the fourth grade students in reading and comprehending the fourth grade basal reader workbook cloze passages?

Statistics Related to Reading the
Two Workbook Passages

The first question in this study asked if the fourth grade students could read workbook materials from fourth grade basal reader workbooks at an independent reading level. An independent reading level in this study meant that the reader could read the material with relative ease with a high

degree of understanding without teacher assistance since virtually all vocabulary is recognized and the concepts are comprehended. Material must be understood at this level in order to be appropriate for seatwork and independent practice.

Table 4 shows the total of correct responses and the proportions of correct students' responses in each of the three reading levels - frustration, instructional and independent. The scoring of the two instruments showed that 67.27 percent of the fourth grade students were unable to read Instrument Number One at an independent reading level (26 percent frustration and 41 percent instructional). Out of 330 students, 85 scored at a frustration reading level, while 108 students scored at an independent reading level.

Table 4 indicates that the students had considerably more difficulty in reading Instrument Number Two. Ninety-five percent of the fourth grade students could not read the cloze passage at an independent reading level (67 percent frustration and 28 percent instructional). Of the 330 students only 16 scored at an independent reading level, whereas 93 scored at the instructional reading level and 221 at the frustration reading level. Thus, these figures indicate that only 33 percent could read Instrument Number One independently and 5 percent could read Instrument Number Two independently.

Table 4
Correct Responses to the Cloze Instruments

Instrument	Frustration Level		Instructional Level		Independent Level	
	No.	Percentage	No.	Percentage	No.	Percentage
One	85	.2575	137	.4151	108	.3272
Two	221	.6666	93	.2818	16	.0484

Table 5 shows the results of the one-way analysis of variance ($F = 172.153$; $p < .01$) which indicated that the fourth grade students made significantly fewer errors on Instrument Number One, thus substantiating that the two cloze tests were not of equivalent difficulty.

Therefore, question number one is supported with sufficient data to indicate that the fourth grade students could not read either cloze passage at an independent reading level.

Table 5
Summary of the Analysis of Variance
of Reading Levels X Instruments

Source of Variance	SS	df	MS	F	Level of Significance
Between instruments	34.217	1	34.217	172.153	.01
Within instruments	130.783	658	0.199		
Total	165.000	659			

Statistics on the Relationships Between
Reading Levels and Error Types

The second question asked if there is a relationship between the fourth grade students' reading levels and the error types they made in reading and comprehending the cloze passage.

Table 6 shows from the Chi Square analyses that there is a relationship between the six types of errors given below and the three reading levels (frustration, instructional, and independent).

- | | |
|--------|---------------------------------------------------------------------------------|
| Type 1 | - syntactically and semantically correct response (may or may not be a synonym) |
| Type 2 | - syntactically and semantically correct response that alters the meaning |
| Type 3 | - syntactically correct, but semantically incorrect |
| Type 4 | - semantically correct, but syntactically incorrect |
| Type 5 | - syntactically and semantically incorrect |
| Type 6 | - blank response |

Table 6
 Relationship Between Reading Levels and
 Error Types on Instrument One

Reading Levels	Type 1		Type 2		Type 3		Type 4		Type 5		Type 6	
	(E)	(O)	(E)	(O)	(E)	(O)	(E)	(O)	(E)	(O)	(E)	(O)
Frustration	369.87	252.	817.50	570.	215.04	196.	240.50	215.	901.45	1267.	137.63	182.
Instructional	445.58	445.	984.84	1055.	259.06	280.	289.73	314.	1085.98	971.	165.80	166.
Independent	259.55	378.	573.66	751.	150.9	149.	168.77	170.	632.57	382.	96.57	52.

$\chi^2 = 529.0229$
 (10)

$p < .001$

On Instrument Number One, there was a small relationship between the reading levels and the error types ($\chi^2_{(10)} = 529.058$; $p < .001$; $\phi = .184$). On the frustration reading level, there were fewer type 1 and type 2 errors and more of type 5 and 6 errors. This shows that the fourth grade students seemed to have little knowledge of syntax and semantics because they predominantly gave responses which were syntactically and semantically inappropriate, or left the blanks empty because they could not think of a suitable word. The frustration reading level indicates serious comprehension problems because the readers did not use syntax or semantics to derive clues to the deleted words.

The fourth grade students who read Instrument Number One at an instructional reading level scored as expected according to the Chi-Square analyses. Very small discrepancies were shown between the expected and observed frequencies. On error types 3 (lack of semantics) and 4 (lack of syntax), there were relatively small numbers of errors, which indicated that the students either knew syntax and semantics or had difficulty with both. The errors were not an either/or type situation which showed with these students that syntax depended upon semantics and vice versa.

On the independent reading level, the opposite situation existed in the fourth grade students' responses because they had more of type 1 and 2 errors and fewer of types 5 and 6.

This suggested that the students had a better understanding of syntax and semantics as they read the passages because they gave more appropriate synonyms that did or did not alter the meaning of the passages. Therefore, on the independent reading level, the students understood the cloze passage.

Table 7 shows a small relationship between the reading levels and error types on Instrument Number Two ($\chi^2 (10) = 549.8606$; $p < .001$; $\phi = .164$). On the frustration reading level, there were larger numbers of errors of type 5 (4007 syntactically and semantically inappropriate responses) and type 6 (635 blank responses). This pattern suggested that the students could not understand the content of the cloze passage and simply guessed or made no response at all.

Table 7
 Relationships Between Reading Levels and
 Error Types on Instrument Number Two

Reading Levels	Type 1		Type 2		Type 3		Type 4		Type 5		Type 6	
	(E)	(O)	(E)	(O)	(E)	(O)	(E)	(O)	(E)	(O)	(E)	(O)
Frustration	1443.08	1198.	1034.09	867.	614.62	542.	353.67	350.	3567.34	4007.	568.21	635.
Instructional	431.46	636.	309.18	446.	183.76	252.	105.74	106.	1066.56	693.	175.27	139.
Independent	55.46	96.	39.73	70.	23.62	28.	13.59	17.	137.1	71.	22.52	10.

$\chi^2 = 549.860$
 (10)

$p < .001$

The students had fewer responses fitting types 1 and 2 (syntactically and semantically appropriate) which indicated, also, a lack of understanding of the content of the passage.

On Instrument Number Two, a different kind of pattern emerged at the instructional reading level. The students on this reading level had increasingly more errors of type 1, 2 and 3 (syntactically and semantically appropriate, or semantically inappropriate) and far fewer of types 5 (syntactically and semantically inappropriate). This suggested that students on the instructional reading level could handle the vocabulary and sentence structure of the more difficult cloze passage by inserting words that were syntactically and semantically appropriate.

There were significantly more errors of types 1 and 2 by the students who scored on an independent reading level on Instrument Number Two as shown in Table 7. The pattern suggested that the students determined the syntax of the passage and the semantics because they could approximate the deletions with appropriate synonyms or other words that altered the meaning of the passage. The errors in types 5 and 6 were much fewer which supports a knowledge of syntax and semantics and little random guessing.

Errors of type 4 (syntactically appropriate responses) did not distinguish between the reading levels because the fourth grade students' errors fell where expected according to the Chi Square analyses. Therefore, question two is supported because there are positive relationships ($p < .001$) among the three reading levels and the types of errors the fourth grade students made on the cloze passages.

Statistics on the Relationships Between
Passage Difficulty and Error Types

The third question asked if there is a significant relationship between the difficulty of the reading workbook passages and the types of reading errors made by the fourth grade students. Chi-Square analyses were used to determine the extent of the relationship between the two cloze passages and their verified reading levels and the error types made on each passage. Table 8 shows a significant relationship between the difficulty level of the reading passages and the error types made ($\chi^2_{(6)} = 1699.3167$; $p < .001$; $\phi = .227$). Students on Instrument Number One scored more correct responses and type 2 errors (syntactically and semantically appropriate with altered meanings) and fewer of type 1 (synonyms) and types 5 and 6 (syntactically and semantically inappropriate responses and blank responses). This pattern

indicated that the first cloze instrument was more closely matched to the students' comprehension levels because they either understood the passage completely or came close to the message the author was presenting. The low number of syntactically and semantically inappropriate responses suggested that they interpreted the syntax and semantics of the passages.

On Instrument Number One the fourth grade students scored fewer correct responses and more type 1 (synonyms) and type 5 (syntactically and semantically inappropriate responses) and type 6 (blank responses) than anticipated. These types of errors indicated that the students experienced considerable difficulty in interpreting the author's message in the content. Table 8 shows that the students had twice as many type 5 (syntactically and semantically inappropriate responses) on Instrument Number Two than on Instrument Number One. It also shows that the type 1 errors (syntactically and semantically appropriate responses) were greater than expected. Again, this pattern suggested that the students either knew syntax and semantics well, or not at all.

Table 8
Relationships Between Passage
Difficulty and Error Types

Instrument	Correct Response		Type 1		Type 2		Type 3		Type 4		Type 5		Type 6	
	(E)	(O)	(E)	(O)	(E)	(O)	(E)	(O)	(E)	(O)	(E)	(O)	(E)	(O)
One	7521.	8705.	1502.5	1075.	1879.5	2376.	723.5	625.	586.	699.	3695.5	2620.	592.	400.
Two	7521.	6337.	1502.5	1930.	1879.5	1383.	723.5	822.	586.	473.	3695.5	4771.	592.	784.

$\chi^2 = 1699.3167$
(6)

$p < .001$

Syntactic Problems Encountered in
Comprehending the Fourth Grade Cloze
Passages

A survey and an analysis of the deleted words in the two cloze instruments and the word replacements used by the students revealed some interesting data. The parts of speech deleted in both instruments were 23 percent nouns, 17 percent active verbs, 12 percent articles, 6 percent adverbs, 9 percent pronouns, 8 percent conjunctions, 12 percent adjectives, 7 percent prepositions and 6 percent auxiliary verbs. This indicated that content words (nouns and pronouns, main verbs, adjectives and adverbs) comprised 65 percent of the deletions, and structure words (articles, auxiliary verbs, prepositions and conjunctions) comprised the remaining 35 percent of the deletions. According to Rye (1982) structure words are easier to predict than content words. Table 9 shows that both types were equally predicted by the fourth grade students because overall they predicted 33 percent of the structure words and 36 percent of the content words with an accuracy of 60 percent or above. Therefore, both structure and content words were difficult for these fourth grade students to predict.

Table 9
Predictability of Word Groups in Cloze Passages

Word Type	# in Passage	# Predicted at 60% Accuracy and Above
Structure		
Conjunctions	8	2
Articles	12	3
Prepositions	7	4
Auxiliary Verbs	6	2
	-----	-----
Total	33	11 = 33%
	=====	=====
Content		
Nouns	23	11
Pronouns	9	2
Main Verbs	17	4
Adjectives	12	5
Adverbs	6	2
	-----	-----
Total	67	24 = 36%
	=====	=====

Rye's (1982) research also indicated that the position of the word in the sentence has a noticeable effect on the reader's ability to predict the word. He found, as a general rule, that words in the middle of the sentence were the easiest to predict because the first half of the sentence provides a strong foundation for an accurate guess. The next easiest words to predict were the words at the end of the sentence since the reader was continually confirming or modifying his or her hypotheses about the content as he or she progressed along the sentence. The most difficult words

to predict were those at the beginning of the sentence because there may not have been previous helpful context to help the reader anticipate the action.

An analysis of the deletions from the two cloze instruments in this study is shown in Table 10.

Table 10
Sentence Position and Difficulty of Prediction of
Cloze Passage Deletions

<u>Position</u>	<u>Number in Position</u>	<u>Number Predicted</u>	<u>Percentage of Prediction</u>
Middle of sentence	48	17	35%
Beginning of sentence	28	11	39%
End of sentence	24	10	41%

The data indicated that the students predicted the words at the end of the sentence with the greatest percentage of accuracy, the beginning of the sentence with nearly the same percentage of accuracy, and the middle of the sentence with slightly less accuracy. However, the percentages of accuracy were so close that the differences were minimal or insignificant.

The strengths of the students in both instruments in their knowledge of syntax constraints were (1) choosing the correct part of speech to fit the sentence structure, and (2) the use of appropriate synonyms for the particular part of

speech. Knowledge of the correct part of speech was clearly seen in the sentence, "It was a cold October day." Forty percent of the errors on this deletion were syntactically appropriate. Also, in the sentence, "The wind whipped my face as I ..."; 324 of the 330 responses were correct or syntactically appropriate. The correct use of synonyms was seen in the sentence, "She ... tightens the ropes to hold the tent upright." Eighty percent of the respondents used appropriate synonyms for the noun ropes such as stakes, strings, poles and sticks. Another sentence, "Then she puts her sleeping bag and backpack...", revealed 312 of 330 correct responses or appropriate synonyms like food, gear, duffle and book.

Other specific strengths in syntax were (1) the effective use of articles or signal words (a, an, the), (2) the use of past tense forms of verbs, and (3) the use of a variety of appropriate adverbs and adjectives that fit the sentence structure. For example, in the sentence, "... a few minutes later the police arrived," 73 percent of the subjects used the correct word. In another sentence, "...must be followed when building a house," 66 percent used the word a. It appeared that the subjects observed the noun following each blank and chose an appropriate article or signal word to precede it.

The use of past tense verb forms, but incorrect words, was seen in sentences like "...wiring and plumbing are placed within the walls", and "next the frame is constructed on...". In both examples, the respondents substituted "ed" words such as installed, fixed, nailed, attached and added. Sample adverbs selected as substitutes for the deletion, "Suddenly a white horse came..." were then, there and when. Only one out of 330 responses was correct, but 72 percent gave appropriate synonyms or other words that made sense syntactically. Sample adjectives such as appeared in the sentence, "...someone was throwing the garbage cans around", were tin, metal, soda, beer and trash. Fifty-three percent of the respondents substituted suitable adjectives. Therefore, it appeared that a large majority of the subjects grasped the syntax of the passages since the mean proportions of the syntax-only errors (Type 4) constituted merely 17 percent of the errors.

The weaknesses in syntax on both instruments included (1) the use of an incorrect referent, (2) a failure to note that two verbs, nouns or phrases needed a connecting word or conjunction, (3) the insertion of two words for a deletion, (4) ignoring punctuation marks, (5) the use of the present tense form for a past tense form, (6) the inappropriate choice of prepositions, (7) the inappropriate selection of pronouns, (8) the substitution of verbs and adverbs for prepositions, and (9) the substitution of singular nouns for plural nouns.

In the use of referents, the sentence, "It ran down the driveway...", presented a problem for one-third of the readers since they substituted pronouns like I, he or she or other words such as and and then. The latter required a different punctuation mark preceding the blank. The readers failed to see that it referred to the horse discussed in the previous sentence.

Several blanks in the cloze tests called for the conjunction and or other connectors. For example, the sentence just discussed, "It ran down the driveway and onto the road", required a connecting word for the two prepositional phrases. Another example, "Mom, Dad, and I stood at the window...", called for a connector to join the three persons being discussed. In both these examples, typical responses were out, leaped, quickly, right, and as, me, someone, and Jenny. The responses to the first example were more syntactically and semantically meaningful, but the second example contained several "off-the-wall" responses that could not connect ideas together cohesively.

The directions clearly stated that only one word could be used in a given blank or deletion, so it was interesting to note the variety of ways the respondents tried to make their ideas fit the blank. For example, the sentence, "hurry, he was saying...", caused some of the readers to insert not, tell, what, hurry up, and run on. One-third of the responses to this item were placed in error type 4 which

showed a lack of knowledge or use of syntax. Another item that elicited two word responses was, "After dinner I worked on my...", with insertions such as I finished, I done, and I ate. These made sense in the context, but were still incorrect.

Punctuation marks before or after the deletion were often ignored by the readers. The sentence, "A roof is built on the top of the frame; then the outside walls are...", was a difficult item. Only 50 of the 330 respondents completed the blank correctly and typical substitutions were on, to, when, attached, and that. The semicolon indicated another idea coming in the sequence, but the readers did not make this connection. The sentence, "Come on Jenny to our room, she said...", should have signaled to the reader a direct quotation and an end to a statement. Secondly, the possessive pronoun our signaled a noun would follow. The readers who responded with back, and and other inappropriate words did not detect the syntax of the sentence. Over 200 of the readers gave "off-the-wall" answers to this blank that did not make sense syntactically or semantically.

The use of the present tense instead of the past tense form, and vice-versa, was revealed in blanks such as, "the outside walls are closed in." Typical responses of the 97 percent of the readers missing this blank were left, pull,

going, caved, all and not, indicating a misunderstanding of likely words to follow the linking verb are. Another example of a problem with tense was shown in the sentence, "Once everything is set up, she...", in which the respondents used words like hanging and heating. Overall, 50 percent of the students had difficulty with this item, but the majority of the answers were acceptable synonyms such as put, fixed and warmed. The use of past tense forms of linking verbs was seen in the sentence, "There are certain steps that usually...". Only two out of 330 responses were correct with the majority of the errors classified as types 1 and 2 (a synonym or a word altering the meaning) or type 5 (an "off-the-wall" response). Many students used the words was, were, is and a, showing a lack of understanding of the tense of the passage.

Prepositions were difficult in several of the deletions. A sentence like "she hangs her food from a tree branch" elicited responses such as for, with, against, near, under and up, suggesting an understanding of syntax but not appreciating how the preposition sounded in the context or the relationships between the surrounding words.

The inability to see personal pronouns of ownership was seen in the same sentence, "she hangs her food...". Only 12

of the 330 subjects used the correct word, but the majority of the responses were classified as syntactically and semantically appropriate.

The substitution of a singular noun form for a plural form was seen in the sentence, "she...tightens the ropes to hold the tent upright". Typical responses of this type were stick, tent, rope, nail and top. Only eight of the 330 responses were correct. As mentioned previously in this analysis, this deletion was scored as being predominantly in error types 1 or 2. Therefore, either the singular or plural form sounded appropriate in the context.

The final major syntactic error noted was the use of verbs or adverbs in place of prepositions. This is seen in the sentences, "The first one in each set of events has been done for you." For each of these deletions, responses such as has, area, can, now, some and last were common. The needed prepositions show relationships between the ideas but the readers did not sense this by the substitutions they made.

Therefore, these error analyses indicated some specific syntactic strengths and weaknesses the subjects used in comprehending the fourth grade reading workbook passages. They tended to understand the parts of speech needed in the cloze deletions and often used appropriate synonyms for the parts of speech. They used signal words effectively; they used the past tense correctly; and they substituted

appropriate adverbs and adjectives for the deletions. However, overall, they exhibited weaknesses in their knowledge and use of referents, conjunctions/connecting words, punctuation marks, the present tense forms of verbs, prepositions, and personal pronouns. They also, in numerous cases, inserted more than one word per deletion.

The knowledge of these known strengths and weaknesses could be used in the development of remedial activities for these subjects for the improvement of the use of syntax in comprehending information.

Semantics Problems Encountered in Comprehending the Fourth Grade Cloze Passages

The readers' knowledge of semantics while reading the passages revealed greater numbers of errors in type 3 (uses syntax but not semantics) and in type 5 (neither syntactically or semantically correct). In analyzing the error responses, deletion by deletion, in the two instruments, there were significantly more clusters in both of these error types on a given deletion.

Specific semantic strengths noted were (1) the use of context clues, (2) the use of prior knowledge, (3) the use of information given in previous sentences (prior text) and in the bilateral context or the words preceding and following the deletions, and (4) the use of synonyms for the deleted words. A sentence such as "It was a cold October day" revealed knowledge of semantics, because 66 percent of the

subjects used semantically acceptable words like afternoon, morning, night, 1984, and Halloween. The sentence, "Dad was making a salad...", showed that 92 percent of the students used context clues and prior experiences with responses such as vegetable, tossed, potato and the. All were acceptable semantically. The sentence, "Suddenly, a white horse came ...", had a correct semantic response of 76 percent with substitutions such as when, after, because, later, and now. Contextual clues and syntax indicated an adverb of time was needed and the subjects provided this type of word. A second example of this type of clue is in the item, "When she finds a good site...", on which 70 percent of the subjects used an appropriate adverb or substitute word such as then, finally, if, whenever, and sometimes. A sentence in which the words preceding and following the deletion were helpful was "...certain steps that usually must be followed...". By noting the adverb preceding the blanks and the verb form be following it, the readers deduced that an auxiliary verb was appropriate and they used words like should, would, may, can, and could. Eighty-seven percent of the subjects inserted the correct verb or a suitable substitute to get the semantics of the sentence.

One item that consistently showed the use of semantics was the sentence, "Then she puts her sleeping bag and backpack...", on which 95 percent of the respondents used the

correct word or a suitable replacement such as book, hand, lunch, duffle, camping or clothes. They seemed to name every kind of bag a person could take to carry necessary camping items, which indicated the use of prior knowledge and context clues. Another item indicative of semantics knowledge was the sentence, "...she pitches her tent", on which there were 303 correct responses. Eight of the remaining responses were semantically acceptable, four responses were blank, and only 15 subjects gave "off-the-wall" responses like hands, baseball and ball. This was a successful deletion for the students because of prior experiences and contextual clues.

The semantic problems typically encountered by the fourth grade students were (1) a failure to remember or to observe the prior text, (2) a failure to use bilateral context (the words on each side of the deletion), (3) the insertion of extra words and punctuation marks to make the word choice fit the deletion, (4) difficulty with the interpretation of the structure of a lengthy complicated sentence pattern, (5) a failure to connect the meanings of adjoining words and phrases, (6) the insertion of unrelated words just to complete the blanks, and (7) a lack of understanding of direction words.

The lack of observation of prior text was evident in the sentence, "...I would look out the window...", since the readers ignored the pronoun referent "I" and "my" in the

prior three sentences. Seventy-five percent of the respondents gave type 5 or "off-the-wall" responses to this item. Another item, "I woke up enough to hear some loud noises.", had an error rate of 77 percent in type 5. This indicated a lack of use of prior information about going "to sleep" and "being sleepy". Valuable clues to meaning were provided earlier in the context. A third sentence, "She drives stakes into the ground and tightens the ropes to hold the tent...", gave some clues such as drives stakes, ground, and tightens. Earlier words such as itches and ground provided clues to camping even if the reader had missed previously deleted words.

Readers who neglected to use bilateral context, or the words on each side of the deletion, were noted easily. For example, the sentence, "Before I went to sleep, I...", clearly indicated a verb concerned with going to sleep, but only 22 percent of the subjects inserted the correct word. However, 42 percent of the students did give a word that was semantically and syntactically correct such as fell or got. Another example, "I heard Dad talking on the telephone to the police.", was difficult for 67 percent of the readers on the second deletion. Responses often given were way and steps. Thirty-five percent gave type 5 responses. The sentence, "...then the outside walls are closed in", was particularly difficult, especially the second blank. Only three percent of

the subjects gave the correct word with over 70 percent of the responses falling in error types 3, 4 and 5, indicating a lack of syntax or semantics or both. The subjects failed to observe the word walls and the auxiliary verb are preceding the blank, or the preposition in following the blank, which suggests the need for a past tense verb.

A few students inserted additional words and punctuation marks in the blanks or at other points in the sentence to make their word choice fit the context. In the sentence, "I heard Dad talking on the telephone...", the word was was inserted after Dad. In the sentence, "Mom called that it was time for dinner.", 58 percent of the students substituted the word me for that and often added a comma after me to try to make it fit the sentence pattern. This probably indicated a dialect pattern - "Mom called me, it was time for dinner." To the students, the word seemed appropriate as a part of their daily language.

In Instrument Number Two, there was one lengthy, complicated sentence that accounted for a high percentage of the errors - "On top of the foundation, the subfloor, on which the final floor material will later be placed, is built." The deleted words were both structure words and content words but were not as difficult as the unnatural sentence structure, so the respondents guessed or gave many type 5 answers. The word the brought 76 percent of error type 5; the word which brought 64 percent of error type 4

(lack of syntax) and error type 5; the word will brought 70 percent of error type 5 and the word built was the most successful with 61 percent of the responses, indicating a sense of syntax and semantics. However, 30 percent of the other responses were error type 5. If the reader had no knowledge of how to build a house, this one sentence would be heavily affected by background knowledge.

The failure to see the relationship between adjoining words in the passages was seen in the item, "We laughed and joked over dinner". The readers who recognized the two words as action verbs, laughed and joked, tended to join them together with the appropriate conjunction and, whereas other readers misread the word joked as jokes and completed the passage with "we laughed at joked". Two sentences, "then windows and doors are installed" and "she collects rocks and arranges them neatly...", were difficult for the students who did not perceive that the nouns were related and need to be connected or that the verbs indicated two actions that were related to each other. The first sentence was more successful because the responses were evenly divided (45 percent correct and 55 percent incorrect or type 5 errors). Sample answers given were up, then, an, she, or, the and when. The second sentence, however, had only 24 percent correct responses and 46 percent semantic errors including

errors in types 3 and 5. Typical incorrect answers were to, are, she, then and for which showed little understanding of the relationships between the two verb phrases.

Some students gave responses to some of the items that were totally unrelated to the context. Sample items with this problem were (1) "Come on, Jenny, to our room", (2) "On top of the foundation", and (3) "...the final floor material will later be placed". For Item #1, typical responses unrelated to the context were and, men, collection, surprise, church and guess. For Item #1, unrelated responses were frame, roof, and and ground. Responses for Item #3 were are, was, is, boy, put and we. Most of these incorrect responses indicated random guessing, finding another word nearby to insert, or writing down any word just to fill in the blank. In the directions for the tests, the students were encouraged to complete each item, so there were insignificant amounts of errors in type 6. The highest percentage of blank responses on any item in the two tests was 18 percent. This might suggest that the students would rather guess than leave an item blank.

Instrument Number Two contained deletions in the directions for the workbook exercise, whereas Instrument Number One did not. The following data indicate how the subjects responded to these direction words:

1. ignored the blanks entirely (went on to the body of the exercise) or had type 6 errors ($\bar{x} = 9\%$);
2. guessed at the blanks or had type 5 errors ($\bar{x} = 29\%$);
3. gave appropriate synonyms or semantically and syntactically acceptable answers ($\bar{x} = 6\%$); and
4. inserted the exact word response ($\bar{x} = 56\%$).

The deletions in the directions were, "Then number the events listed under each paragraph to show their correct sequence. The first one in each set of events has been done for you." The most difficult items were listed, show and first. The students, for the most part, either placed the correct word or gave a totally inappropriate answer. The word of was scored correct for 80 percent of the readers. It should be noticed that of is not a direction word but rather a structure word. Rye's (1982) research showed it to be an easier word to predict, whereas content words (verbs, nouns and adjectives) were more difficult to predict. The researcher's observations of the testing sessions noted that many of the subjects ignored the directions at first and then inserted responses later when reading over the paper before turning it in.

Another observation by the researcher and the research assistants was the number of students who read the sequence exercise at the bottom of the workbook page and/or completed

it, and the types of responses they made in the deletions. Several of the deletions could have been determined by reading the exercise although the students were not required to read it. The directions did stipulate, however, that they were free to read any information on the test page to get clues for the deletions. There are no available statistical data to see the correlation of this occurrence but it was observed as a positive influence on students' papers.

Summary

Based upon the statistical results, the following questions were accepted:

- 1) There is a statistically significant difference between fourth grade students' reading abilities on the two cloze instruments developed from fourth grade workbook passages. The students found one selection easier than the other.
- 2) There is a relationship between the fourth grade students' reading levels and the error types they made in comprehending the cloze passages.
- 3) There is a significant relationship between the difficulty of the reading workbook passages and the types of reading errors made by the fourth grade students.

This chapter has summarized the evidence of the types of errors encountered by the students in both syntax and semantics which are necessary to effective reading comprehension.

CHAPTER V

SUMMARY AND CONCLUSIONS

Description of Study

The major purpose of this study was to determine if fourth grade students could read fourth grade basal reader workbook cloze passages at an independent reading level and to analyze the types of errors they made on the cloze procedure passages.

A total of 330 fourth grade students from 40 schools in two school systems from the south central part of North Carolina participated in this study. The students were selected on a random basis from a total population of 3,131 fourth grade students in the two school systems. The sample population represented a range of achievement levels, socioeconomic levels, and racial/ethnic groups. The information collected from these students included two reading workbook cloze tests which the students completed in two separate testing sessions in the late spring of the school year.

Data collected in this study were analyzed with the Scientific Time Sharing Corporation (APL) Statistical Library Program. Totals and percentages of the following data were computed:

- (1) students scoring on each reading level;
- (2) responses in the six categories of error types;
- (3) errors of each type for each of the fifty deletions on each cloze instrument;
- (4) responses for each part of speech included in the deletions;
- (5) deletions occurring at the beginning, middle and end of the sentences in the cloze instruments;
- (6) errors on the direction word replacements in the cloze instruments; and
- (7) errors in syntax and semantics.

One-way analysis of variance (ANOVA) was used to compare the students' scores on the two cloze instruments to determine if the fourth grade students could read the cloze passages at an independent reading level.

The Chi-Square Test of Independence was used to determine the relationship between the six error types in reading comprehension and the three reading levels, and the relationship between the six error types and the difficulty levels of the reading workbook cloze passages.

Summary of Testing the Questions

A summary report of the results of testing the five questions proposed for this study is as follows:

Question Number 1: Can fourth grade students read workbook materials from fourth grade basal reader workbooks at an independent reading level?

Results: In the comparison of the fourth grade students' abilities on the two cloze instruments developed from fourth grade reading workbooks, the tabulation of the scores and percentages of student responses and the results of the analysis of variance computations yielded significant differences ($p < .01$) in the students' abilities to read the two cloze instruments. On Instrument Number One, the majority of the 330 students read at an instructional reading level (42 percent) or an independent reading level (33 percent). The opposite was true on Instrument Number Two because 28 percent scored on an instructional reading level and five percent scored on an independent reading level. The fact that 85 of the 330 students read Instrument Number One at a frustration reading level and 221 of the 330 students read Instrument Number Two at a frustration reading level indicated a high level of difficulty in the workbook passages. One-way analysis of variance showed that the fourth grade students made significantly ($p < .01$) fewer errors on Instrument Number One than on Instrument Number Two. This

substantiated the fact that the two cloze tests were not of equivalent difficulty. On the basis of these findings, the question was supported with data to show that the students could not read and comprehend the workbook materials at an independent reading level, especially if assigned as independent practice of reading skills.

Question Number 2: Is there a relationship between the fourth grade students' reading levels and their reading error types when reading cloze passages based on published fourth grade basal reader workbooks?

Results: In the Chi-Square analyses which investigated the relationship between the three reading levels (frustration, instructional and independent) and the six error types in reading comprehension, a small relationship was observed ($P < .001$). On both cloze tests, frustration level readers had fewer errors of types 1 and 2 (syntactically and semantically appropriate responses) and more errors of types 5 and 6 (syntactically and semantically inappropriate responses and blank responses). Instructional level readers performed as expected by chance on Instrument Number One, and they used a combination of syntax and semantics to derive meaning from the passage. Those students who read at the independent reading level on Instrument

Number One gave more appropriate synonyms that did or did not alter the meaning of the text (types 1 and 2) and fewer inappropriate syntactic and semantic responses (type 5) and fewer blank responses (type 6).

On Instrument Number Two, a different pattern in reading levels and error types emerged with a small relationship ($p < .001$) shown. Frustration level students tended to have more inappropriate responses in both syntax and semantics (type 5) and blank responses (type 6) and less synonymic responses (types 1 and 2) which suggested that they could not understand the context of the passage and simply guessed or made no response at all.

Instructional level readers, however, on the same passage seemed to grasp the meaning of the context and inserted more syntactically and semantically appropriate or semantically appropriate words (types 1, 2, and 3), and they inserted less inappropriate syntactic and semantic word choices. This response pattern indicated better comprehension by the readers because they were able to handle the vocabulary load and the sentence structure of the cloze passages.

Independent level readers tended to understand the context of the passage because they responded with appropriate synonyms or other words that altered the meaning

of the text (types 1 and 2). With much less errors of types 5 and 6, these readers showed a knowledge of syntax and semantics and they avoided random guessing of the deleted words. One similarity between the two cloze passages was that the fourth grade students had small proportions of errors of type 4 which meant that they understood the syntax of the materials better than they understood the semantics. Therefore, there was a statistically significant relationship between the three reading levels and the types of errors the fourth grade students made on the cloze passages. On the basis of these findings, the question was supported in the study.

Question Number 3: Is there a relationship between the difficulty level of the fourth grade reading workbook cloze passages and the types of reading errors made when reading cloze passages based on published reading workbooks?

Results: Comparison of the difficulty levels of the reading workbook passages and the error types made by the fourth grade students revealed a significant relationship ($p < .001$) in the Chi-Square analyses. Instrument Number One was more closely matched to the fourth grade students' reading levels because their error types showed an understanding of the passage by effective use of syntax and semantics. More correct responses and type 2 errors (syntactically and

semantically appropriate with altered meanings) were used and less synonyms (type 1), syntactically and semantically inappropriate responses (type 5), and blank responses (type 6) were inserted. Instrument Number Two was not matched with the fourth grade students' reading levels because their error types revealed word choices that altered the meaning of the text (type 2 responses) or word choices that completely changed the meaning of the text (type 5) or no words at all (type 6). This pattern indicated a serious lack of understanding of syntax and semantics and a tendency to insert words just to complete the blanks without regard for the meaning in the context. The quality of the errors was significantly related to the difficulty of the passages, therefore, the question was supported in the study.

Question Number 4: What were the specific syntactic problems of the fourth grade students in reading and comprehending the fourth grade basal reader workbook passages?

Results: The analysis of the specific reading comprehension difficulties of the fourth grade students in the areas of syntax and semantics was accomplished by an in-depth look at individual responses and group responses to the deleted words in the cloze passages. The parts of speech deleted in the passages included 65 percent content words (nouns, pronouns, main verbs, adjectives and adverbs), and 35 percent structure

words (articles, auxiliary verbs, prepositions and conjunctions) for which the students predicted equally well at 33 percent and 36 percent accuracy. The results of the analysis concluded that the students in this study did equally well or equally poorly with both content words and structure words. Although this finding was at odds with Rye's (1982) study that suggested that content words were easier to replace than structure words, it appeared that with difficult materials, whether the word is a content word or a structure word made no difference in students' ability to predict them.

The students' ability to predict the deleted words according to their position in the sentence, beginning, middle and end, was seen in the findings that all three positions were predicted equally well with minimal differences between the groups (middle - 35 percent, beginning - 39 percent, and end - 41 percent).

The strengths and weaknesses of the students in the area of syntax are shown below:

<u>Strengths in Syntax</u>	<u>Weaknesses in Syntax</u>
1. Choosing the correct part of speech to fit the sentence structure	1. Using incorrect pronoun referents
2. Supplying an appropriate synonym for the specific part of speech	2. Failing to see that two words or phrases needed a connector or conjunction
3. Using articles (a, an, the) or signal words	3. Inserting two word replacements

- | <u>Strengths in Syntax</u> | <u>Weaknesses in Syntax</u> |
|----------------------------------------------------------------------------------------|------------------------------------------------------------|
| 4. Using the past tense forms of verbs | 4. Ignoring punctuation marks |
| 5. Using a variety of appropriate adverbs and adjectives to fit the sentence structure | 5. Using present tense forms for past tense forms of verbs |
| | 6. Choosing inappropriate prepositions and pronouns |

Question Number 5: What were the specific semantic difficulties of the fourth grade students in reading and comprehending the fourth grade basal workbook cloze passages?

Results: The strengths and weaknesses of the students in the area of semantics are shown below. It can be seen that the strengths for some students were weaknesses for others and vice versa.

- | <u>Strengths in Semantics</u> | <u>Weaknesses in Semantics</u> |
|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1. Using context clues | 1. Failing to remember and to observe prior text |
| 2. Using prior knowledge | 2. Failing to use bilateral context (words on each side of the deletion) |
| 3. Using prior text (information in previous sentences) and bilateral context (words preceding and following the deletions) | 3. Inserting extra words and punctuation marks to make the word choice fit the deletion |
| 4. Using appropriate synonym substitutions | 4. Interpreting a long, complicated sentence pattern |
| | 5. Failing to connect meanings of adjoining words and phrases |
| | 6. Inserting unrelated words to complete the deletions in the passage |
| | 7. Misunderstanding direction words |

Conclusions

Based upon the results of this study, the following conclusions were supported:

1. Fourth grade students could not read basal reader workbook cloze passages overall at an independent reading level. Since reading workbooks are designed for independent practice, the students should be operating with reading practice materials on this level. As reflected by the scores on the cloze passages in this study, the students are not reading at an independent reading level. Because many students cannot complete workbook pages on their own successfully, teachers must use caution in assigning the pages for independent practice.
2. The results of the study pointed out the importance of the reading materials being related to the students' background of experiences. On the second cloze passage, the one on sixth grade reading level, the words and topics of the content were outside their realm of experiences (camping and building a house). It is of interest to the researcher that the newly revised edition of the workbook from which the passage came was changed considerably in that the selection on "camping" was expanded and the selection on "building a house"

was omitted. This suggests that the workbook authors saw a need to match reading materials with the readers' experiences.

3. There was a difference in fourth grade students' abilities to read fourth grade workbook cloze passages. On the passage designated and verified by the Fry Formula as fourth grade reading level, the students could read the passage at an instructional and/or independent reading level. On the passage designated as fourth grade level and verified by the Fry Formula as sixth grade level, the majority of students read the passage at a frustration reading level. The analysis of variance computations support these findings because the students scored significantly more correct responses on the fourth grade reading level cloze passage.
4. There was a relationship between the three reading levels (frustration, instructional and independent) and the types of errors made by the fourth grade students in reading comprehension. Frustration level readers had more errors with both syntax and semantics and with blank responses. Instructional level readers achieved a balance in their strengths and difficulties in both syntax and semantics.

Independent level readers understood syntax and semantics and/or used appropriate synonyms in the passage to derive meaning.

5. The quality of the errors of the fourth grade students was related to the difficulty level of the cloze passages. The less difficult passage (Instrument Number One) produced more correct responses and responses that were syntactically and semantically appropriate while the more difficult passage (Instrument Number Two) produced more responses than were syntactically and semantically inappropriate. Syntax errors or semantics errors separately had little effect on the students' scores which suggested that they seemed to operate in a dependent fashion in reading comprehension, rather than independently. This finding indicated that the students either knew syntax and semantics well or had almost no understanding of syntax and semantics. The differences in the topics of each passage and the syntactical structures of the passages may have influenced the students' success with the cloze passages.
6. The fourth grade students predicted structure words and content words, and word positions in the sentences with equal accuracy. They knew parts of

speech, as a whole, and appropriate synonyms, but had difficulty with words showing relationships, connectives, and referents. These findings indicate that the students sensed the structure of the language and knew which types of words would keep the language consistent. Knowledge of these syntactic errors of the students can guide future instruction in reading comprehension.

7. The fourth grade students used context clues, prior text, bilateral text, background experiences and synonyms to predict the semantic content of the cloze passages, but had difficulties with lengthy complicated sentence structures, joining ideas together in the text and direction words. It appeared that many students, especially on the second more difficult cloze passage randomly guessed, whether their word choice made sense or not, in order to fill in the blanks rather than to leave gaps. This pattern also indicated a lack of understanding or association with the content in the second passage. This finding suggests that teachers should analyze the content of practice materials carefully before assigning them to students. The knowledge of semantic strengths and weaknesses provides a model for future instruction strategies for the students.

Implications

The results of this study have implications for the field of reading education, for education in general, and for the authors and publishers of basal reader workbooks.

1. The error analysis system used in this study can be adapted by teachers as a part of a diagnostic/prescriptive teaching model to both assess and teach comprehension. By studying the students' strengths and weaknesses in syntax and semantics, an error profile can be made and appropriate teaching strategies can be developed to alleviate the weaknesses.
2. Students need regular practice in applying syntactic and semantic cues. Whether teacher-directed or practiced independently, the use of the cues will help the students to apply them in whatever materials they read day by day. The syntactic and semantic cues will become automatic and better comprehension will be encouraged.
3. Teachers of reading must realize that students on different reading levels make different types of comprehension errors. If a teacher knows that a reader who is on a frustration reading level guesses about a word in context rather than using surrounding clues to predict an appropriate word

and also ignores the meaning of the passage, then teaching strategies in syntax and semantics are necessary. An awareness by the teacher that a reader on an instructional or independent reading level tends to use syntax and semantics and often predicts appropriate synonyms for the words in the text provides a guide in the selection of practice materials. These materials should help the students to refine their choice of words to fit the context of the passage and, thereby, come closer to understanding the message of the author.

4. Teachers must exercise caution in selecting and assigning reading workbook pages. In light of the large percentages of reading instruction time used for independent practice of reading skills (up to 70 percent), the data from this study clearly support the need for close scrutiny of the content of the workbook pages. The relevancy of the content to reading skills being taught, the relationship of the content to the reader's prior experiences, the readability level of the material, and the match between the level of the material and the reader's reading level are all factors for consideration by the teachers. The proper match determines the reader's success in reading and

comprehending the passage and his or her ultimate success in practicing the reading skills independently.

5. Since workbooks are designed to provide independent practice of reading skills taught by the teacher in direct instruction, the authors and publishers of basal reader workbooks should carefully assess the contents of their workbooks. The authors and publishers have an obligation to provide reading materials in the workbooks that are relevant to the reader and are on an independent reading level to assure success in completing the workbook exercises and in comprehending the material. The contents should also be meaningful activities that require a variety of written responses (words, sentences, paragraphs) and opportunities to use higher level thinking processes versus simple recall of information.

Recommendations for Further Study

This study was limited to two school systems in south central North Carolina. Replication of the study with additional fourth grade students and with other grade levels in other areas of the state and nation would determine

whether the findings of the study were reliably generalized to North Carolina and the nation.

Of equal importance is the need for the replication of the study with the use of additional cloze passages from other publishers' basal reader workbooks at fourth grade in order to compare and contrast the strengths and difficulties of reading comprehension in students across the region, state and nation.

Further studies should be conducted to look at the specific instructional strategies needed to teach syntax and semantics to the students. For example, if a student made a large number of type 5 errors (lack of use of syntax and semantics), it would help the teacher to know which teaching strategies would help the student to make more type 3 (use of syntax) or type 4 (use of semantics) errors. The question is whether the student can be taught to make different types of errors than he or she is presently making in the use of syntax and semantics.

Finally, additional research is warranted in determining the relationship between the reading difficulty levels of reading workbook passages and the types of errors students make in comprehending the content. Reading teachers would benefit from knowing which types of comprehension errors are common in less difficult as well as more difficult materials.

Further analysis of the error types by readability levels would suggest specific skills and accompanying teaching strategies to guide teachers and students in coping with a variety of levels of reading materials.

BIBLIOGRAPHY

- Aborn, M. and Rubenstein, H. Word Class Distribution in Sentences of Fixed Length. Language, 1956, 32, 666-674.
- Aborn, M. Rubenstein, H. & Sterling, T.D. Sources of Contextual Constraint Upon Words in Sentences. Journal of Experimental Psychology. 1959, 57 (3), 171-180.
- Alderson, J. C. The Effect on the Cloze Test of Changes in Deletion Frequency. Journal of Research in Reading, 1979 2, (2), 108-109.
- Anderson, L. The Environment of Instruction in Classrooms Using Standard Curricula. In Comprehension Instruction: Perspectives and Suggestions, edited by Duffy, G., Rochler, L., and Mason, R., New York, N.Y.: Longman, 1984.
- Bloomer, R. H. Pretesting and the Efficiency of Paragraph Reading. Journal of Reading, 1965, 8 (4), 219.
- Bormuth, J. R. Cloze Tests as Measures of Readability and Comprehension Ability. Unpublished doctoral dissertation, University of Indiana, 1962.
- Bormuth, J. R. Optimum Sample Size and Cloze Test Length in Readability Measurement, Journal of Educational Measurement, 1965, 2 (1), 111 (a).
- Bormuth, J. R. Readability: A New Approach. Reading Research Quarterly, 1966, 1 (3), 79 (a).
- Bormuth, J. R. Cloze Readability Procedure. Los Angeles: California University, February, 1967.
- Bormuth, J. R. The Implications and Use of Cloze Procedure in the Evaluation of Instructional Programs. Center for the Study of Evaluation of Instructional Programs, April, 1967.
- Bormuth, J. R. The Cloze Readability Procedure. Elementary English, 1968, 45, 429-436.
- Bormuth, J. R. The Cloze Procedure: Literacy in the Classroom: In W.D. Page (Ed.) Help for the Reading Teacher: New Directions in Research. Urbana, Illinois: National Conference on Research in English, 1975.

- Bortnick, R. and Lopardo G. The Cloze Procedure: A Multi-Purpose Classroom Tool. Reading Improvement. Summer, 1976, 13, (2), 13-17.
- Bowman, C. M. But They Can't Even Read. Social Studies. 1981, 3, 126-129.
- Burmeister, L. Foundations and Strategies for Teaching Children to Read. Boston, Massachusetts: Addison-Wesley Publishing Co., 1983.
- Carnine, D. and Silbert, J. Direct Instruction in Reading. Columbus, Ohio: Charles Merrill Co., 1980.
- Carroll, J. B. Learning from Verbal Discourse in Educational Media: A Review of the Literature. Final Report. OEC - 1-7-071069-4243. Washington, D.C.: Office of Education, DHEW, October, 1971.
- Chall, J. S. Stages of Reading Development. New York: McGraw-Hill Book Co., 1983, 67-70.
- Christiansen, F. A Generative Rhetoric of the Sentence. College Composition and Communication, 1963, 14, (3), 155-161.
- Clay, M. M. and Imlach, R. H. Juncture, Pitch, and Stress as Reading Behavior Variables. Journal of Verbal Learning and Verbal Behavior, 1971, 10, 133-139.
- Coleman, E. B. Developing a Technology of Written Instruction: Some Determiners of the Complexity of Prose. A paper read at a symposium on Verbal Learning and Written Instruction, New York, March, 1966.
- Cromer, W. The Difference Model: A New Explanation for Some Reading Difficulties. Journal of Educational Psychology, 1970, 61, 471-483.
- Cunningham, J. W. and Cunningham, P. Validating a Limited Cloze Procedure. Journal of Reading Behavior, 1978, 10, 211-213.
- Dale, E. Readability. National Conference on Research in English, National Council of Teachers of English, Champaign, Illinois, 1949.
- Dale, E. and Chall, J. S. The Concept of Readability. Elementary English, January, 1949, 26, 19-26.

- DeStefano, P. and Valencia, S. The Effects of Syntactic Maturity on Comprehension of Graded Reading Passages. Journal of Educational Research, May/June, 1980, 73, 247-251.
- Duffy, G. and McIntyre, L. A Qualitative Analysis of How Various Primary Grade Teachers Employ the Structured Learning Components of the Direct Instruction Model When Teaching Reading. A Paper presented at American Educational Research Association Conference, Boston, Massachusetts, 1980.
- Durkin, D. Some Questions about Questionable Instructional Materials. The Reading Teacher, 1974, 9, 13-17.
- Durkin, D. What Classroom Observations Reveal About Reading Comprehension Instruction. Reading Research Quarterly. 1978-1979, 14, 481-533.
- Durkin, D. Is there a Match Between What Elementary Teachers Do and What Basal Reader Manuals Recommend? The Reading Teacher, 1984, 37, 734-744.
- Early, M. Reading to Learn. San Diego: Harcourt Brace Jovanovich, Publishers, 1984.
- Fillenbaum, S., Jones, L. V., and Rapoport, A. The Predictability of Words and Their Grammatical Classes as a Function of Rate of Deletion from a Speech Transcript. Journal of Verbal Learning and Verbal Behavior, 1963, 2, 186-194.
- Fisher, C. W., Berliner, D., Filby, N., Marliave, R., Cohen, L., Dishaw, M., and Moore, J. Teaching and Learning in Elementary Schools: A Summary of the Beginning Teacher Evaluation Study, San Francisco, California: Far West Regional Laboratory for Educational Research and Development, 1978.
- Fletcher, J. E. A Study of the Relationships Between Ability to Use Context as an Aid in Reading and Other Verbal Abilities. Unpublished doctoral dissertation. University of Washington, 1959.
- Fitzgerald, G. G., Why Kids Can Read the Book But Not the Workbook. The Reading Teacher, May, 1979, 32, 930-932.
- Fitzgerald, G. G., Assessing Word-Difficulty in Basal Workbook Vocabulary Exercises. Reading Improvement, Winter, 1980, 4, 248-255.

- Friedman, M. The Use of the Cloze Procedure for Improving the Reading Comprehension of Foreign Students at the University of Florida. Unpublished doctoral dissertation, University of Florida, 1964.
- Gallant, R. An Investigation of the Use of Cloze Tests as a Measure of Readability of Materials for the Primary Grades. Unpublished doctoral dissertation. Indiana University, 1964.
- Gallant, R. Use of Cloze Tests as a Measure of Readability in the Primary Grades. Proceedings of the International Reading Association Convention, 1965, 10, 286-287.
- Good, T. L. and Brophy, J. E. Education Psychology. New York: Holt, Rinehart & Winston, 1977, 162-163.
- Goodman, K. S. Analysis of Oral Reading Miscues: Applied Psycholinguistics. Reading Research Quarterly, 1969, 5, (1), 9-30.
- Goodman, Y. and Burke, C. Reading Strategies: Focus on Comprehension. New York: Holt, Rinehart & Winston, 1980, 43-128.
- Hafner, L. Relationships of Various Measures of the Cloze. In E. L. Thurston and L. E. Hafner (Eds.) Thirteenth Yearbook of the National Reading Conference. Milwaukee, Wisconsin: National Reading Conference, Inc., 1963, 135-145.
- Haugh, O. M. Reading and Readability. A paper presented at the 65th Convention of the National Council of Teachers of English, San Diego, California, November, 1975.
- Heilman, A. W. Principles and Practices of Teaching Reading. Columbus, Ohio: Merrill, 1979.
- Hittleman, D. R. Determining the Readability of Instructional Materials. A paper presented at the International Reading Association World Congress on Reading Singapore, August, 1976.
- Isakson, R. and Miller, J. Sensitivity to Syntactic and Semantic Cues in Good and Poor Comprehenders. Journal of Educational Psychology, 1976, 6, 787-792.
- Jenkinson, M. C. Selected Processes and Difficulties in Reading Comprehension. Unpublished doctoral dissertation, University of Chicago, 1957.

- Jones, M. B. and Pikulski, E. C. Cloze for the Classroom. Journal of Reading, 1974, 6, 432-439.
- Klare, G. R. The Measurement of Readability. Ames, Iowa: Iowa State University Press, 1963.
- Klare, G. R. Assessing Readability. Reading Research Quarterly, 1974-75, 1, 62-102.
- Klatsky, R. L. Human Memory. San Francisco: Freeman, 1975.
- Krejcie, R. V. and Morgan, D. Determining Sample Size for Research Activities. Educational and Psychological Measurement, 1970, 30.
- Legenza, A. and Elijah, D. The Cloze Procedure: Some New Applications. Journal of Educational Research, July/August, 1979, 72, (6), 351-355.
- Louthan, V. Some Systematic Grammatical Deletions and Their Effects on Reading Comprehension. English Journal, 1965, 54, 295.
- MacGinitie, W. H. Contextual Constraint in English Prose Paragraphs. Journal of Psychology, 1961, 51, 121-130.
- McKenna, M. C. Synonymic Versus Verbatim Scoring of the Cloze Procedure. Journal of Reading, 1976, 20, 141-143.
- McLeod, J. Readability Assessment and Word Redundancy of Printed English. Psychological Reports, 1966, 18, 35-38.
- Miller, G. R. and Coleman, E. B. A Set of 36 Passages Calibrated for Comprehensibility. Inglewood, California: Southwest Regional Laboratory for Educational Research and Development, 1966.
- Miller, G. R. and Coleman, E. B. A Set of 36 Prose Passages Calibrated for Complexity. Journal of Verbal Language and Verbal Behavior, 1967, 6, 851-854.
- Moyer, S. B. Readability of Basal Readers and Workbooks: A Comparison. Learning Disability Quarterly, Winter, 1979, 2, 23-28.
- Neville, M. H. and Pugh, A. K. Context in Reading and Listening: A Comparison of Children's Errors on Cloze Tests. British Journal of Educational Psychology, 44, 224-232.

- Oaken, R., Weiner, M. and Cromer, W. Identification Organization and Reading Comprehension for Good and Poor Readers. Journal of Educational Psychology, 1971, 62, 71-78.
- Osborn, J. B. The Purposes, Uses and Contents of Workbooks and Some Guidelines for Teachers and Publishers, Reading Education Report No. 27. National Institute of Education, Washington, D.C., August, 1981.
- Osborn, J. The Purposes, Uses and Contents of Reading Workbooks in Anderson, Osborn & Tierney (Eds.). Learning to Read in American Schools, Hillsdale, New Jersey: Lawrence Erlbaum Associates, 1984.
- Pikulski, J. J. and Tobin, A. Approaches to the Informal Evaluation of Reading. Newark, Delaware: International Reading Association, 1982.
- Potter, T. C. A Taxonomy of Cloze Research, Part I: Readability and Reading Comprehension. Inglewood, California: Southwest Regional Educational Lab., June 1968.
- Rankin, E. F. Jr., An Evaluation of the Cloze Procedure as a Technique for Measuring Reading Comprehension. Unpublished doctoral dissertation, The University of Michigan, 1957.
- Rankin, E. F. Jr. and Culhane, J. Comparable Cloze and Multiple Choice Comprehension Test Scores. Journal of Reading, 1969, 30, 193-198.
- Reichek, M., List, L. and Lerner, J. Reading Problems: Diagnosis and Remediation. New Jersey: Prentice-Hall, Inc., 1983.
- Ruddell, R. B. An Investigation of the Effect of the Similarity of Oral and Written Patterns of Language Structure on Reading Comprehension. Unpublished doctoral dissertation, Indiana University, 1963.
- Ruddell, R. B. The Effect of Oral and Written Patterns of Language Structure on Reading Comprehension. The Reading Teacher, 1965, 16, (4), 270-275.
- Rye, J. Cloze Procedure and the Teaching of Reading. London, England: Heinemann Educational Books, 1982.

- Schneyer, J. W. Use of the Cloze Procedure for Improving Reading Comprehension. Reading Teacher, 1965, 19, 174-179.
- Seymour, C, Palmatier, R. A., Dulaney, K. H. and Bailey, M. H. Vocabulary Load in Basal Reader Workbooks. Reading Improvement. Winter, 1983, 20, (4), 295-298.
- Spache, G.D., and Spache, E.B. Reading in the Elementary School, Boston: Allyn and Bacon, 1973.
- Steiner, R., Weiner, M. and Cromer, W. Comprehension Training and Identification for Poor and Good Readers. Journal of Educational Psychology, 1971, 62, 506-513.
- Stensen, C. Yes, Workbooks Are Too Hard to Read! The Reading Teacher, March, 1982, 35, (6), 725-726.
- Stoodt, B. D. The Relationship Between Understanding Grammatical Conjunctions and Reading Comprehension. Elementary English, April, 1972, 49, 502-504.
- Stoodt, B. D. Reading Instruction. Boston: Houghton-Mifflin Company, 1981.
- Taylor, W. L. The Cloze Procedure: A New Tool for Measuring Readability. Journalism Quarterly, Fall, 1953, 30, 415-433.
- Taylor, W. L. Recent Developments in the Use of the Cloze Procedure. Journalism Quarterly, Winter, 1956, 33, 42-48.
- Tinker, M. A. and Paterson, D.G. Reader Preferences and Typography. Journal of Applied Psychology, January, 1942, 26, 38-40.
- Thorndike, E. L. Reading and Reasoning: A Study of Mistakes in Paragraph Reading. Journal of Educational Psychology, 1917, 8, 323-332.
- Weinstein, R. and Rabinovitch, M. S. Sentence Structure and Retention in Good and Poor Readers. Journal of Educational Psychology, 1971, 62, 25-30.
- Willins, P. The Effects of Variable Directions and Formats in Reading Workbooks Upon Oral Responses, Visual Cues and Error Scores. Dissertation Abstracts International, January-March, 1978, 38, 7-9.

- Wildman, D. M., and Kling, M. Semantic, Syntactic, and Spatial Anticipation in Reading. Reading Research Quarterly, 1978-79, 15, (2), 128-140.
- Wilson, L. Comparison of Vocabulary Used in Written Directions. Reading Improvement, Summer, 1979, 16, 106-111.
- Zintz, M. V. The Reading Process, Dubuque, Iowa: William C. Brown Co., 1975.

APPENDIX A

CLOZE INSTRUMENTS NUMBER ONE AND TWO

SEQUENCE

To understand a story, you must understand which thing happened first, which happened next, and so on. Read the following story.

(1) _____ was a cold October (2) _____. The wind whipped my (3) _____ as I walked home (4) _____ school. It gave me (5) _____ strange feeling.

I did (6) _____ homework at my desk. (7) _____ once in a while (8) _____ would look out the (9) _____ and watch the leaves (10) _____ across the grass. Before (11) _____ knew it, Mom called (12) _____ it was time for (13) _____.

When I got to (14) _____ kitchen, Dad was making (15) _____ salad and Mom was (16) _____ the spaghetti. We laughed (17) _____ joked over dinner. Then (18) _____ washed the dishes.

After (19) _____ I worked on my (20) _____-card collection. Before I (21) _____ to sleep, I read (22) _____ chapters of Stuart Little.

(23) _____ the middle of the (24) _____ Mom woke me up. "(25) _____ on, Jenny, to our (26) _____," she said. I was (27) _____ sleepy I didn't know (28) _____ what was going on. I (29) _____ Dad talking on the (30) _____ to the police.

"Better (31) _____," he was saying. "There (32) _____ someone in our garage."

(33) _____ was then I woke (34) _____ enough to hear some (35) _____ noises. It sounded as (36) _____ someone was throwing the (37) _____ cans around. What a (38) _____!

A few minutes later (39) _____ police arrived. Mom, Dad, (40) _____ I stood at the (41) _____ and watched. The police (42) _____ got out of the (43) _____ and walked toward the (44) _____. The noise was deafening. (45) _____ a white horse came (46) _____ out of the garage. (47) _____ ran down the driveway (48) _____ onto the road. The (49) _____ officers jumped into their (50) _____ and followed the horse.

Mom, Dad, and I looked at each other in amazement. We never did find out what happened to the horse, or where it came from. I wonder what happened to it.

STOP

Number the sentences to show the sequence, or order, of events in the story. Number the first group 1-5 and the second group 6-10.

_____ Jenny worked on her baseball cards.
 _____ Jenny came home from school.
 _____ The family ate dinner.
 _____ Jenny did her homework.
 _____ Jenny washed the dishes.

_____ Mom woke Jenny up.
 _____ The horse ran out of the garage.
 _____ Jenny read two chapters.
 _____ The police came.
 _____ Jenny went to sleep.

SEQUENCE . EVENTS

As you read the paragraphs below, pay special attention to the sequence, or order, of the events that happen. Then number the events (1) _____ under each paragraph to (2) _____ their correct sequence. The (3) _____ one in each set (4) _____ events has been done (5) _____ you.

Whenever Kristin goes (6) _____, the first thing she (7) _____ is look for a (8) _____ on high, open ground. (9) _____ she finds a good (10) _____ she unpacks her gear (11) _____ arranges it neatly on (12) _____. Then before doing (13) _____ else, she pitches her (14) _____. She drives stakes into (15) _____ ground and tightens (16) _____ to hold the tent (17) _____. Then she puts her (18) _____ bag and backpack in (19) _____ tent. Next, she hangs (20) _____ food in a bag (21) _____ a tree branch to (22) _____ it from wild animals. (23) _____ that, she collect rocks (24) _____ arranges them in a (25) _____ circle. These rocks surround (26) _____ fire over which she (27) _____ cook. Once everything is (28) _____ up, she leans against (29) _____ tree and relaxes.

There (30) _____ certain steps that usually (31) _____ be followed when building (32) _____ house. First the foundation (33) _____ laid. On top of (34) _____ foundation, the subfloor, on (35) _____ the final floor material (36) _____ later placed, is (37) _____. Next the frame is (38) _____ on top of the (39) _____. A roof is built on (40) _____ top of the frame; (41) _____ the outside walls are (42) _____ in. After that, the (43) _____ wiring and plumbing are (44) _____ within the walls. At (45) _____ point, the inside walls (46) _____ closed in; then windows (47) _____ doors are installed. Appliances (48) _____ plumbing fixtures are installed (49) _____. Finally, the finishing touches (50) _____ added. Inside walls are painted, and floors are laid.

STOP

_____ Kristin pitches her tent.
 _____ 1 She unpacks her gear.
 _____ She puts her sleeping bag and pack in the tent.
 _____ She hangs her food from a tree.
 _____ She relaxes.
 _____ She collects rocks and arranges them in a small circle.

_____ Windows and doors are installed.
 _____ 1 The foundation is laid.
 _____ The outside walls are closed in.
 _____ A roof is built on top of the frame.
 _____ Finishing touches are added.
 _____ The frame is constructed on top of the subfloor.
 _____ Wiring and plumbing are put in.

APPENDIX B
CLOZE PRACTICE TESTS

Practice Test

Cloze Procedure

Judy's cousin Mike was visiting. Mike was almost three (years) old. He loved Sam, (Judy's) cat. So Judy thought (he) might like to visit (the) big cats at the (zoo).

At the zoo, Judy and Mike headed for the tigers and lions.

Practice Test

Cloze Procedure

Dinosaurs lived long ago. We know what they (looked) like because they left (clues). Some of the clues (are) their bones, which long (ago) turned into stone. Other (clues) are the tracks they (left) in wet sand or (mud). These too have turned to stone.

APPENDIX C

LETTER OF REQUEST TO SCHOOL SUPERINTENDENTS

April 16, 1985

School Superintendent

Dear _____ :

I appreciate your agreement to provide subjects from (School System) for my dissertation research in the doctoral program of The University of North Carolina at Greensboro. This research has been funded by the International Delta Kappa Gamma Society.

The purpose of the study is to determine if fourth grade students can read basal reader workbook materials at an independent reading level and to analyze the types of errors they make in reading the workbooks. Since reading workbooks are a common tool used in reading instruction in the classroom, this study is warranted.

A random sample of fourth grade students will be selected from your school system by using a table of random numbers to select (number) numbers which will be matched with an alphabetical and numerical listing of students. These identified students will be sent a parental consent form to secure permission to participate in the study.

The subjects will be asked to take two cloze procedure tests developed from fourth grade basal reader workbooks. The timeline for testing the students is May and early June. The coordination of the testing will be handled with each school on an individual basis.

Please study this plan and respond at your earliest convenience so that a meeting date can be scheduled to meet with the school principals. I will gladly consider any suggestions you may have for the study and its implementation.

As previously discussed, the teachers in your school system will benefit from this study by being invited to participate in staff development activities on Reading Comprehension Strategies based upon the findings. These sessions will be scheduled during the spring of 1986.

Thank you for your assistance in this important educational endeavor. Our goal is to improve the reading skills of the students.

Sincerely,

Shirley B. Owen
Communication Skills Coordinator, K-12

APPENDIX D
PARENT/STUDENT CONSENT FORM

PARENT/STUDENT CONSENT FORM

_____ school has been chosen to participate in a study of student's reading comprehension of basal reader workbooks.

Your child, _____, is being asked to participate by reading a short selection from a reading workbook tht contains deleted words. Your child will be asked to fill in the words he/she feels should complete each sentence.

The purpose of this study is to determine how well the fourth grade workbook materials match the needs of the students.

Your child will spend approximately one hour of classroom time reading the fourth grade material on May 17 and 24, 1985. Although your child may well benefit from this activity, his/her performance will not affect grades in any way.

Check One Below:

_____ My child has my permission to participate in this study of reading comprehension.

_____ My child does not have my permission to participate in this study of reading comprehension.

Parent/Guardian Signature _____

* Please return this form to your child's school by May 9, 1985.

Shirley Owen
Communication Skills Coordinator, K-12
South Central Regional Education Center
Carthage, North Carolina

APPENDIX E

DIRECTIONS FOR CLOZE TEST ADMINISTRATION

TO RESEARCH ASSISTANTS:

Directions for administering cloze instruments:

A. Explanation of Purpose of Testing

Say: "We want to find out how well you, as fourth graders, can read and understand fourth grade workbook pages. We are interested in the specific problems you may have in reading the exercises. Often you are given the exercises to do on your own while the teacher is teaching other groups of students. We want to see if you can handle the materials independently without help from the teacher. You will be taking a test today to see how well you read workbooks. You will not receive a grade on the test."

B. Explanation of How You Were Selected

Say: "You are special students for this study. You are one of 400 out of a total of 3,119 fourth graders in two school systems represented in this study. We encourage you to listen carefully, to follow directions, and to do your best possible work."

C. Practice Test

- Give each student a copy of the practice test.

Say: "To get ready for the test, I want you to read this short paragraph. You will notice that there are some blanks. Read the whole paragraph first and then go back and write a word in each blank that makes sense in the sentence. Do not be concerned with correct spelling. Just make it look as much like the word as possible."

- Allow all students to complete the paragraph. Then read the paragraph orally and elicit student responses for each blank. Ask how each word was selected or the clues that were given to the correct word.
- Answer any questions the students have about the cloze procedure.
- Take up practice tests.

D. Directions Sheet and Cloze Test

- Distribute the directions sheet and cloze test to each student.
- Read the directions orally.
- Answer any questions raised about the directions.

Say: "When you finish filling in the blanks on the test, turn your paper over and write your first and last name on the back. Wait quietly until everyone has completed the test."

E. Testing Wrap-up

- Collect all tests and be sure each test is identified.
- Elicit responses from the students about the test.
- Thank the students for participating.
- Announce the date for the second test from the testing schedule.

APPENDIX F
TESTING SCHEDULES

Testing Schedule - May-June, 1985

School System I

5/6 8:30-9:30 #1 10:00-11:00 #2	5/7 Makeups #1, #2	5/8 8:30-9:30 #3 10:00-11:00 #4	5/9 8:30-9:30 #5 10:00-11:00 #6	5/10 Makeups #3,4,5,6
5/13 8:30-9:30 #3 10:00-11:00 #4	5/14 8:30-9:30 #1 10:00-11:00 #2	5/15 8:30-9:30 #5 10:00-11:00 #6	5/16 Makeups	5/17 Makeups

Testing Schedule - May-June, 1985

School System II

<p>5/13</p> <p>8:30-9:30 #9 9:45-10:45 #7 12:30-1:30 #37</p>	<p>5/14</p> <p>8:30-9:30 #10 9:45-10:45 #25 12:30-1:30 #18</p>	<p>5/15</p> <p>8:45-9:45 #11 10:00-11:00 #25 12:45-1:45 #21</p>	<p>5/16</p> <p>8:30-9:30 #20 9:45-10:45 #22 12:30-1:30 #8</p>	<p>5/17</p> <p>8:30-9:30 #26 9:45-10:45 #24 12:30-1:30 #13</p>
<p>8:20-9:20 #40 9:45-10:45 #19 11:00-12:00#15</p>	<p>8:20-9:20 #33 9:45-10:45 #34 12:30-1:30 #28</p>	<p>8:20-9:20 #12 9:45-10:45 #17 12:45-1:45 #32</p>	<p>8:30-9:30 #30 9:45-10:45 #29 12:30-1:30 #26</p>	<p>8:30-9:30 #16 9:45-10:45 #39 12:30-1:30 #24</p>
<p>5/20</p> <p>8:20-9:20 #7 9:45-10:45 #36 11:00-12:00#9</p>	<p>5/21</p> <p>8:20-9:20 #18 9:45-10:45 #10 11:00-12:00#37</p>	<p>5/22</p> <p>8:30-9:30 #21 9:45-10:45 #11 12:30-1:30 #36</p>	<p>5/23</p> <p>8:30-9:30 #8 9:45-10:45 #20 12:30-1:30 #26</p>	<p>5/24</p> <p>8:30-9:30 #22 9:45-10:45 #13 12:30-1:30 #24</p>
<p>8:20-9:20 #15 9:45-10:45 #40 11:00-12:00#14</p>	<p>8:20-9:20 #34 9:45-10:45 #33 11:00-12:00#28</p>	<p>8:30-9:30 #17 9:45-10:45 #32 12:30-1:30 #31</p>	<p>8:30-9:30 #29 9:45-10:45 #30 12:30-1:30 #12</p>	<p>8:30-9:30 #16 9:45-10:45 #39 12:30-1:30 #38</p>
<p>5/27</p> <p>8:30-9:30 #19 10:30-11:30#27 11:30-12:30#23</p>	<p>5/28</p> <p>8:30-9:30 #27 10:45-11:45#35</p>	<p>5/29</p> <p>8:30-9:30 #14 10:00-11:00 #23</p>	<p>5/30</p> <p>8:30-9:30 #15 #9 Makeups</p>	<p>5/31</p> <p>8:30-9:30 #35</p>
<p>6/3</p> <p>Makeups</p>	<p>6/4</p> <p>Makeups</p>	<p>6/5</p> <p>Makeups</p>		

APPENDIX G

SCHEDULE FOR OBSERVATION OF TESTING PROCEDURES

Observation Schedule - School System I

5/6	School #1, 2	Research Assistant #2
5/8	School #3, 4	Research Assistant #2
5/9	School #5, 6	Research Assistant #2

Observation Schedule - School System II

5/13	School #9, 7, 37	Research Assistant #1
5/14	School #10, 25, 18	Research Assistant #1
5/15	School #11, 25, 21	Research Assistant #1
5/16	School #20, 22, 8	Research Assistant #1
5/17	School #26, 24, 13	Research Assistant #1
5/20	School #15, 40, 14	Research Assistant #2
5/21	School #34, 33, 28	Research Assistant #2
5/22	School #17, 32, 31	Research Assistant #2
5/23	School #29, 30, 12	Research Assistant #2
5/24	School #16, 39, 38	Research Assistant #3
5/27	School #19, 27, 23	Research Assistant #3
5/28	School #35	Research Assistant #3

APPENDIX H
CLOZE TEST DIRECTIONS

Directions:

Some words have been left out of these sentences. Read each sentence on the page and skip over the blanks. Then go back to the beginning and try to fill in the blanks.

Only one word goes in each blank. Spell each word the best you can. Wrong spellings will not be counted wrong. No one is expected to fill in all the blanks correctly.

APPENDIX I
ANSWER KEYS FOR CLOZE TESTS

SEQUENCE

To understand a story, you must understand which thing happened first, which happened next, and so on. Read the following story.

(1) (It) was a cold October (2) (day) . The wind whipped my (3) (face) as I walked home (4) (from) school. It gave me (5) (a) strange feeling.

I did (6) (my) homework at my desk. (7) (Every) once in a while (8) (I) would look out the (9) (window) and watch the leaves (10) (blow) across the grass. Before (11) (I) knew it, Mom called (12) (that) it was time for (13) (dinner).

When I got to (14) (the) kitchen, Dad was making (15) (a) salad and Mom was (16) (finishing) the spaghetti. We laughed (17) (and) joked over dinner. Then (18) (I) washed the dishes.

After (19) (dinner) I worked on my (20) (baseball)-card collection. Before I (21) (went) to sleep, I read (22) (two) chapters of Stuart Little.

(23) (In) the middle of the (24) (night) Mom woke me up. "(25) (Come) on, Jenny, to our (26) (room)," she said. I was (27) (so) sleepy I didn't know (28) (what) what was going on. I (29) (heard) Dad talking on the (30) (telephone) to the police.

"Better (31) (hurry)," he was saying. "There (32) (is) someone in our garage."

(33) (It) was then I woke (34) (up) enough to hear some (35) (loud) noises. It sounded as (36) (if) someone was throwing the (37) (garbage) cans around. What a (38) (racket)!

A few minutes later (39) (the) police arrived. Mom, Dad, (40) (and) I stood at the (41) (window) and watched. The police (42) (officers) got out of the (43) (car) and walked toward the (44) (garage). The noise was deafening. (45) (Suddenly) a white horse came (46) (bounding) out of the garage. (47) (It) ran down the driveway (48) (and) onto the road. The (49) (police) officers jumped into their (50) (car) and followed the horse.

Mom, Dad, and I looked at each other in amazement. We never did find out what happened to the horse, or where it came from. I wonder what happened to it.



Number the sentences to show the sequence, or order, of events in the story. Number the first group 1-5 and the second group 6-10.

- | | |
|-------------------------------------------|----------------------------------------|
| _____ Jenny worked on her baseball cards. | _____ Mom woke Jenny up. |
| _____ Jenny came home from school. | _____ The horse ran out of the garage. |
| _____ The family ate dinner. | _____ Jenny read two chapters. |
| _____ Jenny did her homework. | _____ The police came. |
| _____ Jenny washed the dishes. | _____ Jenny went to sleep. |

SEQUENCE . EVENTS

As you read the paragraphs below, pay special attention to the sequence, or order, of the events that happen. Then number the events (1) (listed) under each paragraph to (2) (show) their correct sequence. The (3) (first) one in each set (4) (of) events has been done (5) (for) you.

Whenever Kristin goes (6) (camping), the first thing she (7) (does) is look for a (8) (campsite) on high, open ground. (9) (When) she finds a good (10) (site) she unpacks her gear (11) (and) arranges it neatly on (12) (the) ground. Then before doing (13) (anything) else, she pitches her (14) (tent). She drives stakes into (15) (the) ground and tightens (16) (ropes) to hold the tent (17) (upright). Then she puts her (18) (sleeping) bag and backpack in (19) (the) tent. Next, she hangs (20) (her) food in a bag (21) (from) a tree branch to (22) (protect) it from wild animals. (23) (After) that, she collect rocks (24) (and) arranges them in a (25) (small) circle. These rocks surround (26) (the) fire over which she (27) (will) cook. Once everything is (28) (set) up, she leans against (29) (a) tree and relaxes.

There (30) (are) certain steps that usually (31) (must) be followed when building (32) (a) house. First the foundation (33) (is) laid. On top of (34) (the) foundation, the subfloor, on (35) (which) the final floor material (36) (will) later placed, is (37) (built). Next the frame is (38) (constructed) on top of the (39) (subfloor). A roof is built on (40) (the) top of the frame; (41) (then) the outside walls are (42) (closed) in. After that, the (43) (the) wiring and plumbing are (44) (placed) within the walls. At (45) (this) point, the inside walls (46) (are) closed in; then windows (47) (and) doors are installed. Appliances (48) (and) plumbing fixtures are installed (49) (next). Finally, the finishing touches (50) (are) added. Inside walls are painted, and floors are laid.



- | | |
|---------------------------------------------------------------|--------------------------------------------------------|
| _____ Kristin pitches her tent. | _____ Windows and doors are installed. |
| <u>1</u> _____ She unpacks her gear. | <u>1</u> _____ The foundation is laid. |
| _____ She puts her sleeping bag and pack in the tent. | _____ The outside walls are closed in. |
| _____ She hangs her food from a tree. | _____ A roof is built on top of the frame. |
| _____ She relaxes. | _____ Finishing touches are added. |
| _____ She collects rocks and arranges them in a small circle. | _____ The frame is constructed on top of the subfloor. |
| | _____ Wiring and plumbing are put in. |

APPENDIX J
SCORING SHEET FOR STUDENT RESPONSES
TO CLOZE INSTRUMENTS

INSTRUMENT # _____

STUDENT # _____

SCORER # _____

1.	_____	2.	_____	3.	_____	4.	_____	5.	_____
6.	_____	7.	_____	8.	_____	9.	_____	10.	_____
11.	_____	12.	_____	13.	_____	14.	_____	15.	_____
16.	_____	17.	_____	18.	_____	19.	_____	20.	_____
21.	_____	22.	_____	23.	_____	24.	_____	25.	_____
26.	_____	27.	_____	28.	_____	29.	_____	30.	_____
31.	_____	32.	_____	33.	_____	34.	_____	35.	_____
36.	_____	37.	_____	38.	_____	39.	_____	40.	_____
41.	_____	42.	_____	43.	_____	44.	_____	45.	_____
46.	_____	47.	_____	48.	_____	49.	_____	50.	_____

SCORING KEY:

0 = Correct response
1 = Type 1 error
2 = Type 2 error
3 = Type 3 error
4 = Type 4 error
5 = Type 5 error
6 = Blank response

APPENDIX K
QUALIFICATIONS OF SCORERS

Qualifications of Scorers

Scorer One (graduate student); Scorer Two (retired elementary teacher), and Scorer Three (elementary reading teacher) scored the cloze tests initially. Scorers Four and Five were used to resolve the discrepancies from the first three scorings. Their expertise in the areas of syntax and semantics is cited below:

Scorer Four:

Ph.D. in Reading Education, University of Georgia; M.Ed. in Reading Education, Edinboro University, Pennsylvania; B.S. in Elementary Education (K-8) Edinboro University, Pennsylvania; Graduate Assistant, Elementary Education, Edinboro University; Graduate Assistant in Reading Department, University of Georgia; 18 hours diagnostic work in reading clinic, 9 hours supervising in reading clinic; Classroom teacher in grades 1, 2, 4, 5, 6; Title I Reading Program, grades 2-6; Assistant Professor of Education, Pembroke State University, North Carolina (reading and research both graduate and undergraduate); Reading Teacher and Language Arts/Mathematics Coordinator with grades 4-6 and 7-8 Summer Enrichment Program, Pembroke State University; Presenter at North Carolina Council of International Reading Association, 1985, 1986; President of Robeson County Reading Association; Consultant with local school systems.

Scorer Five:

Doctoral Candidate in Curriculum and Teaching (Reading Concentration), University of North Carolina at Greensboro; M.Ed. in Elementary Education, University of North Carolina at Greensboro, B.S. in Elementary Education, East Carolina University; Adjunct Instructor, University of North Carolina at Greensboro; Communication Skills Coordinator, Reading Consultant, North Carolina Department of Public Instruction; Reading Tutor, Co-author of North Carolina Competency Based Curriculum (Teacher Handbook); Language Arts teacher in grades 4-8; Presenter at Southeast Regional International Reading Association Conference (1985); Presenter at North Carolina International Reading Association, 1984, 1985.

APPENDIX L
CLOZE INSTRUMENT TABULATIONS

CLOZE INSTRUMENT TABULATION

FOR INSTRUMENT 1

STUDENT NO.	NUMBER CORRECT	PERCENTAGE CORRECT	READABILITY LEVEL	NUMBER OF ERRORS	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	BLANK RESPONSES
7	38	76	3	12	6	3	0	1	2	0
17	24	48	2	26	4	5	1	2	14	0
50	18	36	1	32	2	5	1	4	18	2
55	30	60	3	20	4	8	2	1	5	0
61	18	36	1	32	1	8	0	3	18	2
62	33	66	3	17	6	7	1	0	3	0
70	35	70	3	15	3	7	2	0	3	0
88	31	62	3	19	3	6	2	3	4	1
95	27	54	2	23	4	8	1	3	7	0
104	26	52	2	24	2	6	4	4	7	1
107	31	62	3	19	5	4	0	3	6	1
110	23	46	2	27	1	9	4	2	11	0
125	31	62	3	19	7	2	3	2	5	0
134	25	50	2	25	1	3	1	3	17	0
144	31	62	3	19	2	7	3	0	7	0
145	27	54	2	23	3	7	1	1	10	1
174	20	40	1	30	2	4	2	1	20	1
180	22	44	1	28	1	6	3	0	17	1
184	26	52	2	24	4	9	6	1	4	0
185	40	80	3	10	4	4	0	1	0	1
216	22	44	1	28	6	9	2	5	5	1
226	30	60	3	20	4	5	2	1	5	3
248	29	58	2	21	6	6	0	3	6	0
253	34	68	3	16	3	9	0	1	3	0
255	33	66	3	17	3	7	0	3	4	0
261	33	66	3	17	6	4	0	1	6	0
262	25	50	2	25	6	8	1	4	6	0
267	24	48	2	26	5	9	3	2	3	4
275	24	48	2	26	4	9	1	2	8	2
280	34	68	3	16	1	8	1	1	5	0
292	18	36	1	32	3	7	3	1	18	0

STUDENT NO.	NUMBER CORRECT	PERCENTAGE CORRECT	READABILITY LEVEL	NUMBER OF ERRORS	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	BLANK RESPONSES
---	---	---	-	--	-	-	-	-	-	-
294	25	50	2	25	1	12	3	2	7	0
306	20	40	1	30	5	7	4	2	12	0
322	25	50	2	25	3	12	4	2	3	1
336	22	44	1	28	8	6	1	2	10	1
345	17	34	1	33	3	4	2	5	17	2
375	31	62	3	19	2	9	0	2	4	2
376	27	54	2	23	4	6	5	2	5	1
386	21	42	1	29	1	7	2	2	14	3
401	27	54	2	23	3	5	2	4	7	2
405	27	54	2	23	4	7	4	1	7	0
414	28	56	2	22	6	7	1	2	6	0
416	28	56	2	22	3	9	0	1	9	0
417	28	56	2	22	5	10	1	3	3	0
426	28	56	2	22	4	8	3	2	5	0
430	27	54	2	23	2	9	4	5	3	0
431	19	38	1	31	3	7	0	3	14	4
460	21	42	1	29	5	8	0	4	12	0
466	33	66	3	17	2	12	1	0	2	0
471	21	42	1	29	2	7	0	3	14	3
474	30	60	3	20	6	8	1	1	4	0
480	22	44	1	28	3	8	4	1	12	0
483	24	48	2	26	4	8	2	3	5	4
485	29	58	2	21	2	5	3	2	9	0
487	34	68	3	16	2	9	1	2	2	0
489	25	50	2	25	2	6	1	1	13	2
518	35	70	3	15	4	8	0	0	3	0
523	22	44	1	28	4	8	3	1	12	0
534	32	64	3	18	2	12	1	1	2	0
536	26	52	2	24	5	6	1	1	7	4
538	36	72	3	14	4	6	1	1	2	0
542	32	64	3	18	2	9	0	3	4	0
559	19	38	1	31	1	4	4	2	20	0
564	19	38	1	31	3	9	2	2	15	0
594	26	52	2	24	2	7	3	2	10	0
623	29	58	2	21	1	11	3	3	3	0

STUDENT NO.	NUMBER CORRECT	PERCENTAGE CORRECT	READABILITY LEVEL	NUMBER OF ERRORS	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	BLANK RESPONSES
624	35	70	3	15	3	4	0	1	7	0
633	23	46	2	27	2	5	1	3	8	8
652	33	66	3	17	3	7	1	3	3	0
660	27	54	2	23	2	13	1	1	6	0
664	31	62	3	19	3	10	1	1	4	0
671	25	50	2	25	3	4	5	1	10	2
676	30	60	3	20	1	6	5	5	3	0
681	18	36	1	32	4	4	3	3	16	2
687	22	44	1	28	2	10	2	2	12	0
690	32	64	3	18	6	6	2	2	2	0
695	20	40	1	30	2	12	0	4	12	0
701	18	36	1	32	3	6	3	3	7	10
702	33	66	3	17	1	12	2	1	1	0
711	19	38	1	31	5	8	3	1	14	0
721	27	54	2	23	1	11	1	3	6	1
722	25	50	2	25	3	9	2	1	8	2
733	25	50	2	25	1	8	4	0	10	2
734	23	46	2	27	3	5	2	1	12	4
740	26	52	2	24	4	6	2	1	8	3
754	8	16	1	42	0	2	4	2	29	5
759	32	64	3	18	4	8	2	1	2	1
779	31	62	3	19	2	9	0	0	3	5
797	37	74	3	13	2	6	0	1	4	0
803	22	44	1	28	3	6	4	4	11	0
810	27	54	2	23	1	1	6	0	7	8
822	12	24	1	38	1	3	1	1	30	2
824	23	46	2	27	1	8	0	5	12	1
841	24	48	2	26	3	13	1	3	6	0
843	23	46	2	27	3	9	0	2	5	8
866	29	58	2	21	5	8	0	3	5	0
907	31	62	3	19	3	8	2	1	5	0
910	19	38	1	31	2	8	2	5	13	1
926	36	72	3	14	4	5	0	0	5	0
934	22	44	1	28	2	4	3	2	17	0
941	15	30	1	35	4	11	0	2	16	2

STUDENT NO.	NUMBER CORRECT	PERCENTAGE CORRECT	READABILITY LEVEL	NUMBER OF ERRORS	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	BLANK RESPONSES
---	---	---	-	--	-	-	-	-	-	-
956	29	58	2	21	4	2	4	1	10	0
960	24	48	2	26	2	12	3	3	6	0
963	0	0	1	50	0	0	0	0	50	0
976	37	74	3	13	4	7	1	0	0	1
999	22	44	1	28	7	3	2	4	8	4
1002	30	60	3	20	4	9	1	0	6	0
1008	27	54	2	23	4	8	3	3	5	0
1012	27	54	2	23	4	9	1	4	5	0
1014	31	62	3	19	3	5	1	1	3	6
1029	30	60	3	20	4	7	2	3	4	0
1030	30	60	3	20	3	11	1	3	2	0
1036	27	54	2	23	2	4	2	3	12	0
1038	24	48	2	26	2	10	2	3	5	4
1045	22	44	1	28	4	10	0	3	11	0
1046	32	64	3	18	4	4	0	2	3	5
1070	27	54	2	23	3	11	2	2	3	2
1107	30	60	3	20	2	10	1	3	3	1
1110	29	58	2	21	3	12	1	1	4	0
1117	28	56	2	22	0	7	2	3	7	3
1134	30	60	3	20	4	8	4	4	0	0
1137	19	38	1	31	4	5	3	2	16	1
1146	17	34	1	33	4	10	7	3	9	0
1164	34	68	3	16	2	8	0	1	5	0
1176	31	62	3	19	1	8	0	4	6	0
1179	26	52	2	24	2	8	2	1	10	1
1182	20	40	1	30	0	12	2	4	12	0
1194	27	54	2	23	6	3	5	0	9	0
1238	29	58	2	21	1	6	3	3	4	4
1242	26	52	2	24	3	6	4	6	5	0
1264	36	72	3	14	4	3	1	0	6	0
1270	13	26	1	37	1	2	4	0	30	0
1271	26	52	2	24	3	10	3	6	2	0
1272	7	14	1	43	0	4	1	1	33	4
1290	35	70	3	15	5	4	1	1	4	0
1295	28	56	2	22	4	12	4	2	0	0

STUDENT NO.	NUMBER CORRECT	PERCENTAGE CORRECT	READABILITY LEVEL	NUMBER OF ERRORS	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	BLANK RESPONSES
1307	28	56	2	22	4	6	4	1	7	0
1311	26	52	2	24	3	7	1	2	7	4
1314	32	64	3	18	2	10	0	0	6	0
1331	17	34	1	33	0	6	6	1	18	2
1336	19	38	1	31	3	12	3	2	11	0
1338	21	42	1	29	1	8	0	2	12	6
1345	30	60	3	20	4	11	1	1	3	0
1355	37	74	3	13	4	7	0	1	1	0
1357	28	56	2	22	2	9	1	0	7	3
1366	31	62	3	19	5	11	0	0	3	0
1373	34	68	3	16	3	5	1	1	6	0
1374	28	56	2	22	8	8	1	2	3	0
1378	27	54	2	23	4	7	0	5	5	2
1399	36	72	3	14	2	9	0	2	1	0
1400	31	62	3	19	3	4	7	3	2	0
1405	31	62	3	19	3	6	2	2	6	0
1406	31	62	3	19	2	8	1	1	7	0
1412	28	56	2	22	2	7	6	2	5	0
1417	30	60	3	20	2	4	7	4	3	0
1431	25	50	2	25	4	8	2	2	9	0
1435	29	58	2	21	2	10	1	3	5	0
1451	35	70	3	15	5	2	3	1	4	0
1461	31	62	3	19	2	2	4	4	7	0
1475	32	64	3	18	5	7	2	1	3	0
1498	30	60	3	20	2	12	1	1	4	0
1512	33	66	3	17	3	9	1	0	3	1
1529	17	34	1	33	3	6	1	3	18	2
1533	33	66	3	17	3	9	0	1	4	0
1561	26	52	2	24	5	11	0	1	5	2
1566	32	64	3	18	4	5	4	4	1	0
1573	28	56	2	22	2	10	2	1	7	0
1574	28	56	2	22	7	7	1	0	7	0
1632	29	58	2	21	3	9	1	3	5	0
1648	22	44	1	28	1	6	1	6	14	0
1657	25	50	2	25	2	8	0	2	13	0

STUDENT NO.	NUMBER CORRECT	PERCENTAGE CORRECT	READABILITY LEVEL	NUMBER OF ERRORS	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	BLANK RESPONSES
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1664	26	52	2	24	3	5	2	7	5	2
1675	23	46	2	27	3	11	4	5	4	0
1677	19	38	1	31	7	8	1	2	13	0
1680	20	40	1	30	4	4	3	4	14	1
1682	21	42	1	29	2	6	3	0	16	2
1686	28	56	2	22	3	9	0	1	9	0
1719	27	54	2	23	2	10	2	3	6	0
1742	33	66	3	17	5	3	2	2	3	2
1759	9	18	1	41	0	3	2	1	35	0
1768	31	62	3	19	0	10	1	1	6	1
1776	18	36	1	32	1	12	0	2	11	6
1777	37	74	3	13	3	5	2	2	1	0
1781	28	56	2	22	2	7	0	2	11	0
1788	27	54	2	23	5	6	2	2	8	0
1790	29	58	2	21	5	7	0	4	5	0
1807	32	64	3	18	3	7	2	2	4	0
1810	34	68	3	16	6	6	0	0	4	0
1812	26	52	2	24	5	6	2	1	9	1
1815	26	52	2	24	5	8	0	1	4	6
1820	29	58	2	21	2	8	3	4	3	1
1822	25	50	2	25	3	3	8	2	8	1
1826	34	68	3	16	3	7	2	2	2	0
1834	26	52	2	24	4	8	1	3	7	1
1837	28	56	2	22	1	5	1	4	10	1
1840	32	64	3	18	2	8	0	3	5	0
1842	30	60	3	20	6	4	3	3	1	3
1843	23	46	2	27	2	9	3	3	7	3
1846	23	46	2	27	2	13	0	2	10	0
1856	21	42	1	29	5	4	3	3	14	0
1873	9	18	1	41	2	10	2	2	25	0
1881	32	64	3	18	4	8	0	1	5	0
1904	26	52	2	24	3	7	2	5	7	0
1908	27	54	2	23	2	4	3	4	10	0
1916	29	58	2	21	3	9	0	2	7	0
1935	23	46	2	27	4	2	6	2	13	0

STUDENT NO.	NUMBER CORRECT	PERCENTAGE CORRECT	READABILITY LEVEL	NUMBER OF ERRORS	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	BLANK RESPONSES
1937	25	50	2	25	3	5	3	2	7	5
1940	27	54	2	23	2	9	4	2	4	2
1959	28	56	2	22	1	10	0	3	6	2
1971	27	54	2	23	5	9	0	0	7	2
1974	25	50	2	25	4	7	1	4	3	6
1980	18	36	1	32	3	5	1	2	21	0
1981	21	42	1	29	5	7	0	5	12	0
1986	24	48	2	26	3	5	4	5	7	2
1999	30	60	3	20	5	6	3	3	3	0
2002	30	60	3	20	5	10	0	1	4	0
2012	34	68	3	16	4	4	4	2	2	0
2017	32	64	3	18	6	8	0	0	4	0
2020	29	58	2	21	3	7	3	3	4	1
2024	25	50	2	25	1	8	0	2	13	1
2041	19	38	1	31	3	8	6	2	10	2
2043	24	48	2	26	5	8	2	3	8	0
2056	32	64	3	18	2	7	1	1	7	0
2064	38	76	3	12	6	3	1	0	1	1
2065	22	44	1	28	2	8	5	5	8	0
2087	26	52	2	24	4	4	2	0	12	2
2088	19	38	1	31	3	5	2	4	15	2
2095	29	58	2	21	4	9	1	0	7	0
2112	20	40	1	30	4	8	2	5	10	1
2114	27	54	2	23	5	5	0	1	12	0
2121	23	46	2	27	3	5	4	4	4	7
2149	34	68	3	16	3	4	2	1	4	2
2151	35	70	3	15	2	5	5	2	1	0
2153	24	48	2	26	5	2	4	1	13	1
2169	19	38	1	31	9	13	1	2	6	0
2179	15	30	1	35	2	11	2	2	18	0
2206	24	48	2	26	4	9	3	2	8	0
2211	22	44	1	28	4	3	5	4	11	1
2215	31	62	3	19	6	6	1	3	3	0
2226	20	40	1	30	3	10	5	1	11	0
2246	34	68	3	16	3	7	3	2	1	0

STUDENT NO.	NUMBER CORRECT	PERCENTAGE CORRECT	READABILITY LEVEL	NUMBER OF ERRORS	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	BLANK RESPONSES
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2247	27	54	2	23	2	10	0	2	9	0
2259	26	52	2	24	1	6	1	2	13	1
2273	19	38	1	31	2	0	5	3	21	0
2278	26	52	2	24	3	7	4	2	8	0
2294	21	42	1	29	3	9	2	3	12	0
2295	21	42	1	29	6	9	1	2	11	0
2314	31	62	3	19	2	8	3	1	5	0
2329	33	66	3	17	2	10	1	1	3	0
2330	21	42	1	29	3	5	6	3	12	0
2337	31	62	3	19	3	10	0	3	3	0
2345	32	64	3	18	6	6	0	2	2	2
2358	27	54	2	23	2	11	0	2	8	0
2361	28	56	2	22	6	7	1	3	5	0
2373	33	66	3	17	1	9	0	3	4	0
2376	4	8	1	46	0	3	2	1	7	33
2382	26	52	2	24	2	7	4	2	9	0
2386	7	14	1	43	0	0	3	2	18	20
2389	28	56	2	22	2	10	0	0	10	0
2391	17	34	1	33	5	5	2	1	17	3
2394	35	70	3	15	3	3	6	1	2	0
2399	28	56	2	22	3	10	5	0	4	0
2411	21	42	1	29	1	11	0	5	12	0
2412	30	60	3	20	6	5	0	1	6	2
2414	22	44	1	28	2	10	0	2	14	0
2415	27	54	2	23	4	4	2	4	5	4
2428	28	56	2	22	3	9	3	3	4	0
2438	22	44	1	28	3	10	0	1	14	0
2470	24	48	2	26	1	8	0	3	7	7
2486	25	50	2	25	4	5	1	1	6	8
2497	33	66	3	17	4	8	1	1	3	0
2520	26	52	2	24	3	10	1	3	7	0
2544	22	44	1	28	2	6	1	3	16	0
2549	30	60	3	20	3	9	1	1	6	0
2557	26	52	2	24	3	7	0	5	9	0
2558	19	38	1	31	4	7	6	3	6	5

STUDENT NO.	NUMBER CORRECT	PERCENTAGE CORRECT	READABILITY LEVEL	NUMBER OF ERRORS	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	BLANK RESPONSES
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2568	28	56	2	22	3	5	5	1	8	0
2591	7	14	1	43	3	7	1	3	28	1
2593	32	64	3	18	4	4	3	2	5	0
2627	26	52	2	24	4	8	1	2	9	0
2631	22	44	1	28	3	4	3	4	12	2
2660	27	54	2	23	6	8	2	3	4	0
2670	15	30	1	35	3	1	2	0	1	28
2682	29	58	2	21	6	7	0	3	5	0
2689	33	66	3	17	2	10	0	3	2	0
2703	32	64	3	18	3	3	4	1	5	2
2716	23	46	2	27	6	9	1	2	7	2
2727	27	54	2	23	6	6	1	4	6	0
2728	24	48	2	26	3	7	1	2	8	5
2733	22	44	1	28	6	4	5	2	9	2
2735	32	64	3	18	1	10	0	1	5	1
2746	30	60	3	20	4	8	0	3	5	0
2749	34	68	3	16	4	6	2	1	3	0
2751	19	38	1	31	3	12	0	4	10	2
2752	29	58	2	21	2	8	6	3	2	0
2753	22	44	1	28	2	6	5	3	11	1
2764	35	70	3	15	3	6	1	2	3	0
2765	31	62	3	19	2	6	1	3	2	5
2768	29	58	2	21	1	9	4	0	6	1
2769	25	50	2	25	4	11	0	3	7	0
2795	25	50	2	25	4	6	5	1	9	0
2800	33	66	3	17	6	7	0	0	3	1
2811	32	64	3	18	4	10	1	1	2	0
2813	33	66	3	17	4	2	4	4	3	0
2821	17	34	1	33	4	10	1	4	13	1
2830	30	60	3	20	4	6	3	2	5	0
2848	21	42	1	29	4	4	3	3	15	0
2874	22	44	1	28	3	5	4	3	6	7
2897	26	52	2	24	4	5	1	1	12	1
2906	22	44	1	28	4	6	2	2	14	0
2912	29	58	2	21	6	6	4	1	4	0

STUDENT NO.	NUMBER CORRECT	PERCENTAGE CORRECT	READABILITY LEVEL	NUMBER OF ERRORS	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	BLANK RESPONSES
---	---	---	-	--	-	-	-	-	-	-
2914	28	56	2	22	8	7	3	2	2	0
2920	21	42	1	29	6	8	1	1	12	1
2925	19	38	1	31	4	7	5	1	14	0
2963	32	64	3	18	2	9	1	2	4	0
2980	28	56	2	22	1	12	0	2	7	0
2994	36	72	3	14	3	9	0	0	2	0
2999	31	62	3	19	7	7	1	0	4	0
3020	29	58	2	21	3	7	0	3	8	0
3047	28	56	2	22	3	9	0	2	5	3
3057	18	36	1	32	2	5	2	4	19	0
3063	25	50	2	25	2	11	1	1	9	1
3069	33	66	3	17	6	5	0	2	4	0
3075	22	44	1	28	3	10	1	2	12	0
3083	19	38	1	31	3	9	2	3	14	0
3095	32	64	3	18	5	6	0	3	2	2
3098	29	58	2	21	4	11	0	0	6	0
3108	27	54	2	23	3	5	4	2	9	0
3112	25	50	2	25	2	14	0	3	6	0
3113	31	62	3	19	3	11	1	2	2	0
TOTALS	8705			7795	1075	2376	625	699	2620	400

CLOZE INSTRUMENT TABULATION

FOR INSTRUMENT 2

STUDENT NO.	NUMBER CORRECT	PERCENTAGE CORRECT	READABILITY LEVEL	NUMBER OF ERRORS	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	BLANK RESPONSES
---	---	---	-	--	-	-	-	-	-	-
7	22	44	1	28	6	14	1	0	7	0
17	11	22	1	39	6	2	2	0	17	12
50	6	12	1	44	3	2	0	1	18	20
55	19	38	1	31	10	7	1	1	9	3
61	7	14	1	43	0	4	1	1	37	0
62	25	50	2	25	8	6	2	0	6	3
70	24	48	2	26	9	5	3	1	8	0
88	18	36	1	32	7	6	3	2	11	3
95	21	42	1	29	8	6	3	0	12	0
104	12	24	1	38	4	6	0	1	13	14
107	23	46	2	27	7	4	0	1	9	6
110	23	46	2	27	7	5	1	1	13	0
125	22	44	1	28	9	11	0	1	7	0
134	12	24	1	38	3	4	1	0	19	11
144	22	44	1	28	6	6	2	2	7	5
145	15	30	1	35	5	3	1	1	16	9
174	9	18	1	41	4	1	1	0	29	6
180	25	50	2	25	1	7	1	5	9	2
184	22	44	1	28	10	2	2	0	9	5
185	35	70	3	15	6	7	0	1	1	0
216	23	46	2	27	7	4	1	2	13	0
226	23	46	2	27	9	4	1	2	11	0
248	22	44	1	28	8	7	1	2	10	0
253	25	50	2	25	8	11	1	1	3	1
255	32	64	3	18	4	6	1	1	5	1
261	32	64	3	18	3	8	2	1	3	1
262	22	44	1	28	7	3	0	1	12	5
267	27	54	2	23	7	2	1	2	6	5
275	25	50	2	25	8	6	1	1	7	2
280	25	50	2	25	8	6	0	1	9	1
292	12	24	1	38	6	5	0	5	20	2

STUDENT NO.	NUMBER CORRECT	PERCENTAGE CORRECT	READABILITY LEVEL	NUMBER OF ERRORS	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	BLANK RESPONSES
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294	20	40	1	30	5	7	0	0	6	12
306	14	28	1	36	6	4	4	2	19	1
322	28	56	2	22	3	3	1	1	7	7
336	26	52	2	24	9	2	1	1	11	0
345	9	18	1	41	4	4	0	0	33	0
375	18	36	1	32	6	4	3	4	11	4
376	22	44	1	28	7	5	1	1	11	3
386	8	16	1	42	4	4	0	0	20	14
401	21	42	1	29	3	7	3	2	10	4
405	21	42	1	29	9	7	1	0	12	0
414	30	60	3	20	1	4	4	0	9	2
416	21	42	1	29	10	4	1	2	10	2
417	26	52	2	24	6	9	0	0	8	1
426	22	44	1	28	8	9	1	1	9	0
430	18	36	1	32	5	6	2	2	17	0
431	15	30	1	35	6	5	3	1	20	0
460	15	30	1	35	4	2	2	2	24	1
466	27	54	2	23	5	4	0	0	4	10
471	17	34	1	33	4	6	3	0	20	0
474	31	62	3	19	7	5	0	2	4	1
480	18	36	1	32	3	7	4	2	15	1
483	18	36	1	32	12	5	2	2	8	3
485	20	40	1	30	8	5	1	0	16	0
487	27	54	2	23	6	5	3	1	8	0
489	13	26	1	37	5	6	2	2	19	3
518	27	54	2	23	10	10	1	0	2	0
523	12	24	1	38	2	5	6	2	23	0
534	29	58	2	21	9	5	3	0	4	0
536	20	40	1	30	2	4	2	1	15	6
538	26	52	2	24	9	8	3	2	2	0
542	26	52	2	24	10	3	2	1	8	0
559	4	8	1	46	0	1	0	0	45	0
564	15	30	1	35	2	1	1	0	30	1
594	20	40	1	30	7	3	3	1	16	0
623	25	50	2	25	5	7	1	3	9	0

STUDENT NO.	NUMBER CORRECT	PERCENTAGE CORRECT	READABILITY LEVEL	NUMBER OF ERRORS	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	BLANK RESPONSES
624	19	38	1	31	10	3	2	0	16	0
633	15	30	1	35	9	2	1	1	11	11
652	27	54	2	23	7	5	0	2	4	5
660	27	54	2	23	6	6	2	0	6	3
664	28	56	2	22	2	7	2	0	11	0
671	18	36	1	32	5	3	2	1	11	10
676	17	34	1	33	7	5	3	0	17	1
681	20	40	1	30	3	3	3	2	19	0
687	17	34	1	33	8	4	4	3	14	0
690	27	54	2	23	6	3	2	4	8	0
695	11	22	1	39	8	5	0	2	24	0
701	10	20	1	40	4	6	5	3	11	11
702	15	30	1	35	4	4	2	1	14	10
711	14	28	1	36	10	1	0	2	23	0
721	17	34	1	33	6	8	4	1	14	0
722	23	46	2	27	6	4	4	4	8	1
733	24	48	2	26	5	5	2	2	6	6
734	14	28	1	36	4	4	0	4	17	7
740	19	38	1	31	5	6	1	1	12	6
754	5	10	1	45	0	0	0	2	43	0
759	31	62	3	19	7	3	5	0	4	0
779	22	44	1	28	9	3	3	1	8	4
797	14	28	1	36	11	2	2	5	15	1
803	13	26	1	37	6	5	1	2	21	2
810	13	26	1	37	7	3	1	2	22	2
822	8	16	1	42	4	3	0	1	34	0
824	13	26	1	37	0	2	1	1	32	1
841	21	42	1	29	6	5	2	2	14	0
843	19	38	1	31	5	2	3	1	19	1
866	18	36	1	32	9	6	6	3	8	0
907	21	42	1	29	5	5	4	3	12	0
910	10	20	1	40	3	3	3	0	30	1
926	26	52	2	24	7	2	3	0	11	1
934	12	24	1	38	3	1	1	3	28	2
941	5	10	1	45	4	3	0	1	30	7

STUDENT NO.	NUMBER CORRECT	PERCENTAGE CORRECT	READABILITY LEVEL	NUMBER OF ERRORS	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	BLANK RESPONSES
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956	16	32	1	34	8	8	2	1	15	0
960	19	38	1	31	9	4	2	1	15	0
963	0	0	1	50	0	0	0	0	50	0
976	27	54	2	23	9	3	1	0	9	1
999	20	40	1	30	7	5	2	2	14	0
1002	25	50	2	25	6	6	8	1	4	0
1008	24	48	2	26	11	1	2	2	9	1
1012	21	42	1	29	7	2	3	1	13	3
1014	21	42	1	29	7	6	7	1	8	0
1029	26	52	2	24	3	6	6	0	9	0
1030	29	58	2	21	7	2	5	1	6	0
1036	18	36	1	32	6	2	3	4	17	0
1038	20	40	1	30	6	3	1	3	10	7
1045	6	12	1	44	8	4	2	2	28	0
1046	20	40	1	30	6	2	1	1	16	4
1070	21	42	1	29	4	6	2	2	15	0
1107	23	46	2	27	8	4	3	1	7	4
1110	30	60	3	20	7	6	2	1	3	1
1117	13	26	1	37	3	8	5	3	12	6
1134	25	50	2	25	11	3	4	0	7	0
1137	6	12	1	44	5	0	3	4	32	0
1146	12	24	1	38	4	7	1	3	23	0
1164	28	56	2	22	6	6	1	1	8	0
1176	22	44	1	28	5	8	5	1	9	0
1179	8	16	1	42	3	4	3	2	5	25
1182	14	28	1	36	4	4	1	0	26	1
1194	18	36	1	32	5	2	1	2	18	4
1238	19	38	1	31	4	7	3	0	9	8
1242	20	40	1	30	5	5	0	1	19	0
1264	22	44	1	28	6	5	2	1	12	2
1270	9	18	1	41	4	4	1	0	32	0
1271	21	42	1	29	7	4	1	0	12	5
1272	6	12	1	44	2	1	0	3	36	2
1290	26	52	2	24	6	4	5	0	9	0
1295	27	54	2	23	6	5	3	2	7	0

STUDENT NO.	NUMBER CORRECT	PERCENTAGE CORRECT	READABILITY LEVEL	NUMBER OF ERRORS	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	BLANK RESPONSES
1307	8	16	1	42	7	3	5	2	25	0
1311	14	28	1	36	9	5	1	1	17	3
1314	23	46	2	27	1	7	6	1	8	4
1331	12	24	1	38	6	2	2	3	25	0
1336	19	38	1	31	4	3	6	1	17	0
1338	11	22	1	39	3	2	1	0	28	5
1345	23	46	2	27	7	2	5	0	6	7
1355	28	56	2	22	11	4	3	1	3	0
1357	14	28	1	36	7	4	3	2	19	1
1366	27	54	2	23	5	4	3	1	9	1
1373	29	58	2	21	5	3	6	0	4	3
1374	22	44	1	28	7	2	7	1	10	1
1378	29	58	2	21	8	4	1	3	5	0
1399	34	68	3	16	6	5	0	2	3	0
1400	29	58	2	21	4	6	3	0	4	4
1405	25	50	2	25	4	10	1	2	8	0
1406	28	56	2	22	6	5	1	1	9	0
1412	22	44	1	28	6	8	2	2	7	3
1417	26	52	2	24	5	6	2	0	10	1
1431	20	40	1	30	6	8	0	1	15	0
1435	19	38	1	31	6	7	7	1	9	1
1451	26	52	2	24	6	4	3	2	7	2
1461	21	42	1	29	11	3	2	1	10	2
1475	27	54	2	23	5	6	2	1	5	4
1498	22	44	1	28	6	7	3	1	9	2
1512	23	46	2	27	8	8	3	1	7	0
1529	12	24	1	38	2	2	0	2	31	1
1533	24	48	2	26	4	5	4	0	13	0
1561	22	44	1	28	4	2	5	1	14	2
1566	29	58	2	21	0	11	5	1	4	0
1573	24	48	2	26	3	1	5	2	15	0
1574	23	46	2	27	5	7	4	1	5	5
1632	30	60	3	20	7	5	1	0	7	0
1648	19	38	1	31	6	3	3	2	17	0
1657	12	24	1	38	3	5	1	2	25	2

STUDENT NO.	NUMBER CORRECT	PERCENTAGE CORRECT	READABILITY LEVEL	NUMBER OF ERRORS	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	BLANK RESPONSES
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1664	19	38	1	31	3	4	3	3	16	2
1675	18	36	1	32	5	5	1	2	17	2
1677	17	34	1	33	3	9	1	2	16	2
1680	10	20	1	40	5	2	2	1	30	0
1682	10	20	1	40	5	4	7	1	23	0
1686	25	50	2	25	8	7	0	1	8	1
1719	18	36	1	32	3	1	1	0	19	8
1742	24	48	2	26	5	5	6	1	5	4
1759	3	6	1	47	0	0	0	1	44	2
1768	21	42	1	29	4	3	4	0	16	2
1776	9	18	1	41	2	3	3	2	30	1
1777	23	46	2	27	12	4	2	0	9	0
1781	12	24	1	38	2	3	3	2	10	18
1788	16	32	1	34	5	8	0	1	11	9
1790	15	30	1	35	10	0	5	3	17	0
1807	17	34	1	33	6	7	2	1	16	1
1810	28	56	2	22	7	5	3	1	6	0
1812	12	24	1	38	2	3	5	1	26	1
1815	14	28	1	36	5	4	2	0	5	20
1820	25	50	2	25	8	6	1	2	8	0
1822	25	50	2	25	7	9	4	0	4	1
1826	20	40	1	30	9	7	2	4	8	0
1834	16	32	1	34	8	3	3	4	14	2
1837	24	48	2	26	8	1	4	2	11	0
1840	18	36	1	32	9	9	3	1	10	0
1842	14	28	1	36	5	1	0	4	1	25
1843	16	32	1	34	2	2	1	1	28	0
1846	8	16	1	42	3	0	4	2	33	0
1856	9	18	1	41	6	3	1	1	30	0
1873	10	20	1	40	2	0	1	2	35	0
1881	28	56	2	22	6	2	3	0	7	4
1904	23	46	2	27	4	1	7	2	13	0
1908	15	30	1	35	5	3	4	4	19	0
1916	6	12	1	44	5	2	3	1	8	25
1935	19	38	1	31	2	1	6	1	18	3

STUDENT NO.	NUMBER CORRECT	PERCENTAGE CORRECT	READABILITY LEVEL	NUMBER OF ERRORS	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	BLANK RESPONSES
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1937	16	32	1	34	7	6	2	3	9	7
1940	12	24	1	38	4	4	1	2	26	1
1959	22	44	1	28	8	5	3	3	9	0
1971	17	34	1	33	6	6	1	1	13	6
1974	17	34	1	33	6	4	5	1	14	3
1980	7	14	1	43	1	2	0	0	40	0
1981	14	28	1	36	2	6	3	1	20	4
1986	10	20	1	40	3	1	0	0	35	1
1999	18	36	1	32	11	1	3	1	16	0
2002	22	44	1	28	8	2	5	2	9	2
2012	23	46	2	27	9	0	4	4	10	0
2017	21	42	1	29	9	6	1	2	11	0
2020	20	40	1	30	9	4	3	3	8	3
2024	17	34	1	33	7	2	7	1	12	4
2041	14	28	1	36	8	4	3	1	19	1
2043	18	36	1	32	7	3	6	0	16	0
2056	23	46	2	27	6	7	2	0	12	0
2064	29	58	2	21	10	4	5	0	1	1
2065	20	40	1	30	8	3	1	1	12	5
2087	19	38	1	31	4	4	1	1	20	1
2088	9	18	1	41	1	4	1	1	34	0
2095	30	60	3	20	6	3	1	1	9	0
2112	18	36	1	32	2	5	1	1	23	0
2114	16	32	1	34	4	4	7	2	17	0
2121	18	36	1	32	5	2	1	2	11	11
2149	23	46	2	27	2	6	6	2	8	3
2151	27	54	2	23	9	3	3	2	4	2
2153	14	28	1	36	4	3	3	2	20	4
2169	17	34	1	33	7	3	3	5	15	0
2179	9	18	1	41	3	1	1	2	32	2
2206	10	20	1	40	2	2	3	2	26	5
2211	21	42	1	29	7	7	4	3	8	0
2215	30	60	3	20	7	5	4	1	3	0
2226	14	28	1	36	5	6	2	2	21	0
2246	33	66	3	17	8	5	0	2	2	0

STUDENT NO.	NUMBER CORRECT	PERCENTAGE CORRECT	READABILITY LEVEL	NUMBER OF ERRORS	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	BLANK RESPONSES
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2247	20	40	1	30	6	11	3	0	10	0
2259	13	26	1	37	4	2	1	2	25	3
2273	9	18	1	41	2	3	0	5	31	0
2278	22	44	1	28	4	3	2	1	17	1
2294	16	32	1	34	8	2	7	1	16	0
2295	12	24	1	38	7	1	6	3	20	1
2314	25	50	2	25	5	7	2	0	10	1
2329	26	52	2	24	6	3	4	1	10	0
2330	12	24	1	38	7	3	4	2	22	0
2337	25	50	2	25	8	6	3	1	7	0
2345	23	46	2	27	10	3	2	0	12	0
2358	20	40	1	30	9	5	2	1	12	1
2361	21	42	1	29	13	2	5	1	8	0
2373	26	52	2	24	11	3	1	1	8	0
2376	6	12	1	44	0	1	3	1	39	0
2382	17	34	1	33	8	7	2	4	12	0
2386	4	8	1	46	1	0	0	0	45	0
2389	17	34	1	33	5	9	0	0	19	0
2391	20	40	1	30	2	3	3	3	19	0
2394	21	42	1	29	10	3	4	5	7	0
2399	18	36	1	32	9	5	5	2	11	0
2411	26	52	2	24	5	6	3	1	9	0
2412	27	54	2	23	10	1	0	1	4	7
2414	15	30	1	35	4	7	3	3	18	0
2415	19	38	1	31	6	3	5	2	15	0
2428	19	38	1	31	10	4	4	0	12	1
2438	20	40	1	30	6	3	2	2	17	0
2470	14	28	1	36	7	1	3	5	13	7
2486	20	40	1	30	8	2	0	2	14	4
2497	19	38	1	31	8	5	2	1	12	3
2520	15	30	1	35	4	3	6	1	21	0
2544	11	22	1	39	2	2	1	1	21	12
2549	18	36	1	32	6	2	3	2	17	2
2557	10	20	1	40	3	8	2	0	21	6
2558	10	20	1	40	4	3	4	7	22	0

STUDENT NO.	NUMBER CORRECT	PERCENTAGE CORRECT	READABILITY LEVEL	NUMBER OF ERRORS	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	BLANK RESPONSES
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2568	26	52	2	24	7	2	3	2	10	0
2591	11	22	1	39	1	0	2	0	36	0
2593	22	44	1	28	7	3	5	0	12	1
2627	17	34	1	33	9	0	6	3	15	0
2631	6	12	1	44	0	2	0	1	9	32
2660	24	48	2	26	8	6	2	1	9	0
2670	3	6	1	47	1	3	2	1	40	0
2682	27	54	2	23	9	4	4	1	5	0
2689	31	62	3	19	7	3	3	1	5	0
2703	21	42	1	29	6	9	4	0	8	2
2716	25	50	2	25	8	4	3	1	9	0
2727	21	42	1	29	9	7	2	1	9	1
2728	18	36	1	32	4	4	2	1	19	2
2733	13	26	1	37	4	2	4	1	21	5
2735	23	46	2	27	5	6	4	0	12	0
2746	25	50	2	25	10	7	2	2	3	1
2749	20	40	1	30	11	5	4	3	7	0
2751	19	38	1	31	6	3	7	2	13	0
2752	21	42	1	29	9	2	4	1	13	0
2753	14	28	1	36	3	2	2	1	18	10
2764	19	38	1	31	6	3	5	3	14	0
2765	15	30	1	35	4	1	3	0	3	24
2768	27	54	2	23	7	3	5	1	7	0
2769	22	44	1	28	7	6	7	1	7	0
2795	14	28	1	36	6	5	2	1	22	0
2800	28	56	2	22	7	2	3	1	4	5
2811	33	66	3	17	7	0	1	1	4	4
2813	21	42	1	29	9	4	1	1	14	0
2821	14	28	1	36	4	2	3	0	27	0
2830	26	52	2	24	4	4	3	2	5	6
2848	16	32	1	34	6	2	4	2	20	0
2874	14	28	1	36	4	6	1	1	24	0
2897	22	44	1	28	7	3	0	2	16	0
2906	13	26	1	37	3	4	3	3	23	1
2912	23	46	2	27	8	4	4	2	8	1

STUDENT NO.	NUMBER CORRECT	PERCENTAGE CORRECT	READABILITY LEVEL	NUMBER OF ERRORS	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5	BLANK RESPONSES
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2914	23	46	2	27	6	7	4	0	10	0
2920	17	34	1	33	5	2	4	2	17	3
2925	17	34	1	33	5	6	6	2	14	0
2963	29	58	2	21	6	4	4	1	5	1
2980	15	30	1	35	10	3	6	2	14	0
2994	34	68	3	16	6	3	2	1	4	0
2999	32	64	3	18	7	2	2	2	5	0
3020	17	34	1	33	4	4	3	2	19	1
3047	14	28	1	36	6	4	1	1	18	6
3057	10	20	1	40	1	1	1	4	33	0
3063	24	48	2	26	11	3	3	2	7	0
3069	26	52	2	24	10	3	3	2	5	1
3075	19	38	1	31	7	1	0	1	16	6
3083	10	20	1	40	2	1	2	2	33	0
3095	26	52	2	24	6	7	0	0	2	9
3098	23	46	2	27	8	5	1	1	12	0
3108	16	32	1	34	4	7	7	2	14	0
3112	14	28	1	36	4	6	2	2	22	0
3113	25	50	2	25	10	5	2	2	6	0
TOTALS	6337			10163	1930	1383	822	473	4771	784