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ABSTRACT

A study was conducted to determine if a teacher-constructed cloze procedure correlated significantly with two standardized tests of reading achievement, thereby testing G.D. Spache's claim that most teachers are unable to design valid and reliable assessment materials. Subjects were 60 fourth and sixth grade students who were administered the Nelson-Reading Test, the reading subtests of the SRA achievement series, and a teacher-constructed cloze procedure testing student independent, instructional, and frustration levels. Multiple regression analysis indicated high statistical correlations between selected levels of cloze procedure and standardized test scores. Significant correlations were obtained among the three levels of cloze procedure, and no single variable was found to be a good predictor of reading achievement. Many combinations of variables in the prediction models, however, were found to be highly significant predictors of the Nelson-Reading Test scores. The results suggest that the teacher-made cloze procedures were appropriately leveled and shaped, casting doubt on Spache's claim. (Master list scores for cloze procedure levels are appended.) (FL)

A CORRELATIONAL STUDY OF THE RELATIONSHIP BETWEEN CLOZE PROCEDURES AND STANDARDIZED READING TESTS FOR INTERMEDIATE GRADES

A Thesis

Presented to

the Graduate Faculty of the Department of Education

Southwest Missouri State University

In Partial Fulfillment

of the Requirements for the Degree

Master of Science in Education--Reading Degree

by

Kent Layton

May 1983

A CORRELATIONAL STUDY OF THE RELATIONSHIP BETWEEN CLOZE PROCEDURE AND STANDARDIZED READING TESTS FOR INTERMEDIATE GRADES

Department of Elementary Education

Southwest Missouri State University, 13 May, 1983

Master of Science in Education--Reading Degree

Kent Layton

A B S T R A C T

This study was conducted to determine whether or not teachers could develop appropriately leveled and shaped cloze procedures that would be significantly correlated to standardized reading tests. The subjects for this study were sixty fourth and sixth grade students. The variables in this study were The Nelson-Reading Test, SRA Reading Subtest and the cloze procedure independent level, instructional level, and frustrational level. The cloze procedures were teacher-constructed for the use of this study and developed based on the traditional cloze standards. The data were analyzed using Pearson product-moment correlation technique and a multiple regression analysis formula.

The statistical analyses conducted indicated that there were high statistical correlations between selected levels of cloze procedure and standardized test scores. Educationally significant correlations were obtained among the three levels of cloze procedure and no single variable was found to be a good predictor of reading achievement. However, many combinations of variables in the prediction models were found to be highly significant predictors of The Nelson-Reading Test scores.

This abstract is approved as to form and content.

Howard P. Layton

Chairman, Advisory Committee

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Chapter 1

INTRODUCTION TO THE STUDY

Introduction

Classroom teachers who strive to maintain classroom practices in keeping with current research in teaching reading are constantly faced with many problems. One of these problems is related to determining and periodically monitoring students' reading levels, the readability of reading materials and students' comprehension levels. Presently, the time required to administer such recommended assessments on a regular basis is sometimes considered far too time consuming and may cause teachers to teach less in reading which may be a major reason why a large number of teachers do not attend to that responsibility (Herber, 1970). Subsequently, the effect of lack of evaluation could result in an ineffective reading program. Additionally, if lack of time for assessment is a true and reasonable reason for not assessing, then recommendations based on research findings may not be as practical as they may seem for teachers.

Another assessment-related problem exists in teachers being able to determine which assessment device and methods to use in determining students' reading levels,

the readability of reading materials, and students' comprehension.levels. Currently, the commercial market is flooded with standardized and non-standardized reading tests and reading inventories that may be used to measure reading ability and reading skills. Yet, Pikulski (1974) warned teachers that few assessment materials can be truly useful to classroom teachers if the assessment materials are not directly related to the teachers' classroom reading materials; that is, the assessment devices may not be significantly correlated to or may not serve as reputable predictors of reading ability of a given group of students in assigned classroom materials.

The problem that appears to exist is that of the classroom teachers' dilemma in determining and periodically monitoring students' reading levels, the readability of reading materials, and students' comprehension levels. Can theory and recommendations from noted reading authorities become practical for teachers?

Cloze procedure may be one answer to the classroom teachers' dilemma. Cloze procedure has been cited as useful in determining students' reading levels, the readability of reading materials, assessing students' comprehension levels, and for improving other reading and language abilities (Kingston, 1977; Pikulski & Shanahan, 1982). Cloze procedures have also been cited as easy to design, easy to evaluate, and easy to administer as a result of their

applicability to either a group or an individual (Cunningham, Cunningham, & Arthur, 1981). However, cloze procedures need to be shown as statistically valid and reliable before they can be considered as useful devices for classroom teachers. Therefore, the intent of this investigator was to determine if a teacher-constructed cloze procedure was statistically significantly correlated to two standardized tests of reading achievement. Another intent of this investigator was to provide information to possibly confirm or reject Spache's idea that the majority of teachers are unable to design and shape assessment materials that are valid and reliable.

Statement of the Problem

The problem identified for the purpose of this study was whether or not teachers could develop appropriately leveled and shaped cloze procedures that would be significantly correlated to standardized reading tests. The questions to be answered as a result of the study appear below.

Questions to be Answered

The following questions were answered through the testing of the hypotheses that were generated.

1. What differences existed among grade levels of reading comprehension as obtained through using standardized

tests and those of three levels (independent, instructional, and frustrational) of cloze procedure proficiency.

2. What degree of relationship existed among the two standardized reading comprehension tests variables and those of the three levels of the cloze procedure proficiency?

3. Using two selected standardized reading tests as the dependent variables, what independent or weighted combinations of independent variables were the best predictors of the standardized reading tests when the data were subjected to multiple regression analysis?

Hypotheses

To investigate the problem and answer the questions just stated, the following hypotheses were generated.

1. There will be significant positive correlations between reading levels obtained from the Nelson-Reading Test (NRT /Comprehension/) and SRA Achievement Series Reading subtest (SRA /Reading/) and the three reading levels (independent, instructional, frustrational) of cloze procedure proficiency.

2. There will be positive, significant correlations between selected weighted combinations of several independent variables, including cloze procedure proficiency levels and standardized reading tests when data are subjected to multiple correlational analysis.

Purpose of the Study

The purpose for conducting the study herein was to determine the educational value of a specific teacher-constructed cloze procedure. It was thought that if the test were validated, then classroom teachers would be able to follow current research practices recommended by authorities in reading; that is, teachers' dilemma of determining and periodically monitoring students' reading levels, the readability of reading materials, and students' comprehension levels could possibly be solved by the use of cloze procedure.

Another purpose of this study was to add to the existing information related to correlational studies among the cloze procedure and other evaluative measures to provide information concerning teachers' abilities to design and shape valid reading assessment materials so that students may be provided more appropriate reading materials.

Significance of the Study

The nature and purpose of this study is significant for several reasons. First, teachers need a quick and effective way to determine if students can effectively read and comprehend materials in the classroom. Secondly, teachers need a valid instrument to assess students' reading and comprehension levels. Thirdly, the assessment

device needs to be designed based on classroom reading levels. Finally, the assessment device needs to be easy to design. In summary, cloze procedure, if found to be a valid assessment instrument, could possibly enable teachers to monitor student progress in reading so that more precise reading instruction strategies could be designed to meet the needs of the students.

Delimitations

This study was limited in the following respects.

1. The study was limited to those students who were enrolled at a university laboratory school.

2. The study was limited to fourth and sixth grade students at the university laboratory school.

3. Students were selected who appeared to be able to read grade level materials comfortably according to their teachers' judgment.

4. Only students who had not repeated a grade or grades were used in the study.

Definitions of Terms

To help facilitate the understanding of this study, the following terms have prescribed definitions.

1. Reading Comprehension--reading comprehension is a complex process involving high-level cognitive skills through passive and active mental processes in which the

reader uses general and specific background knwoledge to interpret and relate to the pattern of printed words written by the writer (Harris & Sipay, 1979).

2. Cloze Procedure--a procedure where the reader is given a passage to read of approximately 250 words that has every fifth word deleted. The first and last sentence are left intact and the reader is to replace the deletion with the most logical or sensible word (Layton, 1979).

3. Frustrational Reading Level--the level of reading at which a student scores below 44% on a cloze procedure.

4. Instructional Reading Level--the level of reading at which a student scores between 44% and 57% on a cloze procedure.

5. Independent Reading Level--the level of reading at which a student scores above 57% on a cloze procedure.

6. SRA Achievement Series--a standardized achievement test of reading and language abilities. The reading and language subtests will be used for this study.

7. Nelson-Reading Test--a standardized reading of vocabulary and comprehension for use with grades 3-9. Only the reading comprehension section will be used for this study.

9. SRA Short Test of Educational Ability--a test for determining a student's intelligence quotient and for measuring students' general ability.

Assumptions

The statements below were assumed to be true for the purpose of completing the study.

1. It was assumed that the administration of the Nelson-Reading Test and SRA Achievement Series was a valid and reliable means of assessing student reading ability.

2. It was assumed that students completed both standardized reading tests and the cloze procedures in an honest manner and to the best of their abilities.

Collection of Data

To complete this study, the following procedures were followed to collect the data.

1. Cloze procedures, answer sheets, and answer keys were designed and written between the first and twelfth grade reading levels based on Spache (1966) and Dale-Chall (1948) readability formulae (Appendix A). Content selection was guided by standards and recommendations established by Bormuth (1968). The cloze procedures were administered during the fall semester to students at a university laboratory school in grades four and six over a two-day period. Each of the cloze procedures yielded percentage scores that were used to determine students' independent, instructional, and frustrational reading levels (Appendix B and C).

2. The Nelson-Reading Test was administered during the fall semester to students at a university laboratory school in grades four and six (Appendix C).

3. SRA Achievement Series Reading and Language subtest grade equivalent scores were obtained and collected from students' existing records (Appendix C).

4. SRA Short Test of Educational Ability (SRA - MA) intelligence quotients were also obtained and collected from students' existing records (Appendix C).

Procedures

Descriptions of the Group Participants

In this study, students in two grades participated in the testing procedures. They were the fourth and sixth grades from a university laboratory school. There were approximately thirty students in each grade. Tests were administered and data collected during the day by two certified teachers who were trained in test administration and scoring.

Analysis of Data

The data collected from each group were correlated and then multiple regression analysis was used to determine prediction equations using the NRT (Comprehension), SRA (Reading), and the three levels (independent, instructional, frustrational) of cloze procedure.

Summary

An answer to teachers' dilemma of determining and periodically monitoring students' reading levels, the readability of reading materials, and students' comprehension levels may possibly be the cloze procedure. Therefore, the major purpose for this study was to provide more information as to the effectiveness and multiple use of a teacher-constructed cloze procedure for classroom teachers to use.

The remaining chapters contain a review of the literature related to the study, a description of the procedure and instruments used in the study, the data and analyses of the data along with conclusions that were drawn from the findings, the summary, and recommendations.

Chapter 2

REVIEW OF RELATED LITERATURE

Introduction

This report resulted from an investigation to determine whether or not teachers could develop appropriately leveled and shaped cloze procedures that would be significantly correlated to standardized reading tests. Questions to be answered appear below.

1. What differences existed between levels of reading comprehension as obtained through using standardized tests and those of the three levels (independent, instructional, and frustrational) of cloze proficiency?

2. What degree of relationship existed between the standardized reading test variables and those of the three levels of cloze procedure proficiency?

3. Using selected standardized reading tests as the dependent variables, what independent or weighted combinations of independent variables were the best predictors of the standardized reading tests when the data were subjected to multiple regression analysis?

For the purpose of this study the literature related to cloze procedure will be presented in the following sections: (1) Historical View of Cloze Procedure,

(2) Variations of Cloze Procedure, (3) Empirical Support of Cloze Procedure as a test device, predictor of readability, and a technique to improve comprehension, and (4) Summary of Cloze Procedure.

Historical View of Cloze Procedure

The cloze procedure originated before the twentieth century. It was originally known as the completion method test which was developed by Ebbinghaus (1897). A half century later, Taylor (1953) introduced the cloze procedure as a device for assessing readability of reading materials. However, McKee (1948) recommended strongly the use of oral context to determine if children were ready to read and the use of contextual clues in reading to determine if students could read. Although McKee never expressed the term cloze procedure in his studies, his methods and strategies were essentially cloze procedure.

Taylor based the cloze procedure on two rationales. The first rationale was that of the Gestalt concept of closure. Taylor reasoned that the laws of closure could be applied if a person had to supply missing gaps in written materials (Pikulski & Tobin, 1982). The other rationale was based on the information theory (Kingston, 1977).

For the next two decades cloze procedure was studied by numerous researchers in search of other uses of

the cloze procedure. Rankin (1959) studied cloze procedure and suggested that it may possibly be used to help students who were experiencing text difficulties in content area subjects. In another study, Bloomer (1967) purported cloze procedure to be useful in remedial reading situations with college students. Seemingly, the cloze procedure began to become more valuable than Taylor had contemplated.

In a later study, Rankin (1965) concluded from his findings that cloze procedure was a valid measure of students' reading achievement. And later, Goodman (1967) suggested that cloze procedure could possibly be a device to effectively emphasize the use of semantic, syntactic, and graphophonic clues which could possibly aid students' abilities in unlocking the meaning of a writer's message.

Support continued throughout the sixties for cloze procedure as Bormuth (1967, 1968) reported that cloze procedure scores corresponded to traditional comprehension on reading tests. Furthermore, Bormuth's study was replicated the following year by Rankin and Culhane (1969), who reported very similar findings to those of Bormuth.

In a different study, Ransom (1968) reported that students' scores on cloze procedures correlated well with an informal reading inventory used in grades two through six. During the 1960's cloze procedure was studied extensively as a device for assessing the readability of reading materials, help with text difficulties in content subjects,

a measure of reading achievement, an aid in helping students understand a writer's message, and to determine students' comprehension levels.

Throughout the next decade cloze procedure was again studied extensively by researchers. Jongsma (1971) and Schell (1972) recommended the use of cloze as a successful teaching strategy for improving comprehension while Bortnick and Lopardo (1973) suggested that cloze procedure could possibly be employed as a comprehension building strategy. Apparently, earlier recommendations by Goodman became reality as a result of research in the early 1970's. Rankin's earlier suggestions were also studied by Jones and Pikulski (1974) who reported cloze procedure scores to be more valid reading levels than standardized test scores. And, in 1974, Rankin followed his earlier findings with a new study and suggested that cloze procedure might possibly be an alternative to standardized tests of reading achievement.

In another study, Bormuth (1975) studied the reliability of a cloze procedure of 250-300 words containing 50 blanks and obtained a high correlation coefficient of .85 which accounted for 72% of the variance. Grove (1975), in another comprehension study, studied cloze procedure in conjunction with basal readers and the language experience approach with first grade students. He concluded that cloze procedure was helpful in improving comprehension skills.

Despite its simplicity, cloze procedure continued to be studied by researchers. Carver (1976) reported from his findings that cloze procedure provided more valid functional reading levels than did standardized reading achievement. Comprehension skills were again reported to improve after use of cloze procedure in first grade studies by Blachowicz (1977).

Into the late 1970's, Weaver (1979) supported cloze procedure as a useful teaching tool at all grade levels while Goetz and Dixon (1979) studied how good and poor readers made use of metacognitive skills through the use of cloze procedure. Ryan and Willows (1979) conducted similar research on good and poor readers and they too used the cloze procedure to obtain their results. At the end of a second decade of cloze procedure research, cloze procedure had been used as a teaching technique, a testing device, a research device, comprehension improvement strategy, as an alternative to standardized reading tests, and as a valid predictor of functional reading levels. It appears as if the applicability of cloze procedure is endless. Yet, in the 1980's cloze procedure has been studied and reported to be useful in another area related to reading. Baldauf and Propst (1981) suggested that a variation of cloze was very successful in evaluating the readability of reading materials for use with ESL students.

In summary, it appears that after over two decades of research, cloze procedure could easily be developed to assess virtually all reading behaviors and become an unlimited teaching technique for improving reading comprehension and other related reading skills (Pikulski & Tobin, 1982). Although not all studies concerning cloze procedure were included in the historical section of the related literature, it becomes apparent that cloze procedure has been studied extensively over the past two decades and a wealth of information and support for cloze procedure has been produced.

Variations of Cloze Procedure

Since its beginning, cloze procedure has been studied extensively for use in reading education. During the past few decades, different variations of cloze procedure have been developed and deserve recognition since they were derived from Taylor's basic idea of cloze procedure.

Gallent (1965) introduced the maze technique as a variation of cloze procedure. The maze technique, unlike the traditional cloze procedure, had a multiple choice selection of three words at every fifth word's position. In the maze technique, Gallent proposed that the student was not supposedly hindered with recording answers and needed only to circle or underline the most sensible answer.

In support of Gallent's variation of cloze procedure, Guthrie, Siefert, Burnham, and Kaplan (1974) reported that the maze technique could possibly be useful in monitoring students' reading progress and in selecting appropriate leveled reading materials for students to read. Likewise, Vacca (1981) commented that the maze technique appeared to possess great potential in estimating text difficulty.

Another variation of the cloze procedure is the limited-cloze test developed for poor readers by Cunningham and Cunningham (1978). Unlike traditional cloze procedure, the deleted words are placed randomly in columns at the top of the page. Two major studies were conducted by the authors to validate the limited-cloze test. Internal correlation coefficients of .85 and .90 were obtained which may be interpreted to mean that the limited-cloze test was well shaped and leveled. In the same study, limited-cloze test scores also correlated highly with scores of the Iowa Test of Basic Skills.

The post-oral reading cloze was developed by Page (1975) as a variation of cloze procedure in an attempt to link reading comprehension and oral reading evaluation. The post-oral reading cloze differs from the traditional cloze in that students are asked to read the cloze passage orally (no words omitted) and then complete the cloze procedure silently. In his study, Page found that post-oral reading cloze scores and students' performance were highly

correlated with traditional cloze procedure scores. Similar results were obtained in a replicate study by Ganier (1976) and Carey (1978) in a similar study. They reported post-oral reading scores to be highly correlated with reading comprehension measures.

Cunningham and Tierney (1977) developed the least-major-constituent limited-cloze. In this variation of cloze procedure, every fifth least-major-constituent was deleted. Like the limited-cloze test, the deleted words were randomly listed, but on separate page. In their study, Cunningham and Tierney reported high correlation coefficients when their procedure was compared to the traditional cloze procedure.

Another variation of cloze procedure was proposed by Schell (1972) in which only nouns or verbs were deleted. This variation was developed for use in the primary grades. Schell reasoned that deleting parts of speech rather than every fifth word would help students to gain the meanings of different parts of speech. Later, Schell suggested that the teacher could progress to deleting adjectives and adverbs.

In another variation of cloze, McWilliams and Rakes (1979) deleted every seventh word instead of every fifth word. Their variation of cloze was to be used in content areas of social studies, science, and English. McWilliams and Rakes suggested that every seventh deletion in content

materials with specialized vocabulary yielded more accurate grade placement scores.

In summary, the variations of cloze procedure that received recognition in the review of related literature were the maze technique, the limited-cloze test, the post-oral reading cloze, the least-major-constituent limited-cloze, cloze procedure with parts of speech deletions, and cloze procedure for content materials with deletions of every seventh word. These variations of cloze procedure again support the idea that the multiple uses of cloze procedure appear to be unlimited.

Empirical Support of Cloze Procedure as a Test Device, Readability Measure, and Comprehension Improvement Technique

Empirical support for cloze procedure as a test device began in the early 1960's. Bormuth, in 1963, reported that cloze procedure was educationally significantly correlated to multiple-choice comprehension tests. Ruddell, in 1964, found that cloze procedure was highly correlated to the paragraph meaning section of the Standford Achievement Test (Jongsma, 1971). Rankin (1965) concluded from his study that cloze procedure appeared to be a valid measure of students' reading achievement.

Bormuth (1967, 1968), in two other studies, reported that cloze procedure scores appeared to correspond highly with traditional comprehension scores on

reading tests. In a similar study, Rankin and Culhane (1969) obtained similar results as those of Bormuth.

In a study comparing cloze procedure scores and informal reading inventory scores, Ransom (1968) reported high correlations between scores of the two assessment devices. Also, Jones and Pikulski (1974) suggested that cloze procedure scores were more valid than reading level scores of standardized tests. Following an earlier study, Rankin (1974) also concluded that cloze procedure may be a possible alternative to standardized tests of reading achievement.

Empirical support of cloze procedure as a predictor of readability began in 1953. Taylor introduced the cloze procedure as a readability measure. In his study he found high correlations between the readability formulae and cloze rankings of the difficulty of each passage. Taylor interpreted his findings to mean that the cloze procedure produced more accurate results than did the readability formulae. In another study, Kingston and Weaver (1967) reported cloze procedure to be a much more accurate device for determining readability than readability formulae. Similar conclusions about cloze procedure as a readability measure were reported by Rankin and Culhane (1969) and Froese (1971). In a study with ESL students, Baldauf and Propst (1981) suggested that cloze procedure was very

successful in determining the readability of reading materials for their students.

Empirical support of cloze procedure as a technique for improving comprehension emerged with Goodman (1967). Goodman suggested that cloze procedure was an effective device for emphasizing the use of semantic, syntactic, and graphophonic clues and for determining the writer's essage. The previous statement, in simplicity, is improvement of comprehensive skills.

Cloze procedure in other related studies was recommended by Jongsma (1971) and Schell (1972) as successful teaching strategy for improving comprehension. In a similar study, Bortnick and Lopardo (1973) suggested that cloze procedure could possibly be used as a comprehension building strategy. In his work with basal reading textbooks and the language experience approach, Grove (1975) concluded that cloze procedure was useful in improving students' comprehension skills. Blachowicz (1977), in a first grade study, reported students' comprehension skills to improve after the use of cloze procedure, too. In summary, cloze procedure appears to be useful as a teaching tool for improving comprehension at all grade levels (Kingston, 1979).

In Chapter 2, a historical perspective of cloze procedure has been presented along with variations of cloze procedure, empirical support for cloze procedure as a test

device, a predictor of readability, and as a technique for improving comprehension. Although the investigator did not cite all of the studies related to cloze procedure and its multiple uses, the information contained in Chapter 2 did support that cloze procedure has been extensively studied for over two decades, found to have multiple uses related to reading, and is supported by many researchers in its multiple uses.

Chapter 3

DESIGN OF THE STUDY

Introduction

This report resulted from an investigation to determine whether or not teachers could develop appropriately leveled and shaped cloze procedures that would be significantly correlated to standardized reading tests. Questions to be answered appear below.

1. What differences existed between levels of reading comprehension as obtained through using standardized tests and those of three levels (independent, instructional, and frustrational) of cloze proficiency?

2. What degree of relationship existed between the standardized reading comprehension test variables and those of the three levels of the cloze procedure proficiency?

3. Using selected standardized reading tests as the dependent variables, what independent or weighted combinations of independent variables were the best predictors of the standardized reading tests when the data were subjected to multiple regression analysis?

Description of Subjects

Students used in this study were mostly from middle-class homes. Many of the students' parents were university professors and staff members since a university laboratory school was used to obtain the subjects. The mean intelligence quotient for the total student population was 113 which may be interpreted to mean that a majority of the students in the study had average or above average intelligence. Students were selected who appeared to be reading grade level materials comfortably as observed by the classroom teacher and who had not previously repeated any grades.

Although the selection of subjects procedure violates random sample requirements, it was a limitation of the study imposed by the investigator to determine if the cloze procedure was an adequate predictor of reading achievement by students who were not experiencing difficulties in reading. Further studies, however, should include the use of randomly selected groups of students.

Descriptions of the Tests, Instruments, and Data Collecting Procedures

The Nelson-Reading Test form A was administered to sixty subjects during the first month of school in a group situation. The test was administered according to

instructions in the examiner's manual. The Nelson-Reading Test was selected for use in this study for several reasons. The Nelson-Reading Test has been widely used nationally as a standardized reading test for grades three through nine. The complete test requires approximately thirty minutes to administer. The test has two parts: (1) a vocabulary section, and (2) a comprehension subtest.

The Nelson-Reading Test (form A) was reported to have a total reliability coefficient of .93 for both sections of the test. When compared to the Iowa Tests of Basic Skills, a validity range of .70 to .88 and .62 to .76 were reported for vocabulary and paragraph comprehension, respectively. The Nelson-Reading Test has been studied extensively by researchers and has been reported to be an effective and reliable measure of reading achievement (Buros, 1968).

The SRA Achievement Series was administered to obtain subtest scores of reading and language ability. The SRA Achievement Series is also a widely used achievement test. Product-moment correlations between .75 and .81 have been reported for grade levels second through ninth. This standardized test has also been studied extensively by researchers and has been reported useful in measuring general reading ability of children above second grade placement (Buros, 1968).

Cloze tests were constructed along with answer sheets and keys. The teacher-constructed cloze tests were also administered during the first month of school. The cloze tests were shaped and developed using the Spache (1974) and Dale-Chall (1948) readability formulae. Standards established by Bormuth (1968) were used to guide the syntactical and semantical design of the selections and to determine independent, instructional, and frustrational levels (Appendix B).

Intelligence quotients were obtained from students' records using the SRA Short Test of Mental Abilities (SRA [MA]). The SRA (MA) consists of a verbal and non-verbal section with a standard score scale of 100 which increases by 0.5 each grade year through grade ten. The SRA (MA) has been a widely used measurement tool for those factors thought to be closely related to academic performance. High correlations (.72+) have also been reported for the SRA (MA) when compared to the SRA Primary Mental Abilities Test and the SRA Tests of Educational Ability.

After the data from all the instruments were collected, scored, and recorded, statistical analyses were calculated to find the correlations between the NRT (Comprehension), SRA (Reading), SRA (Language), and SRA (MA) and the selected levels of teacher-constructed cloze procedure.

Multiple regression statistical analysis models were developed to analyze in determining the best weighted or single combinations of the independent variables and their degrees of strength to predict the dependent variables. Those variables were as follows:

Variable	Type
1. NRT (Comprehension)	dependent
2. SRA (Reading)	dependent
3. SRA (Language)	dependent
4. SRA (MA)	independent
5. Cloze (independent)	independent
6. Cloze (instructional)	independent
7. Cloze (frustrational)	independent

The results of the statistical analyses are presented in Chapter 4.

Summary

Characteristics of the subjects used in this study were described, procedures for selection and administration of tests, and validity and reliability data for the tests were described in Chapter 3. Finally, the statistical methods selected to analyze the data were presented.

Chapter 4 contains the data collected for the study by the procedures outlined in Chapter 3. Chapter 5 contains conclusions, summaries, and implications.

Chapter 4

FINDINGS AND ANALYSES

Introduction

This report resulted from an investigation to determine whether or not teachers could develop appropriately leveled and shaped cloze procedures that would be significantly correlated to standardized reading tests. The questions to be answered as a result of the treatment of the data appear below.

1. What differences existed between levels of reading comprehension as obtained through using standardized tests and those of three levels (independent, instructional, and frustrational) of cloze proficiency?

2. What degree of relationship existed between the standardized reading comprehension test variables and those of the three levels of the cloze procedure proficiency?

3. Using selected standardized reading tests as the dependent variables, what independent or weighted combinations of independent variables were the best predictors of the standardized reading tests when the data were subjected to multiple regression analysis?

Descriptive Statistical Analysis

To obtain the answers to those questions, multiple regression analysis was employed. To provide a better base for interpreting the data collected, means, standard deviations, and Pearson product-moment correlations were also computed and analyzed. The mean and standard deviation of the fourth grade are shown below.

Table 1

Means and Standard Deviations for Reading, Intelligence, and Language of 4th Grade Students

N = 30

Variable	Mean	Standard Deviation
C.1 NRT (Comprehension)	5.8	1.75
C.2 SRA (Reading)	5.4	1.81
C.3 SRA (MA)	116	13.6
C.4 SRA (Language	5.8	1.15
C.5 Cloze (Independent)	2.8	1.85
C.6 Cloze (Instructional)	4.3	1.71
C.7 Cloze (Frustrational)	5.2	1.74

The fourth grade students' mean intelligence score was 116. This high score suggests that the majority of students tested appeared to possess adequate, if not above average, verbal and non-verbal intellectual abilities

supporting the information in Chapter 3 that the students were chosen who exhibited comfortable control of grade level reading materials. Students' mean scores for the NRT (Comprehension), SRA (Reading), and SRA (Language) ranged from 1.4 years to 1.8 years above grade level while students' mean cloze procedure scores ranged from 2.2 years below grade level to 1.2 years above grade level. Students' mean scores at the instructional level on the cloze procedure yielded the closest grade placement of .3 years above grade level which could be interpreted to mean that the cloze procedure score could possibly provide a more realistic grade equivalent score if there is a need to have scores that are commensurate with students' grade placement. However, that was not one of the purposes of this investigator and no statistical data is available to support the idea.

The sixth grade students' mean intelligence score was 113. This high score suggests that the majority of students tested also appeared to possess adequate, if not better than average, verbal and non-verbal abilities. To support the information in Chapter 3 that students were chosen who exhibited comfortable control of grade level reading materials, it can be seen that the students' mean scores on the NRT (Comprehension), SRA (Reading), and the SRA (Language) ranged from 1.3 years to 2.4 years above grade level while the students' mean cloze procedure scores

Table 2

Means and Standard Deviations for Reading, Intelligence, and Language of 6th Grade Students

N = 30

Variable	Mean	Standard Deviation
C.1 NRT (Comprehension)	8.4	2.77
C.2 SRA (Reading)	7.9	1.90
C.3 SRA (MA)	113	9.92
C.4 SRA (Language)	7.3	1.59
C.5 Cloze (Independent	3.4	1.74
C.6 Cloze (Instructional)	5.4	1.77
C.7 Cloze (Frustrational)	6.4	1.77

ranged from 2.6 years below grade level to .4 years above grade level. Students' mean scores on the cloze procedure at the instructional and frustrational levels were .6 years below grade level and .4 years above grade level. That may be interpreted to mean that the cloze procedure instructional and frustrational level score would possibly provide a more realistic grade equivalent score if there is a need to have scores that are commensurate with students' grade placement. Again, that was not one of the purposes of this investigator and no statistical data are available to support this idea.

Table 3

Means and Standard Deviations for Reading, Intelligence, and Language of 4th and 6th Grade Students

N = 60

Variable		Mean	Standard Deviation
C.1	NRT (Comprehension)	7.1	2.64
C.2	SRA (Reading)	6.7	2.23
C.3	SRA (MA)	114	11.9
C.4	SRA (Language)	6.6	1.56
C.5	Cloze (Independent)	3.1	1.80
C.6	Cloze (Instructional)	4.9	1.82
C.7	Cloze (Frustrational)	5.8	1.84

The combined mean score of grades four and six was 114. Again, this high score suggests that the majority of students tested appear to have adequate, if not above average, verbal and nonverbal abilities. To support the information in Chapter 3 that students were chosen who exhibited comfortable control of grade level reading materials, it may be noticed that the students' mean scores on the NRT (Comprehension), SRA (Reading), and SRA (Language) ranged from 6.6 years to 7.1 years while students' cloze procedure scores ranged from 3.1 years to 5.8 years.

When observing the differences in the scores of fourth and sixth graders, a two-year growth would normally be expected to exist. However, differences between scores

Table 4

Differences Between Mean Scores of 4th and 6th Grade Students on the NRT, SRA Reading Subtest, SRA Language Subtest, and the Cloze Test

Variable	$\bar{X}_6 - \bar{X}_4$
C.1 NRT (Comprehension	2.6
C.2 SRA (Reading	2.5
C.3 SRA (MA)	-
C.4 SRA (Language)	1.5
C.5 Cloze (Independent)	.6
C.6 Cloze (Instructional)	1.1
C.7 Cloze (Frustrational)	1.2

of fourth and sixth graders on the NRT (Comprehension), SRA (Reading), and SRA (Language) ranged from 1.5 years to 2.6 while students' cloze procedure score differences ranged from .6 years to 1.2 years. Therefore, no significant interpretation can be drawn from the data.

Tables 1, 2, and 3 can be interpreted to reveal that students' cloze scores proceed progressively higher from the independent level to the frustrational level (Appendix D). Closer examination of the data reveals consistent differences of .9 years, 1.0 years, .9 years respectively between the instructional level and frustrational level and consistent differences of 1.5 years, 2.0 years, 1.8 years respectively between the independent levels and instructional levels that appear to be reasonable

differences among cloze procedure levels. This may be interpreted to mean that the selections on cloze procedures were shaped well (Appendix A).

Many authorities purport that standardized tests yield frustration levels. Students' cloze scores at the frustrational level were close to grade placement which suggests that cloze procedures may be valid and reliable testing instruments.

Standard deviations were consistent in both grades for each achievement score except for the SRA (Language) which resulted in a tighter range of scores for both groups.

Correlations

Tables 5, 6, and 7 contain a summary of the results from correlations between the NRT (Comprehension), SRA (Reading), SRA (MA), SRA (Language), and cloze procedure scores for grades 4 and 6.

All correlation coefficients except two meet or exceed the .35 critical value (.05 level) for statistical significance. However, C.3 - C.5 and C.3 - C.7 do not approach significance. The correlation coefficients between variables showing highest levels of positive correlations are as follows:

Cloze (Instructional)	· Cloze (Frustrational)	r = .99
Cloze (Independent)	· Cloze (Instructional)	r = .92
Cloze (Independent)	· Cloze (Frustrational)	r = .91
NRT (Comprehension)	· SRA (Language)	r = .82

Table 5

Pearson Product Moment Correlations Among Standardized Reading, Language, and Intelligence Scores and Cloze Test Scores: Grade 4

N = 30

Variables	Product Moment Values						
	C.1	C.2	C.3	C.4	C.5	C.6	C.7
C.1 NRT (Comprehension)	-	.39	.49	.82	.52	.56	.54
C.2 SRA (Reading)		-	.36	.50	.57	.65	.61
C.3 SRA (MA)			-	.45	.30	.36	.34
C.4 SRA (Language)				-	.46	.55	.52
C.5 Cloze (Independent)					-	.92	.91
C.6 Cloze (Instructional)						-	.99
C.7 Cloze (Frustrational)							-

D.F. = 28

p. 05 = .35

The extremely high correlation coefficients among cloze procedure levels indicate that students' achievement levels on this cloze procedure are almost perfectly correlated and may be interpreted to mean that levels measured by cloze are highly reliable for determining students' independent, instructional, and frustrational reading levels. In view of the mean scores reported earlier (Table 1), it appears that the cloze procedure will also differentiate between levels and be approximately closer to actual grade placement using the cloze procedure instructional level.

The next highest correlation coefficient (.82) indicates that there is a strong educationally significant correlation between reading score of the NRT (Comprehension) and SRA (Language). However, this strong relationship is not surprising since many authorities believe that reading and language are closely interwoven. Interestingly, the correlation coefficient for NRT (Comprehension) and SRA (Language) (r = .82) was much higher than coefficients for SRA (Language) · SRA (Reading) and SRA (Language) · SRA (MA). Apparently, the SRA (Language) and NRT (Comprehension are measuring much of the same skills, but SRA achievement subtests appears to be more distinct in skills measured, which should be found if the subtests truly measure different skills.

As stated earlier, all but two correlation coefficients met or exceeded the critical value of .35 at the .05 level. However, 42% of the correlation coefficients appeared to be approaching educational significance (.71). They are as follows:

SRA (Reading)	·	Cloze (Instructional)	r = .65
SRA (Reading)	·	Cloze (Frustrational)	r = .61
SRA (Reading)	·	Cloze (Independent)	r = .57
NRT (Comprehension)	·	Cloze (Instructional)	r = .56
SRA (Language)	·	Cloze (Instructional)	r = .55
NRT (Comprehension)	·	Cloze (Frustrational)	r = .54
SRA (Language)	·	Cloze (Frustrational)	r = .52
NRT (Comprehension)	·	Cloze (Independent)	r = .52
SRA (Reading)	·	SRA (Language)	r = .50

Within the correlations listed above, only 25% to 42% of the variance is accounted for; still, based on some other correlational studies, the coefficients above could be interpreted to mean that the cloze levels are statistically significantly correlated to standardized test scores of reading and language achievement.

Table 6

Pearson Product Moment Correlations Among Standardized Reading, Language, and Intelligence Scores and Cloze Test Scores: Grade 6

Variables	Product Moment Values						
	C.1	C.2	C.3	C.4	C.5	C.6	C.7
C.1 NRT (Comprehension)	-	.48	.22	.76	.52	.59	.58
C.2 SRA (Reading)		-	.41	.57	.43	.49	.47
C.3 SRA (MA)			-	.22	.52	.45	.47
C.4 SRA (Language				-	.50	.71	.71
C.5 Cloze (Independent					-	.87	.87
C.6 Cloze (Instructional)						-	.98
C.7 Cloze (Frustrational)							-

D.F. = 27

p. 05 = .36

All correlation coefficients except two meet or exceed the .35 critical value (.05 level) for statistical significance. The correlation coefficients between variables showing highest levels of positive correlations are as follows:

Cloze (Instructional)	· Cloze (Frustrational)	$r = .98$
Cloze (Independent)	· Cloze (Instructional)	$r = .87$
Cloze (Independent)	· Cloze (Frustrational)	$r = .87$
NRT (Comprehension)	· SRA (Language)	$r = .76$
SRA (Language)	· Cloze (Instructional)	$r = .71$
SRA (Language)	· Cloze (Frustrational)	$r = .71$

The extremely high correlation coefficients among cloze procedure levels indicate that students' achievement levels on this cloze procedure are highly correlated and may be interpreted to mean that levels measured by cloze are highly reliable, as found earlier (Table 2), for determining students' independent, instructional, and frustrational reading levels. Again, it appears that the cloze procedure may also differentiate between levels and be approximately closer to actual grade placement using the cloze procedure instructional level.

The next highest correlation coefficient indicates that there is a strong educationally significant correlation between the NRT (Comprehension) and SRA (Language). As before, this value is not surprising and indicates that the NRT (Comprehension) and SRA (Language) probably are measuring many of the same skills. In support of earlier data presented in Chapter 3, the SRA subtests appear to be measuring distinct skills, as they should.

The correlation coefficients for SRA (Language) · Cloze (Instructional) and SRA (Language) · Cloze (Frustrational) were .71 which is considered to be not only

statistically, but educationally significant. These results indicate that 50% or more of the variance between cloze procedure instructional and frustrational levels is accounted for when they are correlated highly with SRA (Language) scores which may be interpreted to mean that cloze procedure levels are significantly correlated to the SRA (Language) subtest.

Other correlation coefficients did appear to be approaching educational significance (.71). They are as follows:

NRT (Comprehension) ·	Cloze (Instructional)	$r = .59$
NRT (Comprehension) ·	Cloze (Frustrational)	$r = .58$
SRA (Reading) ·	SRA (Language)	$r = .57$
NRT (Comprehension) ·	Cloze (Independent)	$r = .52$
SRA (MA) ·	Cloze (Independent)	$r = .52$
SRA (Language) ·	Cloze (Independent)	$r = .50$

Within the correlations listed above, only 25% to 35% of the variance can be accounted for; however, the coefficients listed could still be interpreted to mean that the cloze levels are statistically significantly correlated to the standardized test scores of reading and language achievement.

Table 7 contains the combined results of correlation coefficients for the 4th and 6th grade. All correlation coefficients except three meet or exceed the .35 critical value (.05 level) for statistical significance.

Table 7

Pearson Product Moment Correlations Among Standardized Reading, Language, and Intelligence Scores and Cloze Test Scores: Grades 4 and 6

N = 60

Variables	Product Moment Values						
	C.1	C.2	C.3	C.4	C.5	C.6	C.7
C.1 NRT (Comprehension)	-	.59	.22	.83	.51	.62	.62
C.2 SRA (Reading)		-	.25	.65	.50	.62	.60
C.3 SRA (MA)			-	.23	.37	.33	.33
C.4 SRA (Language				-	.49	.68	.67
C.5 Cloze (Independent)					-	.88	.88
C.6 Cloze (Instructional)						-	.98
C.7 Cloze (Frustrational)							-

D.F. = 55

p. 05 = .26

The correlation coefficients between variables showing highest levels of positive correlations are as follows:

Cloze (Instructional) · Cloze (Frustrational) $r = .98$
Cloze (Independent) · Cloze (Instructional) $r = .88$
Cloze (Independent) · Cloze (Frustrational) $r = .88$
NRT (Comprehension) · SRA (Language) $r = .83$

The extremely high correlation coefficients among cloze procedure levels indicate that students' achievement levels on this cloze procedure are almost perfectly correlated and may be interpreted to mean that levels measured by cloze for 4th and 6th graders are highly valid (77%-96%)

for determining students' independent, instructional, and frustrational reading levels by cloze procedure. In view of mean scores reported earlier (Table 3), it appears that the cloze procedure will also differentiate between levels and be approximately closer to actual grade placement using the cloze procedure instructional level.

The next highest correlation coefficient indicates that there is a strong educationally significant correlation (r = .83) between NRT (Comprehension) and SRA (Language). Interestingly, this result could be interpreted to mean that the NRT (Comprehension) and SRA (Language) appear to be measuring the same skills. This correlation coefficient (.83) was higher than coefficients for SRA (Reading) · SRA (Language), SRA (Language) · SRA (MA), and SRA (Reading) · SRA (MA) whose scores were r = .65, r = .23, and r = .25 respectively. If SRA subtests do indeed measure distinct skills, then the results above may be interpreted to mean that the SRA (MA) is not correlated well with the other SRA subtests. However, SRA (Language) and SRA (Reading) correlation coefficient (r = .65) may be interpreted to mean that the two subtests are approaching an educationally significant level indicating that they may possibly be measuring similar skills.

As stated earlier, all but three correlation coefficients meet or exceed the critical value of .35 at the .05 level. Four correlation coefficients were also

found to be highly significant and 47% of the correlation coefficients appeared to be approaching educational significance (r = .71). They were as follows:

SRA (Language)	· Cloze (Instructional)	r = .68
SRA (Language)	· Cloze (Frustrational)	r = .67
SRA (Reading)	· SRA (Language)	r = .65
NRT (Comprehension)	· Cloze (Instructional)	r = .62
NRT (Comprehension)	· Cloze (Frustrational)	r = .62
SRA (Reading)	· Cloze (Instructional)	r = .62
SRA (Reading)	· Cloze (Frustrational)	r = .60
NRT (Comprehension)	· SRA (Reading)	r = .59
NRT (Comprehension)	· Cloze (Independent)	r = .51
SRA (Reading)	· Cloze (Independent)	r = .50
SRA (Language)	· Cloze (Independent)	r = .49

Within the correlations listed above only 24% to 46% of the variance is accounted for; still, based on some other correlational studies, the coefficients above could be interpreted to mean that the cloze levels are statistically significantly correlated to standardized test scores of reading and language achievement. However, their educational significance may be questionable.

Multiple Regression Analysis

Multiple regression analysis was used to determine the value of six variables in combinations and independently as predictors of Nelson-Reading Test score in grade four, six, and combined (Tables 8, 9, and 10).

Table 8

Multiple Regression Model for Predicting Nelson-Reading Test Score for Grade 4

N = 30

Model	R	R^2
1 · 2 3 4 5 6 7	.85	.73
1 · 2 3 4 5 6	.85	.73
1 · 2 3 4 5	.85	.73
1 · 2 3 4	.83	.69
1 · 2 3	.54	.30
1 · 6 7	.57	.33
1 · 5 6 7	.57	.33
1 · 4 5 6 7	.83	.70
1 · 3 4 5 6 7	.84	.72

Table 9

Multiple Regression Model for Predicting Nelson-Reading Test Score for Grade 6

N = 30

Model	R	R^2
1 · 2 3 4 5 6 7	.79	.63
1 · 2 3 4 5 6	.78	.62
1 · 2 3 4 5	.78	.61
1 · 2 3 4	.76	.59
1 · 2 3	.47	.23
1 · 6 7	.59	.35
1 · 5 6 7	.59	.35
1 · 4 5 6 7	.79	.63
1 · 3 4 5 6 7	.79	.63

Table 10

Multiple Regression Model for Predicting Nelson-Reading Test Score for Grades 4 and 6

N = 60

Model	R	R^2
1 · 2 3 4 5 6 7	.84	.71
1 · 2 3 4 5 6	.84	.71
1 · 2 3 4 5	.83	.70
1 · 2 3 4	.83	.69
1 · 2 3	.60	.36
1 · 6 7	.62	.39
1 · 5 6 7	.63	.40
1 · 4 5 6 7	.83	.70
1 · 3 4 5 6 7	.83	.70

Extremely high statistical significant R^2's were obtained for the first four and last two multiple regression models in both the fourth and sixth grade and the combination of both grades. The high R^2's for the first four models may be interpreted to mean that there is little or no difference in the predictive strength when each of the cloze levels were deleted from the model. The high R^2's for the last two multiple regression models may be interpreted to mean that there was little or no difference in predictive strength where the SRA (Reading) and SRA (MA) were omitted. Close observation does reveal that the SRA (Language) appeared to be the most influential predictor

of the NRT (Comprehension) scores. The least influential variables were the cloze procedure variables.

Tables 11, 12, and 13 contain multiple regression models used to predict the SRA (Reading) scores of the fourth and sixth grades and in combination of both.

Highest R^2 values were obtained for the first three models of all three charts. However, only 16%-26% of the variance can be accounted for with these models and as earlier, there appears to be little or no difference in the predictive strength of the model when cloze levels are deleted. Tables 11, 12, and 13 may also be interpreted to mean that no single or combinations of independent variables were good predictors of SRA (Reading) scores.

Table 11

Multiple Regression Model for Predicting SRA Reading Score for Grade 4

N = 30

Model	R	R^2
2 · 1 3 4 5 6 7	.72	.52
2 · 1 3 4 5 6	.69	.48
2 · 1 3 4 5	.66	.44
2 · 1 3 4	.52	.28
2 · 1 3	.43	.19
2 · 6 7	.69	.48

Table 12

Multiple Regression Model for Predicting SRA Reading Score for Grade 6

N = 30

Model	R	R^2
2 · 1 3 4 5 6 7	.66	.44
2 · 1 3 4 5 6	.64	.41
2 · 1 3 4 5	.64	.41
2 · 1 3	.57	.33
2 · 6 7	.48	.24

Table 13

Multiple Regression Model for Predicting SRA Reading Score for Grades 4 and 6

N = 60

Model	R	R^2
2 · 1 3 4 5 6 7	.70	.49
2 · 1 3 4 5 6	.70	.49
2 · 1 3 4 5	.68	.47
2 · 1 3 4	.66	.44
2 · 1 3	.60	.36
2 · 6 7	.61	.38

Analysis of Data in Regard to Hypothesis and Questions Asked

The null hypotheses written for this study are as follows.

1. There will not be significant positive correlations among reading levels obtained from the NRT (Comprehension), SRA (Reading), and the three reading levels (independent, instructional, and frustrational) of cloze procedure proficiency.

2. There will not be positive, significant correlations between selected weighted combinations of independent variables and standardized reading tests when data are subjected to multiple correlational analysis.

Based on correlation coefficients obtained from the data for this study, the null hypotheses are rejected. There were significant positive correlations between reading levels obtained from standardized tests and the three reading levels of cloze procedure. There were also positive, significant correlations between selected weighted combinations of independent variables and standardized reading tests. However, in the case of the predictive value of the cloze tests, they have little predictive strength in the full models.

The questions asked are presented below, followed by answers to each one.

1. What differences existed between levels of reading comprehension as obtained through using standardized tests and those of three levels (independent, instructional, and frustrational) of cloze procedure proficiency?

Standardized test scores consistently placed students above their grade level while selected cloze procedure level scores consistently placed students closer to their grade level. The cloze procedure instructional level was consistently closest to the students' actual grade placement.

2. What degree of relationship existed between the standardized reading comprehension test variables and those of the three levels of cloze procedure proficiency?

The cloze procedure instructional and frustrational levels correlated highly with the standardized test variables. Although no educationally significant scores were obtained, a range of correlation coefficients of .60 to .68 were obtained which may be interpreted to mean that the correlation between selected cloze procedure levels and standardized tests variable was approaching educational significance (.71). Therefore, the correlational coefficients obtained can be considered educationally useful.

3. Using selected standardized reading tests as the dependent variables, what independent or weighted combination of independent variables were the best predictors of standardized reading test scores when the data were subjected to multiple regression analysis?

The following models were found to be best predictors of the NRT (Comprehension).

1 · 2 3 4 5 6 7	R^2 = .71
1 · 2 3 4 5 6	R^2 = .71
1 · 2 3 4 5	R^2 = .70
1 · 4 5 6 7	R^2 = .70
1 · 3 4 5 6 7	R^2 = .70

The results above may be interpreted to mean that no single variable was found to be a significant predictor of the NRT (Comprehension) and that several assessment devices are needed in order to determine students' approximate reading achievement. None of the combinations in the models appeared to have high predictive value for the SRA (Reading) variable.

Summary

Chapter 4 contained the data collected by the procedures in Chapter 3. A descriptive statistical analysis was presented and the results of the analyses of data were discussed. The null hypotheses were rejected. Questions were answered.

An interpretive discussion of the statistical analyses, conclusions, implications, and recommendations for future research are contained in Chapter 5.

Chapter 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

This report resulted from an investigation to determine whether or not teachers could develop appropriately leveled and shaped cloze procedures that would be significantly correlated to standardized tests. Questions to be answered appear below.

1. What differences existed between levels of reading comprehension as obtained through using standardized tests and those of three levels (independent, instructional, and frustrational) of cloze proficiency?

2. What degree of relationship existed between the standardized reading comprehension test variables and those of the three levels of cloze procedure proficiency?

3. Using selected standardized reading tests as dependent variables, what independent or weighted combinations of independent variables were best predictors of standardized reading tests when the data were subjected to multiple regression analysis?

Summary

This report contains a review of the literature related to cloze procedure. A historical view as well as variations of cloze procedure and empirical support of cloze procedure as a test device, a measure of readability, and a technique for improving comprehension have been discussed. Cloze procedure has been found to be applicable in many areas of reading and to be valid in those areas, too.

Students in fourth and sixth grade participated in this study during the first month of school. Testing was administered by qualified teachers during the course of an average day.

The null hypotheses were rejected and questions were answered. Those answers are given below.

There were differences in standardized test scores and selected levels of cloze procedure proficiency. Standardized test scores consistently placed students above actual grade placement while scores of the three levels of cloze procedure proficiency placed students closer to their actual grade placement. Cloze procedure instructional level scores were found to be closest for actual grade placement.

There were highly statistically significant correlations between cloze procedure instructional and frustrational levels and the standardized test variables.

Correlation coefficients of .60 to .68 were obtained which may be interpreted to mean that the instructional and frustrational levels were approaching educational significance and therefore can be considered to be highly correlated and educationally useful in determining students' reading levels.

Multiple regression analysis was computed and there appeared to be several prediction models that could be considered educationally useful in predicting the NRT (Comprehension). They were as follows: 2 3 4 5 6 7, R^2 = .71; 2 3 4 5 6, R^2 = .71; 2 3 4 5, R^2 = .70; 4 5 6 7, R^2 = .70; and 3 4 5 6 7, R^2 = .70. These results may also be interpreted to mean that no one variable was significantly better at predicting reading achievement. Subsequently, to determine approximate and valid reading levels of students, a series of tests should be used and not any one test by itself. However, it should be noted that the language variable of the SRA test did account for a large amount of variance singly.

Conclusions

In view of Spache's idea that many teachers are unable to develop appropriately leveled and shaped reading assessment materials, the results of this study may be used to cast doubt on his claim. Almost perfect correlation coefficients were obtained for the three levels of cloze

procedure proficiency. Therefore, the data may be interpreted to mean that the teacher-constructed cloze procedures were appropriately leveled and shaped. Although correlation coefficients did not meet the educational significant level (.71), several correlation coefficients exceeded the .60 level which may be interpreted to mean that the cloze procedure levels were correlated highly with reading achievement test variables and therefore could be considered to be educationally useful in assessment of students' reading achievement.

Recommendations

Normally, in the recommendations of Chapter 5, investigators list implications for further research. However, this investigator feels, in light of the research given and the enormous amount of research read that was not included in the study, that the available research in the area of cloze procedure appears to be quite impressive and that a better recommendation would be to begin to encourage and teach teachers of the multiple uses of cloze procedure and how to develop cloze procedure for use in the classroom.

One of the major purposes of this study was to provide information concerning the fact that teachers do appear to have a dilemma of assessing and periodically monitoring various aspects of students' reading abilities and that cloze procedure can provide teachers with quick, easy, and valid results abo students' reading abilities.

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APPENDIX A

CLOZE PROCEDURES AND ANSWER KEYS

Cloze procedures used in this study are currently copywrited and may be obtained by writing: Dean of Education and Psychology
Southwest Missouri State University
901 South National Avenue
Springfield, Missouri 65804

APPENDIX B

MASTER LIST SCORES FOR CLOZE PROCEDURE
PROFICIENCY LEVELS FOR
GRADES FOUR AND SIX

Subjects	Selections 1	2	3	4	5	6	7	8	9	10	11	12
4th Grade												
1	64%	48%	42%	62%	42%	2%						
2	64%	42%	60%	62%	48%	22%						
3	64%	52%	60%	68%	26%							
4	80%	72%	76%	68%	64%	42%	6%					
5	68%	54%	64%	68%	26%							
6	62%	40%	44%	24%								
7	54%	28%	38%	32%	38%	24%	18%					
8	58%	38%	52%	32%								
9	46%	30%	16%	8%								
10	54%	38%	32%	28%	36%	22%	14%					
11	54%	50%	10%									
12	68%	30%	6%	42%	24%							
13	70%	60%	50%	58%	42%	36%	20%	2%				
14	76%	48%	46%	22%								
15	76%	50%	56%	24%								
16	64%	48%	52%	12%								
17	68%	48%	50%	32%								
18	60%	48%	8%									
19	64%	46%	42%	26%								
20	66%	56%	62%	66%	64%	46%	56%	4%				
21	68%	44%	44%	44%	38%	34%	30%	2%				
22	72%	50%	58%	10%								
23	72%	38%	48%	42%	40%	30%	14%					

Subjects	Selections 1	2	3	4	5	6	7	8	9	10	11	12
4th Grade												
24	68%	52%	68%	50%	56%	42%	46%	12%				
25	68%	54%	60%	64%	46%	34%	32%					
26	70%	46%	40%	60%	60%	46%	30%					
27	64%	54%	66%	42%	70%	48%	36%	26%				
28	72%	54%	64%	66%	64%	42%	38%	26%				
29	66%	48%	58%	66%	36%	38%	36%	10%				
6th Grade												
1	66%	52%	60%	58%	58%	42%	42%					
2	66%	56%	64%	60%	52%	46%	44%	30%	32%	22%	36%	22%
3	78%	50%	64%	68%	68%	42%	42%					
4	48%	46%	22%									
5	74%	60%	58%	64%	56%	42%	52%					
6	64%	54%	54%	68%	60%	42%	46%					
7	70%	48%	36%	54%	48%	18%						
8	50%	24%	14%									
9	52%	40%	42%	50%	42%	28%	26%	10%				
10	52%	54%	28%	58%	42%	30%						
11	72%	60%	64%	62%	58%	38%	42%					
12	48%	34%	56%	10%								
13	66%	68%	64%	48%	58%	62%	42%	34%				
14	70%	52%	68%	62%	50%	28%						
15	72%	58%	54%	46%	48%	36%	40%	6%				
16	64%	62%	66%	66%	54%	26%						

Subjects	Selections 1	2	3	4	5	6	7	8	9	10	11	12
6th Grade												
17	62%	48%	54%	42%	42%	20%						
18	78%	48%	6%									
19	66%	46%	44%	36%	42%	22%	28%	0%				
20	74%	46%	64%	54%	28%							
21	70%	54%	58%	56%	52%	38%	36%					
22	64%	44%	52%	50%	36%	38%						
23	68%	40%	46%	34%	10%							
24	72%	56%	72%	60%	58%	48%	44%	36%	38%	20%	30%	24%
25	62%	56%	60%	56%	56%	44%	14%					
26	74%	64%	68%	72%	64%	46%	46%	24%	32%	14%	28%	20%
27	68%	66%	72%	72%	66%	54%	56%	42%	38%	8%		
28	62%	48%	58%	62%	48%	44%	36%	32%	32%			

APPENDIX C

MASTER LIST SCORES, MEANS, AND STANDARD DEVIATIONS FOR STUDENTS IN GRADES FOUR AND SIX

MASTER LIST OF SCORES
For Students in Grade Four

N = 30

Subject	1 NRT Comprehension	2 SRA Reading	3 SRA MA	4 SRA Language	5 Cloze Independent	6 Cloze Instructional	7 Cloze Frustration
1.	5.2	2.9	99	5.6	1.5	3.5	4.4
2.	5.8	6.6	128	5.8	1.5	3.5	4.4
3.	3.8	5.3	104	4.7	1.5	3.5	4.4
4.	5.7	4.3	111	6.0	4.4	4.8	5.3
5.	5.8	6.6	104	5.8	4.4	5.3	6.4
6.	3.7	3.8	132	4.8	1.5	2.5	3.5
7.	6.3	4.0	128	5.8	.8	2.5	3.5
8.	8.2	3.5	117	7.0	.5	1.5	2.5
9.	7.2	6.3	141	8.0	1.5	4.4	5.3
10.	10.3	7.6	124	7.7	5.3	5.8	6.4
11.	4.5	3.2	106	5.0	1.5	2.5	3.5
12.	6.0	5.6	128	5.8	5.3	6.4	7.7
13.	4.0	3.4	111	4.0	2.8	4.3	5.2
14.	6.0	5.6	111	5.3	1.5	3.5	4.4
15.	5.2	5.0	111	4.7	1.5	4.4	5.3

MASTER LIST OF SCORES
For Students in Grade Four (Continued)

Subject	1 NRT Comprehension	2 SRA Reading	3 SRA MS	4 SRA Language	5 Cloze Independent	6 Cloze Instructional	7 Cloze Frustration
16.	9.0	7.0	137	7.1	5.3	7.7	8.5
17.	7.8	7.6	114	6.3	5.3	6.4	7.7
18.	610	6.3	137	6.4	4.4	4.8	5.3
19.	4.8	4.4	106	5.9	4.4	5.3	6.4
20.	3.7	6.6	84	5.5	1.5	3.5	4.4
21.	5.8	8.2	128	5.8	5.3	6.4	7.7
22.	4.0	5.9	114	5.2	1.5	3.5	4.4
23.	4.8	9.6	117	5.5	4.4	4.8	5.3
24.	7.8	3.8	117	5.7	4.4	5.3	6.4
25.	9.0	8.2	124	9.3	5.3	7.7	8.5
26.	4.8	5.0	104	6.1	1.5	3.5	4.4
27.	5.8	6.3	132	5.8	1.5	3.5	4.4
28.	3.3	2.5	104	3.7	0.5	1.5	2.5
29.	6.5	5.4	116	6.8	5.3	6.4	7.7
30.	4.8	3.0	95	5.3	0.5	1.5	2.5

MASTER LIST OF SCORES
For Students in Grade Six

N = 30

Subject	1 NRT Comprehension	2 SRA Reading	3 SRA MA	4 SRA Language	5 Cloze Independent	6 Cloze Instructional	7 Cloze Frustration
1.	3.0	5.4	116	4.5	3.0	4.0	4.4
2.	5.6	6.4	99	6.8	3.4	5.4	6.4
3.	6.8	5.3	121	6.1	1.5	3.5	4.4
4.	6.3	7.9	113	6.5	1.5	3.5	4.4
5.	9.2	7.5	111	8.7	1.5	5.3	6.4
6.	6.1	5.9	96	6.3	1.5	4.4	5.3
7.	15.0	11.0	116	10.9	5.3	7.7	8.5
8.	8.2	6.8	111	6.9	5.3	7.7	8.5
9.	8.5	5.7	117	8.0	3.5	6.4	7.7
10.	8.2	7.5	117	6.9	3.5	4.4	5.3
11.	8.9	7.9	123	6.9	5.3	7.7	8.5
12.	3.8	7.9	113	4.4	0.5	1.5	2.5
13.	8.0	8.7	104	8.0	2.5	5.3	6.4
14.	10.3	11.5	116	8.7	4.4	6.4	7.7
15.	12.5	9.5	134	7.0	5.3	7.7	8.5

MASTER LIST OF SCORES
For Students in Grade Four (Continued)

Subject	1 NRT Comprehension	2 SRA Reading	3 SRA MA	4 SRA Language	5 Cloze Independent	6 Cloze Instructional	7 Cloze Frustration
16.	6.0	10.7	110	6.7	3.4	5.4	6.4
17.	6.3	7.9	113	7.1	.5	4.4	5.3
18.	8.7	6.1	111	6.7	4.4	5.3	6.4
19.	6.1	9.5	121	7.1	4.4	5.3	6.4
20.	11.0	8.7	114	9.9	4.4	7.7	8.5
21.	10.5	7.9	113	6.3	4.4	5.3	6.4
22.	10.3	6.5	99	5.5	1.5	2.5	3.5
23.	15.0	10.7	121	11.8	5.3	7.7	8.5
24.	8.0	9.5	131	7.5	3.5	5.3	6.4
25.	10.3	7.5	110	7.8	5.3	6.4	7.7
26.	6.1	5.8	95	6.7	1.5	4.4	5.3
27.	9.2	7.9	116	8.5	6.4	7.7	8.5
28.	6.8	6.3	127	7.1	4.4	5.3	7.7
29.	9.4	6.6	95	6.5	.5	2.5	3.5
30.	8.9	12.1	123	8.1	5.3	7.7	8.5