A STUDY OF RELATIONSHIPS BETWEEN WDRD IDENTIFICATION AND COMPREHENSION ABILITIES OF NIGERIAN SECONDARY SCHOOL STUDENTS

BY

EZEKIEL ABAYOMI ABE

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EZEKIEL ABAYOMI ABE

Degree to be awarded: December 19____ May 19____ August 1982

Approved by Thesis Reading Committee:

Dale D Johnson
Major Professor

June 18, 1982
Date of Examination

Thomas C Barrett

Thomas A. Romberg

Dean, Graduate School

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ABSTRACT

A STUDY OF RELATIONSHIPS BETWEEN WORD IDENTIFICATION AND COMPREHENSION ABILITIES OF NIGERIAN SECONDARY SCHOOL STUDENTS

By

EZEKIEL ABAYOMI ABE

Under the supervision of Professor Dale D. Johnson

This study aimed to determine whether or not Nigerian students' abilities in word identification are related to the "total" comprehension of a text; and whether or not variables such as first language, sex, parents' education and occupation, and type and location of school affect students' reading abilities.

The study sought answers to these questions:

(a) Do phonics, structural and contextual analyses skills have positive relationships to Nigerian students' reading comprehension abilities?

(b) Is there a relationship between students' listening and reading comprehension abilities?

(c) Which of the word identification skills is or are most strongly related to reading comprehension?

(d) Will good comprehenders perform better than poor comprehenders in word identification skills?

(e) What effect do the individual variables have on students' reading performance?

The study included 150 form III students from six schools in the Kaduna State of Nigeria; and the test contained 160 items on word identification, listening and reading comprehension skills.

The study found:

(a) significant correlations between total word identification skills and reading comprehension; more importantly, the contextual analysis skills had the strongest correlation with reading comprehension. The factor analysis showed comprehension and the cloze procedure loading heavily into one factor.

(b) significant correlations between listening and reading comprehension

(c) significant differences in scores of good and poor readers in word identification and listening skills.

(d) no relationships between the students reading performance and their first language, parents' education and occupation or the school location

(e) the day-school students performed better than boarding- school students

(f) the female students performed better than male students.

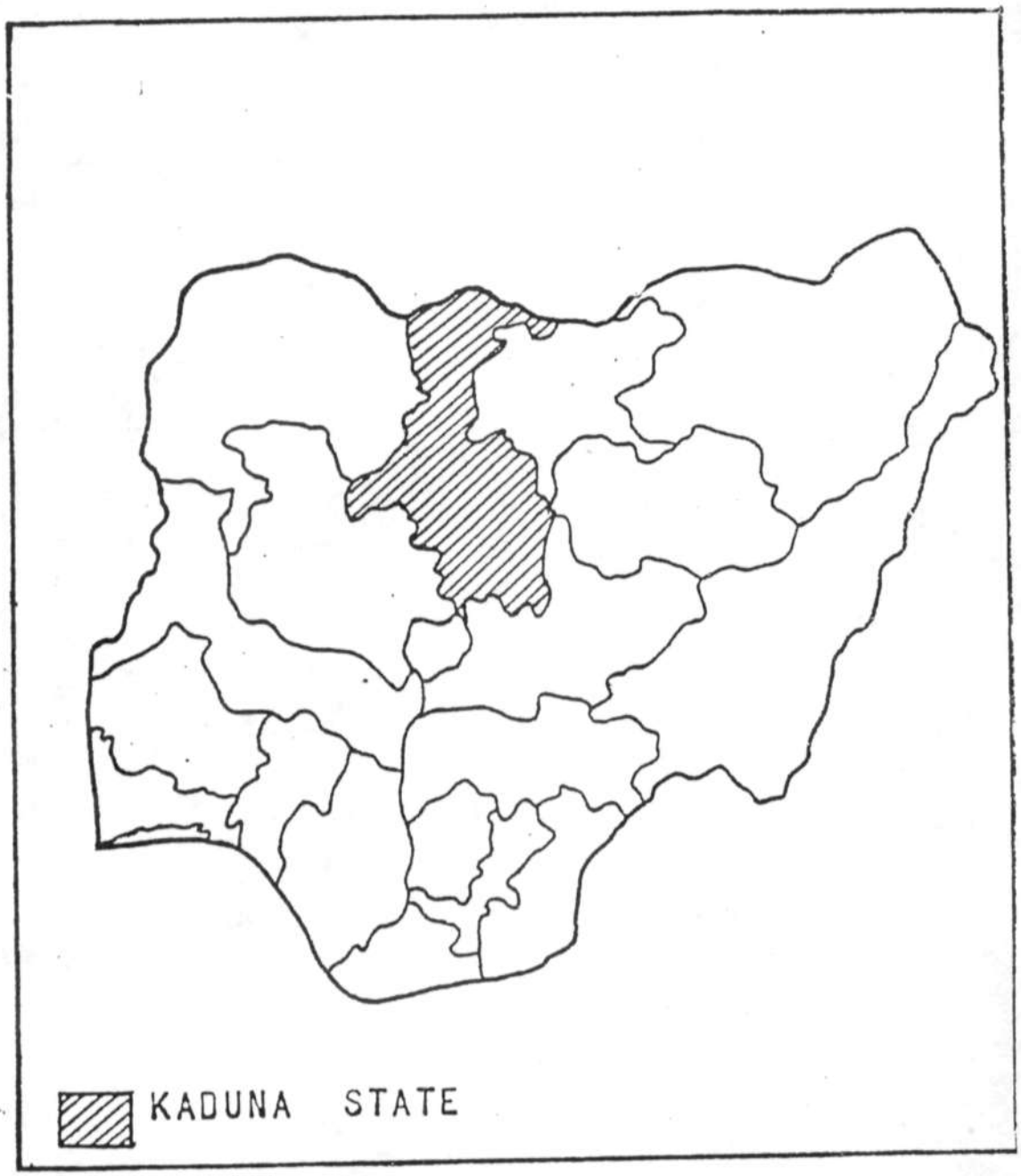
Among the conclusions drawn from the results were that classroom instruction should integrate listening and reading skills, particularly at the secondary school stage, when students are beginning to take notes and thus require greater ability to listen, comprehend and write; and that instruction should place greater emphasis upon contextual analysis in order to enhance the students' reading performance.

Major recommendations for future studies included similar studies that would generalize the results to a larger population; and the development of standardized reading achievement tests for use in Nigerian schools.

APPROVED:

DATE:

LOCATION OF KADUNA STATE IN NIGERIA



SCALE : 1 cm = 102 km.

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No one can do this alone, for writing a thesis is, like learning to read, a complex process. Many people contributed to the completion of this study. Although their help cannot be sufficiently acknowledged in a few words and they cannot all be mentioned within this limited space, I would like to express my thanks to a few people here.

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DEDICATION

To my children:

Ayodele

Oluwole

Olufikayo

Olubusola

Omobola

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CHAPTER I

INTRODUCTION

The English language is the most frequently required subject in the Nigerian school system. It is the medium of instruction from as early as class IV of the primary school through the secondary and the tertiary levels of the country's educational system. In a situation such as that in Nigeria, where English is a second language and is being used as a medium of instruction, the importance of student proficiency in it is paramount. The child's success in all other subjects and in all his or her later years of schooling and possible success outside school depends, to a large extent, on how well he or she has mastered the speaking, listening, reading and writing skills of English. The focus of the present study is on the reading aspect of the English language study in the Nigerian schools. Because of the importance of reading in the curriculum of the Nigerian schools there is a need for a continuous search for the most effective way of teaching pupils and assessing their reading skills in English. It is in recognition of the importance of reading in the frame of the total curriculum and of the need for further research in the teaching and assessment of reading in English among non-native speakers that I enthusiastically contribute this exploratory study.

Statement of the Problem

Hitherto, research on various aspects of reading English as the first language has produced effective information about how to teach reading, but comparatively little research has focused on those for whom English is a second language. One of the difficulties is that no standardized measurement exists; and in terms of methods of teaching reading, many ESL reading instruction strategies have been borrowed from materials for native language reading instruction and are not even adapted to the needs of the non-native speakers (Norris, 1975, p. 203). Testifying to the paucity of research in this field of reading, Kreidler (1975) had this to say:

> There is a vast literature dealing with the teaching of reading to the native speakers of English. In contrast, the teaching of reading to students for whom English is a new (or second language) is a badly neglected area of research and discussion (p. 177).

Within the limited research on the teaching of English as a second language there are extreme and contrary views as to how and why reading of English should be taught. While some studies indicate that in teaching ESL reading to adults or secondary school students emphasis should be on attending to structural meaning rather than on vocabulary (Allen, 1973; Been, 1975; Berman, 1975; Cowan, 1974; Eskey, 1973; Wilson, 1973), there are some others that recommend programs with strictly controlled vocabulary and skill hierarchies; still others consider the language experience approach to be the solution (Hatch, 1974; Thonis, 1976). Yet theorists (Chall, 1967, Perfetti and

Hogaboan, 1975; Samuels, 1974; Shankweiler and Liberman, 1972) suggest that learning to identify isolated words accurately and automatically is a necessary prerequisite to reading for meaning. Some of these views have not gone unchallenged. Goodman, 1970; Smith, 1973, 1978; Pearson and Johnson, 1978 argued that such teaching may be detrimental or irrelevant to the reading process and that instructional time could better be spent in teaching children to use the contextual cues available in connected text in order to make sense of whole passages. Guthrie (1973) suggests that interaction among subskills is necessary for normal reading. He posits that the reading process requires the presence of components that are not identical in function or strength but that are interdependent. This system model would be confirmed in this study if the subskills in good readers are highly intercorrelated and if poor readers would be deficient in a large majority of subskills.

The attention given to reading skill notwithstanding, several questions regarding reading comprehension, listening comprehension, and word study among learners of English as a second language remain unanswered. For example, it is still not clear whether ability in listening comprehension and/or mastery of specific skills in word identification improve reading comprehension. According to Johnson and Pearson (1975):

> ...What is at issue is whether or not mastering a specific skill improves a child's ability to read and/or comprehend running text.... The present question is whether or not mastery of that skill, regardless of how it is assessed, transfers to something most of us would like to call "reading".

> The question is, in principle, empirically solvable. Practically speaking, one probably could not determine whether or not mastery of a set of subskills contributed to increased oral reading fluency and/or comprehension of written discourse (p. 762).

While reading educators agree that word identification skills are important for reading (Smith and Barrett, 1979; Smith and Johnson, 1980), it is still not clear which correspondence patterns or strategies within each of the broad areas of phonics, structural and contextual analyses relate closely to comprehension. For example, it is yet to be determined whether children should know the 61 vowel clusters in the English language and the 2 to 14 different pronunciations of each of them. (e.g., "ou" as in out, group, ground, sought) or whether it is necessary for them to learn the rules that govern the pronunciation of "X" according to its position in a word (e.g., Xylem, Zerox, X-ray).

In particular, it is necessary to determine in what ways and to what degree mastery of reading skills relate to comprehension: whether Nigerian children who master word identification skills comprehend better than those who do not; it is also essential to determine which of the skills, word identification or listening comprehension relates most closely to comprehension of written discourse. Equally important, but certainly outside the scope of this study, is the need to study classroom teacher performance in teaching reading. This obviously would be a suitable area for further study in search of improving students' ability to comprehend.

The investigator's own experience and observation in English language teaching and learning in the Nigerian secondary schools indicate that most instruction focuses on word identification skills and that teachers spend a considerable amount of time teaching prefixes, suffixes, possessives, plurals and letter sound correspondences as though they were the most important or the only part of reading comprehension. In spite of this emphasis, students' ability to read and comprehend has not been at an acceptable level. Abe (1977), in his study of students' performance at the West African School Certificate examinations, found that poor performance in the English language and, consequently, in other subjects was due, among other reasons, to the students' deficiency in reading ability. It appears that certain skills of word identification have not led to success in learning to read in the English Language. It could also be that the skills do not correlate or that teachers do not teach them in a logical manner. It is necessary, therefore, to determine if the vocabulary study and word identification skills emphasized in Nigerian schools really contribute to effective comprehension; and to determine other possible variables such as listening comprehension ability, home background, sex and first language background of the children that may affect their reading comprehension ability.

It is worthwhile to note here an investigation by Johnson (1975): A Basic English Reading Vocabulary for Nigerian Schools, because it points out the problems associated with attempts to deal with word recognition without emphasis on meaning. In the study

Johnson identified 300 words as representing a basic vocabulary list for primary 4, 5, and 6 pupils in Nigerian schools. A criticism of Johnson's study which is of particular concern here is the fact that the vocabulary test he administered is a test of word recognition rather than word meanings. Inability to understand word meanings and to follow test instructions can cause difficulty in obtaining results. Johnson himself admitted that "a number of tests were discarded based on obvious failure to complete at least half of the test" (p. 9). Vocabulary testing at the upper primary and at least lower secondary school should concentrate on meanings of words in context, not on the mere recognition of words at sight. This should be so because children at this stage need more meaning in their reading comprehension in order to carry the weight of academic work that the secondary school demands.

Also pertinent to this study is the study (Johnson et al., 1978) of the relationship between word identification skills and comprehension of children in Madison primary schools which shows a significantly close relationship between word identification skills and reading comprehension. Several studies (Durell, 1969; Duker, 1971; Goodman, 1970) have also reported a positive relationship between listening and reading comprehension. These studies were, however, based on children whose first language is English. It would be of use and of interest to know if word identification skills have an equally positive relationship to Nigerian students' reading comprehension ability and to know whether their ability in listening

comprehension will make them good reading comprehenders.

Purpose of the Study

The purpose of this study was to investigate the interrelatedness of word identification skills, listening comprehension and reading comprehension of Nigerian secondary school students with particular reference to schools in the Kaduna State of Nigeria. That is, to investigate whether a child's mastery of word identification is related to total comprehension of a text. A secondary purpose was to examine to what extent the interrelatedness of these skills is different for good and poor readers. Finally, the study was done to spotlight the individual factors such as first language, sex, home background, location and type of school that affect the students' reading ability. Specifically, the study aimed to answer the following questions:

1. Are word identification skills (phonics, contextual and structural analyses) related to the Nigerian students' reading comprehension ability?
2. Is there a correlation between their word identification skills and listening comprehension?
3. Is there a correlation between the listening comprehension and reading comprehension of Nigerian students?
4. Which of the word identification skills is or are most strongly related to comprehension?

5. Will good comprehenders perform better than poor comprehenders in word identification and in listening comprehension ability?
6. What relationship, if any, do children's first language, sex and home background have to their reading comprehension ability?

Definition of Terms and Abbreviations Appearing in the Study

The following terms and abbreviations which either are or are not in common use, but are here assigned special meanings are defined to distinguish the sense in which they are used in this study.

1. *Decoding:* The ability to *pronounce correctly the printed word.*
2. Word identification skills: The ability to recognize known words rapidly and correctly with a minimum of analysis; the adeptness at identifying the variant forms of a known word with a minimum of analysis, and the automatic recognition of new words so that the thought of the paragraph is uninterrupted.
3. Word analysis skills: The ability to analyze a printed word through the phonics, structural and contextual analyses skills in *order to determine its pronunciation and meaning.*
   (a) Phonic analysis: The ability to hear phonemes accurately, to associate consonant and vowel sounds with letters of the alphabet, and to blend these sounds into syllables and the

syllables into words with appropriate accent.

(b) Structural analysis: The ability to identify and analyze words in units (morphemes) through the study of roots, prefixes, suffixes, word beginnings, word endings, possessives, plurals and compound words.

(c) Contextual analysis: The ability to examine the material surrounding an unknown word, by either a syntactic or semantic prompt, in order to determine its meaning.

4. Listening comprehension: The ability to attend closely to the material being read so as to be able to recall the ideas, information, and happenings that are explicitly stated in the material heard (literal listening comprehension), and/or to derive meanings by synthesizing the literal statements of the material being read with personal knowledge and experience (inferential listening comprehension).

5. Reading comprehension: The ability to recall ideas, information and happenings that are explicitly stated in the material read (literal reading comprehension), and/or the ability to derive meaning from ideas, information and happenings that are stated in the materials by synthesizing the literal content of a selection with personal knowledge and experience, intuition and imagination (inferential reading comprehension).

6. L^1: This refers to the mother tongue or the language of the home of the reader, writer or speaker.

7. L^2: This refers to the second language. In the case of Nigeria,

the term refers to the English language which has become the official language and the major means of communication, the medium of government business, school instruction, commerce and the media.

8. ESL: English as a Second Language.
9. Good readers: For the purpose of this study a subject is considered a good reader if he or she scores at least one standard deviation above the mean in the reading comprehension test for this study.
10. Poor readers: A subject is considered a poor reader if he or she scores one standard deviation (or more) below the mean in the reading comprehension test for this study.
11. LEA: Language Experience Approach
12. G.S.S.: Government Secondary School.
13. G.G.S.S.: Government Girls' Secondary School
14. G.D.S.S.: Government Day Secondary School
15. G.G.D.S.S.: Government Girls' Day Secondary School
16. W.A.S.C.: West African School Certificate

Significance of the Study

As to its significance, I hope that this study will provide valuable information that will have a bearing on many aspects of English language teaching and learning and on some aspects of educational practices in general in the Nigerian schools.

(a) By establishing the relationship among word identification, listening comprehension and reading comprehension skills, it will provide information about the variables which may assist in predicting or assessing students' reading performance.

(b) The study will provide more answers about the importance of reading sub-skills for reading in English as a second language.

(c) It will provide information whether or how different first language background of the children, their different home background and sex make a significant impact on the children's reading ability.

(d) The research instrument used will help toward the development of a valid standardized reading achievement test, which has hitherto not been available for assessing Nigerian students' reading ability.

(e) Furthermore, it is hoped that the result of the study will serve as guide for publishers and authors to appropriately emphasize the different components of reading materials intended for Nigerian students.

In summary, the study will help in making recommendations for more effective and efficient teaching and diagnosing of reading in the English as a second language situation.

Scope of the Study

The main focus of the study was to investigate what specific reading skills in the area of word identification contribute to effective comprehension of written discourse among Nigerian children. It was therefore necessary to take some preliminary steps:

1. Several existing word identification tests--standardized and non-standardized--were examined in order to determine which skills were considered more essential than others for comprehension.
2. Word identification tests considered by the author to be within the range for the Nigerian secondary school children were then developed out of the existing tests.
3. Steps similar to 1 and 2 above were taken in the case of listening and reading comprehension test passages.
4. A large sample of subjects was selected to satisfy the assumption of the statistical analysis.
5. Permission was formally sought from the Kaduna State Ministry of Education through the zonal director of education to conduct the research in the schools selected.

Organization of the Remainder of the Thesis

The remainder of the thesis is organized in the following manner: Chapter II presents a review of related and relevant

literature and research pertaining to the study, while Chapter III contains information about the design, the sample, the measuring instruments and the procedures for analyzing of the data. Presentation, analysis and interpretation of the data are found in Chapter IV. The thesis concludes with Chapter V which is the summary, conclusions, limitations, implications of the study, and recommendations for further research.

CHAPTER II

REVIEW OF THE LITERATURE

The literature pertinent to this study on the relationships of word identification, listening comprehension and reading comprehension skills will be reviewed under the following headings:

1. An Overview of Reading Comprehension:
    1.1 Background studies and theories of reading comprehension.
    1.2 Measurement and assessment of reading abilities.
    1.3 The pedagogy of reading comprehension.
2. Word Identification and Reading Comprehension
3. Listening Comprehension and Reading Comprehension
4. Studies in Reading in the ESL Situation:
    4.1 Reading instruction in ESL
    4.2 Word identification and comprehension in ESL
    4.3 Psycholinguistics view of instruction in ESL
    4.4 Measurement and evaluation of ESL reading ability
    4.5 Listening comprehension and ESL students

1. An Overview of Reading Comprehension

1.1 Background Studies and Theories of Reading Comprehension

Reading comprehension can be defined in many ways. In Chapter I

of this study a definition was given as the ability to derive meaning from, or to recall information and happenings that are explicitly or implicitly stated in the material read. Other definitions of reading dichotomize reading comprehension into general decoding, literal interpretation or word recognition and the making of inferences, or getting meaning from the decoded material through the use of cognitive and psychological processes. For example, in Barrett's taxonomy of reading comprehension, four specific areas are identified as skills of comprehension. They are: literal recognition or recall, inference, evaluation and appreciation (Smith and Barrett, 1979).

Cleland (1966) referred to the process of reading comprehension as "establishing rapport with the author." This obviously goes beyond literal interpretation of words and general decoding.

Berry (1969) appropriately stated that reading is much more than a decoding process. It is a complex process of word recognition, comprehension, and critical or evaluative reaction to what is read, and the fusion of newly acquired knowledge with previous knowledge and experience. Tinker and McCullough (1968) stated that word recognition stimulates recall of previously encountered meanings or concepts.

Lennon (1962), in his often-quoted article, while reviewing many of the factor analytic studies in reading comprehension, cited four components which appear well established: a general verbal factor, comprehension of explicitly stated materials, comprehension of implicit or latent meaning, and an element termed "appreciation". He also pointed out that many of the comprehension skills are related to,

if not actually identical to those skills making up "intelligence." He stated that each individual brings his or her own unique experiential background to the words he reads.

Smith (1978) stated that "comprehension entails understanding something, retaining its meaning, and being able to use or apply the materials appropriately." Smith and Johnson (1980) accepted comprehension as "a dialogue between an author and a reader". In a similar vein, Bormuth (1969) defined comprehension as a "set of generalized knowledge acquisition skills which permit people to acquire and exhibit information gained as a consequence of reading printed language" (p. 50).

Huey (1908) asserted that if we could understand reading we could understand the mysteries of the human mind; that reading is the art of thought-getting and thought manipulation (p. 359).

Gray (1917) concluded that "reading comprehension is the obtaining of meaning through reading: (p. 28). Gray (1960) identified the four major components of comprehension as (1) word perception, (2) comprehension of ideas presented by words, (3) reaction to those ideas, and (4) assimilation or integration of the ideas with previous knowledge or experience (inference).

Carroll's (1977) studies challenged the relationship of comprehension and inference and suggested that inference is more than comprehension, and does not occur automatically upon the occurrence of comprehension. Carroll's claim was that comprehension depends on vocabulary knowledge, ability to see and understand grammatical

relations, and ability to gather meaning through the lexical and grammatical information in the text. On the other hand, he claimed that inference consists of an ability to reason with information presented and an ability to appreciate the author's purpose, attitude, tone and mood. He further explained that comprehension consists of two stages, information obtained from the purely linguistic data, and the extent to which the reader relates this information to a wider context.

Thorndike (1917(a) (b) (c)), who analyzed the errors children made in writing answers to simple questions based on short paragraphs, found that, though the children understood the individual words in the paragraph, they made errors in answering related questions. Thorndike stated in an article entitled "Reading as Reasoning", that,

> understanding a printed paragraph is a matter of habits, connections, mental bonds, but that these have to be selected from so many others, and given weights so delicately and used together in so elaborate an organization, that 'to read' means 'to invent' or 'to demonstrate' or 'to verify' (p. 114).

He also emphasized the importance of set or purpose in comprehension.

Goodman's theory of reading as "psycholinguistic guessing game" (1970) resembles Thorndike's view of reading. According to Goodman, the reader brings to the reading process his or her total life experience. Thus, reading comprehension depends on many factors: (1) the reader's ability to attend to the printed ideas, (2) the reader's background knowledge to which new information must be added, (3) the quality or lucidity of the writing itself, and (4) the reader's

purpose or goal in reading the material (Smith and Johnson, 1980).

Feder (1938) was the first to study reading comprehension using factor analysis techniques. He showed that reading for information and for inference were relatively dependent skills. He used a matrix of tests for factual reading, inference, appreciation and speed of reading. Davis (1944) conducted the first factor-analytic study of reading comprehension that used especially constructed tests to measure the nine mental skills in reading regarded to be of greatest importance, by authorities in the field at that time. In 1968, Davis replicated the study in the light of current knowledge in the field using the following eight reading comprehension skills:

1. recalling word meanings
2. drawing inferences about the meanings of a word from content
3. understanding content stated explicitly
4. weaving ideas in context
5. making inferences about context
6. recognizing the author's tone, mood and purpose
7. recognizing the author's literary devices
8. following the structure of the content.

Of these skills, the largest percentages of unique variance occur with skill 1: remembering word meanings, 32%, and skill 2: drawing inferences from content, 20%.

Davis' (1972) studies point to the general conclusion that effective comprehension among mature readers is largely dependent on their ability to identify words and draw meanings through contextual

analysis.

Harris (1948) published a factor analytic study of reading comprehension of various forms of literature, such as prose and poetry. He found that the common variance in comprehension skills of 14 different passages, taken in two sets of seven, was attributed to one general comprehension skill. In other words, the various passages did not call for use of different combination of skills for their comprehension. He then obtained seven skill scores for each individual across the two passage sets. Again, factor analysis for the common variance of the intercorrelations of skill scores for each set of passages showed ability to make inferences through contextual analysis as the only general comprehension ability. Resolution of the variance of each skill score into common, unique, and chance variance indicated no significant amounts of unique variance. Contextual analysis skills can therefore be classified as critical to reading comprehension.

Smith (1971) also used a factor-analytic information processing model to describe reading comprehension. According to the model, letter identification, word identification and comprehension of meaning are three different tasks performed separately but through use of the same information. Smith, however, made a distinction between word identification and reading comprehension as having similar aspects but different outcomes. Word identification, according to Smith, can be either immediate or mediated. It is the former that a beginning reader has to preform in word identification. In mediated

word identification, the reader, by means of distinctive feature discrimination, that is, structural analysis, advances through the letter features list to word names. Smith claimed that "all readers must acquire skills in the mediated identification of words" (p. 162).

Simon (1971) viewed reading comprehension as involving understanding sentences and said that understanding sentences involves using the information about the structural relations of sentences as described by transformational grammar. Simon divided into seven categories the major approaches to reading comprehension: the skill approach, the measurement approach, the factor-analytic approach, the correlational approach, the readability approach, the introspective approach and the model approach.

Using the maximum-likelihood factor analysis, Spearitt (1972) confirmed four of Davis' skills--(1) recalling word meaning, (2) drawing inferences, (3) recognizing the author's purpose, attitude, tone and mood, and (4) following the structure of the passage--as separate skills. Vocabulary was highly differentiated while some of the four factors were barely differentiable.

The most recent influence on understanding reading comprehension comes from the academic disciplines of cognitive psychology and artificial intelligence such as the work of Anderson (1978), LaBerge and Samuels (1974), Rumelhart (1976), Stein and Nezworksi (1978), Kintsch and Keenan (1973) and Meyer (1975), in which reading comprehension is viewed as a process subject to the same constraints as human memory and problem solving. They have attempted to analyze

the task demands of text information, taking into account the number of propositions, the propositional structure (idea structure of passage) and the number of arguments within a proposition along with a macrostructure of the pasage. These works, which were theoretically motivated, took into account memory process in the reader as well as information characteristics of the text, and mapping reader comprehension protocols onto text content. The results of these studies suggest that superordinate propositions are better retained than those that are lower in the hierarchy, that propositions with more arguments take longer to process, that competent readers will generally extract a macrostructure from a text, and that some texts are more coherent than others. Most of these studies have focused on skilled readers. However, as Kinstch and van Dijk (1978) stated, "the model also has implications for readers who still must devote substantial resources to decoding" (p. 365).

Gough (1972), in his own study, attempted to give an information processing description of the reading process. According to his model, independent stages of processes can be visualized from letter-by-letter reading via word formation to phonemic representation. After successfully identifying the words, the reader must recognize their integration into syntactic/semantic units. The syntactic information and the context cues of the passage also can aid in vocabulary identification. In order to integrate the word units, the reader must interpret the irregularities, and the coordinate and subordinate structures of simple, compound, and complex sentences.

LaBerge and Samuels (1974) presented another "bottom-up" model of reading wherein reading is initiated by visual stimuli and ended by semantic interpretation. Their model described reading as being divided into the general skills of decoding and comprehension. Both skills require special attention; and comprehension suffers if decoding is not automatic. The implication of the model for reading comprehension is that decoding abilities correlate with comprehension.

In summary, comprehension is the ability to grasp the author's thought structure, not in isolated fragments but as an organized whole. Studies done by psychologists clearly show that the structure of the intellect and the nature of thinking are basic to comprehension. Perhaps, as Smith postulated, comprehension is not limited to, nor is it even specific to, reading. Comprehension may develop as the mind develops, whether this is via listening, reading or any other communication medium (Smith, 1973).

1.2 Measurement and Assessment of Reading Ability

The United States of America abounds in a wealth of standardized reading tests to measure reading ability of children. For example, the Reading Tests and Reviews (1968) lists and reviews 292 reading tests, 23 of which are diagnostic. By 1972, 102 published tests were evaluated (Buros 1972).

It should, however, be noted that lack of knowledge of the basic principles of evaluation among tests users led Buros (1965) to remark:

> Unfortunately, the rank and file of test users do not appear to be particularly alarmed that so many tests

> are either severely criticized or described as having no validity. Although most test users agree that most tests are either worthless or misused they have faith in their own---tests regardless of the absence of supporting research or even of the presence of negating research.

Similarly, several authors have reviewed and criticized the validity, reliability and practicality of standardized reading tests (Hunt, 1955; Lennon, 1962; Webb, et al., 1966; Chall, 1967: Farr, 1970: Pyrczak, 1972). For example, Lennon (1962) raised serious doubts in regard to the ability of standardized reading tests to measure the specific reading skills that most of them purport to measure. He warns that test makers had been too much concerned with measuring influential interpretation abilities for which understanding the explicit or literal meaning was a prerequisite.

Chall (1967) pointed to the need to measure what students know, that is, their quality of achievement. Farr (1970), recognizing validity, reliability and practicality as issues which standardized tests have not met successfully, suggested that skill check sheets, anecdotal records, and progress in workbooks can be refined to give valid and reliable descriptions of student progress towards the objectives of reading which he claimed are: increasing the student attitudes towards reading, increasing the habit of reading, broading interests, and applying appropriate skills. Davis (1970) discussed some of the functional uses of standardized tests in the classroom but felt that individually administered tests are best.

Glock (1970) pointed out a typical validity problem with reading comprehension tests. If vocabulary or comprehension (of any type) is

being measured and the reader has a slow rate, the limits of his or her ability may not be reached. Speed tests may, therefore, favor those with a faster rate and a poorer vocabulary and/or the power of a specific comprehension skill.

Berg (1973), in reviewing the literature of factor-analytic studies of reading comprehension ability, concluded that all the studies add to the same generalization. He agreed that there are few consistent findings relative to a large number of statistically identifiable separate reading abilities but warned that before a reading test can claim to measure some particular ability in reading, the existence of that ability must first be demonstrated by an appropriate statistical analysis.

Cloze Procedure: Probably a more popular classroom technique for measuring the difficulty level of instructional text and for measuring comprehension is the cloze procedure. The term "cloze" comes from the Gestalt concept of closure--a tendency to fill in the missing part of the structure. The cloze procedure was first developed by Taylor (1953) as a technique for measuring the effectiveness in communication. He also found that the cloze score for a given subject and a given passage can be taken as a measure of the degree of correspondence between the language habits of the author and those of the reader. He felt that reading as a form of communication must be meaningful to the reader; that is, the symbols used must be recognizable by him to the extent that they mean something not too far from that which the writer had in mind. The more accurately he is

able to construct meanings to coincide with the writer's own images, ideas and concepts, the better he can read. In constructing the cloze test, words are methodically substituted for blank spaces and subjects are asked to fill in the word.

Cloze scores appear to provide a valid measurement of reading comprehension (Bormuth, 1962; Gallant, 1964; Heitzman, 1968; Kirby, 1970; Rankin, 1967). Heitzman and Bloomer (1968) discovered that ability to make closures is related to reading ability and that comprehension ability is dependent on the type of cloze procedure. Bloomer (1962) demonstrated that when cloze procedure exercises were enforced in a motivational scheme, effective increase in reading comprehension occurred. Similarly, Weaver, White and Kingston (1968) in using the cloze procedure, found high correlations (.80), existing between cloze scores and reading comprehension scores.

Schneyer (1965), in a study of sixth graders, found that students whose word recognition abilities were adequate, performed significantly better on cloze test exercises than those with less developed skills.

In comparing the cloze test to the Gates Reading Tests, Gilmore Oral Reading Test and the Gray Oral Reading Test, Kirby (1970) found that though the four tests did not appraise equally the reading achievement of students in grades one through four, they did fairly well in grades five and six. Her findings suggest therefore, that use of the cloze procedure by classroom teachers for determining instructional reading levels is a promising procedure.

In applying the cloze procedure to results in an informal reading inventory, Ransom (1965) found significant correlations between reading levels estimated from the cloze test and the instructional reading level for children in grades two through six.

Bormuth (1962), like Taylor (1954), concluded that cloze scores were valid predictors of the readability of passages. Klare (1966) saw Bormuth's work on readability as another method a teacher can use in working with reading comprehension skill emphasizing language units and the use of cloze procedure.

In sum, any reading comprehension skill testing or diagnostic procedure, besides taking into account individual learning and cognitive differences, must deal with the individual and his or her experential background, independent and instructional reading level, vocabulary recognition, specific thinking abilities, word analysis skills, oral language and interest in and attitudes towards learning. Psychometrically, Davis (1970) mentioned four steps necessary in measuring change: first, it is necessary to define carefully and explicitly the variable being measured; second, a test of the variable, or as close an approximation to it as can be secured, must be administered under conditions that assure a high degree of cooperation on the part of the student; third, a student's obtained score must be compared with suitable norms, such as percentile ranks in his or her own age or grade group; fourth, the possiblity that the student's score represents a sizable deviation from his or her true score must be considered. Excellent resources in this area of

measurement and diagnosis include Wilson, 1967; Della-Piaca, 1968; DeBoer, 1971.

The studies cited above on tests and measurements are not the only ones bearing on the organization, tests and measurement of reading ability, but together they comprise a representative sample of the research in this area. In concluding this section on tests and measurement, it should be noted that, criticisms not withstanding, research in this area has increased the sensitivity of researchers and educators to the proper use of the tests as these tests remain the most efficient and fairest means of gathering objective data about reading performance.

1.3 The Pedagogy of Reading Comprehension

The ultimate objective of reading instruction is to provide students with skills and attitudes necessary for them to use the printed word to enrich their lives. As Smith (1973) said, "reading instruction which falls short of this goal is a failure." Educators have put increasing emphasis on teaching and research in the area of comprehension. As skills have been identified as important to the comprehension process, a few techniques and programs have been developed to evaluate and teach them. More recently, the role of cognitive processes in the performance of reading comprehension skills has been the focus for evaluation and teaching methods.

Sprietsma (1960), in referring to grades ten through fourteen made the following points which apply to the teaching of reading comprehension at all levels:

1. Comprehension skills should be taught from simple to complex, from literal meanings to non-literal.

2. Many comprehension skills require depth development where the student progresses from using objective questions to those in which he or she formulates answers.

3. Comprehension skills should be taught individually, with materials designed for specific skills.

4. When comprehension skills are adequately mastered, emphasis should be on learning to apply them to more difficult selections which are read for a definite purpose.

5. The best materials for instructional purposes are those selected or constructed to develop specific comprehension skills.

6. The rate should be increased in close association with reading purpose. All comprehension skills are required to do this.

Spache (1977) discussed comprehension in the classroom from a teaching-diagnostic point of view. He looked at reading comprehension in terms of helping the teacher to improve specific individually different cognitive skills in listening, speaking, reading and writing situations.

Scott, Foresman and Company (1956) put out a booklet which listed a number of suggestions for developing the following reading comprehension skills: comprehending sentence meaning, recognizing story problem or plot structure, recognizing emotional reactions or "living the story," forming and reacting to sensory images, achieving effective oral interpretation, perceiving relationships, strengthening memory word form, using context clues and deriving word meanings. It

is interesting to note that this booklet was intended for fifth and sixth grade teachers. Surely these skills can be taught and developed in all the grades.

For teaching comprehension, Barrett (1979), Smith (1978), Pearson and Johnson (1978) emphasized directing attention to meaning, asking significant questions which call for more than giving back the facts and discussing the answers to identify those that are accurate or incorrect with the reasons for the conclusions.

One of the most articulate in the area of questioning strategies was Guszak (1967), (1969), who found that second, fourth, and sixth grade teachers tended to emphasize questions which required recall thinking. He warned that teachers failed to put questions into clusters which would extend students' thinking and comprehension of material read. Gallagher (1963) outlined some questioning strategies based on cognitive memory, divergent, convergent and evaluative thinking, as well as a model for the continuing development of cognitive processes through classroom interaction. Early (1969) emphasized these questioning strategies in inference training as did Raciti (1969) and Smith (1961). It may be well to end this section with this illustrative statement (Smith and Johnson 1980):

> Teaching students reading skills is one thing; helping them develop the habit of using the skills they've been taught is another. Yet it is only in using the skills on a daily basis that students master them...Teachers are models for their students. Therefore, teachers must work daily to help students make the transfer between learning and practice or utilization (p.408-409).

Summary

From the review of literature on the theories, teaching and testing of reading comprehension it can be seen that there is a wide discrepancy among the various models used to explain reading comprehension. However, four major, progressively complex commonalities emerge from the models and theories. The four major points commonly considered as being essential in reading comprehension are:

1. That decoding, word identification and vocabulary, which are often labelled "word perception", are essential elements in reading comprehension.
2. That grasping the author's meaning, which corresponds to Barrett's (1979) "literal comprehension", leads to reading comprehension.
3. That reading is the testing and recombining of the author's message with the background and understanding of the reader. It involves not only the higher-level comprehension of Barrett, but also certain aspects of the reaction of the reader as defined by Robinson (1966).
4. That reading comprehension is the application of ideas and values to decisions and actions and extensions of the author's ideas to new settings, which includes assimilation as defined by Robinson (1961).

The reading comprehension skill testing or diagnostic procedure, besides taking into account individual learning and cognitive

differences, individual experiential background, independent and instruction levels, must recognize the importance of reliability, validity and practicality.

Finally, teachers must make themselves models in the development and use of the reading skills.

2. Word Identification and Reading Comprehension

The literature on reading comprehension indicates that vocabulary and reasoning are identifiable components in reading. The aspects of vocabulary knowledge, along with its teaching and testing, are the concern of this study. Therefore, the following discussion will focus on research concerning the interrelationship of word identification and reading comprehension skills. It will also be concerned with the results of training children in word identification strategies.

But before going into details about word identification skills in relation to reading comprehension, I think it appropriate to consider the usual catch-all labels that are often used interchangeably to denote word identification skills. The five most frequently occurring labels found in the literature are: decoding, word analysis, word attack, word recognition, and word identification. It is necessary to differentiate these terms since they are not completely synonymous.

1. Decoding implies explicit concern for breaking the letter-sound correspondence code and for phonics only. By this definition, decoding is too restrictive a term for the purpose of this study.

2. Word analysis seems a broader term than decoding, although it is still too restrictive. It suggests that word meaning can be discerned by analyzing the word--and only the word--itself. It explicitly suggests provision for phonics analysis and morphemic analysis, but confines the unit of analysis to the word.
3. Word attack, to some extent, is similar to word analysis. It can be used mainly to refer to the oral reconstruction of the printed word form through application of letter-sound correspondence.
4. Word recognition or word perception implies encountering again a word already known.

Smith (1971) provided a distinction between recognition and identification:

> "Identification" involves a decision that an object now confronted should be treated in the same way as a different object met before; that the two should be put in the same category. There is no implication that the object being identified should itself have been met before. "Recognition," on the other hand, literally means that the object now confronted has been seen before although it does not require identification. We recognize a person when we know we have seen him before, whether or not we can put a name to him. We identify a person when we put a name to him, whether or not we have met him before (p.106).

5. Word identification has three aspects. These are: the written form of the word, the word name, and the word meaning. Of all the other terms, decoding seems the only one that is synonymous with word identification, since it involves meaning as an inherent aspect. Word identification seems the most accurately comprehensive term available

to encompass the various grapho-phonic, morphemic, syntactic, and semantic generalizations and strategies which readers employ independently to expand their reading vocabulary and comprehend printed discourse. The term word identification is therefore considered the most accurate description for the discussions that will follow in the rest of this chapter and in the whole thesis.

Educators have placed considerable emphasis on word identification skills as being vital for reading comprehension. They emphasize the hierarchical order of reading skills and relate difficulties in comprehension at any level of reading proficiency to deficiency in word identification. When confronted with the problem of increasing the reading comprehension of their students, teachers often consider only the vocabulary and subject matter as determining factors in preparing and selecting reading materials. For instance, Durrell (1958) stated:

> Most reading difficulties can be prevented by an instructional program which provides early instruction in letter names and sounds, followed by applied phonics and accompanied by suitable practice in meaningful sight vocabulary and aids in attentive silent reading (p.5).

Under such a condition, it is assumed that a child, on seeing a word, must be able to recognize the letters, translate them into vocalic clusters, and then corroborate this translation as sensible, given the emerging sentence context.

The identification of the word's name must procede the calculation of its semantic appropriateness. However, both naming and determination of meaning need to occur rapidly without requiring all

of the child's attention to this necessary but preliminary task for understanding the message.

LeBerge and Samuels (1974) pointed out that an individual has a limited capacity and cannot focus attention on more than one thing at a time. If a child is struggling to recognize the words at either the naming or the meaning level, then attention will be diminished for recognizing the syntactic/semantic relationships and for weighing the importance of the content.

Several studies indicate that a relationship exists between decoding skills and the reading performance of children (Gray, 1960; Gagne, 1967; Smith, 1971; Demos, 1977). For instance, Demos (1977) reported a significant positive relationship between mastery of word attack skills and general reading achievement (as measured by the Gates-MacGinite Reading Tests). He identified such skills as consonant blends, short vowels, consonant diagraphs and base-word endings as supportive skills that enhance efficient reading. It should be pointed out, however, that while Demos found that all word-attack skills were essential or supportive, no single word-attack skill related strongly to general reading achievement.

Research further indicates that there is a relationship between decoding skills and the reading performance of children. Calfee, Venezky, and Chapman (1969) discovered that poor readers produce more errors on predictable patterns and that their responses to unpredictable spellings are less consistent. Venezky, Chapman and Calfee (1972) discovered that there is little difference between good

and poor readers in their ability to generalize invariant consonant correspondences when consonants occur in initial positions, but that there are large differences in performance when the letters are in medial or final positions.

In an earlier study, Mulder and Curtin (1955) investigated the relationship between children's ability to fuse phonetic elements--presented orally in words--and the ability to read. They obtained a significant correlation of .44. Similarly, Rudisill (1957), in his own study of 315 children in ten classrooms and four schools of the Durham, North Carolina City schools, concluded that functional phonic knowledge makes a substantial contribution to achievement in reading.

Guthrie (1973) tested two models of reading and compared sub-skills of a group of normal and disabled readers in the production sub-tests. The production subskills were found to be more highly interrelated for normal than for disabled readers. The correlations for the normal readers ranged from .47 to .94, indicating uniformly high correlations on the production subtests. The correlations for the disabled readers ranged from .18 to .85, indicating little relationship among the production subtests. the study provided support for the system model of the development of subskills which contended that subskills in normal readers are interrelated. Development of one skill depends on the development of the other skills. Guthrie therefore suggested that the lack of inter-facilitation among skills is debilitating for the disabled readers and that the high intercorrelations of subskills among normal readers

indicate that the phoneme-grapheme subskills are distinct components which are highly integrated in normal readers.

Emphasis on Organization: There has been a shift of emphasis by linguists from word identification skills to language organization as a principle factor underlying comprehension. The major emphasis within this trend is that of getting the meaning from print and that the child should advance quickly toward the word recognition and meaning apprehension capacities of the mature reader. The exponents of this view of hierarchical organization hold that the skills should follow this order:

1. The child must learn the oral aspect of the language he or she is going to read.
2. The child should learn to recognize printed words from whatever cues he can use, but critically only from total configurations.
3. The child should learn that printed words are signals for spoken words, and that meanings can be apprehended from these printed words.
4. The child must learn to reason and think about what he reads.
5. The child should learn the left-to-right principle, but initially only as it applies to complete words in continuous text.
6. The child should learn to recognize and discriminate

between the letters of the alphabet.

7. The child should learn to dissect spoken words into component sounds.
8. The child should learn patterns of correspondence between letters and sounds to help him in the advanced phases of skill number two.

In order to assess this trend, Oakan, Weiner, Cromer (1971) studied the relationship of word identification skills, organization and reading comprehension of good and poor fifth grade readers. The poor readers showed no improvement in comprehension after being given training to identify words in the story before reading it. Good readers were not affected by poor organization of material, while the omissions, the errors, and substitutions in the text affected poor readers negatively. The results indicate that poor readers lack organizational strategies and that good word identification is not sufficient for good comprehension, since there was no improvement in poor readers' comprehension after word identification training.

In studying the effect of contextual and syntactic cues on word identifications, Steiner, Wiener, and Cromer (1971) found that poor readers failed to utilize syntactic and contextual cues in the text. The experiment concluded that poor readers do not make use of various signal systems in their language. This conclusion corresponds to that of Guthrie (1973), who said that poor readers are unable to combine subskills in a reading task. The results imply that for good readers reading is a unitary process but for poor readers reading consists of

a number of subskills.

The studies reviewed in this area show, among other things, that phonics ability or word identification skills significantly relate to achievement in reading. The Guthrie study further clarifies the phoneme-grapheme association skills of normal and disabled readers and suggests that learning the simple subskills will facilitate the acquisition of more complex subskills and, ultimately, achievement in reading.

However, even though there is agreement among many researchers that word identification is an important component of comprehension, there have been few research studies designed to examine the effectiveness of training in vocabulary development, either independently or in relation to the entire comprehension process (Davis, 1972). This is probably due, in part, to the fact that the question of why word knowledge is so important is still unsettled. There are at least three positions that attempt to explain the high correlation between vocabulary knowledge and linguistic competency (Anderson and Freebody, 1979).

The first, an instrumentalist hypothesis, claims that knowing words enables text comprehension (causal chain). Where vocabulary comes from is not of prime concern; however, once possessed, word knowledge helps the reader understand the text. The second position, the aptitude hypothesis, suggests that some persons are better able to comprehend text because of superior verbal ability; that is, those children with the greatest verbal fluency tend to comprehend best.

The third position, the knowledge hypothesis, examines the relationship of stored word knowledge to the comprehension of discourse. Word knowledge is viewed within the context of what a person knows and brings to the task when comprehending text; word knowledge, per se, reflects knowledge in general. The premise basic to this third position is that prior knowledge is crucial to *understanding* text. It is not just the *individual word meanings* that are important, but the entire conceptual framework elicited by word meaning. It is this general knowledge which interacts with text to produce comprehension.

3. Listening and Reading Comprehension

It is important to discuss reading and listening comprehension for three reasons: (1) to ascertain how much classroom instruction students understand; (2) to discover if a relationship exists between listening and reading levels; and (3) to aid in making decisions about the appropriate time to start reading instruction, particularly where the student is learning to read English as a second language.

Goodman (1970) stated that "reading is the counterpart of listening. It uses graphic input while listening uses aural input; but essentially the processes are the same, and the goal is the same: comprehension."

Several studies point to a significant positive linear relationship between listening and reading achievement. For example,

Anderson and Baldauf (1963) reported a correlation of .82 between the listening subtest of the Sequential Tests of Educational Progress and the Stanford Reading Achievement Test. Canfield (1961) reported a correlation of .64 between the listening subtest of the Sequential Tests of Educational Progress and the Iowa Tests of Basic Skills.

Durrell (1969) constructed tests in listening and reading for grades 1 through 8. He sampled 3,000 to 4,000 children at each grade level. The test indicated that (1) in all primary grades, listening vocabulary is superior to reading vocabulary, (2) in each grade, reading comprehension more nearly approximates listening comprehension until a 100 percent ratio is reached in grade eight, and (3) in reading paragraphs, reading comprehension approaches listening comprehension until grade six, when the ratio is greater for reading comprehension; and all exceed the 100% ratio from grades six to eight.

Winter (1966) studied 563 children from 4th, 5th and 6th grades in the Arlington public schools in Texas. A correlation of .53 was found between listening and reading vocabulary for all grades.

In his own study of listening and reading comprehension of 490 pupils in grades four and six of eight elementary schools from Macomb and Galesburge, both in the State of Illinois, Hempleman (1958) reported that the relationship between listening and reading comprehension did not appear to be altered by length of passage, and that an increase in mental age and, to a lesser extent, chronological age decreased the difference between listening and reading comprehension.

Duker (1971) reported that findings concerning the relationships between listening and reading achievement have not been consistent, but that a statistically significant positive relationship has been found to exist in most of the studies. The studies have helped in using listening ability to estimate a child's reading proficiency to the extent that if a child's reading comprehension level is lower than his or her listening comprehension level, he or she is believed not to have mastered certain reading skills, such as grapheme-phoneme relationships, rapid recognition of whole words, and strategies for studying word order and word groups.

Such studies as reported above have not been widely done on ESL learners, but one would expect that a lower correlation would exist between listening and reading comprehension among ESL learners. This assumption is easy because ESL students are not generally brought up in a rich English language environment, and this affects their understanding of the language.

4. Studies on Reading in ESL Situations

A majority of research and literature, both empirical and subjective, in teaching reading to ESL learners deals with the following five areas:

1. Reading instruction; that is, the nature, approach and language of instruction.
2. Word identification and comprehension

3. Psycholinguistic view of instruction in ESL

4. Measurement and evaluation of ESL reading ability.

5. Listening ability and ESL students.

4.1 Reading Instruction

An initial problem faced in reading instruction in an ESL situation is to determine which language to use for beginning reading. Should reading be started in the vernacular or in the second language, English? The notion that reading should begin in the vernacular has been supported by studies as Berra-Vasquez, (1953), Burns (1968), Modiano (1963), and Osterberg (1961). The principle assumes that the oral language competency and experiences acquired in the vernacular will be the basis to begin the building of reading skills. It enables the learner first to learn to make the symbol-sound meaning relationships in his or her own language in which he is most proficient, and once a firm basis for reading has been established in the first language, the transfer of reading skills to the second language may then occur. The occurrence is facilitated especially in situations where there is closeness in the graphics and sounds of the alphabet of the two languages.

The principle is largely followed in the Nigerian schools because of the similarities in the graphics and the sounds, to some extent, in the letters of the two languages. For instance, only five letters of the English alphabet are not in the alphabet of the Yoruba[1]

[1]Yoruba is one of the major Nigerian languages. Among others are Hausa, Igbo, Fulani and Nupe.

language. There are also only four letters of the alphabet of the Yoruba language not present in the English alphabet. The graphic orientations of the common letters are basically the same. With regard to pronunciation, even though there are differences in sound values of the corresponding graphic symbols in the two languages, certain similarities are identifiable in both the consonants and the vowel sounds (The Yoruba language has no dipthong).

An argument not totally in favor of beginning reading instruction in the vernacular is that the practice would make children lag behind their monolingual English counterparts, at least until the end of the third grade when and after which they may be equivalent (Lambert, 1972, 1973). *More definite answers are needed to the question of* which language should be used for beginning reading. As of the time of writing, even though the Federal Government of Nigeria's education policy demands the use of the vernacular in the first three years of the primary school, some schools, such as the Army children's schools and the University staff schools having children from different first-language backgrounds have no option other than to begin reading instruction in the English language.

Another problem to be solved in reading instruction in the ESL situation is how to determine the most effective ways of teaching reading. Despite the volume of research and studies seeking to answer the questions, there seems to be no single approach that has been found to be completely satisfactory.

Ebel (1978), in consonance with Thonis (1976), identified the phonics method and whole-word method as the two main approaches prevalent in most of the ESL reading programs. Another approach found to be successful in teaching reading to ESL learners is the Language Experience Approach (LEA). This approach builds on what language and experience the child already has; and it begins at the child's current level of understanding. Among the most frequently quoted articles on the phonics approach and the whole-word approach are those of Plaister (1968), Horn (1969), Norris (1970), Allen (1973), Eskey (1973), Saville-Troike (1973), Wilson (1973), Cowan (1974), Been (1975), Berman (1975) and Pierce (1975) It should be noted that in the later works among these, there is a distinct switch from an emphasis on vocabulary to a stress on structural meaning at the beginning reading stage.

Also, several scholars (Garcia, 1974; Thonis, 1976; Smith and Johnson, 1980) have touched on the language experience approach. Thonis (1976), for instance, has criticized the use of the phonics method for ESL reading instruction by saying that it fails to stimulate the oral language program. He pointed out that learning English through phonics could be frustrating for the Spanish-speaking child because his language is structured differently than English (p.27). The same might be said of the Nigerian child who is taught reading in both the Nigerian language and the English language simultaneously using two different methods. When reading in English is taught, materials tend to be based on whole-word approach, but when

reading in the native language is taught, the phonics approach is used. A major criticism of this switching is that there are many sounds in English that have no phonological equivalent in the Hausa; Igbo or the Yoruba languages. For example, every letter in the Hausa language represents a sound. This may make children attempt to pronounce the silent letters in words like know, calm, climb, night. In addition, learning to generalize the phonics rules without an adequate oral language base may be too big a task. For example, the learner may think that double-consonants should be lengthened as in the Hausa language (ina and inna).

The teaching of word identification skills is the most ciriticized aspect of the LEA, but in spite of the criticism the approach was highly recommended by Thonis (1976, p. 27). It was also suggested by Smith and Johnson (1980), and Garcia (1974) that the LEA is an excellent beginning-reading method for the linguistically and culturally diverse children. In general, the comments all point to the fact that an eclectic approach with the characteristics of various methods is often needed in teaching reading to ESL learners.

Yet another problem to be solved in the teaching of reading to ESL learners is how to improve the learners' reading efficiency. Several studies report that non-native speakers of English read below their grade level counterparts who are native speakers of English (Gaarder, 1967; Morris, 1968; Fowler, 1973; Garcia, 1974). The basic question to be answered is, what affects the speed and comprehension in the case of secondary school and college students. MacNamara

(1967) found that English-Irish bilinguals of 12 and 13 years of age read faster in their first language than in Irish, the language of school instruction. The possible relationship between the rate of reading speed and comprehension is yet to be definitely established. MacNamara (1967) explained that a second-language reader needs more time for the task of decoding the written language; he claimed that this will decrease the time for higher level reading skills.

On eye fixation, Tullius (1971), found that ESL learners' eye fixations are generally longer than monolinguals'. These, however, are found to be not as frequent as has been believed. Levin and Kaplan (1970) and Kolers (1976) found that beginning readers (Native English speakers) are known to indulge in more frequent eye fixations per line in texts than do skilled readers.

On the effect of auditory knowledge of language on reading a second language, Serpell (1968) found that pronunciation was important in silent reading for the ESL subjects. Students who did not distinguish the difference between the sounds of r and l (Bantu speakers) misread and misunderstood light, right, lip, rip, etc. Inability to distinguish differences between sounds, such as r and l, sh and ch, p and f is a common problem in some first-language groups (the Idoma, Igbo, Yoruba,Hausa) of Nigeria. Hatch (1974) in his own study gave his subjects, 4th grade Spanish ESL learners, reading passages in Englsih with an overload of words having phonological features. the results showed that phonological interference existed in silent reading.

4.2 Word Identification and Comprehension

There is some disagreement on the importance of word identification skills in ESL learners' reading. While MacNamara (1967) supported word identification exercises as a facilitator of efficient reading, Harris (1966) indicated that ESL learners easily match test words with identical words (sing/sink, sing/sign) or identify word pairs (poor/day, poor/pay), but have problems in identifying synonyms and antonyms. Hatch (1974) asserted that:

> While word recognition is important, one should not waste time on visual perception. Instead, once the basic skills in reading are acquired, we should relax emphasis on recognition of small units and concentrate on the larger process (p. 78).

Hatch, Polin, and Part (1974), discontent with earlier studies of the effects of syntax on University-level ESL learners' reading comprehension, conducted an experiment to determine the difference in native and non-native speakers' attention to added letters in words. Native speakers paid more attention to content words than ESL learners who marked the added letter in content and function words. Also, native speakers crossed out more letters in stressed syllables, while the second language learners showed no pattern as to stressed or unstressed syllables.

The above studies give the following information on what affects the speed and comprehension in second language reading: that students will read slowly and comprehend less if they have difficulty with articulation, do not recognize words, cannot predict syntax or if

they ignore graphic cues.

4.3 Psycholinguistics View of Instruction in ESL

Linguists and psycholinguists have long been concerned with the nature of the reading process and the ways of effectively teaching and acquiring reading skills. One of the studies on the nature of reading was that by Goodman (1967), who considers reading a psycholinguistic "guessing" process in which the reader, a language user, reconstructs a message that has been encoded by a writer as graphic display. The reader's pre-existing linguistic competence, experiences and conceptual development all come in to play in "the linguistic guessing game". The "game" involves:

1. Sampling graphic, syntactic, and semantic cues
2. Predicting both structure and meaning on the bases of these selected cues.
3. Testing the prediction
4. Either confirming that prediction or correcting it if necessary.

Although most of Goodman's work deals with the acquisition of reading skills by native speakers of English, mainly children, many of his discoveries are relevant to the problems of reading in a foreign or second-language situation. For instance, Yorio (1971) discussed foreign language learners' problems in reading when reading is viewed as a psycholinguistic process. He pointed out that reading as a psycholinguistic process involves:

1) Knowledge of the language (the code);

2) Ability to predict or guess in order to make the correct choices;

3) Ability to remember previous cues;

4) Ability to make the necessary association between the different cues that have been selected.

Yorio (1971), however, stressed that in reading a foreign language the reader's knowledge of the language is not that of a native speaker. Thus, guessing ability is hindered, the wrong choice of cues makes predicitng difficult, and memory span in a foreign language in the early stages of acquisition is short.

Catherine Buck (1973), in her article on "Miscues of Non-native speakers of English" acknowledged the difficulty in learning to read a foreign (second) language. While agreeing with Goodman on his theory of reading, Buck mentioned unfamiliarity and native language interference of a non-native speaker of English in interpreting graphophonic cues, syntactic cues and semantic cues as being major problems of a non-native speaker of English. Buck concluded that (1) learning to read English as a second language involves more than learning to recognize new graphic shapes or learning to relate these to a new system of sounds, and (2) the teacher of English as a second language can expect miscue due to (a) differences in what the learner brings to the process, (b) unfamiliarity or native language interference in the interpretation of cues; and (c) the interaction of both of these in the complicated psycholinguistic process that

reading is known to be.

4.4 Measurement and Evaluation of ESL Learners' Reading Ability

The techniques of testing reading ability have dictated, to a large extent, our understanding of what has come to be referred to as "reading comprehension". As part of the ability to read and comprehend a given context quickly, these techniques may require such skills as skimming, vocabulary recognition, guessing vocabulary meanings from context cues, scanning the context for identification of words or phrases set forth in the questions, interpretations of test questions and the ability to give correct, grammatical and comprehensive responses to questions about the context.

In assessing reading skills of the linguistically and culturally diverse, biases in reading tests are commonly recognized. Henning (1975), Holick (1975) and Thonis (1977) are among authors who have dealt with this problem. Henning (1975) examined seven correlates of reading comprehension for predictive validity, difficulty, and discriminability. In his study, twenty-seven Iranian college students were administered a series of eight test batteries comprising cloze-recognition, synonym-antonym selection, multiple-choice sentence selection, question-written response, and grammaticality of responses predictors. They were examined at two levels of context difficulty. His findings showed that intermediate difficulty synonym-antonym selection ($r = .77$) and multiple-choice sentence selection ($r = .74$) exhibited the highest correlation with

the criterion.

Holick (1975) in a study involving 63 Czech-American bilingual fifth, sixth and seventh grade students in several Texas schools, found no significant differences in reading vocabulary and comprehension scores between the bilingual students and the monolingual English-speaking students with Czech-American background. Significant differences existed between the male and the female subjects of the study on the reading measures. Socioeconomic level was also a significant factor in the reading ability of the students in the study; students from a high socioeconomic level read better than students from a low socioeconomic level.

Thonis (1976) pointed out that the standardized reading tests normed on a population of native speakers of English provide only limited estimates of reading achievement and potential of students for whom English is a forieng language. In an analysis of testing data, besides looking into the oral and written forms of the native language for possible interference, it is essential to differentiate between the reading problems of students who have mastered word identifications skills and those who lack the fundamentals of these skills (Thonis, p. 49).

The studies referred to above point to the fact that caution must be taken in applying standardized tests meant for English-speaking children. One must be aware of potential biases in such tests when used with ESL children, and must interpret the results derived from them carefully.

Another technique for measuring reading ability is the cloze procedure. The cloze procedure has been found to be successful in discriminating among ESL students according to their reading skills or to compare reading achievement in English as a first language and ESL. Oller and Inal (1971) administered a cloze passage to foreign students and native speakers of English. They discovered that while the native speakers achieved nearly perfect scores, the ESL students scores were 65 percent on the average.

Anderson (1976), interested in the practicability of the cloze procedure as a measure of readability and reading comprehension with ESL learners, applied the cloze procedure to test ESL primary school children in Papua, New Guinea, Malaysia, and Singapore and China. His findings indicated, among other things, that:

1. cloze procedure ranked passage difficulty reliably and was in good agreement with experts' rankings (for both Malay and Chinese).
2. in both Malay and Chinese, cloze procedure discriminated between pupils at different levels in school.
3. cloze rankings of pupils were objective and reliable for both languages (Malay-English and Chinese-Englsih).
4. cloze scores correlated highly with Malay language, Chinese language and other school subjects.

4.5 Listening Comprehension and the ESL Students

It is instructive to touch on the ESL students' listening

comprehension and reading comprehension for two main reasons: (1) to ascertain how much of classroom instruction students understand; (2) to discover if there is a relationship between the listening and reading comprehension abilities of the children.

An obvious problem that the ESL students have in listening comprehension is basically that of environment. The ESL students are not brought up in a rich English language environment. This may lower their ability to comprehend what they hear in the English language. However, several studies (Durrell, 1969; Berger and Perfetti, 1977) have correlated ESL students' listening comprehension abilities with their reading comprehension abilities and have indicated that there is a relationship between them. Furthermore, listening ability has been used to determine the abilities of students in some particular reading skills. For example, if a child's reading comprehension level is lower than his or her listening comprehension level, he or she is believed not to have mastered certain reading skills, such as: grapheme-phoneme relationships, recognition of whole words, and strategies for studying word order and word groups.

Summary

The review of the literature reveals that, notwithstanding the many studies that identified relationships among word identification, listening comprehension and reading comprehension, there are (1) no

consensus or proven reliable knowledge concerning reading comprehension, and that the basic processes of reading comprehension are yet to be identified, (2) two theoretical viewpoints about word identification and its importance in reading comprehension, (a) the emphasis on the hierarchical order of word identification skills as a necessary condition for reading comprehension and (b) a de-emphasis on word identification skills in favor of language organization.

In addition, to accurately interpret ESL learners' scores in standardized reading tests, we need to know more about the test validity, reliability and practicality when used with ESL learners.

The chapter that follows will treat the design of the study. In the main, it will focus on the choice of the population and the sample, the measuring instrument, the variables and the statistical analyses to be used.

CHAPTER III

DESIGN AND PROCEDURE

The purpose of the study was to investigate the relationships that exist among some selected skills in word identification, listening comprehension and reading comprehension among secondary school students in some selected schools in the Kaduna State of Nigeria. The study specifically aimed to answer the following questions:

1. Do word identification skills (phonics, structural, and contextual analyses) have a positive relationship with Nigerian students' reading comprehension ability?
2. Is there a correlation between their word identification skills and listening comprehension?
3. Is there a correlation between the listening comprehension and reading comprehension of Nigerian students?
4. Which of the word identification skills is or are most strongly related to comprehension?
5. Will good comprehenders perform better than poor comprehenders in word identification and in listening comprehension?
6. What relationships, if any, do children's sex, language and home background, location of school and type of school have to their reading comprehension ability?

The Population and Sample

Population

The potential population of students for this study included all the class III students in the 20 secondary schools in the Zaria area of the Kaduna State of Nigeria. The sampling involved six randomly selected schools. It is the belief of the researcher that the results of this study could be generalized to other schools in the zone and in the state, and, to a large extent, to other schools in Nigeria. The reasons are:

1. Students attending secondary schools in the Kaduna State, as in all other states of the Federal Republic of Nigeria, are selected at the end of the primary school course through a national common entrance examination. Only students who pass are allowed to go to secondary schools.
2. The Kaduna State further administers an aptitude test to all its post-primary class II students, the results of which are used to channel students into either secondary school year III, or technical school or teacher training college. So the class of students selected for the study is stable and is of comparative level throughout the state.

The Kaduna State of Nigeria is predominantly Hausa speaking. However, because of the Federal Government establishments and the University in the state, there are people from other ethnic groups such as the Igbos, Fulanis, and Yorubas, hence the presence of

children from different ethnic groups having different first language backgrounds in schools in Kaduna State.

The reason for basing the study in the Kaduna State where all secondary schools are under the control of the state government is the researcher's long-standing attachment to the state (1966 to date). He has visited personally many of the schools when supervising the teaching practice of his college students; and he has also had the opportunity of teaching, at one time or another, a number of teachers in the state. Therefore, the researcher is well acquainted with the problems, facilities and opportunities in the schools in the state, particularly with regard to the teaching and learning of the English language. As a matter of fact, his long teaching experience in the state has motivated the topic for this research.

Sample

Twenty-five students in each of the six schools were selected at random for the purpose of the study. The selection of the six schools was also randomly done and based on the type and location of schools.

Table 3.01 shows the number, type, and location of the schools in the study.

TABLE 3.01

TYPE, LOCATION AND NUMBER OF SCHOOLS IN THE STUDY

Types of Schools	Rural		Urban		Total	
	Population	Sample	Population	Sample	Population	Sample
All-boys School	5	1	3	1	8	2
All-girls School	1	1	1	1	2	2
Mixed (Boys and Girls)	7	1	3	1	10	2
Total	13	3	7	3	20	6

Measurements Used in the Investigation

Since there were no standardized instruments currently in use in Nigeria to measure students' reading levels, the investigator considered it necessary to prepare his own instruments. The instruments were based on:

a) A review of literature on teaching and diagnosing word identification skills, reading comprehension skills and listening comprehension skills

b) A study of the textbooks currently in use in the schools in Kaduna State of Nigeria and

c) A study and adaptation of the test designed by the reading comprehension research group at the Wisconsin Research and Development Center, and some other standardized reading tests deemed comparable to the level of students in Class III of the Nigerian secondary schools.

In order to determine the relationship of word identification skills and listening comprehension to reading comprehension, three sets of tests, all totalling 160 items, were designed.

1. Word Identification Skills Test. A pencil and paper test was designed to investigate the relationship of the components of word-identification as measured by the present study in terms of knowledge of the phonics, structural, contextual analyses of words and word vocabulary in context.

   The test assessed the following components:

a) A 40-item test on phonics analysis skills involving phonetic discrimination in consonants, vowels and syllabication.

b) A 40-item test on structural analysis skills. This test involved (i) plurals, (ii) possessives, (iii) compound, (iv) affixes.

c) A 40-item test on contextual analysis skills. The test included cloze tests and vocabulary tests considered to be comparable to the subjects' level.

To illustrate the type of tasks contained in the word identification test, an item from each of the test components is given below (See Appendix A for a complete set and questions of the test).

Section (a)

i. Phonics: Vowel

Circle the word in the row whose underlined part sounds just like the underlined part of the word in the first column.

Column 1	Column 2		
h o d e	m oo n	s oa p	o n
f ai n	s ai d	m a d	c a n e

ii. Phonics: Consonant

Circle the word in the row whose underlined part sounds just like the underlined part of the word in the first column.

Column 1	Column 2		
m u b	n o t	m a p	h a d
s i m	s u g a r	s h e	s o

iii. Phonics: Syllabication

For each of the words below, circle the number of syllables in the word.

happy	1	2	3	4
wonderful	1	2	3	4

Section (b)

i. Structural: Compound Words

A way to understand the meaning of some compound words is to use these three phrases:

1) of a 2) for a 3) like a

Mark each of the compound words below with the number 1, 2, or 3 as appropriate:

soup pot _____ fish pond _____ goal keeper _____

ii. Structural: Plurals

Read each of the words below and mark if the word describes ONE thing, MORE than one thing, or does not tell how many. If the word describes one thing write O. If the word describes more than one write M. If the word does not tell how many write N.

leaf always

illness teeth

iii. Structural: Affixes

Each of the sentences below has a word missing. Read each sentence and then write the letter (A, B, or C) of the word you think fits best.

The _____ woman needed a walking-stick to help her walk.

(A) ages (B) aged (C) ageless

Father settled happily into his _____ armchair.

(A) comfortable (B) comforted (C) comfortless

iv. Structural: Possessives

For each of the following sentences decide if the underlined word shows belonging or ownership. If it does show ownership, mark YES, if it doesn't, mark NO.

Adamu's sister is very tall. YES NO

It's a nice day. YES NO

Section (c)

i. Contextual: Word meaning

For each sentence, there is a word or group of words with a

line under it. Read each sentence and select from the list of words A-E that gives the meaning of the underlined words in the sentence.

The workmen <u>united</u> to ask for better pay.

(A) tried (B) undertook (C) did not want

(D) joined together (E) began

ii. Contextual: Cloze procedure

At certain places in the story words are missing. Decide what word is most appropriate for each of the blank spaces.

My cat licks her _____ after she eats. (Answer is paws)

_____ cry a lot. When they learn to talk, babies no longer need to cry so much because they can ask for things that they want. (Answer is Babies).

2. <u>Reading Comprehension Test</u>. An investigator-designed test was administered. The test contained 5 reading selections (short passages) with 3 to 6 comprehension questions following each selection. Applying Fry's (1978) Readability formula on the comprehension pieces, the average reading level is grade 5. Lambert (1973) indicates a difference of three grade levels between learners of English as a first language and ESL

students. The researcher therefore considered the passages as being within the level of Secondary School Year III in Nigeria.

A total of 20 questions were asked. Ten questions were literal while the other ten were inferential or interpretative questions. Literal questions were classified as those questions which can be answered by words or phrases that are directly stated in the reading selections. Inferential or interpretative questions were those questions which cannot be answered by words or phrases that are directly stated in the reading selections. The reader is required to make inferences from reading the selection and draw upon his or her own experiences to make an interpretation in order to answer the question.

To illustrate the types of tasks contained in the reading comprehension component of the test, the following selection and questions for it are given below (See Appendix B for a complete set of test selections and questions):

Hamsters are very good classroom pets. These tiny animals have soft, clean fur. They are often brown and white in color. Food for hamsters is very easy to obtain. They like fresh vegetables such as carrots, cabbage, and lettuce. Each day these animals need dog biscuits, grains, or pellets to keep their teeth sharp. They need clean, fresh water at all times.

Read the above selection and answer the questions below by putting a circle around the letter of the correct answer.

1. Which food does a hamster need to keep his teeth sharp?

   A) apples B) lettuce C) dog biscuits D) carrots

2. Which does not belong under the heading "Taking Care of Hamsters"?

   A) vegetables B) water C) soft fur D) dog biscuits

3. Listening Comprehension. This is an investigator-designed test comprising 20 items. The test contains 5 reading selections (short passages) with three to seven comprehension questions following each selection. The selections are at the same level of difficulty as the reading comprehension passages.

   The format for this Listening Comprehension component of the tests is as follows: The class teacher read the selection and then the question and the multiple choice answers for the selection. The students were given the questions and the multiple choice answers on their test booklet, but not the reading selection. The students had to listen to the selection and then respond by marking the answer on the test booklet. Ten of the twenty questions were classified as literal while the remaining ten questions were inferential or interpretative questions. This test was proposed to assess the students' ability to listen to the selection being read and to answer correctly the questions asked. To illustrate the type of task contained in the listening comprehension component of the test,

the following selection and its questions are given below (see Appendix C for a complete set of selections and questions).

> Seldom has a country been more inappropriately named than Greenland. Except for a narrow strip around its southern coast, it is a land buried under a cap of ice, which never goes away.

The above selection was read aloud by the teacher while the subjects listened. Then the following questions were read by the teacher and the subjects wrote their answers.

Greenland is buried under

(A) tundra (B) ice (C) soil (D) trees

Greenland might better have been called

(A) Treeland (B) Darkland (C) Vineland (D) Iceland

Reliability of the Measures

Reliability is an important criterion in an investigation such as this one. The tests selected or devised must be reliable enough for interpretation at the classroom level. In order to ascertain the reliability of the instruments described above, a class of boys in the Government Day Secondary School, Zaria, was given the tests at two weeks interval (first and third weeks of January 1982). A test-retest reliability coefficient, using the Pearson correlation coefficient formula, was obtained for each of the sections of the test (see Table 3.02).

TABLE 3.02

TEST-RETEST CORRELATION COEFFICIENTS FOR THE TESTS ADMINISTERED IN THIS INVESTIGATION

Test	No.of Items	Reliability Coefficient
Phonics:		
Vowels	15	.65
Consonants	10	.79
Syllabication	15	.68
Structural:		
Plurals	10	.90
Compound words	10	.90
Affixes	10	.89
Possessives	10	.85
Contextual:		
Cloze	25	.81
Word meaning	15	.93
Listening Comprehension	20	.88
Reading Comprehension	20	.92

Pilot Study

Two try-outs were originally designed for a pilot study for this investigation. One was to be conducted on children in a junior high school in the Oregon school district in Wisconsin, and the other was to be conducted on Class III children in a secondary school in Zaria, Nigeria.

The purpose of the pilot study was to ascertain the reliability of the tests, to gain insights into the sampling, administration and the content validity of the test instruments, and in general, to make it possible to decide on the feasibility of the main study and to avoid, as much as possible, administrative problems in the main study.

Only the try-out at the Oregon Junior High School was actually possible and was done in the fall semester 1981. The results are shown in Table 3.03. Just as was expected, the Oregon Junior High School students appeared to find the tests rather easy and they completed the tests within an average time of 50 minutes. However, conducting the test first at the Oregon Junior High School helped in identifying administrative problems and how they could be avoided in the organization and administration of the main study.

The try-out in the Nigerian secondary school was not possible due to time and postal delays. However, five teachers in Nigeria who were teaching class III, the level of the subjects to be tested, were

requested to answer the questions and determine the content of the tests as to:

(a) whether each of the questions in each item was clear and appropriate as being within the level of the students they teach.

(b) the length of time each component of the test could take if they were to give it to their students as a regular class test.

All the five teachers who acted as judges in Nigeria agreed that the test items were appropriate as being within the level of their class III students, and that the test would take one and a half to two hours to complete.

Earlier on, two Nigerian teachers, who are currently studying at the University of Wisconsin-Madison, had been asked to judge the items. The decision of one of them agreed with that of the five judges in Nigeria. The other could not decide on the suitability of the items because he had been away from home for a long time and so had lost touch with the current performance levels of secondary school students. It should be added that the class teacher of the Oregon Junior High School, in which the test was first tried, and the reading specialist for the district both agreed that the test items were appropriate for grade level 4 or 5 in Madison, a Nigerian grade equivalent of secondary school class II or III. As was stated earlier in this chapter, Limbert (1973) indicated a difference of three grade levels between ESL learners and those for whom English is a first language. Level 4 or 5 in the United States of America, therefore, would be an equivalent of form 2 or 3 of the Nigerian secondary school.

TABLE 3.03

MEAN, VARIANCE, STANDARD DEVIATION AND CORRELATION COEFFICIENTS BETWEEN TESTS SCORES ON WORD IDENTIFICATION SUBTEST AND READING COMPREHENSION; AND BETWEEN LISTENING COMPREHENSION AND READING COMPREHENSION SCORES IN GRADE 8, OREGON JUNIOR HIGH SCHOOL

Items	Maximum Score Possible	$\bar{X}$	(%)	S.D.	r. Reading Comprehension
Phonics:					
Vowels	15	13.70	(91)	1.67	-0.05
Consonants	10	7.42	(74)	1.11	.27
Syllabication	15	12.57	(84)	0.80	-0.15
Structural:					
Plurals	10	8.54	(85)	0.69	0.21
Compd. Words	10	6.12	(61)	1.95	-.14
Possessives	10	9.23	(92)	1.15	0.48
Affixes	10	9.76	(98)	0.50	0.36
Contextual:					
Cloze	25	16.69	(67)	2.54	0.14
Word Meaning	15	11.92	(79)	0.96	0.24
Listening Comprehension	20	17.81	(89)	1.64	0.52
Reading Comprehension	20	16.54	(83)	2.06	-
Total Word Identification	120	96.00	(80)	8.52	0.30

Procedure for the Main Study

The present study was conducted in January and February, 1982. Permission had already been obtained from the Zaria zonal director of the state ministry of education, and from the principals of each of the schools selected for the study (see Appendix D for copy of letter).

Since the schools are scattered throughout different towns within the zone, a day was devoted to each of the schools to meet the principal, the head of the English Department and the class teacher of each school to explain my mission and to agree on the most suitable day and time when the test could be taken in the school. The second visit to the school was to conduct the test and collect the answers.

In each school, at the appointed day and time, all of the 25 students randomly selected to participate in the test were seated in a room. The investigator, with the assistance of the class teacher, distributed the test question booklets and the answer sheets. After the students had filled in the information on the questionnaire (see Appendix E), the test instructions were carefully and clearly read to them. The actual testing time covered an average time of 2 hours with a break of 10 minutes in between Section 1 (120 items of word identification) and the remaining two sections (20-item reading comprehension and 20-item listening comprehension sections).

The listening comprehension pieces were read to the subjects, a

selection at a time, by the class teacher. The same procedures were followed in all the six schools.

Variables

1. Dependent Variables:

The dependent variables in this study were scores in word identification, reading comprehension and listening comprehension tests.

2. Independent Variables:

The independent variables whose effects were considered possible to operate in the study and so contribute to the results were sex,[1] home background, students' first language, students' language at play, and location of school (urban or rural).

Control of the Non-Experimental Variables

(i) Sex: In order to control this variable, the samples were drawn randomly from boys' schools, girls' schools and mixed (boys' and girls') schools. (Table 3.01)

(ii) Location of school: It was considered possible that a school situated in a rural area might be at a disadvantage in getting

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[1]Several studies have shown that differences do exist in reading ability between boys and girls, and that the early superiority of girls in the U. S. is due to cultural factors rather than sex differences. A study by Johnson (1972) found that in grades 2 through 6 girls were superior readers in the U. S. and Canada, whereas boys read better in England and Nigeria.

adequate and appropriate reading materials and opportunities. Therefore, in order to control this variable, the samples were drawn from both urban and rural areas. (See Table 3.01)

The other non-experimental variables such as students' home background, first language and language used at play were included in the questionnaire for the subjects (see Appendix E).

Statistical Analysis

The dependent variables in the study were word identification (WI), listening comprehension (LC), and reading comprehension (RC). These dependent variables were assessed by using the investigator's own designed, non-standardized tests in word identification, listening comprehension and reading comprehension.

The data were analyzed using the SPSS statistical program (Statistical Package for the Social Sciences, 1975). Each subject's scores on the sub-sections of the WI, LC, and RC were tabulated (see Appendix F). The information on students' personal data was coded for the 150 subjects (see Appendix G for the coding procedures).

In order to answer the underlying questions of the investigation:

1. descriptive statistics (means, standard deviations, t-tests) were computed on the 150 students in sample.
2. intercorrelations of the variables were also computed on the 150 students in the sample, using the Pearson product moment

correlation. Also, a factor analysis was used to determine the associations of the various components of the test.

The questions were put into the form of null (H_o) hypotheses with the alternatives implied. The hypotheses are:

H_o1. There is no correlation between scores on word identification (WI) and reading comprehension (RC) tests.

H_o2. There is no correlation between scores in the phonics skills component of word identification test and reading comprehension test.

H_o3. There is no correlation between scores in the structural analysis skill component of the word identification test and reading comprehension test.

H_o4. There is no correlation between scores in the contextual analysis skill component of the word identification test and the reading comprehension test.

H_o5. There is no correlation between word identification (WI) scores and listening comprehension (LC) scores.

H_o6. There will be no correlation between listening comprehension (LC) scores and reading comprehension (RC) scores.

In order to test hypotheses 1 to 6, the Pearson Correlation Coefficient at .05 level of significance was calculated between scores in WI and RC, WI and LC, and between LC and RC. It was proposed that the correlation coefficient for these scores would not be significantly different from zero.

H_o7. There will be no difference between the mean scores of good

readers (GR) and poor readers (PR) in:

(a) the phonics analysis skills component of the word identification test. i.e. (phonics) μ GR = μ PR

(b) the structural analysis skills component of the word identification test. i.e. (structural) μ GR = μ PR

(c) the contextual analysis skills component of word identification test. i.e. (contextual) μ GR = μ PR

H_o8. There will be no difference between the mean score of good readers and poor readers in the listening comprehension test. i.e. (LC) μ GR = μ PR

As noted in the section on Definition of Terms, Chapter 1, of this thesis, a subject was considered a good reader if he or she scored at least one standard deviation above the mean in the reading comprehension test of this study. Conversely, a reader would be considered poor if he or she scored one standard deviation below the mean in the reading comprehension test for this study.

In order to test hypotheses 7(a), (b), (c) and 8, the student t-statistic was performed on the good and poor readers' mean scores on WI and LC.

For a complete view of the analysis, an inter-correlation matrix for word identification sub-skills and reading comprehension was prepared.

The responses on the subjects' personal data concerning their sex, first language, location of their school and their home background were analyzed and discussed to strengthen the results of

the investigation.

Analyses and interpretations of the data on the subjects, and the results of hypotheses testing are presented in Chapter IV.

CHAPTER IV

RESULTS AND DISCUSSION

The results of the study are presented in five parts: (1) general review of the purpose, method and questions of the study; (2) discussion of the descriptive statistics used on the different measures or variables tested for the purpose of the hypotheses; (3) re-stating and testing each of the eight hypotheses in the study; (4) description and discussion of additional analyses of variables related to the study but not described in the hypotheses; and (5) summary of the results and discussions.

A Review of the Purpose, Method and Questions of the Study

The primary purpose of this study was to investigate relationships among word identification, listening comprehension and reading comprehension skills of some selected secondary school students in the Kaduna State of Nigeria, noting specifically which of the sections and subsections of the skills is or are most related to reading comprehension. A secondary purpose was to examine to what extent the interrelatedness of these skills is different for good and poor readers and to spotlight the individual factors or traits, such

as the children's first language, sex, home background, and school location that may relate to their reading comprehension ability. Specifically, the study focused on answering the following six questions:

1. Are word identification skills (phonics, contextual and structural analyses) related to the Nigerian students' reading comprehension ability?
2. Is there a correlation between the students' word identification skills and listening comprehension ability?
3. Is there a correlation between the listening comprehension and reading comprehension ability of the Nigerian students?
4. Which of the word identification skills is or are most strongly related to the students' reading comprehension ability?
5. Will good comprehenders perform better than poor comprehenders in word identification and in listening comprehension?
6. What relationships, if any, do children's first language, sex, home background and school location have to their reading comprehension ability?

The first five of the above six questions were developed into eight research hypotheses to be tested in the study. The five questions relate directly to the main purpose of this study. The other question on individual variables is an ancillary question whose data will be analyzed and discussed separately to buttress the

results of the study.

In all, six secondary schools were used for the investigation. Twenty-five students from each school were randomly selected to participate in the study. The data collected for analysis from a total of 150 students consisted of raw data scores for 160 test items. These test items consisted of 40 items on phonics analysis, 40 items on structural analysis, 40 items on contextual analysis, 20 items on listening comprehension and 20 items on reading comprehension. The test instruments developed for the study are presented in Appendices A, B, and C; and a complete listing of the raw scores for each of the 150 students, and in each of the test components, is presented in Appendix F.

Discussion of the Descriptive Statistics Used for Variables

A study of the descriptive statistics presented in Table 4.01 shows that there was a wide range of scores on the test. The average percent scores in all the sections ranged from 59.90 in compound words to 92.40 in word meaning. For the word meaning component of the test the highest average mean score was 13.86 (92.40 percent), and the lowest raw score was 7 and highest was 15 out of a maximum possible score of 15.

The phonics, structural and contextual analyses measures revealed that students generally did better in structural and contextual analyses, where they had a mean score of 29.60 (74%) and

TABLE 4.01

MEAN SCORES, RANGES AND STANDARD DEVIATIONS FOR VOWELS, CONSONANTS, SYLLABICATION, PLURALS, COMPOUND-WORDS, POSSESSIVES, AFFIXES, CLOZE-PROCEDURE, WORD MEANING, PHONICS, STRUCTURE, CONTEXT, WORD IDENTIFICATION, LISTENING AND READING COMPREHENSION

Measures	Max. Score Possible	Range	$\bar{X}$	(%)	S.D.	No of Cases
Vowels[a]	15	4-15	9.65	(64)	2.39	150
Consonants[b]	10	1-10	6.01	(60)	1.92	150
Syllabication[c]	15	2-15	10.87	(72)	2.24	150
Plurals[d]	10	4-10	7.23	(72)	1.46	150
Compound-Words[e]	10	1-10	6.59	(66)	1.86	150
Possessives[f]	10	4-10	7.51	(75)	1.59	150
Affixes[g]	10	4-10	8.28	(83)	1.53	150
Cloze-procedure[h]	25	1-22	14.71	(59)	4.03	150
Word Meaning[i]	15	7-15	13.86	(92)	1.59	150
Phonics (a+b+c)	40	8-36	26.53	(66)	4.58	150
Structural (d+e+f+g)	40	4-36	29.60	(74)	3.95	150
Contextual (h+i)	40	6-38	27.97	(70)	4.29	150
Word Identification (Phonics + Structural + Contextual)	120	15-115	84.10	(70)	9.91	150
Listening Comprehension	20	7-20	13.83	(69)	2.14	150
Reading Comprehension	20	7-20	14.50	(73)	2.25	150

TABLE 4.02

THE DISTRIBUTION OF THE VOWELS, SYLLABICATION AND WORD MEANING SUBTEST SCORES OF THE 150 STUDENTS

Measures (Max. Score: 15)	Range of Scores Answered Correctly 1-3	4-6	7-9	10-12	13-15	Total
*Vowels	0	14	53	67	16	150
*Syllabication	3	3	23	84	37	150
*Word Meaning	0	0	3	26	121	150

*Grouped together for easy illustration because they contain equal numbers of items.

27.97 (70%), respectively, than in the phonics component. However, there was a high degree of similarity in the students' performance in all the three components. In general, the subjects were fairly close together in their response. It might be helpful to look at the range in scores (Tables 4.02 to 4.05).

An examination of the distribution of the scores on the three scales (vowels, syllabication and word meaning) indicated a generally higher scores on the word meaning component than on syllabication or vowel tests. However, it was observed that while the other two test scores had relatively normal curves, word meaning was negatively skewed.

TABLE 4.03

THE DISTRIBUTION OF THE SCORES IN CONSONANTS, PLURALS, COMPOUND WORDS, POSSESSIVES AND AFFIXES COMPONENTS OF THE WORD IDENTIFICATION TESTS

Measures (Max score for each = 10)	Range of Scores of Items Answered Correctly					
	0-2	3-4	5-6	7-8	9-10	Total
*Consonants	7	24	55	53	11	150
*Plurals	0	4	41	74	31	150
*Compound Words	3	16	45	63	23	150
*Possessives	0	7	35	61	47	150
*Affixes	0	3	18	44	85	150

*Grouped together for easy illustration because they contain equal numbers of items.

A careful examination of the distribution of the scores in consonants, plurals, compound words, possessives and affixes measures of the word identification test revealed that the students' scores were generally high, with the mean percentage above 70% (Table 4.01). Although the high scores were, in general, clustered around the upper limit, all the scores in the other components (consonants, plurals, compound words and possessives), apart from the distribution of scores in affixes, appeared to be normally distributed.

The maximum possible score in the cloze component of the word identification tests was 25. Only two-fifths of the subjects in the total sample scored above 60 percent of this maximum possible score. However, it still showed an approximately normal distribution. Students in Nigeria are not familiar with cloze

TABLE 4.04

THE DISTRIBUTION OF THE SCORES IN THE CLOZE PROCEDURE COMPONENT OF THE WORD IDENTIFICATION TESTS

Measure (Max. = 25)	Range of Scores of Items Answered Correctly 1-5	6-10	11-15	16-20	21-25	Total
Cloze test	5	21	64	53	7	150

procedure in language instructional activities. This might explain why the students' performance was not as high in the cloze as in the other sub-sections of word identification test. In general, as was indicated earlier in the introductory chapter of this thesis, teachers in Nigeria tend to spend a considerable amount of time teaching vocabulary and other word identification skills, such as plurals, possessives and affixes, as compared with teaching contextual analysis skills, which includes the cloze procedure.

TABLE 4.05

THE DISTRIBUTION OF THE SCORES IN READING COMPREHENSION AND LISTENING COMPREHENSION TESTS

Measures (Max 20 each)	Range of Scores of Items Answered Correctly 1-4	5-8	9-12	13-16	17-20	Total
Reading Comprehension	0	1	27	90	32	150
Listening Comprehension	0	2	32	102	14	150

A close examination of the distribution of scores in reading comprehension and listening comprehension in Table 4.05 and the descriptive statistics on the measures, Table 4.01, revealed that the students tended to perform better in reading comprehension than in listening comprehension. In reading comprehension the mean score for the students was 14.50 (73%). The scores, however, showed an even distribution for each of the tests.

Findings on the Correlation Analysis

A complete correlation matrix was generated for all measures used in this investigation (Table 4.06).

An examination of the correlation matrix revealed that, apart from the very small correlations between syllabication and word meaning ($r = -.09$), compound words and word meaning ($r = .07$), affixes and word meaning ($r = -.01$), and cloze procedure and word meaning ($r = -.03$), all the other showed positive moderate or high correlations.

The correlations were arranged in order from the highest to the lowest, within each of the units of the test items in order to show which of the sub-sections were most highly correlated. For example, the phonics unit of word identification contained three components: vowels, consonants and syllabication. Each of these components was correlated with phonics and arranged in order to show which one was most highly correlated to phonics. From this arrangement, it was

TABLE 4.06

A CORRELATION MATRIX BETWEEN AND AMONG THE MEASURES OF WORD IDENTIFICATION COMPONENTS, READING COMPREHENSION, LISTENING COMPREHENSION, PHONICS, STRUCTURAL AND CONTEXTUAL ANALYSIS FOR THE 150 STUDENTS

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Vowels		.33	.20	.35	.34	.35	.30	.27	.09	.34	.24	.77	.54	.29	.69
2. Consonants			.16	.14	.21	.07	.11	.11	.07	.14	.08	.67	.22	.13	.46
3. Syllabication				.07	.31	.08	.14	.26	-.09	.19	.03	.66	.26	.21	.50
4. Plurals					.22	.16	.13	.10	.15	.23	.18	.27	.59	.15	.43
5. Compd. Words						.19	.05	.26	-.07	.17	.19	.42	.65	.22	.55
6. Possessives							.24	.27	.04	.24	.25	.25	.64	.27	.49
7. Affixes								.30	-.01	.20	.25	.28	.55	.28	.47
8. Cloze									-.03	.69	.52	.32	.38	.93	.70
9. Word Meaning										.38	.04	.03	.03	.34	.18
10. Reading Compr.											.55	.33	.34	.79	.63
11. Listening Compr.												.17	.36	.51	.44
12. Phonics													.50	.31	.80
13. Structure														.37	.79
14. Context															.73
15. Word Id.															.

discovered that the vowels subsection had the highest correlation (.77) followed by consonants (r = .67) and then, syllabication (r = .66) with overall phonics.

The structural analysis subtest was composed of four components. They followed in this order in their degree of correlation with the structural analysis:

structural analysis and compound words	r = .65
structural analysis and possessives	r = .64
structural analysis and plurals	r = .59
structural analysis and affixes	r = .55

It follows, therefore that the compound words component was highest in degree of correlation with structural analysis, and that affixes, though positive and moderate in relationship, was the least in degree of correlation with structural analysis.

The contextual analysis subtest of the word identification test was composed of two components: the cloze procedure and word meaning. Their correlations with contextual analysis skill were r = .93 and r = .34, respectively.

In a similar manner, the listening comprehension test was correlated with the three subtests of word identification skills. The results showed the following order in the degree of relationship: Listening comprehension with contextual analysis r = .51, listening comprehension with structural analysis r = .36 and listening comprehension with phonics r = .17.

Word identification was taken as a unit and correlated with its

components: phonics, structural and contextual analyses. The following order emerged: word identification with phonics r = .80, word identification with structural r = .79 and word identification with contextual r = .73. They all have very strong positive correlations with word identification and this showed they truly were components of word identification.

A similar observation was made on the relationships between reading comprehension and each of the components of word identification, which showed that contextual analysis had the highest degree (r = .79) of relationship with reading comprehension, followed by structural, r - .34, and phonics r = 33. A comparison of reading comprehension with the other two units, word identification and listening comprehension, showed positive correlations of r = .63 and r = .55, respectively.

The word identification unit of the test was broken down further into its nine components and each of the components was correlated with reading comprehension in order to see which of them was most highly correlated. The results are shown in Table 4.07.

It was thus observed that, of all the subtests and components of subtests, the contextual analysis had the highest degree of relationship, r = .79 (Table 4.06); and that cloze procedure, which is itself a component of contextual analysis, had the highest correlation with reading comprehension, r = .69 (Table 4.07).

TABLE 4.07

A CORRELATION OF WORD IDENTIFICATION COMPONENTS WITH READING COMPREHENSION

Word ID Components	Order of r with Reading Comprehension and Level of Significance
Cloze procedure	.69 *
Word Meaning	.38 *
Vowels	.34 *
Possessives	.24 *
Plurals	.23 *
Affixes	.20 *
Syllabication	.19 *
Compound Words	.17 *
Consonants	.14 *

*P < .05

The Good and the Poor Readers

On the basis of their scores in reading comprehension the subjects were split into good and poor readers. In order to sort them into groups the subjects were labeled "good" or "poor" readers. A subject was considered a good reader if he or she scored at least one standard deviation above the group mean. Conversely, a subject was considered a poor reader if he or she scored one or more

standard deviations below the group mean. The group mean in reading comprehension test for the 150 subjects was 14.52 and the standard deviation was 2.25. The criterion identified 32 students as good comprehenders and 47 as poor comprehenders (Table 4.08).

As was expected, the mean scores of the good comprehenders were higher than the means of the poor comprehenders in all the tests. The good readers' mean score was above 70% in each of the components of the test except in the consonant, whereas the poor readers' mean score was below 60% in all the components except in possessives (72%), affixes (82%), word meaning (88%) and structural analysis (71%).

A further look at Table 4.08 shows that the differences in the scores of the two groups were more noticeable in vowels, where there was a difference of 15% between the scores of good and poor readers; 10% in possessives, as high as 28% difference in their mean scores in the cloze procedure and a difference of 10% in the word meaning component.

When the test components were grouped into the phonics, structural and contextual analyses, the differences in the means of good and poor readers were between 8% and 21%. Also, in listening comprehension the good readers' mean was 15.47 (77%) while that of the poor readers was 12.47 (62%).

In general, on the basis of the data in Table 4.08, it could be seen that the poor comprehenders scored much lower, 23.98 (60%) than the good comprehenders' mean of 32.50 (81%) in contextual analysis.

The observation on the scores in the contextual analysis is important because this study found ability in contextual analysis to be the most related of all the skills to reading comprehension. Furthermore, the results indicated that the poor readers showed greater ability in mere word recognition than in reading for meaning.

The mean differences will further be subjected to statistical tests in the next section on testing the hypotheses.

TABLE 4.08

MEANS AND STANDARD DEVIATIONS OF PHONICS ANALYSIS, STRUCTURAL ANALYSIS, CONTEXTUAL ANALYSIS, WORD IDENTIFICATION (PHONICS + STRUCTURAL + CONTEXTUAL), AND LISTENING COMPREHENSION MEASURES FOR GOOD COMPREHENDERS AND POOR COMPREHENDERS

Measures	Good Comprehenders $\bar{X}$	%	S.D.	Poor Comprehenders $\bar{X}$	%	S.D.
Vowels[a]	10.88	(73%)	1.68	8.77	(58)	2.14
Consonants[b]	6.44	(64)	1.98	5.95	(59)	1.78
Syllabication[c]	11.50	(77)	1.78	10.40	(69)	2.19
Plurals[d]	7.56	(76)	1.32	6.77	(68)	1.50
Compound-Words[e]	6.99	(70)	1.94	6.09	(61)	2.07
Possessives[f]	8.22	(82)	1.48	7.21	(72)	1.47
Affixes[g]	8.81	(88)	1.09	8.15	(82)	1.44
Cloze-procedure[h]	17.81	(71)	2.56	10.79	(43)	3.61
Word Meaning[i]	14.69	(98)	0.64	13.19	(88)	1.83
Phonics Analysis (a+b+c)	28.81	(72)	3.87	25.13	(63)	4.26
Structural Analysis (d+e+f+g)	31.56	(79)	3.39	28.21	(71)	3.71
Contextual Analysis (h+i)	32.50	(81)	2.64	23.98	(60)	3.08
Word Identification (phonics + structure + context)	92.88	(77)	6.31	77.32	(64)	8.24
Listening Comprehension	15.47	(77)	2.17	12.47	(62)	1.84

Testing the Hypotheses

Three kinds of analysis techniques were used to describe and test the statistical significance of results related to the eight hypotheses of this study. The hypotheses were presented at the close of Chapter III and are again given below. The analysis techniques used were:

1) the Pearson product moment correlation coefficients to test whether there were correlations between the variables of interest in the study.
2) a factor analysis to determine the factor structure of the entire skills tested.
3) a t-test to determine if there were differences in the scores in the variables of interest.

Hypothesis One: The object was to determine whether or not there was a relationship in the scores of word identification and reading comprehension. The null hypothesis was stated as:

H_o. There is no correlation between scores in word identification and reading comprehension tests. In other words, the correlation coefficient associated with the subjects' scores in the two variables will be zero.

In order to test this hypothesis, a correlation coefficient was calculated on the subjects' performance on the measures of word identification and reading comprehension (Table 4.06). A positive

correlation of r = .63 was obtained between the two measures. Since this correlation was statistically different from zero at the .05 level, the null hypothesis assuming no relationship between word identification and reading comprehension was rejected and the alternative hypothesis which assumed a relationship between the two variables was accepted. In order to subject the finding to further testing, the coefficient of determination was obtained by squaring the correlation coefficient. The coefficient of determination is an index of the proportion of the variance of one variable that is accounted for by its relation to the other (Hays, 1973, pp. 625-628). Thus, 40 percent of the variance of reading comprehension was associated with, or predictable from, word identification.

Hypothesis Two: The purpose of hypothesis two was to test whether or not there was a correlation between reading comprehension and the phonics analysis component of word identification. The null hypothesis was stated as follows:

> H_o. There is no correlation between scores in the phonics analysis skills and reading comprehension. In other words, the correlation coefficient associated with the two measures will be zero.

A procedure similar to that used for testing hypothesis one was used for hypothesis two, since the questions were similar. The result (Table 4.06) showed a correlation of r = .33. This indicated a weak positive relationship between the phonics analysis and reading

comprehension scores. Squaring the correlation, the coefficient of determination was obtained as $r^2 = .11$, which means only 11 percent of the variance of one variable can be explained by the other. However, the correlation was found to be significant beyond .05 level. Therefore, the null hypothesis assuming no relation was rejected and the alternative predicting a relationship was not rejected.

Hypothesis Three: The object was to determine whether or not a relationship existed between the scores in reading comprehension and the structural analysis component of the word identification test. The null was stated as:

H_o. There is no correlation between scores in the structural analysis component of word identification and reading comprehension.

In order to test this hypothesis, the Pearson correlation coefficient was also calculated. A weak positive correlation of $r = .34$ was obtained. When squared, the correlation gave the coefficient of determination of $r^2 = .12$; that is, only 12 percent of the variance of reading comprehension can be explained from the structural analysis skills. Even though the correlation was weak, it was found to be significantly different from zero at the .05 level. The null hypothesis was therefore not accepted and there was no reason to reject the alternative.

Hypothesis Four: The purpose of this hypothesis, similar to those of the three hypotheses above, was to test whether or not here was a relationship between reading comprehension and the contextual analysis component of word identification skills. The null was stated thus:

> H_o. *There is no correlation between scores in the contextual* analysis component of word identification test and reading comprehension. In other words, the correlation coefficient will not be significantly different from zero.

A strong positive correlation coefficient of r = .79 was obtained for the two measures. This is also significantly different from zero at the .05 level of significance. The coefficient of determination of r^2 = .62 was obtained by squaring the correlation coefficient. This means that approximately 62 percent of the variance of reading comprehension was accounted for by its relationship to the contextual analysis component of word identification. The null hypothesis of no relationship was rejected and the alternative hypothesis which assumed a relationship, was upheld.

Hypothesis Five: The object of this hypothesis was to determine whether or not there was a correlation between the scores in word identification and listening comprehension. The null hypothesis was stated as:

> H_o. There is no correlation between word identification scores

and listening comprehension scores.

Table 4.09 presents the correlation coefficients between listening comprehension and word identification, and between listening comprehension and each of the components of word identification.

TABLE 4.09

PEARSON PRODUCT MOMENT CORRELATION COEFFICIENT BETWEEN LISTENING COMPREHENSION AND WORD IDENTIFICATION AND BETWEEN LISTENING COMPREHENSION AND EACH OF THE COMPONENTS OF WORD IDENTIFICATION

Measures	r Listening Comprehension	r^2	Level of Significance
Word Identification	.44	.19	*
Phonics Analysis	.17	.02	NS
Structural Analysis	.36	.12	*
Contextual Analysis	.51	.26	*

* $p < .05$
NS Not significant

The results indicate (a) no significant relationship between listening comprehension and the phonics analysis skills of word identification, (b) a weak positive correlation (r .36) between listening comprehension and structural analysis and (c) a moderate positive correlation between listening comprehension and the contextual analysis. On the question of relationship between

listening comprehension and word identification as a whole, a moderate positive correlation of $r = .44$ was obtained. This signifies that the correlation was statistically significant beyond .05 level. Therefore, the null hypothesis, which assumed no relationship, was rejected and the alternative hypothesis was accepted.

Hypothesis Six: The purpose was to determine whether or not there was a correlation between listening comprehension and reading comprehension. The null hypothesis was stated as:

> H_o. There is no correlation between listening comprehension scores and reading comprehension scores. In other words, the correlation between the two measures will be equal to zero.

The correlation between scores in the reading comprehension and listening comprehension was $r = .56$ (Table 4.06). This value is significantly different from zero beyond .05 level. The coefficient of determination obtained by squaring the correlation gave $r^2 = .31$. This shows that 31 percent of the total variance in reading comprehension can be explained by listening comprehension. The outcome of the test of this hypothesis has led the researcher to reject the null hypothesis that stated that there was no relationship between the two variables.

As a final step in the correlational analysis, the factor structure of the entire correlation matrix was analyzed using factor analysis. The procedure used performed an orthogonal extraction and sub-

sequent varimax rotation (SPSS Manual). The resulting rotated factor weights can be seen in Table 4.10 and the eigen values in Table 4.11.

TABLE 4.10

VARIMAX ROTATED FACTOR MATRIX ON WORD IDENTIFICATION SKILLS (VOWELS, CONSONANTS, SYLLABICATION, PLURALS, COMPOUND WORDS, POSSESSIVES, AFFIXES AND CLOZE PROCEDURE), READING COMPREHENSION AND LISTENING COMPREHENSION

	Factor 1	Factor 2	Factor 3	Factor 4
Vowels	.15	.72	.30	.11
Consonants	-.00	.28	.30	.10
Syllabication	.12	.05	.56	-.07
Plurals	.06	.40	.13	.19
Compound Words	.12	.28	.48	-.06
Possessives	.27	.40	.04	-.03
Affixes	.29	.33	.04	-.09
Cloze	.84	.17	.19	.62
Reading Comprehension	.78	.12	.21	.58
Listening Comprehension	.62	.24	-.01	.05

TABLE 4.11

EIGEN VALUES AND PERCENT OF COMMON FACTOR VARIANCE FOR THE FOUR FACTORS

Factor	Eigen Value[a]	% of Variance
1	2.80	58.30
2	0.91	18.90
3	0.71	14.70
4	0.39	8.10
		100.00%

[a] Rounded to the nearest one hundredth.

From Table 4.11 it can be seen that factor one accounted for over 58% of the variance, factor two accounted for 19%, factor three for 15% and factor four accounted for 8%.

As can be seen in Table 4.10, cloze, reading comprehension and listening comprehension loaded heavily into factor one. As would be expected, the other items which are components of word identification skills had very small loading in this factor. Factor one, therefore, can be labeled comprehension factor. The result in factor one is consistent with the corelational analysis which showed that the cloze procedure, basically a contextual analysis skill, is highest in correlation ($r = .79$, $r^2 = .62$) with reading comprehension (Table 4.06).

The vowels, plurals, possessives and affixes loaded into factor two but not into any of the other three factors. These skills are among the components of word identification and in terms of their corelations with word identification, they had r = .69, .43, .49 and .47 respectively. Factor two, therefore, can be labeled word identification; and it accounts for 19% of the variance.

Factor three is loaded with syllabication and to some extent, with compound words, vowels and consonants; and it accounts for 15% of the variance. This loading in factor three is understandable because, in order to be able to identify word syllables, a student must be skilled in identifying the vowels, consonants and compound words.

The cloze procedure and reading comprehension are loaded into factor four and this loading accounts for only 8% of the variance. It was observed that the loading excludes listening comprehension which was heavily loaded into factor one along with reading comprehension and the cloze. While this pattern of loading in factor four confirms that reading comprehension and cloze, a contextual analysis skill, have identical skills as shown by factor one, it indicates that ESL learners often experience great difficulty in recognizing the distinctions betwen the sounds of the English language and their first language (reference p. 46).

As pointed out in the review of the literature, since the ESL students are not brought up in a rich English language environment, their ability to comprehend what they hear in the English language is

generally low. In general, the results of the factor analysis confirmed the inferences made from the bivariate correlation matrix in Table 4.06.

The next section in this chapter will summarize the results of the first six hypotheses which deal with the correlational analysis.

Summary of the Analyses of the Results for Hypotheses One, Two, Three, Four, Five and Six

The six hypotheses above have dealt with the correlations between and among reading comprehension, listening comprehension, word identification, and the components of word identification: the phonics, the structural and contextual analyses skills. Table 4.12 presents a quick graphic review of the correlations of measures of interest in hypotheses one through six.

TABLE 4.12

THE PEARSON PRODUCT MOMENT CORRELATION COEFFICIENTS OF *MEASURES IN HYPOTHESES ONE THROUGH SIX*

Measures	r (Reading Compr.)	r^2	Level of Significance
[1]Word Identification	.63	.40	*
Phonics Analysis	.33	.10	*
Structural Analysis	.34	.12	*
Contextual Analysis	.79	.62	*
[1]Listening Comprehension	.56	.31	*

* $p < .05$

[1]The correlation between listening and word identification was r = 44, r^2 = .19.

Reference to previous studies may help to explain some points in the relationships of the word identification skills to reading comprehension. For example, in the review of the literature several studies (Harris, 1966; McNamara, 1967; Allen, 1973; Guthrie, 1973; Hatch, Polin and Part, 1974; Been, 1975; Saville-Troike, 1975) recommended a substantial emphasis on structural and contextual analyses in teaching reading to ESL learners, either at the elementary or the high school. Most of the studies pointed out that ESL students would comprehend less if they had difficulty with word identification and syntax prediction. In other words, that students' ability to comprehend correlates with their ability to identify words.

The present findings were consistent with those studies. Even though the correlation between reading comprehension and phonics analysis was a weak one, it was still found to be significant. The weak relationship may be understood if one considers the negligible attention being given to the letter-sound correspondences in language study in Nigerian secondary schools. Even though the phonology section is usually the first part of every chapter in most of the language study textbooks (Ogundipe and Tregidgo, Practical English; Montgomery, M., Effective English; Grant, N. H. J., Olagoke, D. O., and Southern, K. R., Secondary English Project; Kofar Bai, B., Slater, S., and Roberts, J., Successful English) teachers often skip the section either because of their own deficiency in pronunciation or their lack of method for teaching it.

The correlation found between listening comprehension and reading comprehension (r = .56) was consistent with the previous studies referred to in the review of the literature. For example, Anderson and Baldauf (1963) reported a correlation of r = .82, Canfield (1961) reported a correlation of r = .64, Winter (1966) reported a correlation of r = .53. Similarly, Durrell (1969) and Berger and Perfetti (1977) indicated a positive relationship between reading comprehension and listening comprehension. Duker (1971), in reviewing the previous findings concerning the relationship between listening and reading achievement, stated that even though findings concerning the variables have not been consistent, a statistically significant positive relationship has been found to exist in most of the studies.

The remaining two hypotheses deal with differences in the mean scores of good and poor readers.

Hypothesis Seven: The major purpose was to compare good readers and poor readers in the word identification measures of phonics, structural and contextual analyses. As pointed out earlier, a subject should score at least one standard deviation above the group mean in reading comprehension to qualify as a good reader; and a subject should score one standard deviation or more below the group mean in reading comprehension to be considered a poor reader. Table 4.08 presents the means and standard deviations of good readers and poor readers. The null hypothesis was in three parts (a), (b), (c)

and was stated as follows:

H_o. There will be no difference between the mean scores of good readers (GR) and poor readers (PR) in:

(a) phonics, analysis,

(b) structural analysis,

(c) contextual analysis.

That is:

H_o. 7 (a) (Phonics analysis) μ GR = μ PR

7 (b) (Structural analysis) μ GR = μ PR

7 (c) (Contextual analysis) μ GR = μ PR

Table 4.13 presents the means scores, standard deviations, and numbers of subjects for the phonics analysis, structural analysis and contextual analysis components of the word identification measures. It is evident from the table that the good readers scored much higher, particularly in contextual analysis, than did the poor readers. The differences in the means were tested for significance (Table 4.14). The $\underline{t}$ values show that the differences for phonics, structural and contextual analyses were significant ($p < .05$). Therefore, the null hypothesis which stated that there was no difference in the mean scores of good readers and poor readers in the measures was rejected and the alternative hypothesis accepted.

TABLE 4.13

MEANS SCORES, STANDARD DEVIATIONS FOR GOOD AND POOR READERS IN PHONICS, STRUCTURAL AND CONTEXTUAL ANALYSIS COMPONENTS OF WORD IDENTIFICATION

Measure	Good Readers N = 32			Poor Readers N = 47		
	$\bar{X}$	(%)	S.D.	$\bar{X}$	(%)	S.D.
Phonics Analysis	28.81	(72)	3.87	25.13	(63)	4.26
Structural Analysis	31.56	(79)	3.39	28.21	(71)	3.71
Contextual Analysis	32.50	(81)	2.64	23.98	(60)	3.08

TABLE 4.14

RESULTS OF t-TESTS BETWEEN GOOD AND POOR READERS IN PHONICS, STRUCTURAL AND CONTEXTUAL ANALYSES

Good Readers N = 32 *Poor Readers N = 47*

Measures	t-value	Level of Significance
Vowels	4.68	*
Consonants	1.12	NS
Syllabication	2.35	*
Plurals	2.42	*
Compd. Words	1.91	NS
Possessives	2.98	*
Affixes	2.20	*
Cloze	9.49	*
Word Meaning	4.44	*
Listening Comprehension	6.33	*
Phonics Analysis	3.92	*
Structural Analysis	4.08	*
Contextual Analysis	12.79	*
Word Identification	9.02	*

df = 77
* = $p < .05$
NS = Not Significant

Hypothesis Eight: The purpose was to determine whether there was any significant difference in the means scores of good and poor readers in listening comprehension. The null was stated as:

H_o. There will be no difference between the mean scores of good readers and poor readers in the listening comprehension measure.

Table 4.08 contains the means and standard deviations in listening comprehension for good readers and the poor readers. The mean score for the good readers was 15.47 (77%) and the standard deviation was 2.37; for the poor readers, the mean was 12.47 (62%) while the standard deviation was 1.84. The t value was 6.33 (Table 4.14), which was significant ($p < .05$). Therefore, the null hypothesis which assumed no difference was rejected, and the alternative hypothesis, which assumed that there was a difference in the scores, was confirmed.

Description and Discussion of Additional Analyses of Variables Not Described in the Hypotheses

A number of individual variables were considered in this study as being capable of contributing to the reading performance of ESL students. The variables are discussed in this section. Specifically, the following questions were studied:

Is the students' reading performance affected by the following individual traits?

1) First language background

2) Individual children's home background, e.g., father's education, father's occupation, mother's education

3) Language the child uses most of the time at home

4) Language the child uses most of the time at school

5) Sex differences

6) Location of school, whether urban or rural.

The data collected for each of these variables will be analyzed using analysis of variance; and each will be discussed in terms of the students' performance in reading comprehension, word identification and listening comprehension.

1. L^1 background. Five first-language groups were identified among the subjects. They are: Hausa, Fulani, Yoruba, Igbo and Nupe.

Tables 4.15, 4.16, and 4.17 present the numbers of students categorized according to language groups and their mean scores and standard deviations in the word identification test, listening comprehension test and the reading comprehension test. From Table 4.15 it can be seen that the mean scores in reading comprehension were fairly close to one another. The Fulani language-group with the mean score (17.00) higher than the other language-groups can be explained as being because there were only three students in the group. The same is true of the Nupe language-group with only two in number but with a mean score of 15.50. In word identification (Table 4.16) the mean scores were also much the same except for the two groups, the Fulani and the Nupe, that were small in number and hence

TABLE 4.15

MEANS AND STANDARD DEVIATIONS IN READING COMPREHENSION BY FIRST-LANGUAGE GROUPS.

MAXIMUM SCORE POSSIBLE = 20

L^1 Groups	No.	$\bar{X}$ (%)	S.D.
Hausa	96	14.50(72)	2.13
Fulani	3	17.00(85)	2.65
Yoruba	30	14.50(73)	2.75
Igbo	19	14.21(71)	1.75
Nupe	2	15.50(78)	3.53
N =	150		

TABLE 4.16

MEANS AND STANDARD DEVIATIONS IN WORD IDENTIFICATION BY FIRST-LANGUAGE GROUPS

MAXIMUM SCORE POSSIBLE = 20

L^1 Groups	No.	$\bar{X}$ (%)	S.D.
Hausa	96	84.07(70)	9.39
Fulani	3	93.33(78)	15.70
Yoruba	30	93.93(70)	10.40
Igbo	19	82.68(69)	11.21
Nupe	2	87.50(73)	6.36
N =	150		

TABLE 4.17

MEANS AND STANDARD DEVIATIONS IN LISTENING COMPREHENSION BY FIRST LANGUAGE GROUPS

MAXIMUM SCORE POSSIBLE = 20

L^1 Groups	No.	$\bar{X}$	(%)	S.D.
Hausa	96	13.48	(67)	2.10
Fulani	3	16.33	(82)	3.51
Yoruba	30	14.50	(73)	2.03
Igbo	19	14.21	(71)	1.96
Nupe	2	13.00	(65)	.00
N =	150			

had higher mean scores. The same is true of the listening comprehension test scores (Table 4.17). Table 4.18 presents the F-ratio and the F-probability for the first-language groups in the three test components: word identification, listening comprehension and reading comprehension.

Even though Table 4.18 shows a significant difference in the group scores in listening comprehension, the result is considered not reliable because the significance could be a result of the small number of subjects in the Fulani and Nupe groups. Therefore, there is no significant difference in the scores of the subjects in word identification, listening comprehension and reading comprehension when compared according to their first-language groups.

TABLE 4.18

F-RATIO AND F-PROBABILITY FOR THE FIRST LANGUAGE GROUPINGS IN WORD IDENTIFICATION, LISTENING COMPREHENSION AND READING COMPREHENSION TEST SCORES

Measures	df.	F Ratio	F Prob.
Word Identification	4,145	.81	.52 NS
Listening Comprehension	4,145	2.76	.03 *
Reading Comprehension	4,145	1.10	.36 NS

* P < .05
NS = Not Significant

2. Individual children's home background (Father's education, Father's occupation and Mother's education). The purpose was to find out if there would be any significant difference in the students' scores in reading comprehension, listening comprehension and word identification in relation to their fathers' education, fathers' occupation and their mothers' education. Within the fathers' education category, five different groups emerged: those with no education, some primary classes, full primary education, secondary education and university education. The same groups were formed under the heading of mothers' education. In the case of the fathers' occupation, five major groupings emerged from the students' answers to the question: "What is your father's occupation?" The groups were white collar job, blue collar job, skilled job, business or

trading and farming.

Tables 4.19 to 4.22 present data collected and the descriptive statistical results.

A study of the results presented in Tables 4.19, 4.20, 4.21 and 4.22 shows no discernible pattern between the students' socio-economic status, as measured by parents' occupational or educational levels, and the students' performance in reading comprehension, listening comprehension and word identification, as measured in this study. The means were relatively close to one another. One would expect a much higher mean for students who had at least one parent with a university education, but there was no significantly noticeable difference between their mean scores and those whose parents had less education or no education at all. The only area where they tended to excel was in word identification, where children whose father had university education had a mean of 87.36 (73%) as against 82.58 (69%) for those whose father had no school education. Almost the same pattern was identifiable in the case of the mothers' education. Children whose mother had university education had the greatest means, 88.33 (74%), and those whose mothers had no school education had a mean of 84.01 (70%). In this case, the students whose mothers had no school education scored higher even than those whose mothers had either some primary education, full primary education or secondary education.

In spite of this, the analysis of variance (ANOVA) showed that there was no significant difference in the subjects' scores in

TABLE 4.19

MEANS AND STANDARD DEVIATIONS OF READING COMPREHENSION, LISTENING COMPREHENSION AND WORD IDENTIFICATION SCORES BY FATHERS' EDUCATION GROUPS

Father's Education	N=150	Reading Comprehension		Listening Comprehension		Word Comprehension	
		$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
No Education	40	14.05 (70)	2.37	13.15 (66)	1.98	82.58 (69)	10.82
Some Primary Classes	22	14.18 (71)	1.97	13.31 (67)	2.15	83.68 (70)	7.92
Full Primary Education	27	15.33 (77)	2.24	14.33 (72)	1.96	86.22 (72)	6.99
Secondary Education	36	14.25 (71)	2.21	13.69 (68)	2.05	82.19 (68)	11.04
University Education	25	15.12 (76)	2.19	15.00 (75)	2.22	87.36 (73)	10.39

Figures in parentheses are means expressed in percentages.

TABLE 4.20

MEANS AND STANDARD DEVIATIONS IN READING COMPREHENSION, LISTENING COMPREHENSION AND WORD IDENTIFICATION SCORES BY FATHERS' OCCUPATION GROUPS

Fathers' Occupation	N=150	Reading Comprehension		Listening Comprehension		Word Identification	
		$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
White Collar Job	43	15.07 (75)	2.26	14.47 (72)	2.14	86.35 (72)	10.14
Blue Collar Job	3	14.00 (70)	1.73	12.67 (63)	1.53	82.33 (69)	5.69
Skilled Job	29	14.24 (71)	2.23	13.79 (69)	2.35	84.21 (70)	8.18
Business/Trading	26	14.38 (72)	2.45	13.50 (68)	1.79	82.85 (69)	9.92
Farming	49	14.33 (72)	2.15	13.53 (68)	2.15	82.84 (69)	10.76

Figures in parentheses are means expressed in percentages.

TABLE 4.21

MEANS AND STANDARD DEVIATIONS OF READING COMPREHENSION, LISTENING COMPREHENSION AND WORD IDENTIFICATION SCORES BY MOTHERS' EDUCATION GROUPS

Mothers' Education	N=150	Reading Comprehension		Listening Comprehension		Word Identification	
		$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
No Education	73	14.34 (72)	2.39	13.49 (67)	1.99	84.01 (70)	9.86
Some Primary Education	24	14.33 (72)	1.97	13.29 (66)	2.31	83.96 (70)	8.29
Full Primary Education	33	14.82 (74)	2.01	14.18 (71)	1.86	83.21 (69)	10.88
Secondary Education	11	14.27 (71)	2.33	14.36 (72)	2.58	84.18 (70)	10.87
University Education	9	15.78 (79)	2.54	16.00 (80)	2.00	88.33 (74)	10.52

Figures in parentheses are means expressed in percentages.

TABLE 4.22

F-RATIO AND F-PROBABILITY FOR READING COMPREHENSION, LISTENING COMPREHENSION AND WORD IDENTIFICATION BY PARENTS' EDUCATION AND OCCUPATION

	Reading Comprehension		Listening Comprehension		Word Identification	
	F Ratio	F Prob.	F Ratio	F Prob.	F Ratio	F Prob.
Fathers' Education	2.07	.09 NS	3.89	.005 *	1.59	.18 NS
Fathers' Occupation	.90	.47 NS	1.59	.18 NS	.88	.48 NS
Mothers' Education	1.03	.39 NS	3.81	.006 *	.47	.75 NS

Df 4,145
* P< .05
NS Not Significant

reading comprehension and word identification in terms of the parents' education or occupation (Table 4.22). In the area of listening, the difference in terms of the parents' education was significant at $p < .05$. It can be seen in Tables 4.19 and 4.21 that the subjects whose parents had a university education scored higher.

Holick (1975) and Ziros (1976) identified a relationship between ESL students' socio-economic status and reading skills, but the present study does not lend strong support to their findings. There may be other aspects of the socio-economic factor, other than education and occupation, which the present study could not identify.

3. The Language the child uses most of the time at home. Another object of this study was to test whether or not the child's use of a particular language with playmates most of the time at home would help or hinder the child's performance in reading skills. In particular, the focus was on determining if the subjects who use the English language with their playmates at home would have a greater mean score in reading comprehension than those who use other languages.

In order that the child's pattern of reading comprehension skills through the play language might be studied subjects were asked to state the language they use most of the time at home with their playmates. The subjects were limited to three choices: the English language, the subject's first language, and some other language other than English or the first language.

Table 4.23 presents the results of the subjects' scores in reading comprehension, listening comprehension and word identification in terms of the language they use with playmates at home. Table 4.24 also gives the F-ratio. The data did not show any significant differences in the scores in terms of the language the subjects use at play. Also, there was no indication from the data that the subjects who speak English with their playmates at home scored higher than the others.

A further study of Table 4.23 reveals that only thirty-six students out of 150, that is, 24 percent of the subjects, use the English language or have the opportunity to speak it at home. As high as 75 percent have access to conversation in the English language only at school; that is, they do not use it at home with their playmates; one percent use other languages such as the pidgin English or another of the Nigerian languages other than their mother tongue.

4. The Language spoken most of the time at school. The students' use of language at school was considered by the researcher to be a probable indicator of students' reading comprehension or listening ability. ESL students are often encouraged by teachers to use only the English language for communication, at least when they are within the school premises. In some schools, the use of English at all times at school is even made compulsory. Table 4.25 shows that there was no substantial difference in the reading comprehension

TABLE 4.23

MEANS AND STANDARD DEVIATIONS OF READING COMPREHENSION, LISTENING COMPREHENSION AND WORD IDENTIFICATION BY PLAY-LANGUAGE GROUPS

Play Language	N=150	Reading Comprehension		Listening Comprehension		Word Identification	
		$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
English	36	14.53 (73)	1.84	13.97 (70)	2.17	81.72 (68)	11.03
First Language	112	14.52 (73)	2.39	13.77 (69)	2.14	84.98 (71)	9.17
Others	2	15.00 (75)	1.41	14.50 (73)	2.12	77.50 (65)	24.75

Figures in parentheses are means presented in percentages.

TABLE 4.24

F-RATIO AND F-PROBABILITY FOR READING COMPREHENSION, LISTENING COMPREHENSION AND WORD IDENTIFICATION BY PLAY LANGUAGE

Measures	df	F Ratio	F Probability
Reading Comprehension	2,147	.044	.96 NS
Listening Comprehension	2,147	.22	.80 NS
Word Identification	2,147	1.95	.15 NS

N = 150
NS = Not Significant

scores. The means in listening comprehension and word identification showed more noticeable differences which were found to be statistically significant at $p < .05$. Even though the differences were not great they still showed that the students' use of language, particularly the English language, at school is a factor in their comprehension ability.

5. Sex Differences. Sex differences have been found to be an indicator of students' reading ability in such studies as those done by McCarthy (1953) and Johnson (1972). In particular, Johnson found that in Nigeria, in grades 2 through 6, boys were superior readers to girls. Table 4.26 gives the data for the 83 male and 67 female subjects in the present study, while Table 4.27 presents the results

TABLE 4.25

MEANS AND STANDARD DEVIATIONS OF SCORES IN READING COMPREHENSION, LISTENING COMPREHENSION AND WORD IDENTIFICATION BY THE *LANGUAGE SPOKEN MOST OF THE TIME AT SCHOOL*

Language Used at School	N=150	Reading Comprehension		Listening Comprehension		Word Identification	
		$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
English only	25	15.00 (75)	2.16	15.00 (75)	2.29	88.44 (74)	9.67
Mostly English	77	14.47 (72)	2.09	13.48 (67)	2.00	83.53 (70)	9.66
Half English/Half L[1]	48	14.38 (72)	2.55	13.77 (69)	2.10	82.75 (70)	10.00

Figures in parentheses are means expressed in percentages.

TABLE 4.26

MEANS AND STANDARD DEVIATIONS OF SCORES IN READING COMPREHENSION, LISTENING COMPREHENSION AND WORD IDENTIFICATION BY SEX GROUPS

Sex	N=150	Reading Comprehension		Listening Comprehension		Word IDentification	
		$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
Male	83	14.11 (71)	2.22	13.37 (67)	2.10	81.57 (68)	10.19
Female	67	15.04 (75)	2.21	14.39 (72)	2.07	87.24 (73)	8.62

Figures in parentheses are means expressed in percentages.

of the t-test performed on the male and female subjects. The mean score for the male subjects was 14.11 (71%) in reading comprehension and 15.04 (75%) for the female subjects. Their means in listening comprehension were 13.37 (67%) and 14.39 (72%) respectively, while in word identification the male subjects had a mean of 81.57 (68%) and the female subjects had a mean of 87.24 (73%). The differences in the means were all statistically significant (Table 4.27). The result does not tend to justify earlier studies which claimed that boys were superior to girls in their reading ability. However, it should be noted that the previous study (Johnson, 1972) was done on primary school children, while the present study is on secondary school.

TABLE 4.27

t-TEST FOR MALE AND FEMALE SUBJECTS IN READING COMPREHENSION, LISTENING COMPREHENSION AND WORD IDENTIFICATION SCORES

Male = 83, Female = 67

Measures	T Value	Level of Significance
Reading Comprehension	2.58	*
Listening Comprehension	2.96	*
Word Identification	3.63	*

N = 150
df = 148
* $p < .05$

6. Location of Schools. Among the factors that the researcher thought might contribute to students' performance in reading was the location of the school. That is, whether a school's being located in the rural area would result in any noticeable deficiency in the students' performance or whether the location of a school in an urban area would result in any noticeable advantage over the school in a rural area, in terms of the students' reading ability. In this study there were three schools in urban areas and three in rural areas. Table 4.28 presents the data collected from each of the locations.

The results (Table 4.28) tended to contradict the writer's view that subjects in urban schools would score significantly higher than those in rural schools. The means for both the urban and the rural locations on the tests were close and were not statistically significant.

7. Type of Schools. Though this variable was not included in the research questions, the researcher feels it might be informative to further analyze the data collected in terms of types of schools, that is, boarding-school, day-school, all-boys-school, all-girls-school and mixed-school. Table 4.29 presents the data.

One very obvious point about the data in Table 4.29 is that the day-secondary schools had higher means than the boarding-schools. The three day-schools, Rigachikun Government Day-Secondary School, Zaria Government Girls Day-Secondary School and Angwan Rimi Government Day-Secondary School scored a mean average of 15.20 in

TABLE 4.28

MEANS AND STANDARD DEVIATIONS OF SCORES IN READING COMPREHENSION, LISTENING COMPREHENSION AND WORD IDENTIFICATION BY SCHOOL-LOCATION

Location	N = 150	Reading Comprehension		Listening Comprehension		Word Identification	
		$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
Urban	75	14.27 (71)	2.50	13.95 (70)	2.36	83.32 (69)	9.78
Rural	75	14.79 (74)	1.96	13.71 (69)	1.90	84.88 (71)	10.03

Figures in parentheses are means expressed in percentages.

TABLE 4.29

MEANS AND STANDARD DEVIATIONS OF SCORES IN READING COMPREHENSION, LISTENING COMPREHENSION AND WORD IDENTIFICATION BY BOARDING, DAY, ALL-BOYS, AND ALL-GIRLS AND MIXED SCHOOLS

Name and Type of School	Reading Comprehension		Listening Comprehension		Word Identification	
	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
Giwa G.S.S. *(Bd., B)	14.16 (71)	1.97	13.72 (69)	2.09	79.20 (66)	10.17
Soba GGSS *(Bd., G)	14.68 (73)	1.73	13.84 (69)	1.37	87.12 (73)	8.15
Rigachikun GDSS *(D., Mxd.)	15.52 (77)	2.00	13.56 (68)	2.20	88.32 (74)	9.45
Zaria G.S.S. *(Bd., B)	12.72 (64)	1.79	12.20 (61)	1.68	76.88 (64)	8.41
Zaria G.G.D.S.S. *(D, G)	15.24 (76)	2.73	14.76 (74)	2.30	90.24 (75)	8.75
Angwan Rimi G.D.S.S. *(D, Mxd)	14.84 (74)	2.19	14.88 (74)	2.07	82.84 (69)	8.38

Figures in parentheses are means expressed in percentages.
*Bd. = Boarding-School
B = All-Boys-School
G = All-Girls-School
D = Day-School
Mxd. = Mixed School

reading comprehension while the three boarding schools scored a mean average of 13.85. Similarly, the day-schools all scored a higher average of 14.40 in listening comprehension than did the boarding schools with an average of 13.25. The same pattern was observed in the scores in the word identification test in which the average mean for the three day-schools was 87.13 and the mean average for the three boarding schools was 81.06.

With regard to all-boys, all-girls and mixed-schools, the scores as shown in Table 4.29 indicate that the mixed-schools had a higher mean average of 15.18 in the reading comprehension test followed by all-girls schools with 14.96 and then all-boys schools with 13.44. The same order was followed in their scores in listening comprehension in which the average means were 14.30, 14.22 and 12.96, respectively. Also, in the word identification test the mean average for the all-boys schools was the lowest (78.04) and the all-girls schools scored the highest with a mean average of 88.68. The mean average for the mixed-schools was 85.58. It was observed from Table 4.29 that the Government Secondary School (GSS) Zaria scored lower than any of the other five schools.

In general, from this analysis of the type of schools, it can be gathered that the day-secondary schools did better in all the three measures of reading, listening and word identification than did the boarding-schools. Also, it can be deduced that mixed schools performed better than either all-boys' or all-girls' schools in the three measures.

Summary of the Results and Discussions

This chapter reviewed the purpose, method and questions of the study, described and discussed various analyses of the data related to the study, restated and tested the hypotheses, and also discussed some ancillary variables not included in the hypotheses. The major results are summarized below:

1. There was a strong positive correlation between word identification and reading comprehension skills. The null Hypothesis One, assuming no correlation, was rejected at $p < .05$.
2. The null Hypothesis Two, assuming no correlation between phonics analysis and reading comprehension skills, was rejected at $p < .05$.
3. A positive correlation was found between structural analysis and reading comprehension. This relationship was significant at $p < .05$. The null Hypothesis Three, assuming no relationship, was therefore rejected.
4. The relationship between contextual analysis skills and reading comprehension was found to be positively strong ($r = .79$). The null Hypothesis Four, assuming no correlation, was therefore rejected at $p < .05$.
5. The null Hypothesis Five, which assumed no correlation between listening comprehension and word identification, was rejected at $p < .05$.

6. There was a positive correlation between reading comprehension and listening comprehension. Therefore the null Hypothesis Six was rejected.
7. The means in the phonics, structural and contextual analyses scores were significantly different from zero for both good and poor readers.
8. The means for good readers and poor readers in listening comprehension were found to be significantly different from zero.
9. The effects of additional variables not included in the hypotheses were examined:
    i) There was no clear-cut pattern when the subjects' scores were analyzed in terms of their first language, home background and the language used with playmates at home. However, the English language used at school tended to produce significantly higher mean scores in listening comprehension and word identification tests.
    ii) Contrary to some earlier studies, the idea that boys perform better than girls in reading ability was not supported by the trend in the data of this study.
    iii) The mean scores of schools in urban and rural locations were not statistically different.
    iv) Students in the day-school system tended to perform better than those in the boarding-schools.
    v) Subjects in mixed schools did better than subjects in either the all-boys-schools or all-girls-schools.

In the chapter that follows, these results are reviewed alongside a summary of the problem, measurement, sample, testing procedures, and analysis of the data. In addition, the chapter contains the conclusions, limitations, and implications for further research as well as for classroom practice.

CHAPTER V

SUMMARY, CONCLUSIONS, LIMITATIONS, IMPLICATIONS

This chapter has four parts: (1) a summary of the study described in detail in the previous chapters; (2) conclusions based on the results of the study; (3) a discussion on limitations of the study which should be considered when interpreting the results; (4) a look at the implications of this study for the purposes of future research and for instructional practices.

Summary of the Study

The preceding chapters described the study of the relationships among the word identification, listening comprehension and reading comprehension of learners of English as a second language with particular reference to students in the Kaduna State of Nigeria. For the purpose of this study, word identification was described as comprising three areas of skills: phonics analysis, structural analysis and contextual analysis. Phonics analysis was defined as the ability to hear phonemes accurately, to associate consonant and vowel sounds with letters of the alphabet, and to blend these sounds into syllables and the syllables into words with appropriate accents. On the other hand, structural analysis was defined as an individual's analysis of words through the study of roots, prefixes,

suffixes, word beginnings, word endings, possessives, plurals, and compound words; and contextual analysis was defined as the ability to examine the material surrounding an unknown word, by means of either a syntactic or semantic prompt, in order to determine its meaning. Listening comprehension was defined as the ability to attend closely to the materials being read so as to be able to recall the ideas, information and sequence of events and to derive meaning from the material heard; and reading comprehension was also defined as the ability to recall ideas, information and happenings and to derive meaning from materials read in connected discourse.

The Problem. A review of previous research in the area of reading demonstrated a need to investigate the problem which was defined for the present study.

Some studies stressed that in teaching reading to adults or secondary school students emphasis should be on structural meaning rather than on vocabulary (Allen, 1973; Berman, 1975; Cowan, 1974; Eskey, 1973; Wilson, 1973), although there were others that recommended that learning to identify words be a necessary prerequisite to reading for meaning (Chall, 1967; Perfetti and Hogaboan, 1975; Samuels, 1974; Shankweiler and Liberman, 1972). There were others who thought that in teaching students to read for meaning, the emphasis should be on teaching them to use contextual cues available in connected text (Goodman, 1970; Smith, 1975, 1978; Pearson and Johnson, 1978). The fourth group suggested that interfacilitation among subskills was necessary for normal reading

(Guthrie, 1973). The studies cited above were focused on reading English as a first language. But for students for whom English is a second language it was not clear whether mastery of specific skills in word identification improved reading comprehension or whether listening comprehension had anything to do with either word identification or reading comprehension ability. The present study recognized the lack of consensus among the various studies on what skills the learners of English as a second language should possess in order to understand the message in a text. For example, MacNamara (1967) supported the view that ability to identify words was a facilitator of efficient reading; Harris (1966) indicated that ESL learners problems in identifying synonyms and antonyms caused their failure to read for meaning. Yet other studies on reading in English as a second language also pointed out that students who have difficulty with articulation, who do not recognize words and cannot predict syntax, or who ignore graphic cues were deficient readers as far as reading for meaning was concerned (Been, 1975; Berman, 1975; Pierce, 1975). Furthermore, several studies pointed to the paucity of standardized measurement for testing and diagnosing reading ability. Specifically, for Nigerian students, it was necessary to determine in what ways and to what degree mastery of reading skills relates to comprehension; whether children who master word identification skills comprehend better than those who do not. It was also necessary to determine which of the skills relate most closely to comprehension of written discourse.

The central focus of this study therefore, has been to identify possible relationships among word identification, reading comprehension and listening comprehension skills among students in the Kaduna State of Nigeria. The relationships were to be explored further to see if those skills differed among good and poor readers. Also of concern in this study was to consider the effects of certain variables such as sex, first language and home backgrounds of the subjects, location of the school, type of school, that is, whether the school was an all-boys, all-girls, mixed (boys and girls), boarding or day-school. In short, the study attempted to answer the following questions:

1. Are word identification skills (phonics, contextual and structural analyses) related to the Nigerian students' reading comprehension ability?
2. Is there a correlation between their word identification skills and listening comprehension ability?
3. Is there a correlation between listening comprehension and reading comprehension of Nigerian students?
4. Which of the word identification skills is or are most strongly related to comprehension?
5. Will good comprehenders perform better than poor comprehenders in word identification and in listening comprehension ability?

6. What relationships, if any, do children's first language, sex, home background and the type and location of schools have to their reading comprehension ability?

Design and Procedure of the Study. Many of the procedures of the study were determined through a survey of procedures used in previous studies on reading, listening, comprehension, and word identification skills. The contributions of previous studies were noted in Chapters II and III.

Subjects. The subjects included in this study were 150 class III students currently in some six selected secondary schools in Kaduna State of Nigeria. The average age of the students was 15 years. The six secondary schools were randomly selected: 3 from urban and 3 from rural locations. The three possible types of schools, all-boys, all-girls and mixed schools were used. All the 25 students selected from each of the six schools completed the tests.

Instruments. The experimental instruments consisted of word identification skills test, a listening comprehension test and a reading comprehension test. The 120-item word identification component tested three major skills; each with 40 items. The 20-item listening comprehension component contained 5 short passages read to the subjects by their regular class teacher, with the subjects responding to the set of objective questions after each passage had been read. The 20-item reading comprehension test also contained 5 short passages with a set of objective questions after each passage.

In all, the instuments contained 160 items developed after a careful review of the literature on the teaching and testing of reading skills, and a careful assessment of the reading levels of class three secondary school students in the Kaduna State of Nigeria.

Testing Procedure. In order to ascertain the reliability of the tests and to gain insight into the problems of sampling and administration of the test instruments, the tests were first tried on a class of junior high school children in the Oregon school district in Wisconsin; later the test was given twice to a group of Class III students in the Government Day Secondary School, Zaria, Nigeria, at a two-weeks interval. The two trials indicated that no significant changes in the testing instruments were needed and a test re-test reliability coefficient using the Pearson Product Moment for the test in Zaria yielded high reliability except for two groups of items, the vowels and the cloze procedure (Table 3.02).

The independent variables whose effects were considered possible to operate in the studies and to contribute to the overall results were sex, home background, first language of the students, and location of school.

The actual test was conducted in the Kaduna State of Nigeria in January and February of 1982. Testing period for each school covered two hours with a break of ten minutes in between section one (120-item word identification test) and sections two and three (20-item listening comprehension and 20-item reading comprehension tests).

Hypothesis and Analysis of Data. Eight research hypotheses

formulated from the first five research questions were tested. Three statistical techniques were used to test the hypotheses, namely, the Pearson Product Moment correlation coefficients, factor analysis, and the t-test. The correlation coefficients were calculated to test hypotheses one through six, the factor analysis was used to show the pattern of groupings of the skills, while the t-test was used for hypotheses seven and eight. A .05 level was set as the minimum probability level for judgments of statistical significance.

The first six hypotheses dealt with the relationships between and among reading comprehension, listening comprehension, word identification, and the three components of word identification (phonics, structure and context). The hypotheses assumed no relationships between and among the different variables, and correlation coefficients for the variables were calculated and the statistical significance tested against zero.

The seventh and eighth hypotheses were related to the comparison between good and poor readers in terms of their scores in word identification and listening comprehension. The subjects' scores in reading comprehension test were used as criteria to judge the over-all reading performance. A subject was considered a good reader if he or she scored at least one standard deviation above the mean in the reading comprehension test, or was judged to be poor if he or she scored a standard deviation or more below the mean. The differences in the subjects' group means in each of the variables were calculated using the t-test procedure and were tested for statistical

significance.

The other ancillary question dealing with the relationships between the individual subjects' performance and the individual factors such as first language, home background, sex, school type and location were analyzed and described using descriptive statistics: the means, standard deviations and analysis of variance.

Conclusion Based on the Results

The results of the study can be summarized in two areas: (1) results related to the hypotheses of the study, (2) results related to effects of individual variables which were not included in the hypotheses.

1. Results related to the hypotheses. This will be broken into parts:

   (a) Hypotheses One, Two, Three and Four: - The four hypotheses assumed no relationships between reading comprehension and word identification on one hand, and between reading comprehension and each of the componenets of word identification (phonics, structural and contextual analyses) on the other. The results of these four hypotheses indicated that word identification, considered as a whole, was significantly related to comprehension. Furthermore, two of the broad areas of word identification

(structural and contextual analyses) were significantly related to comprehension with the contextual analysis achieving a higher correlation over-all with the comprehension measure than did the structural analysis. This is due, most likely, to the fact that contextual analysis and reading comprehension require identical skills. The results further indicated that not only were the two broad skill areas (structure and context) significantly related to comprehension, but also that each individual subskill was likewise related to comprehension, with cloze procedure achieving the highest degree of relationship (Table 4.07). Importantly, phonics analysis was not significantly related to reading comprehension.

(b) Hypothesis Five: The hypothesis was tested for the significance of the relationship between word identification and listening comprehension. In the first instance, the result indicated a moderate positive correlation between listening comprehension and word identification, a non-significant relationship between listening comprehension and phonics skills, a weak positive relationship between listening comprehension and structural analysis skills and a moderate positive relationship between listening comprehension and contextual analysis skills.

(c) Hypothesis Six: The hypothesis was tested to find the

relationship between listening comprehension and reading comprehension. The results indicated a significantly positive correlation between the two measures, and confirmed previous studies (Durrell, 1969; Duker, 1971; Berger and Perfetti, 1977).

(d) Hypotheses Seven and Eight: The results for these hypotheses indicated that there were significant differences in the scores of good readers and poor readers in (i) word identification, (ii) the broad areas of word identification skills; and (iii) in listening comprehension.

On the whole, the results of the tests of hypotheses One throught Eight were found to be consistent with previous studies referred to in the section on the review of the literature. The results indicated students' ability to identify words correlated with their ability to comprehend texts. Additionally, the results of the first six hypotheses were further confirmed when the factor analysis technique was applied. It was observed from the analysis that reading comprehension and the cloze procedure, which is in itself a contextual analysis skill, loaded heavily into one factor as measures of similar skills. The results of the factor analysis were also in agreement with the factor-analytic studies done by Harris (1948), Davis (1968), and Smith (1971) reported in the review of the literature.

2. Results related to variables outside the Hypotheses

The discussion of the results for the variables outside the research hypotheses will also be discussed in four parts: individual subjects home background and first language, sex, location of school and type of school.

(a) No significant differences were found in the scores of the subjects in terms of their first language, parents' education and occupation, or in terms of the language they use most of the time with their playmates outside the school environment. However, a significant difference was found in the scores in terms of the subject's use of the English language for communication for most of the time at school. Such differences were noticeable in listening comprehension and word identification. Students who used English most of the time for communication at school had higher scores than those who did not. On the whole, even though the differences were not great in terms of over-all performance, they still indicated that the students' use of the English language could enhance their ability to comprehend. This might be so because through constant use of the English language students could acquire more listening and speaking skills, larger vocabulary and a general understanding of the language.

(b) Regarding sex differences, girls performed better than boys in all the three major areas of the test (word

identification, listening comprehension and reading comprehension). The result was not in the direction of previous studies. However, a point to be considered is that while the previous studies were done on primary school children, the present study was based on secondary school students. So the difference in the results could be the effect of psychological maturation of the children or some other factors outside the scope of this present study.

(c) With regard to location of the schools, no significant difference was found in the scores in terms of whether the school was located in an urban or rural area. The result here might be contrary to what is a popular belief, that children who attend schools located in urban areas have a greater advantage in staffing, physical facilities, and equipment over those children who attend schools located in rural areas. One major reason for the results that pertain to school location is the decentralization of the administration of schools in the state. Beginning in 1981, the schools were grouped into zones with each zone having its own administrator. This arrangement possibly has afforded easy and effective administration and supervision; also, most rural areas now have electricity and water and such amenities will greatly reduce teachers' unwillingness to work in rural areas.

(d) Regarding the types of school, the study showed that the day school system performed better than the boarding-school system. It was difficult to advance a substantial reason for the outcome. It would seem reasonable to assume that children in the boarding schools would do better than those in the day school because unlike the children attending day-school, they live right at the school and have greater access to the school's library and other facilities, and they are constantly in the company of their classmates. It might be informative to add here that parents did not readily embrace the idea of the day-school system when it was introduced in the late '70s because they felt children might lose the benefit of educational facilities and interactions that a boarding school could provide. Be that as it may, the results of this aspect of the study pointed to two possible reasons: (1) the size and population of the existing boarding schools have become so unmanageably large that supervision and facilities have become inadequate. This might have influenced the low performance of the Government Secondary School (G.S.S.) Zaria, a boarding and an all-boys school (Table 4.29); (2) children in the day-school system may be assigned extra hours of study each day; and those who have educated parents might be receiving additonal study help from their parents which

would reinforce the school work.

Limitations

Any study, particularly an exploratory one, has limitations, and this one is no exception. It is often difficult, if not impossible, to identify and control all of the variables which may affect the results. Some of the limitations viewed with the benefit of hindsight, could have been eliminated, and those acknowledged within the plan of the study were such that could not be avoided.

Even though this investigation should be considered important to the country as a whole, in view of the importance of reading in the curriculum as well as the importance of the English language in Nigeria, it was not possible within the limits of this study to cover all the present nineteen states of the country, or to include in the study other post-primary schools such as the Teacher Grade Two colleges and the Techincal schools. It was similarly impossible to cover all the many secondary schools in Kaduna State. Hence, the study was limited to six of the schools in the state. In spite of the limitation of geographical coverage, there are other limitations within which the results of this study must be interpreted. There are three general areas of limitations: the sample, the test itself and the administrative procedure.

1. The subjects.

1.1 The limitations due to subjects is a familiar one. The subjects in this study were students from one grade level (Year III students) and chosen randomly from six secondary schools in the state. It should be noted that the average ability of the subjects is not as much a limitation in itself as the inability of the study to generalize the result to other grade levels (I, II, IV and V) in the schools.

1.2 A common problem in a study of this nature is either that the number in the sample is too small or too large. While the study attempted to include several aspects of the samples, such as language, home background, and type of school, the possibility of arriving at too large a sample could not be avoided. It has thus made most of the results significant beyond .05 level.

2. Test Instruments

2.1 The first major limitation here was the failure to administer an intelligence test, the outcome of which the researcher feels could have contributed to the result of this study.

2.2 The lack of an already standardized test for Nigerian students of equivalent grade level against which the instruments of this study might be compared. Even though the test items in word identification section were included in the standardized test written by the Research and Development Center of the University of Wisconsin for Madison children, and even though the test items were adapted to

Nigerian students' background, they still could not be called standardized tests for the present sample. Similarly, the listening and reading comprehension tests could not be considered fully representative of instruments currently available for assessing listening and reading comprehension skills. Therefore the measurement and instruments might lack the desired precision, reliability and validity.

3. Administration Procedure

3.1 Since the test was taken at six different schools and on different days, there was the possibility of variations in test administration.

3.2 For some children, test fatigue might have affected their performance even though they were given a break at the middle of the test period.

In sum, these limitations may have affected the results of this study, and so they should be considered when thinking about the conclusions discussed earlier.

Implications

The implications which can be drawn from this study are in two areas: Implications for future research and implications for instructional practices.

Implications for Future Research

1. One question to be examined in the future is whether the results indicated by this study could be generalized to other grade levels in the secondary schools. That is, whether the significant correlations this study indicated would be confirmed for a larger sample and for all grade levels.

2. The research instrument used in this study should be further refined and validated through additional research in order to produce a reliable and easily administered battery which would examine more precisely reading comprehension, listening comprehension and the different components of word identification.

3. A separate study should be undertaken to ascertain the relationships of certain individual variables to children's reading achievement. Such a study should consider using analysis, such as multiple regression analysis, which allows for simultaneous determination of several variables.

4. Further studies which would control for the instructional factors should be conducted in order to produce more definite answers about the importance of reading subskills in learning English as a second language.

5. A testing strategy should be designed to examine more closely the notion of mastery or competence, so that for each sub-skill, a meaningful criterion which would differentiate "good" and "poor" comprehenders could be determined empirically. This kind of information would have the greatest implication in classrooms, where

instructional objectives and the apportionment of instruction time are primary considerations for effective and efficient teaching.

Implications for Classroom Practice

Correlational studies, by their very nature, cannot provide direct implications for classroom practice. This study only established relationships, not causes. However, the strengths of some relationships and the weaknesses of other relationships suggest certain steps to be taken and certain hypotheses that ought to be tested in classroom situations.

1. Since a positive correlation was found between students' reading comprehension and contextual analysis skills, the teaching and the use of context should be intensified as this might enhance students' reading ability.

2. Listening comprehension was found to be positively correlated with reading comprehension. Classroom instruction therefore, should integrate listening and reading skills. This is necessary particularly at this stage when students are beginning to take lecture notes and need more ability to listen, write and comprehend.

3. The present study was consistent with previous studies in not finding any significant relationship between children's first language background and their performance in word identification. By implications, therefore, children should not be made to learn word identification or English structure according to similarity or dissimilarity of their first language pattern with the English language.

4. There is need to conduct further studies on students who are weak in either word identification or comprehension to see whether intensified instruction in the area in which they are weak would improve relationships between and among the various skills and subsequently facilitate improved performance in over-all reading.

As a result of the findings of this study together with those of other ESL researchers, and also from what I have found in my own teaching experience, I conclude that there are several major educational issues involving the appropriate pedagogical approaches in teaching English as a second language. Such issues need to be further explored under actual classroom-teacher-performance and under the children's actual classroom-learning situations.

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APPENDIX A

WORD-IDENTIFICATION TEST

WORD IDENTIFICATION TEST

I. PHONICS (Vowels)

For each row, look at the made-up word and find the underlined part. Then look at the rest of the words in that row. See how they each have an underlined part, too. Now write the appropriate letter column (A, B, or C) of the word whose underlined part sounds just like the first underlined part of the word in the row.

EXAMPLE:	A	B	C
hode	moon	soap	on

The answer is B.

1.	zell	feel	real	belted
2.	crube	fur	umbrella	room
3.	flot	open	hopping	flow
4.	flippen	if	isle	my
5.	ufty	you	unless	unite
6.	dile	sky	will	pin
7.	preve	dented	ever	steam
8.	stry	mostly	lie	yellow
9.	poil	going	owl	boy
10.	loat	August	bone	cow
11.	dause	aim	claw	sap
12.	snay	made	about	jam
13.	leem	fed	eight	even
14.	toop	new	no	nod
15.	fain	said	mad	cane

II. PHONICS (Consonants)

For each row, look at the made-up word in the first column and find the underlined part. Then look at the rest of the words in the row. See how they each have an underlined part, too. Now write the appropriate letter column (A, B, or C) of the word whose underlined part sounds just like the first underlined part of the word in the row.

EXAMPLE:	A	B	C
mub	not	map	had

The answer is B.

II. Phonics (Consonants) continued

16.	yed	saw	you	ned
17.	hinny	gong	shimmy	knew
18.	sung	sure	sound	something
19.	gyf	gong	got	jam
20.	rad	wrote	had	gab
21.	coth	ice	sold	cane
22.	zet	let	fuzz	set
23.	deach	brought	child	lock
24.	stamb	nice	fib	mop
25.	gaph	even	funny	though

III. PHONICS (Syllabication)

For each of the words below, write the number of syllables in the word.

EXAMPLES:

(A) happy	1	2	3	4	5	Answer is 2.
(B) wonderful	1	2	3	4	5	Answer is 3.

26.	mountain	1	2	3	4	5
27.	called	1	2	3	4	5
28.	friendlier	1	2	3	4	5
29.	elevator	1	2	3	4	5
30.	thorough	1	2	3	4	5
31.	desegre-gation	1	2	3	4	5
32.	foolishness	1	2	3	4	5
33.	stages	1	2	3	4	5
34.	music	1	2	3	4	5
35.	sound	1	2	3	4	5
36.	difficulty	1	2	3	4	5
37.	couple	1	2	3	4	5
38.	straight	1	2	3	4	5
39.	peeling	1	2	3	4	5
40.	together-ness	1	2	3	4	5

IV. STRUCTURE (Plurals)

Read each of the words below and describe if the word describes ONE thing, MORE than one thing, or does not tell how many. If the word describes one thing, wrote O. If the word describes more than one thing, write M. If the word does not tell how many, write N.

EXAMPLES:

A. leaf	ONE	MORE	NEITHER	(answer is O)
B. children	ONE	MORE	NEITHER	(answer is M)
C. small	ONE	MORE	NEITHER	(answer is N)

41.	teeth	ONE	MORE	NEITHER
42.	kiss	ONE	MORE	NEITHER
43.	army	ONE	MORE	NEITHER
44.	central	ONE	MORE	NEITHER
45.	geese	ONE	MORE	NEITHER
46.	library	ONE	MORE	NEITHER
47.	illness	ONE	MORE	NEITHER
48.	oxen	ONE	MORE	NEITHER
49.	always	ONE	MORE	NEITHER
50.	bushes	ONE	MORE	NEITHER

V. STRUCTURE (Compound Words)

There are mamy different types of compound words. Each kind has a special meaning. A way to understand the meaning of some compound words is to use these three phrases:

1) of a 2) for a 3) like a

Below are examples of compound words which can be defined by using one of these three phrases:

*fishbone — This word means bone <u>of a</u> fish
(This would be a type 1 compound word)

*dog biscuit — This word means biscuit <u>for a</u> dog.
(This would be a type 2 compound word)

*box car — This word means car <u>like a</u> box.
(This would be a type 3 compound word)

Identify each of the compound words below with the number 1, 2, or 3, depending on which phrase can best be used to explain the meaning of the word. (You may check your answer by putting the parts of the compound into the corresponding sample sentence to see if the sentence makes sense.)

51. post office	52. playground	53. headmaster
54. gunpowder	55. housemaster	56. golf course
57. water hose	58. taxpayer	59. neck tie
60. tennis court		

VI. STRUCTURE (Possessives)

For each of the following sentences, decide if the underlined word is a possessive (shows ownership). If it does show ownership, write YES, if it does not, write NO.

EXAMPLE:

A. Henry's sister was very tall. YES NO (answer is YES)
B. It's a nice day. YES NO (answer is NO)

61. Bingo's a good dog.	YES	NO
62. The twin's clothes were just alike.	YES	NO
63. Here's your doll.	YES	NO
64. The cat chased its tail.	YES	NO
65. Rufai's grades were not high.	YES	NO
66. Tom's a good swimmer.	YES	NO
67. We all liked Zainabu's singing.	YES	NO
68. The bells rang for class.	YES	NO
69. The biggest house was Audu's	YES	NO
70. There's nothing more to be said.	YES	NO

VII. STRUCTURE (Affixes)

Each of the sentences below have a word missing. Read each sentence and then write the letter (A, B, or C) of the word you think fits best.

71. The sun was so hot that it was almost ____ for the ballplayers.
(A) bearer (B) bearable (C) unbearable
72. Father settled happily into his _____ armchair.
(A) comfortable (B) comforted (C) comfortless
73. Even though he was lost, the little boy looked calm and _____.
(A) frightening (B) frighted (C) unafraid
74. After the storm, the city looked like a _____.
(A) wasted (B) wasteland (C) wasteful
75. Because of his _____, Sam couldn't run very fast.
(A) heavy (B) heaviness (C) heaviest
76. It was _____ that Dogo's horse would win the race.
(A) doubtful (B) undoubtedly (C) doubting

77. Pure water is almost _____.
    (A) tasting (B) tasteless (C) tastefully
78. _____ you will need help with this difficult problem.
    (A) Uncertainty (B) Certainly (C) Certificate
79. The tennis player ran _____ to hit the ball.
    (A) backing (B) backish (C) backward
80. The _____ woman needed a walking stick to help her walk.
    (A) ages (B) aged (C) ageless

CONTEXT (Cloze)

On the following page, you will find a story about two animals with bad habits. At certain places in the story, words are missing. Your job, as you read the story, is to be a detective and decide what words belong in the blank spaces. When you decide what each missing word is, print it as neatly as you can on your answer sheet. Your answer should always be only one word. We will do a few practice items together so that everyone understands what to do.

EXAMPLES:

A. My cat licks her _____ after she eats. (answer is paws)
Sometimes you may have to read the next sentence to figure out the missing word. If you can't decide what the missing word is in a particular sentence reread the sentence or read further to see if you can find more clues about the missing word. Now try sample item B.

B. _____ cry a lot. When they learn to talk, babies no longer need to cry so much because they can ask for things that they want. (answer is Babies)

When you have finished the story, you can check your answers by rereading the story and filling your own words for the blanks to see if the story now makes sense. OK, go ahead and read the story.

CONTENT (Cloze)

"Nature Cannot Be Changed"

One day, a rabbit and a monkey were (81). However, while talking, each of them constantly gave in to his own bad habit. The monkey, of course, kept scratching himself with (82) paw. The rabbit, fearing to be attacked by an enemy, kept turning his (83) about in all directions. The two (84) were not able to keep still.

"It's really amazing," (85) the rabbit to the monkey, "that you cannot stop scratching yourself (86) for a moment."

"It's not more amazing than to see you always turning your head for (87) good reason," answered the monkey.

"Oh, I could (88) stop doing that," said the rabbit, "if only I wanted to."

"Very well! Let's see if you can. Let's both (89), you and I, to keep still. The (90) who moves first will lose the bet."

The rabbit agreed. And so they (91) watched to see if the other moved.

Soon it (92) impossible for both of them. The monkey (93) all over. Never in his life had he itched so badly. The rabbit, on the other (94), was sure that some enemy was going to jump on him from behind.

Finally, when the rabbit could (95) it no longer, he said, "Our bet did not mean that we could not tell each other stories to pass the time. Or did it. "It did not," answered the monkey, foreseeing some trick on the part of the rabbit. The monkey was (96) to use the same trick himself. "All right then, I'll start," said the rabbit. "Imagine, one day when I was in an (97) field, I was in terrible danger..." "Srangely enough, the same thing happened to me one (98)," interrupted the moneky. "Oh really?" (99) the rabbit. "I saw dogs jumping through the field in all (100). They came from the left, from the (101), from the front, from behind. I turned my head this way, that way...You see? Like this..." To make his point, the rabbit (102) his head in all directions he had mentioned in the story.

Of course, the monkey too had a story to (103). "That day," he said, "I was bothered by a (104) of children who kept throwing stones at me. They threw one here and another there..." With each place he (105) in the story, he gave himself a good thump with his paw to stop the itching.

The rabbit, who knew why the monkey was doing that, burst out laughing. Then he said to his friend, "Let us be frank. As much as we would like to, we cannot change our nature. This proves it. Neither of us has won the bet, nor lost it."

IX. WORD MEANING IN CONTEXT

For each sentence, there is a word or group of words with a line under it. Read each sentence and select from the list of words, A through E, that gives the meaning of the underlined word in the sentence. Write the letter (A, B, C, D, or E) corresponding to the word on your answer sheet.

106. The workmen <u>united</u> to ask for better pay.
A. tried
B. undertook
C. did not want
D. joined together
E. began

107. The teacher had a <u>vivid</u> picture of the scene.
A. violent
B. exciting
C. clear
D. happy
E. amusing

108. Mother said she would <u>consider</u> my question.
A. answer
B. help me with
C. listen to
D. think about
E. talk about

109. He arrived at his destination <u>eventually</u>.
A. late
B. shortly
C. toward evening
D. finally
E. gradually

110. The gardens were spoiled by <u>litter</u>.
A. insects
B. bird-life
C. pigs
D. rubbish
E. diseased plants

111. The captain was a <u>bold</u> man
A. brave
B. hard
C. good
D. strong
E. big

112. Before us was a <u>peculiar</u> sight.
A. pleasant
B. strange
C. familiar
D. wonderful
E. terrible

113. The driver swerved his car.
    A. braked
    B. accelerated
    C. turned
    D. started
    E. slowed down
114. Bind all the sticks together
    A. gather
    B. keep
    C. carry
    D. hold
    E. tie
115. When the bell rang at noon, we went into the playground.
    A. the end
    B. playtime
    C. twelve o'clock
    D. home-time
    E. nine o'clock
116. The train gradually advanced.
    A. stopped
    B. turned
    C. slowed down
    D. moved forward
    E. speeded up
117. The keys were in the custody of the caretaker.
    A. care
    B. office
    C. cupboard
    D. coat pocket
    E. safe
118. At last we found the solution.
    A. water
    B. idea
    C. question
    D. answer
    E. problem
119. Every nation is hoping for peace.
    A. leader
    B. wise person
    C. organization
    D. country
    E. citizen
120. We can do the job with ease.
    A. pride
    B. no trouble
    C. some help
    D. little cost
    E. no delay

APPENDIX B

READING COMPREHENSION TEST

READING COMPREHENSION TEST

Instructions: Read each selection. Then read each question about that selection. Decide on the best answer to each question. Write on your answer sheet the letter beside the one answer you choose.

Selection 1

The last man to try to fly without balloon or aeroplane was probably a German, Ludwig Berblinger. He was a tailor, almost unknown until one day he suddenly announced that he would jump off the cathedral tower and fly over the town.

Naturally, everybody became intensely interested, and even King Frederick announced that he intended to be present. The day fixed for the great event was 28th January 1829. Up until the last moment, Berblinger was full of confidence in the strange flying suit he had made but when everything was ready, he suddenly lost heart and wanted to give up.

The King was furious. He had come to see a man fly, and fly he must. So the poor tailor was forced to don his suit, but he did not like the view of the roofs from the top of the cathedral tower. Eventually he agreed to commence his flight from the top of a high wall overlooking the Danube. In making this choice, we must admit that he used his discretion, for whem he jumped off the wall, the spectators saw him fall with a splash into the river! Amid a storm of laughter, he was hauled out. Next day he tried again, with the same result. After that we hear of him no more.

121. The townspeople were interested in Berblinger's attempt to fly because
    (A) the King was going to attend
    (B) Berblinger was an unknown tailor
    (C) he was the last man to try to fly like a bird
    (D) they had never seen a man fly before
    (E) he was one of their countrymen.
122. Why did Berblinger dislike the view of the roofs from the cathedral tower?
    (A) The roofs would block his flight.
    (B) The river view was more pleasant.
    (C) The roofs were very steep.
    (D) More people would watch him at the river.
    (E) He thought he might injure himself on them.

123. Why did Berblinger finally choose a high wall by a river as a starting point for his attempt?
(A) It was just the right height to start from.
(B) Many people could view his flight.
(C) He would not be injured should he fail.
(D) He wanted to amuse the crowd.
(E) He wanted to show he could use his discretion.

124. Berblinger's second attempt was
(A) effective
(B) unsuccessful
(C) fatal
(D) triumphant
(E) abandoned

125. Why did the crowd laugh at Berblinger?
(A) They knew he could not swim.
(B) They thought he looked foolish.
(C) He was trying to amaze them.
(D) Berlinger was so confident of himself.
(E) They applauded his discretion.

126. What did the author think of Berblinger's decision to jump off the wall rather than the tower?
(A) He thought it wise.
(B) He thought it hasty.
(C) He thought it cowardly.
(D) He thought it foolish.
(E) He gives no clue.

Selection 2

Adamu and his sister, Ayi, saw some cars for their toy train in a toy shop. There was a horse car, a coal car, a milk car, and a mail car. Adamu wanted to get the horse car. It had toy horses that walked in and out of it. Ayi like the milk car best. A toy man put milk cans out at the station. They both liked the mail car. Little sacks of mail were thrown out of it at the station. The one Adamu liked best cost the most. The one Ayi liked cost a lot, too. The car they both liked cost the least. They did not have enough money for the two that cost the most, so they got the one they both liked.

127. Which car did Adamu's sister like best?
(A) the mail car
(B) the horse car
(C) the coal car
(D) the milk car

128. What did the car the children bought carry?
     (A) mail
     (B) milk
     (C) coal
     (D) horses
129. Which car cost the most?
     (A) the mail car
     (B) the coal car
     (C) the horse car
     (D) the milk car

Selection 3

At last Raheem heard the whistle blow three times. This was the signal for the men to leave for the day. Raheem's first day at the new job had been a hard one. All day long he moved large cans of chemicals from the center of the warehouse to the loading dock. The cans weighed approximately seventy-five pounds. Raheem was not accustomed to such work. Before beginning work at the factory, he had been a shopkeeper for Alhaji Dauda. Raheem was busy every minute in the shop, but that work was not as difficult as the new job. As Raheem walked through the factory gate, he wondered if he could get his old job back.

130. How many pounds did each of the cans of chemicals weigh?
     (A) 10 pounds
     (B) 25 pounds
     (C) 50 pounds
     (D) 75 pounds
131. What did the whistle signal when it blew three times?
     (A) to leave the factory for the day
     (B) to start work for the day
     (C) to eat noon lunch
     (D) to take a coffee break
132. What was Raheem wondering about as he left work?
     (A) how heavy the large cans were
     (B) what the chemicals were used for
     (C) whether he could get his old job back
     (D) how tired he felt
133. "Raheem was not accustomed to such work" meant that
     (A) Raheem had never worked before.
     (B) Raheem had worked before, but not such difficult work.
     (C) Raheem did his new work very easily.
     (D) Raheem was much busier at his new job.

Selection 4

Have you ever considered keeping a diary? To do this, get a notebook and begin recording your daily observations, activities, and emotions. A diary is personal, so feel free to record your disappointments in addition to your achievements. It can assist you in understanding yourself better by giving an accurate description of the kind of person you are, or were.

Famous diaries were kept by Anne Frank and Samuel Pepys. Anne Frank kept her diary during World War II. Samuel Pepys wrote in England during the seventeenth century. Each diary gives us an individual's reaction to life during a particular historical period.

Diaries can be valuable for biographies and autobiographies. If you lead an interesting life or pursue a distinguished career, you may want to share your experiences with others some day. So, just in case, begin your diary today.

134. The writer of this passage encourages you to
    (A) copy Anne Frank's diary
    (B) keep a daily record
    (C) pursue an interesting career
    (D) read about seventeenth-century England
135. Anne Frank's diary tells about
    (A) England in the seventeenth century
    (B) her interesting career
    (C) her life during World War II
    (D) her experiences in Nigeria
136. One reason given in this passage for keeping a diary is to
    (A) increase your knowledge of yourself
    (B) find out what other people think of you
    (C) lead an interesting life
    (D) understand history better
137. In this story, the word period means -
    (A) an event
    (B) a punctuation mark
    (C) a series of years
    (D) an old writing

Selection 5

Did you ever stop to think about how little a daily newspaper costs? For about twenty kobo, you can get a complete report of state, national or foreign news, sports, and business right in your home every day!

If newspapers depended on only the money they get from sales of the paper, they would have to charge you much more than twenty kobo. The cost of publishing a paper is very great. Think of the large building where the paper is written and printed, the delivery vans, and the many persons, such as newsmen, photographers, and pressmen, that are needed to publish a paper.

How, then do newspapers stay in business? They get most of their income from the advertisements they sell to stores and business firms. Besides helping you know about sales and telling you about new products, the advertisements you read help you buy your paper at a very low price.

138. Where is the paper written and printed?
    (A) in your home every day
    (B) in the delivery trucks
    (C) in a large building
    (D) in the photographers' offices
139. Where do newspapers get most of their income?
    (A) from selling paper
    (B) from the delivery boys
    (C) from the newsmen and pressmen
    (D) from the advertisements they sell
140. How much would the newspapers cost if they only received money for the sale of the papers?
    (A) less than fifteen kobo
    (B) a little more than fifteen kobo
    (C) much more than fifteen kobo
    (D) fifteen kobo

APPENDIX C

LISTENING COMPREHENSION TEST

LISTENING COMPREHENSION

Instructions: Listen as each selection is read. Then read each question about that selection (Nos. 141-160). Decide on the best answer to each question. Then write the letter (A, B, C, or D) that corresponds to your answer.

SAMPLE: Listen as the selection is read.

Seldom has a country been more inappropriately named than Greenland. Except for a narrow strip around its southern coast, it is a land buried under a cap of ice, which never goes away.

1. Greenland is buried under
   A. tundra
   B. ice
   C. soil
   D. trees
2. Greenland might better have been called
   A. Treeland
   B. Darkland
   C. Vineland
   D. Iceland

Selection 1

A miser buried his money at the foot of a big tree for safety. He missed seeing it, however, so everyday he'd dig up the carton containing the money, admire his wealth, and then bury the carton again. One day, a poor man approached unexpectedly, crouched in the bushes, and watched the miser examining his treasure. At night time, the poor man dug up the carton, stole the money, replaced it with sand, and buried the container again.

At daylight, when the miser went to admire his wealth, the other villagers heard quite a racket. They hastily deserted their work and sped to the big tree. They wereastonished to observe the miser standing alongside a carton full of sand. When he related his upsetting situation, his neighbours asked, "What were you doing with money at the foot of a tree?" "Nothing," replied the shocked miser. "I used to come here to look at it." "Well then," grumbled a villager, "look at the sand. That should give you as much pleasure".

Selection 2

A fisherman and his son had made a fine profit selling fish to the townspeople. They had purchased some provisions and a camel to carry them. As they joyously started homeward the boy rode on the camel. At a road junction they met some townspeople who said, "That's modern youth for you! The son rides while the father walks." The

son, embarrassed by their criticism, insisted that his father ride the camel the rest of the journey.

Soon, more townspeople strolled by and remarked, "Just look at that! There is a full-grown man riding a camel while his poor son walks."

The father was bewildered and said "the appropriate thin is for both of us to walk."

They were therefore surprised when the next group they met commented "Look at those foolish people! They have a camel, but they are both walking."

"Son", said the disgusted father, "You've just seen how ridiculous it is to attempt to satisfy everyone."

Selection 3

Every year, we have a festival of arts show in my hometown. It is held in the high school hall, and the rich businessmen donate awards. A photographer comes, and photographs of the winners appear in the newspaper. A local politician often serves as the chairman, and the school orchestra accompanies the acts. Admission is free, but donations are thankfully accepted and given to develop the town.

There is a wide range in the quality of the competition. Many acts are obviously amateur, but some are outstanding entertainment. The winners are selected by the amount of applause they receive. Usually, the contestants' friends and families shout, "Bravo! Bravo!" One year the winner was an acrobat, another year it was a drummer, and last year it was a singer. Altogether, this annual show is interesting. I wouldn't miss it!

Selection 4

Stories about how science might change the world of the future are called science fiction. Many of these tales are written by scientists who are making interesting guesses based on facts they already know. Many modern science fiction stories are about what will happen as the earth becomes more and more crowded. Will we escape to other planets or build big cities underground or perhaps under the ocean? Nobody can be certain. Only time will tell.

Selection 5

There was once a hare who was proud of being popular. One day she heard the dogs approaching and tried to escape with the help of her many friends. She went to the horse and pleaded, "Please transport me on your back." But the horse declined, saying "That would interfere with work I have to do for my master". The hare hurried to the cow and said, "Brother cow, can you help to keep the dogs away with your horns?" The cow answered, "Unfortunately, I have an appointment. Perhaps friend Goat can assist you." The hare asked the goat for help, but the goat replied, "If I take you on my back I may injure it". So the hare went to the ram for help. The ram responded, "May be another time. Dogs have been known to consume rams as well as hares." As the last hope, the hare ran to the calf to ask for help. The calf commented, "How can I, newborn, attempt what my elders will not do?" By this time the dogs were very near, and the hare had to run away as fast as she could.

Questions 141-160

Sample

1. Greenland is buried under
   (A) tundra
   (B) ice
   (C) soil
   (D) trees
2. Greenland might better have been called
   (A) Treeland
   (B) Darkland
   (C) Vineland
   (D) Iceland

Selection 1

141. The miser buried his money because he
   (A) thought it would grow
   (B) was afraid of thieves
   (C) stole it from his neighbours
   (D) didn't live near a bank
142. The miser dug up the money every day to
   (A) look at it.
   (B) add more
   (C) change the hiding place
   (D) spend some of it.

143. The poor man filled the carton with
     (A) more money
     (B) sand
     (C) dirt
     (D) grass
144. In this story, the word racket means a
     (A) frame with strings used in playing tennis
     (B) dishonest plan
     (C) loud noise
     (D) big fight.

NOW LISTEN TO THE NEXT SELECTION

Selection 2

145. The boy told his father to ride the camel because he -
     (A) thought his father looked tired
     (B) was tired of sitting
     (C) felt embarrassed
     (D) didn't like camels.
146. The father continued riding on the camel until
     (A) he was criticized
     (B) he and his son reached home
     (C) his son asked to ride
     (D) he fell off.
147. The boy was referred to as the "poor son" because he was
     (A) in rags
     (B) sad looking
     (C) on foot
     (D) very thin.

148. The boy should have learnt that
     (A) father knows best
     (B) you can't please everyone
     (C) most strangers are friendly
     (D) camels are useless animals.

NOW LISTEN TO THE NEXT SELECTION

Selection 3

149. The winner of the award last year was
     (A) an acrobat
     (B) a politician
     (C) a singer
     (D) a drummer
150. Music is supplied by the
     (A) high school orchestra
     (B) contestants themselves
     (C) band from another town
     (D) local businessmen
151. To win an award, the entertainers must receive the most
     (A) votes of the businessmen
     (B) cheers of their families and friends
     (C) applause from the audience
     (D) pictures in the local newspaper.
152. The author seems to think these shows are
     (A) professional
     (B) foolish
     (C) enjoyable
     (D) tragic
153. In this story, the word range means
     (A) a place to practice shooting
     (B) a cooking place
     (C) a distance between limits
     (D) a football field

NOW LISTEN TO THE NEXT SELECTION

Selection 4

154. This story says that science fiction is often written by
     (A) explorers
     (B) inventors
     (C) engineers
     (D) scientists
155. The person who wrote this story must have read many
     (A) science books
     (B) poems about planets
     (C) science fiction stories
     (D) letters from friends

156. In this story underground means
     (A) working in secret against something
     (B) wearing away a little at a time
     (C) on the surface of oceans
     (D) below the surface of the earth

NOW, LISTEN TO THE NEXT SELECTION

Selection 5

157. Why was the hare running away?
     (A) to escape from the dogs
     (B) to find a new friend
     (C) she was disappointed with her "friends"
     (D) the horse and bull frightened her.
158. The horse wouldn't help the hare because it
     (A) might hurt its back
     (B) had other work to do
     (C) was afraid of dogs
     (D) had an appointment
159. After going to the ram, the hare went to the
     (A) bull
     (B) goat
     (C) calf
     (D) horse
160. As used in the passage, decline means
     (A) refused
     (B) strayed
     (C) avoided
     (D) reduce

APPENDIX D

LETTER OF INTRODUCTION TO SCHOOLS

Ministry of Education,
Zonal Headquarters,
Zaria.

6th January, 1981.

The Principals,
G.S.S. Zaria,
G.G.S.S. Soba,
G.G.D.S.S. Zaria,
G.S.S. Giwa, ✓
G.D.S.S. Rigachikun.

INTRODUCTION OF MR.E.A. ABE AND PERMISSION
TO CONDUCT ENGLISH PROJECT

I am directed to Introduce to you the bearer, Mr.E.A.Abe Head of English, Advanced Teachers College Zaria who has been given permission to conduct English project programme In your school.

(2) He Is expected to do It with your years II & III and the exercise will last one day.

(3) Please kindly give him your Co-operation.

A.I. Suleiman.

(ALHAJI ISA SULEIMAN)
For ZONAL DIRECTOR
Z A R I A .

APPENDIX E

STUDENTS' PERSONAL DATA

STUDENTS' PERSONAL DATA

School _____
Class _____

1. Age (years) _____

2. Sex (Male or Female) _____

3. What is your first language? _____

4. What language do you speak most of the time to your playmates at home? _____

5. Please check (✓) the language you speak most of the time at school:
   ( ) English Only
   ( ) Mostly English
   ( ) Half English/Half my own language
   ( ) Mostly my own language

6. What education did your father receive? Check (✓) one please
   (A) ___ No education
   (B) ___ Some primary classes
   (C) ___ Full primary education
   (D) ___ Secondary education
   (E) ___ University education

7. What education did your mother receive? Check (✓) one please
   (A) ___ No education
   (B) ___ Some primary classes
   (C) ___ Full primary education
   (D) ___ Secondary education
   (E) ___ University education

8. What is your father's occupation? _____

9. What is your mother's occupation? _____

APPENDIX F

COMPUTER-PRINTED OUT RAW DATA SHEETS

CASE-NO	VOWELS	CONS	SYLL	PLUR
1	6.	5.	9.	5.
2	7.	5.	12.	7.
3	7.	8.	10.	4.
4	9.	2.	5.	7.
5	9.	5.	12.	6.
6	9.	6.	10.	5.
7	8.	6.	10.	6.
8	6.	3.	2.	8.
9	6.	2.	3.	8.
10	10.	8.	2.	6.
11	9.	1.	10.	9.
12	11.	8.	9.	7.
13	11.	8.	13.	6.
14	11.	6.	13.	8.
15	10.	8.	11.	5.
16	10.	7.	12.	8.
17	9.	6.	10.	7.
18	10.	6.	10.	9.
19	9.	8.	12.	7.
20	12.	7.	11.	6.
21	9.	5.	12.	6.
22	9.	7.	9.	6.
23	12.	5.	10.	7.
24	8.	7.	10.	9.
25	7.	8.	12.	5.
26	10.	6.	12.	4.
27	8.	8.	13.	7.
28	10.	5.	10.	7.
29	10.	8.	10.	7.
30	4.	4.	8.	5.
31	6.	6.	8.	6.
32	10.	8.	12.	7.
33	10.	5.	12.	5.
34	11.	8.	11.	9.
35	12.	8.	11.	8.
36	12.	7.	7.	8.
37	8.	10.	11.	8.
38	11.	7.	9.	7.
39	12.	8.	12.	8.
40	12.	7.	10.	9.
41	9.	8.	12.	9.
42	11.	8.	11.	6.
43	11.	8.	10.	10.
44	14.	6.	12.	8.
45	13.	6.	12.	9.
46	13.	8.	12.	7.
47	8.	9.	11.	7.
48	14.	9.	10.	9.
49	11.	7.	13.	5.
50	10.	9.	13.	5.

CASE-NO	VOWELS	CONS	SYLL	PLUR
50	10.	9.	13.	5.
51	11.	6.	11.	6.
52	7.	5.	13.	7.
53	10.	7.	14.	8.
54	14.	6.	14.	7.
55	11.	9.	10.	7.
56	8.	7.	14.	5.
57	11.	6.	13.	7.
58	10.	7.	13.	8.
59	11.	8.	12.	7.
60	7.	9.	14.	8.
61	5.	4.	12.	9.
62	13.	8.	12.	7.
63	10.	8.	13.	10.
64	15.	8.	8.	10.
65	11.	7.	10.	8.
66	9.	7.	11.	9.
67	9.	7.	13.	9.
68	13.	7.	12.	8.
69	12.	7.	13.	7.
70	10.	8.	10.	8.
71	7.	5.	13.	9.
72	4.	1.	11.	5.
73	6.	2.	13.	7.
74	12.	6.	13.	7.
75	6.	7.	9.	9.
76	8.	5.	10.	6.
77	8.	7.	8.	5.
78	11.	7.	13.	10.
79	10.	9.	9.	7.
80	9.	6.	9.	6.
81	8.	5.	11.	6.
82	6.	9.	14.	5.
83	14.	5.	12.	7.
84	9.	5.	11.	6.
85	5.	5.	7.	7.
86	7.	5.	12.	7.
87	7.	8.	12.	5.
88	7.	6.	10.	4.
89	10.	8.	9.	7.
90	10.	6.	6.	7.
91	11.	7.	11.	10.
92	5.	6.	10.	5.
93	11.	6.	10.	8.
94	8.	6.	7.	9.
95	11.	5.	11.	7.
96	4.	6.	9.	8.
97	5.	4.	11.	6.
98	8.	3.	11.	4.
99	10.	3.	8.	6.
100	9.	5.	12.	6.

CASE-NO	VOWELS	CONS	SYLL	PLUR
101	8.	4.	12.	9.
102	14.	9.	13.	10.
103	11.	7.	14.	8.
104	12.	5.	13.	8.
105	8.	6.	13.	8.
106	10.	6.	7.	6.
107	14.	9.	11.	8.
108	9.	5.	11.	7.
109	12.	4.	13.	5.
110	8.	4.	13.	7.
111	11.	9.	12.	8.
112	11.	4.	13.	8.
113	11.	8.	13.	8.
114	12.	7.	11.	7.
115	14.	8.	15.	10.
116	15.	8.	11.	10.
117	10.	4.	13.	7.
118	10.	5.	12.	9.
119	7.	6.	13.	8.
120	13.	7.	10.	8.
121	11.	4.	12.	6.
122	13.	5.	10.	7.
123	12.	8.	10.	9.
124	7.	4.	13.	7.
125	11.	6.	12.	9.
126	12.	5.	10.	9.
127	8.	5.	12.	7.
128	8.	6.	10.	8.
129	8.	8.	11.	8.
130	10.	5.	11.	8.
131	10.	6.	12.	7.
132	10.	6.	11.	6.
133	8.	5.	13.	9.
134	11.	8.	7.	9.
135	11.	3.	11.	9.
136	6.	4.	6.	7.
137	9.	6.	8.	7.
138	12.	4.	9.	7.
139	7.	5.	9.	8.
140	12.	4.	10.	6.
141	8.	8.	11.	6.
142	8.	1.	11.	6.
143	11.	5.	14.	6.
144	7.	3.	10.	7.
145	10.	3.	13.	10.
146	14.	4.	13.	8.
147	11.	3.	10.	8.
148	9.	3.	14.	7.
149	7.	2.	9.	5.
150	8.	7.	10.	6.

CASE-NO	COMP	POSS	AFF	CLOZE
1	6.	6.	7.	8.
2	3.	6.	7.	8.
3	5.	8.	7.	10.
4	3.	6.	9.	11.
5	5.	5.	7.	5.
6	5.	6.	6.	6.
7	5.	5.	9.	10.
8	4.	5.	10.	12.
9	8.	8.	7.	12.
10	5.	4.	6.	17.
11	2.	9.	9.	16.
12	5.	7.	10.	16.
13	5.	6.	9.	18.
14	8.	8.	7.	21.
15	6.	7.	8.	18.
16	8.	9.	9.	18.
17	8.	9.	6.	15.
18	3.	9.	10.	17.
19	9.	8.	9.	21.
20	8.	9.	10.	15.
21	6.	7.	7.	16.
22	4.	7.	10.	13.
23	9.	8.	5.	13.
24	6.	5.	9.	8.
25	5.	9.	10.	17.
26	7.	6.	10.	13.
27	5.	8.	9.	11.
28	5.	8.	7.	14.
29	5.	4.	9.	14.
30	3.	7.	7.	16.
31	5.	6.	8.	9.
32	4.	5.	7.	19.
33	5.	6.	7.	13.
34	8.	7.	9.	17.
35	8.	8.	9.	15.
36	9.	8.	7.	13.
37	7.	9.	7.	15.
38	9.	9.	10.	15.
39	9.	8.	9.	16.
40	8.	8.	9.	14.
41	8.	9.	9.	14.
42	9.	9.	9.	16.
43	7.	9.	9.	15.
44	9.	8.	9.	11.
45	8.	9.	8.	12.
46	7.	9.	10.	12.
47	9.	6.	9.	12.
48	9.	10.	9.	17.
49	7.	6.	9.	16.
50	6.	5.	10.	11.

	COMP	POSS	AFF	CLOZE
50	6.	5.	10.	11.
51	3.	10.	10.	21.
52	3.	8.	6.	14.
53	6.	8.	10.	15.
54	10.	6.	9.	22.
55	5.	10.	6.	19.
56	8.	7.	7.	16.
57	7.	9.	8.	20.
58	5.	6.	9.	18.
59	5.	6.	8.	20.
60	7.	5.	6.	16.
61	8.	6.	9.	20.
62	8.	9.	9.	19.
63	7.	7.	9.	18.
64	5.	6.	7.	5.
65	7.	10.	9.	21.
66	6.	8.	10.	16.
67	8.	6.	8.	12.
68	9.	8.	9.	16.
69	8.	7.	8.	12.
70	8.	9.	10.	19.
71	8.	7.	9.	14.
72	5.	4.	4.	13.
73	7.	4.	9.	11.
74	9.	8.	10.	18.
75	4.	9.	10.	13.
76	6.	9.	9.	15.
77	6.	5.	6.	7.
78	7.	7.	7.	10.
79	9.	8.	7.	10.
80	4.	8.	8.	14.
81	5.	6.	7.	13.
82	9.	7.	9.	16.
83	7.	8.	10.	15.
84	7.	9.	9.	10.
85	8.	6.	7.	7.
86	6.	9.	10.	12.
87	7.	9.	9.	14.
88	5.	9.	10.	15.
89	4.	7.	8.	6.
90	4.	8.	10.	8.
91	6.	6.	8.	3.
92	4.	4.	10.	10.
93	8.	8.	6.	8.
94	5.	6.	9.	11.
95	1.	10.	9.	7.
96	0.	5.	6.	1.
97	7.	5.	4.	11.
98	7.	6.	10.	13.
99	4.	6.	9.	18.
100	6.	7.	6.	21.

CASE-NO	COMP	POSS	AFF	CLOZE
101	5.	10.	10.	20.
102	9.	9.	10.	20.
103	7.	10.	8.	17.
104	8.	8.	10.	14.
105	8.	7.	9.	12.
106	8.	8.	8.	13.
107	6.	8.	10.	14.
108	6.	9.	7.	11.
109	6.	9.	9.	12.
110	8.	7.	9.	17.
111	9.	8.	8.	15.
112	7.	7.	7.	13.
113	7.	8.	8.	15.
114	4.	10.	9.	17.
115	10.	8.	10.	21.
116	9.	9.	10.	15.
117	7.	9.	10.	17.
118	7.	8.	9.	17.
119	8.	5.	9.	18.
120	9.	10.	9.	10.
121	8.	9.	7.	9.
122	9.	8.	8.	17.
123	9.	7.	9.	12.
124	7.	9.	8.	8.
125	7.	7.	8.	11.
126	6.	7.	8.	15.
127	7.	8.	6.	16.
128	7.	8.	6.	16.
129	8.	7.	5.	14.
130	7.	9.	10.	16.
131	8.	8.	7.	16.
132	6.	9.	7.	16.
133	9.	7.	9.	15.
134	7.	10.	9.	20.
135	8.	8.	10.	14.
136	6.	8.	7.	10.
137	7.	6.	9.	15.
138	5.	10.	10.	18.
139	7.	10.	8.	15.
140	7.	9.	9.	19.
141	7.	9.	10.	16.
142	6.	7.	9.	10.
143	8.	4.	8.	18.
144	6.	6.	6.	14.
145	7.	9.	5.	11.
146	6.	6.	10.	16.
147	6.	7.	10.	18.
148	9.	9.	9.	16.
149	7.	8.	5.	11.
150	8.	8.	9.	14.

CASE-NO	WORDM	READC	LISTC	PHONT	STRUT	CONTX	WORDID
1	15.	12.	7.	20.	24.	19.	63.
2	15.	12.	13.	24.	23.	23.	70.
3	15.	13.	15.	25.	24.	25.	74.
4	15.	15.	14.	16.	25.	26.	67.
5	15.	14.	12.	26.	23.	20.	69.
6	14.	11.	12.	25.	22.	20.	67.
7	12.	11.	11.	24.	25.	22.	71.
8	15.	13.	14.	11.	27.	29.	67.
9	15.	14.	14.	11.	31.	27.	69.
10	15.	15.	16.	20.	21.	32.	73.
11	15.	18.	16.	20.	29.	31.	80.
12	13.	13.	13.	28.	29.	29.	86.
13	15.	18.	17.	32.	26.	33.	91.
14	15.	14.	14.	30.	31.	36.	97.
15	7.	15.	15.	29.	26.	25.	80.
16	10.	12.	14.	29.	34.	28.	91.
17	15.	15.	15.	25.	30.	30.	85.
18	15.	16.	15.	26.	31.	32.	89.
19	15.	18.	17.	29.	33.	36.	98.
20	13.	15.	13.	30.	33.	28.	91.
21	15.	15.	15.	26.	26.	31.	83.
22	15.	15.	13.	25.	27.	28.	80.
23	13.	13.	13.	27.	29.	26.	82.
24	15.	14.	13.	25.	25.	23.	73.
25	11.	13.	12.	27.	29.	28.	84.
26	15.	14.	15.	28.	29.	28.	85.
27	15.	13.	14.	29.	29.	26.	84.
28	12.	13.	12.	25.	27.	26.	78.
29	15.	14.	13.	28.	25.	29.	82.
30	12.	14.	15.	16.	22.	28.	66.
31	15.	11.	13.	20.	25.	24.	69.
32	12.	14.	15.	30.	23.	31.	84.
33	15.	13.	12.	27.	23.	28.	78.
34	15.	15.	15.	30.	33.	32.	95.
35	15.	15.	14.	31.	33.	30.	94.
36	15.	14.	12.	26.	32.	28.	86.
37	15.	15.	13.	29.	31.	30.	90.
38	15.	17.	15.	27.	35.	30.	92.
39	15.	15.	14.	32.	34.	31.	97.
40	15.	18.	13.	29.	34.	29.	92.
41	14.	17.	16.	29.	35.	28.	92.
42	14.	17.	14.	30.	33.	30.	93.
43	14.	16.	16.	29.	35.	29.	93.
44	13.	15.	15.	32.	34.	24.	90.
45	13.	14.	13.	31.	34.	25.	90.
46	15.	16.	14.	33.	33.	27.	93.
47	13.	13.	11.	28.	31.	25.	84.
48	13.	15.	16.	33.	37.	30.	100.
49	14.	17.	13.	31.	27.	30.	88.
50	14.	12.	13.	32.	26.	25.	83.

CASE-NO	WORDM	READC	LISTC	PHONT	STRUT	CONTX	WORDTD
51	15.	18.	17.	28.	29.	36.	93.
52	13.	13.	13.	25.	24.	27.	76.
53	14.	14.	11.	31.	32.	29.	92.
54	15.	19.	14.	34.	32.	37.	103.
55	15.	17.	14.	30.	28.	34.	92.
56	15.	16.	14.	29.	27.	31.	87.
57	15.	17.	8.	30.	31.	35.	96.
58	15.	16.	15.	30.	28.	33.	91.
59	14.	17.	15.	31.	26.	34.	91.
60	14.	16.	14.	30.	26.	30.	86.
61	14.	15.	14.	21.	32.	34.	87.
62	15.	16.	14.	33.	33.	34.	100.
63	15.	16.	13.	31.	33.	33.	97.
64	15.	15.	10.	31.	28.	20.	79.
65	15.	18.	15.	28.	34.	36.	98.
66	13.	14.	13.	27.	29.	29.	85.
67	12.	12.	11.	29.	31.	24.	84.
68	15.	16.	14.	32.	34.	31.	97.
69	10.	11.	11.	32.	30.	22.	84.
70	12.	17.	17.	28.	35.	31.	94.
71	11.	13.	14.	25.	33.	25.	83.
72	13.	14.	13.	16.	18.	26.	60.
73	15.	14.	12.	21.	27.	26.	74.
74	12.	16.	16.	31.	34.	30.	95.
75	15.	18.	17.	24.	32.	28.	84.
76	13.	12.	12.	23.	30.	28.	81.
77	15.	10.	11.	23.	22.	22.	67.
78	15.	13.	10.	31.	31.	25.	87.
79	15.	12.	12.	28.	31.	25.	84.
80	10.	13.	11.	24.	26.	24.	74.
81	13.	14.	11.	24.	24.	26.	74.
82	12.	14.	13.	29.	30.	28.	87.
83	13.	14.	13.	31.	32.	28.	91.
84	14.	11.	13.	25.	31.	24.	80.
85	14.	11.	13.	17.	28.	41.	66.
86	15.	14.	14.	24.	32.	27.	83.
87	12.	12.	13.	27.	30.	26.	83.
88	15.	15.	14.	23.	28.	30.	81.
89	15.	11.	12.	27.	26.	21.	74.
90	13.	11.	16.	22.	29.	21.	72.
91	15.	11.	9.	29.	30.	18.	77.
92	12.	13.	12.	21.	23.	22.	66.
93	15.	13.	10.	27.	30.	23.	80.
94	15.	11.	12.	21.	29.	26.	76.
95	15.	12.	12.	27.	27.	22.	76.
96	15.	12.	11.	19.	19.	16.	54.
97	14.	15.	11.	20.	22.	25.	67.
98	14.	11.	11.	22.	27.	27.	76.
99	15.	16.	13.	21.	25.	33.	79.
100	15.	17.	16.	26.	25.	36.	87.

CASE NO	WORDM	READC	LISTC	PHONT	STRUT	CONTX	WORDID	
101	15.	17.	13.	24.	34.	35.	93.	
102	15.	20.	20.	36.	38.	35.	109.	
103	15.	17.	15.	32.	33.	32.	97.	
104	12.	12.	13.	30.	34.	26.	90.	
105	15.	14.	14.	27.	32.	27.	86.	
106	15.	15.	14.	23.	26.	28.	77.	
107	15.	17.	13.	34.	32.	29.	95.	
108	15.	15.	13.	25.	29.	26.	80.	
109	15.	15.	11.	29.	29.	27.	85.	
110	15.	19.	15.	25.	31.	32.	88.	
111	15.	17.	16.	32.	33.	30.	95.	
112	15.	14.	13.	28.	29.	28.	85.	
113	15.	17.	14.	32.	31.	30.	93.	
114	14.	15.	13.	30.	30.	31.	91.	
115	15.	19.	20.	37.	38.	36.	111.	
116	14.	15.	18.	34.	38.	29.	101.	
117	15.	16.	15.	27.	33.	32.	92.	
118	15.	17.	16.	27.	33.	32.	92.	
119	14.	16.	16.	26.	30.	32.	88.	
120	15.	13.	17.	30.	36.	25.	91.	
121	9.	8.	14.	27.	30.	18.	75.	
122	15.	17.	16.	28.	32.	32.	92.	
123	12.	13.	15.	30.	34.	24.	88.	
124	13.	11.	11.	24.	31.	21.	76.	
125	15.	12.	14.	29.	31.	26.	86.	
126	8.	14.	16.	27.	30.	23.	80.	
127	13.	14.	13.	25.	28.	29.	82.	
128	12.	14.	13.	24.	29.	28.	81.	
129	12.	14.	13.	27.	28.	26.	81.	
130	13.	16.	13.	26.	34.	29.	89.	
131	13.	14.	15.	28.	30.	29.	87.	
132	15.	20.	20.	27.	28.	31.	86.	
133	12.	15.	14.	26.	34.	27.	87.	
134	15.	18.	14.	22.	35.	35.	92.	
135	14.	14.	15.	25.	33.	28.	88.	
136	14.	14.	18.	16.	28.	24.	68.	
137	15.	15.	14.	23.	29.	30.	82.	
138	14.	16.	15.	25.	32.	32.	89.	
139	15.	15.	15.	21.	33.	30.	84.	
140	14.	18.	15.	26.	31.	33.	90.	
141	12.	13.	13.	23.	32.	28.	83.	
142	10.	10.	11.	20.	28.	20.	68.	
143	14.	18.	16.	30.	26.	32.	88.	
144	12.	14.	15.	20.	25.	26.	71.	
145	15.	14.	12.	26.	31.	26.	83.	
146	12.	15.	17.	31.	30.	28.	89.	
147	14.	17.	18.	24.	31.	32.	87.	
148	14.	15.	17.	26.	34.	30.	90.	
149	12.	13.	14.	18.	25.	43.	66.	
150	10.	11.	16.	25.	31.	24.	80.	

APPENDIX G

CODING PROCEDURES FOR STUDENTS' PERSONAL DATA AND TESTS

CODING PROCEDURE

Columns	Variables	Description
001-003	Student ID	01 - 150
004	SCHL	Schools — 1 = Giwa: Government Secondary School (All boys) 2 = Soba: Government Girls' Secondary School (All girls) 3 = Rigachikun: Government Day Secondary School (Mixed) 4 = Zaria: Government Secondary School (All boys) 5 = Zaria: Government Girls' Day Secondary School (All girls) 6 = Angwan Rimi: Government Day Secondary School (Mixed)
005	LOCAT	Location of School 1 = Urban 2 = Rural
006-007	AGE	Age in Years
008	SEX	1 = Male 2 = Female
009	FSTLANG	Students' First Language 1 = Hausa, 2 = Fulani, 3 = Yoruba, 4 = Igbo, 5 = Nupe
010	PLALANG	Students' Language with Playmates 1 = English 2 = First language 3 = Others
011	SCHLANG	Language spoken most of the time at school 1 = English only 2 = Mostly English 3 = Half English half own language 4 = Mostly own language

Columns	Variables	Description
012	FAEDUC	Father's Education 1 = No Education 2 = Some primary classes 3 = Full primary education 4 = Secondary education 5 = University education
013	MOEDUC	Mother's Education 1 = No education 2 = Some primary classes 3 = Full primary education 4 = Secondary education 5 = University education
014	FAOCCUP	Father's occupation 1 = White collar job 2 = Blue collar job 3 = Skilled job 4 = Business/trading 5 = Farming
015	Blank	
016-030	VOWELS	Scores in Word Identification: Phonics - vowels
031	Blank	
032-041	CONS	Scores in Word Identification: Phonics - Consonants
042	Blank	
043-057	SYLL	Scores in Word Identification: Phonics - Syllabication
058	Blank	
059-068	PLUR	Scores in Word Identification: Structure - Plurals

Columns	Variables	Description
069	Blank	
070-079	COMP	Scores in Word Identification: *Structure - Compound Words*
080	Blank	
081-090	POSS	Scores in Word Identification: Structure - Possessives
091	Blank	
092-101	AFF	Scores in Word Identification: Structure - Affixes
102	Blank	
103-127	CLOZE	Scores in Word Identification: Structure - Cloze Procedure
128	Blank	
129-143	WORDM	Scores in Word Identification: Structure - Word Meaning
144	Blank	
145-164	READC	Scores in Reading Comprehension
165	Blank	
166-185	LISTC	Scores in Listening Comprehension