ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

A Study of the Readability level of Grade Ten Textbooks and the Comprehension Ability of the Students Using Them

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A b s t r a c t

The purpose of this study was to determine both the comprehension ability of grade 10 students and the readability level of their textbooks using the cloze procedure and the Fry graph respectively.

The readability level of the textbooks was determined by taking three-one-hundred-word sample passages from each of the four grade ten textbooks, (English For New Ethiopia For Grade Ten, History For Grade Ten, Geography For Grade Ten and Biology For Grade Ten) selected for the study. The findings show that the approximate grade levels of the history, geography, biology and English textooks are 15, 11, 9 and 8 respectively. Thus, with its long words (an average of 174 syllables per 100 words) and sentences (an average of 23.8 words per sentence), the history textbook has been found out to be the most difficult. The percentage cloze test mean scores of 18.4 for history, 19.7 for geography, 23.4 for biology and 26.3 for English confirm the findings of the Fry graph.

In order to determine their comprehension level, 12 cloze tests (three from each of the above text books) were administered to 90 grade ten students randomly selected from three government high schools (Yekatit 12, Menelik II and Higher 12) in Addis Ababa. Then the students were classified into frustration, instructional or independent levels on the basis of their cloze results. The findings show that the percentage

of the sample population who are at the frustration level of comprehension is 97.8 for history, 96.7 for geography, 95.6 for biology and 94.4 for English. It appears that these students do not understand their textbooks even with the help of their teachers. This may be for two reasons:

1) As has been comfirmed by earlier findings (read Mendida, 1988), the comprehension ability of our students is extremely low.

2) Since the Fry graph and the cloze procedure use native speaker criteria, one would not expect second language learners to read and understand like the natives.

Based on the findings, it was recommended that

1) long words should be replaced by short words
2) thir history textbook be written in short sentences,
3) the readability of textbooks be determined before they are made available for classroom use
4) reading should be taught as a separate lesson

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CHAPTER ONE

Introduction

1.1 Statement of the Problem

English is used as a medium of instruction in our high schools and universities. Students are required to read and understand not only their text books but also other supplementary materials related to their subject areas. But teachers often complain about the lack of comprehension ability of their students. The fact that too many students repeat classes every year shows the gravity of the problem. Although lack of comprehension alone may not be responsible for student failing it is thought to be one of the main factors contributing towards low student achievement. There is also the question of the textbooks themselves. If they are too difficult to cope with, students will be frustrated and even stop reading and switch to cheating in examinations. Therefore, the comprehension ability of the students and the readability level of the textbooks are worth investigating.

1.2 Purpose of the Study.

The purpose of this study is to determine the comprehension ability of grade ten students on their English, history, geography and biology textbooks. It also tries to determine the readability level of these textbooks. Therefore, this thesis will attempt to answer the following questions:

1) Do grade ten students comprehend their textbooks independently, i.e. without the help of their teachers ?

2) If not, can they manage to comprehend with the help of their teachers ?

3) Are the textbooks appropriate to their grade level ?

1.3 Importance of the Study.

One of the main reasons why students are taught the English language is to help them have access to different materials written on a variety of content areas. But with low student comprehension ability, this objective cannot be achieved. Therefore, this study tries to investigate both the comprehension ability of the students and the readability level of the textbooks so as to seek a solution after determing the extent of the problem. The researcher hopes that the study will be invaluable to teachers, curriculum designers and other educators concerned.

1.4 Limitation of the Study.

In order to determine the comprehension level of grade ten students on their four textbooks, it was necessary to construct 12 cloze tests (three from each text) which took a long time (over a week) to administer. The fact that the students had to come to school for a long time during their free shift might have affected the results. However, the researcher has tried his best to minimize any extraneous variables that might affect the study (see chapter 3).

CHAPTER TWO

Review of Related Literature

In this chapter, the literature on cloze procedure and readability is reviewed. Previous researches conducted here in Ethiopia using the cloze procedure and readability formulas are also reviewed.

2.1 Cloze Procedure.

Vintz (1972:20) defines cloze as "a procedure in which the reader attempts to anticipate meaning from context and to accurately supply the deleted words from a passage".

The American researcher Wilson Taylor (1953) was the first to coin the term cloze procedure. This is a new way of testing comprehension by deleting words from a passage at regular intervals (usually every fifth word). The number of correctly guessed words show how much the reader has understood (Harrison, 1980).

Taylor says that the word "cloze" is pronounced like the verb "close" and is derived from "closure", the term that gestalt psychologists apply to the human tendency to complete a familiar but not quite-finished pattern - to see a broken circle as a whole, for example, by mentally closing up the gaps. He argues that the same principle applies to language (Rye, 1982).

Concerning the use of the cloze procedure to test comprehension, Gilliland (1972:20) has this to say:

> ... cloze procedure involves accuracy in that the child cannot hope to fill in the blanks if he cannot recognise the majority of words given. It also involves fluency and a knowledge of grammatical structure. Further, it necessitates understanding the text and therefore comprehension.

According to Rye (1982:32) the child is involved in the following when answering cloze test items.

(i) recognizing words
(ii) using semantic, syntactic and at times stylistic information to infer and predict
(iii) drawing meaning from outside the context of the immediate sentence
(iv) skimming to recapitulate on what has been read
(v) scanning, in search of unspecified information that may help the prediction.

Jon (1976) tells us that the cloze procedure has become an accurate measure of reading comprehension. Anderson also points out that the cloze procedure may be used to measure the reading difficulty of English for second language learners. He further states that the procedure may be used to measure the reading comprehension abilities of non-native speakers learning English (Chapman, 1983).

Before using a cloze test, one has to ask about its validity. Regarding this, Oller (1973:106) writes:

> It [the cloze procedure] appears to be a useful measure of reading comprehension in the majority of cases, studies have revealed correlation of 0.80 and above, with standardized tests of reading comprehension. In fact, in one study, Bormuth (1969: 265) found a multiple correlation coefficient

> of .93 between cloze scores and a variety of linguistic variables which he used to estimate the difficulty of a number of passages of prose. He goes so far as to say that cloze tests measure skills closely related or identical to those measured by conventional multiple choice reading comprehension tests.

Jon (1976:255) says that 'the cloze procedure has been the subject of literary hundreds of research efforts over the past twenty five years' and that 'the overwhelming preponderance of evidence supports the procedure as an accurate and reliable tool.'

In a cloze procedure the fifth or the seventh word is usually deleted (except for the first sentence in a paragraph which is left intact). The deletion of every fifth word is preferred because it is simple, economical and provides the greatest number of items per passage (Bormuth, 1968). Alderson's (1980:66) study confirms 'that increasing the amount of context on either side of a cloze gap beyond five words had no effect on the ease with which the gap would be closed, on the average'.

Although there are a number of ways of applying the cloze technique, the usual procedure is to sample the text by taking three passages (one from the early pages, another from the middle and third from the end (Gilliland, 1972). Each passage should have at least 250 words. To obtain reliable results, a test containing 50 items should be given to a student population of 25 to 30 (Bormuth, 1968).

In constructing cloze tests a standard length of blank is used in place of the omitted words. Commonly a blank of twelve letter spaces is left. If test-takers are given blanks which are proportional in length to the omitted words, they will have access to additional information which would allow them to exclude a number of alternative possibilities (Harrison, 1980).

Cloze tests may be given before or after the students have read the passage from which the test was made. According to research findings both methods are equally valid (Bormuth, 1968). Before the test is being administered, some points must be made clear to the students: (1) that they should attempt to fill every blank (2) only one word is needed for each blank (3) spelling errors will not be marked wrong (Harrison, 1980).

Harrison points out that in scoring cloze tests, only the exact words used by the author are generally accepted. This is called Verbatim Scoring. Verbatim scoring is preferred because synonym scoring takes much time. It is also faster, more reliable and more valid Harrison (1980:93) further states:

> In the early days of cloze research, a number of studies were conducted to consider the results of verbatim versus synonym scoring, and the most important point to note is that experimenters (e.g. Bormuth, 1965 a) found extremely high correlations between the two scoring systems. This means that ... little is gained by going to the enormous trouble of accepting synonyms; a similar set of result is obtained if a verbatim scoring system is used.

As has been pointed out by Vintz (1972) an individual's performance on a cloze test is a measure of his ability to understand the meaning of the material being read. For example, a score of forty percent or below is equated with the frustration level while a score that is between forty and fifty is appropriate for instructional level of reading comprehension. If the score is above fifty percent, it is appropriate for the independent level.

Work has been done which provides useful reference points in interpreting cloze scores. Rankin and Culhane (1969) summarized much of the important work which has been done in searching for a percentage cloze score which was consistent with an adequate level of comprehension on the part of a reader who was taking a multiple - choice test. A passage on which a child can answer 75% of questions correctly is at the instructional level, i.e. he is probably gaining enough from it for the text to be profitably employed in the classroom provided the teacher's help is available. By contrast, for a child to be able to work independently from a text there must be greater comprehension and thus a figure of 90% correct answers on a comprehension test is used as a criterion for reading at the independent level. There was fairly cloze agreement between Bormuth, and Rankin and Culhane with regard to the percentage cloze scores which were comparable to the instructional and independent levels. At the instructional level (75% correct on multiple choice) the children's cloze scores obtained were 40-49.

This seems an acceptable level of comprehension, provided that a teacher's help is readily available. At the independent level (90% correct on multiple-choice tests) a cloze score of 60% corresponds to this comprehension criterion. In other words, for a group to be able to work successfully on a book on their own, they should be capable of scoring 60% on a fifth-wrod deletion cloze test (Harrison, 1980).

Using Ethiopian students as subjects, some studies have been made to determine both the comprehension ability of students and the difficulty level of textbooks. James A.Lee (1967) investigated the reading level of the Haile Selassie I University (now, Addis Ababa University) freshman students and the difficulty level of their textbooks using the Davis test and the Flesch formula respectively. He found out that the reading level of the students varied from grade four to grade eleven level while the difficulty level of the text books varied from grade twelve to grade sixteen.

The late Tsegaye Woldeyesus (1982) investigated the comprehension ability of the social science and natural science freshman students and the difficulty level of their geography and chemistry textbooks using the cloze procedure and the FOG index respectively. The social science freshmen were found to be on the frustration level of comprehension when tested on their grography textbook, An Introductory Geography of Ethiopia by Mesfin Wolde Mariam, which had a reading grade level of grade eleven. The natural science freshmen were found to be on the instructional level of

comprehension when tested on their chemistry textbook, General Chemistry by W.H. Slabaugh and T.D. Parsons, which had a reading grade level of university second year.

Tsegaye concluded that the social science freshmen were extremely poor readers. He underlined the fact that such a low level of comprehension is a serious obstacle for the students and does not enable them to identify details from the main ideas let alone to do assignment. The investigation of the comprehension ability of the A.A.U (Addis Ababa University) natural science freshmen indicates that they can read their text-books with limited comprehension. Therefore, he recommends a methodology that combines teaching subject matter and reading skills called 'study guides'. On the basis of the findings of the reading grade levels of the chemistry and the geography textbooks he recommends the reduction of some sentences and the replacement of difficult words with more similar synonyms.

Tibebe Alemayehu (1987) compared the proficiency level of government and Mission Schools in Addis Ababa using the cloze test and the FOG index. He came out with the result that the Mission students were more proficient than the government students. Based on his findings, he recommended that the universities and colleges design courses for improving English language reading skills for the incoming students with emphasis on deficiencies that the students exhibit in the entrance examination. Moreover, a thorough review of the English curriculum was suggested.

Using the Fry graph, cloze procedure and comprehension tests Mendida Berkessa (1988) investigated the gap between the actual reading ability and what is expected of the Bahr Dar Teachers' College freshmen in their subject area texts. The results of the cloze analysis indicated that the students did not have adequate knowledge of English grammar and the comprehension responses showed that they lack higher comprehension skills. He also found out that the English and Geography majors could read textbooks of grade 4 and grade 2 difficulty level respectively only with the help of their teachers. For fear of lowering the standard of education, Mendida opposed the idea of simplifying textbooks to match the students reading ability. Instead he recommended, among other things, - that reading lessons be introduced in the high school English programmes and students be encouraged to read simplified edition works of fiction during their leisure time.

Although all the above Ethiopian researchers used readability formulas in their investigation, their focus of study was not textbook readability. Since no significant study has been made so far on textbook readability in this country (especially in the high schools),,the author feels that this study will initiate other researchers to follow suit.

2.2 Readability.

Harrison (1980:14) defines readability as the constellation of text factors which together determine whether a reader will be likely to find a book attractive, interesting and comprehensible.

Readability is primarily concerned with the problem of matching written materials with readers. The reader can profit from books if he is properly matched with the right book. If he is given texts beyond his reading ability he soon becomes discouraged and stops reading. On the other hand, if a competent reader is given a very simple text well below his reading ability, he will be deterred from reading (Gilliland, 1972).

Klare (1963:248) has pointed out that there is a problem in schools and other organizations of telling whether a piece of writing is comprehensible to certain readers or not. He mentions three possible solutions to this problem:

> At first is to guess, writers and teachers have long been making estimates of readability with skill probably developed largely from experience and feed back from the readers. A second solution --- is a test. With the large amount of reading materials being published and available today, still another approach is often needed - Readability formulas have come to provide a third possible solution to the problem.

Readability Formulas.

The early formulas were produced between 1920 and 1934. These early formulas gave only approximate ratings of the difficulty of the texts using aspects such as word range and the number of prepositions and polysyllabic words. In the period from 1935-1938, they became more detailed and reflected great concern for greater accuracy and reliability but they required laborious collection of statistics and lengthy calculations.

From the period 1939-1953, the detailed formulas were superceded by a series of formulas in which efficiency and simplicity of use were the prime considerations.

Klare reports that the period from 1954 until 1959 shows the shift on to the development of specialized formulas for particular purposes. As a result of an increase in the volume of printed matter the interest in readability has revived. Consequently, this had led to an increased need for search for accurate measures for predicting and controlling the difficulty of texts. The appearance of charts and sentence completion procedures has assisted in this revival (Gilliland, 1972).

Surveys of readers' opinion show that vocabulary plays a large part in readability. The most common ways of measuring vocabulary difficulty are word length and word frequency. Word length is measured in letters or syllables per word, and word frequency by counting how often the word occurs in ordinary usage. Thus, these two variables (i.e word length and word frequency) have central role in readability formulas. Although some short words may conceptually be more difficult than long words, they have rarely been included in a predictive formula because they are difficult to estimate reliably. If formula users want to predict the difficulty level of a whole book, they are advised to take one sample from near the beginning of the book, one from the middle, and one from near the end (Harrison, 1980). If the

sampling procedures are carefully followed, the calculations can produce a score which indicates the difficulty of the text (Gilliland, 19721).

If a formula is to be valid, it should have strong connection with text difficulty as measured by some other criteria such as subjective judgements and comprehension test scores. This strong connection is measured in terms of correlation coefficient. Generally speaking high correlations have been obtained in studies which were based on a very wide age-range. For example, in the Effective use of Reading Project most of the formulas studied were found to have correlation of about 0.7 with the criterion of teacher judgements. In general, it can be said that readability formulas have good predictive validity and that is why they are valued by many teachers and researchers (Harrison, 1980).

Since no formula is equally effective at all levels, in using a formula, relative strengths and weaknesses must be considered. For example, the Dale-Chall formula has been found to be the best but also the most tedious to work-out. The Powers, Summer and Kearl and the Spache formula's do not discriminate well above junior levels and therefore are not accurate beyond a reading level of about ten years. According to Klare (1963) the Fry graph is a valid measurement for both primary and secondary materials and it produces scores that highly correlate with several well known formulas (e.g. the Flesch formula). In order to assist formula users, Harrison (1980-67) compares the validity, age level accuracy

and ease of application of nine formulas he considers to be the most useful.

Table 1. Summary of research data on nine readability measures, and ratings of ease of application.

	Validity	Age level accuracy (8-16 age range)	Ease of application
Flesch formula (grade score)	XXXX	XXX	XX
Fry graph	XXXX	XXX	XXX
Powers-Summer-Kearlformula	XXXX	X	XXX
Mugford formula and chart	XXXX	XXXX	XX
FOG formula	XXX	XX	XXXX
Dale-Chall Formula	XXXXX	XXXX	X
Spache formula	XXXX	XX	XX
FORCAST formula	XX	XX	XXXX

Key: the more X's the better

The table includes data from three sources: an initial research paper, cross-validation studies and the validation study carried out on the effectiveness of reading project, particularly the results on closeness to teachers' estimates. The age level accuracy rating assumes the approximate age range eight to sixteen years (i.e. from middle junior to upper secondary).

Harrison (1980:67-81) gives a description and calculation of each of the above formulas.

1. The Dale-Chall formula (1948).

The Dale-Chall formula, like the Spache formula, uses a word list as a basis for predicting vocabulary difficulty. The Dale list of 3000 words (Appendix IA) was originally derived from research into the words best known to American eight-year-olds. The formula, though time-consuming to compute, has shown up well in validation studies, and is as follows:

Us grade = (0.1579 x Percent UFMWDS)
+ (0.0496 x WDS/SEN)
+ 3.6365

where UFMWDS = unfamiliar words (for definition, see below)

and WDS/SEN = average number of words per sentence

In the light of experience gained in applying their formula to passages of various types, and comparing the formula's prediction with the judgements of experts, Dale and Chall came to feel that the formula scores might be slightly underestimating the difficulty of harder materials. They therefore suggested that the formula score should be converted to a corrected grade level. The 'corrected age levels' below represent the Dale and Chall transformation table, but, as usual 5 has been added to turn the scores into age levels for UK schools.

Dale-Chall formula score	Corrected age levels
4.9 and below	9 and below
5.0 - 5.9	10 - 11
6.0 - 6.9	12 - 13
7.0 - 7.9	14 - 15
8.0 - 8.9	16 - 17
9.0 - 9.9	College
10.0 and above	College graduate

As with the Spache formula, there are a number of rules for deciding what may be regarded as a 'familiar' word.

Common nouns

1. Consider familiar all regular plurals and possessives of words on the list. For example, because boy, girl, church, and army are on the list, boy's (possessive), girls, churches, and armies (regularly formed plural) are familiar).

2. Count irregular plurals as unfamiliar, even if the singular form appears on the list; oxen is unfamiliar, although ox is on the list. However, when the plural appears as a separate word or is indicated by the ending in parentheses next to the word, it is considered familiar; goose and geese appear on the list and both are considered familiar.

3. Count as unfamiliar a noun-that is formed by adding -er or -r to a noun or verb appearing on the word list unless this er or r form is indicated on the list. Owner is considered familiar because it appears on the list as own(er).

Proper nouns.

1. Names of persons and places are considered familiar. Japan, Smith, and so on, are familiar even though they do not appear on the word list.

2. Names of organizations, laws, documents, titles of books, movies, and so on generally comprise several words (a) When determining the number of words in a sample, count all the words in the name of an organisation and the like. Chicago Building Association should be counted three words. Declaration of Independence should be counted three words. Special Rule : when the title of an organisation, law, and so on is used several times within a sample of 100 words, all the words in the title are counted, no matter how many times they are repeated.

   (b) For the unfamiliar word count, consider unfamiliar only words which do not appear on the Dale list, except names of persons or places. Chicago Building Association is counted one unfamiliar word (Association) since Building and Chicago are familiar. Declaration of Independence is counted as two unfamiliar words - as of is on the list.

   Special rule: when the name of an organisation, law, document, and so on is used several times within a sample of 100 words, count it only twice when making the unfamiliar word count.

Security Council, if repeated more than twice within a 100 word sample, is counted as four unfamiliar words.

Abbreviations.

(a) In counting the words in a sample, an abbreviation is counted as one word. Y.M.C.A., Nov., a.m. and p.m. are each counted as one word.

(b) In making the unfamiliar word count, an abbreviation is counted as one unfamiliar word only. Y.M.C.A. is considered one unfamiliar word. Nov. is considered familiar because the names of the months are on the word list. U.S., a.m. and p.m are each considered familiar. Special rule: An abbreviation which is used more than twice Within a 100-word sample is counted as two unfamiliar words only.

Verbs.

Consider familiar the third person, singular forms (-s, or -ies from y), present participle forms (-ing), past-participle forms (-n), and past-tense forms (-ed, -ied from y), when these are added to verbs appearing on the list. The same rule applies when a consonant is doubled before adding -ing or -ed. For example, ask, asking asked, dropped and dropping are considered familiar, because ask and drop appear on the word list.

Adjectives.

(a) Comparatives and superlatives of adjectives appearring on the list are considered familiar. The same rule

applies if the consonant is doubled before adding -er or -est. For example, longer, prettiar, and bravest are familiar because long, pretty, and brave are on the list.

(b) Adjectives formed by adding - n to a proper noun are familiar. For example, American, Australian.

(c) Count as unfamiliar an adjective that is formed by adding - y to a word that appears on the list. But consider the word familiar if - y appears in parantheses following the word. E.g. Woolly is unfamiliar although wool is on the list; sandy is familiar because it appears on the list as sand(y).

Adverbs.

(a) Consider adverbs familiar which are formed by adding -ly to a word on the list. (In most cases -ly is indicated following the word.) Soundly is familiar because sound is on the list.

(b) Count as unfamiliar words which add more than -ly or change a letter, like easily.

Hyphenated words.

(a) Count the hyphenated words as unfamiliar if either word in the compound does not appear on the word list. When both appear on the list, the word is familiar.

Miscellaneous Special Cases.

(a) Words formed by adding -en to a word on the list (unless the -en is listed in parentheses or the word itself

appears on the list) are considered unfamiliar; sharpen is considered unfamiliar although sharp is on the list, golden is considered familiar because it appears on the list gold(en).

(b) Count a word unfamiliar if two or more endings are added to a word on the list; clippings is considered unfamiliar although clip is on the list.

(c) Words on the list to which -tion, -ation, -ment, and other suffixes not previously mentioned are added are considered unfamiliar, unless the word with the ending is included on the list; treatment is unfamiliar although treat is on the list; protection is unfamiliar although protect is on the list; preparation is unfamiliar although prepare is on the list.

(d) Numerals like 1947, 18 and so on, are considered familiar.

Example:

According to Dale's 3000 word list the following passage has seven unfamiliar words: produce, condition, provinces, deficient, mineral, fertilizer and pests.

Sample Passage

Here in Ethiopia we grow many crops. Some of our crops are cash crops and some are produced for food. Under good conditions, the farmers get good crops. Sometimes the crops are poor. They are poor because of bad weather. This

happened in some of our provinces in 1973 G.C. Often they are poor because the soil has become deficient in mineral salts and it needs fertilizing. They may be poor because cattle or other big animals walked over them. They are more often poor because they are attacked by pests. Crop pests cause a lot of damage in farms (100 words).

Sources: Biological Science for grade 10.

UFMWDS = 0.07
Number of words = 100
Number of sentences = 10
WDS/SEN (100 ÷ 10) = 10

US grade = (0.1579 x percent UFMWDS) = (0.1579 x 0.07)
+ (0.0496 x WDS/SEN) = (0.0496 x 10)
+ 3.6365 + 3.6365
= 4.14

The passage has a difficulty level of grade 4.

2. Gunning's FOG formula (1952).

This is one of the easiest of all readability indices to work out, and this fact does explain its popularity. Gunning noticed that the vocabulary variable of percentage of polysyllabic words (i.e. words of three or more syllables) was much quicker to count than the total number of syllables in a passage, and since this variable correlated highly with other vocabulary variables, it seemed reasonable to work from it in assessing readability. The problem with this variable is that it does not discriminate very effectively

between relatively simple passage of prose, since the percentage of polysyllabic words per 100 words will be uniformly low. The FOG formula is as follows:

Us grade = 0.4 x (WDS/SEN + % PSW)

where WDS/SEN = average number of words per sentence and % PSW = percentage of polysyllabic words.

3. The Flesch formula (1948).

The Flesch formula is one of the best-known readability measures. Since Flesch was primarily interested in assessing adult reading material, he chose a difficulty index which did not relate to grades, but to a notional comprehension score out of 100. Thus a difficult passage would yield a score of below 50, while a simple child's book would approach a score of 100. This is the Flesch formula:

Reading ease score = 206.835
- (0.846 x sylls/100 W)
- (1.015 x WDS/SEN)

where Sylls/100W = syllables per 100 words and
WDS*SEN = average number of words per sentence.

4. The Spache formula (1953).

This formula has been used widely in the United Kingdom, and provided that the user is aware that the formula is unreliable with books above a true difficulty level there is no reason why this should not continue. The vocabulary variable, percentage of unfamiliar words (i.e.

words not derived from words on Dale's 769 word list) takes time to work out but it tends to produce more accurate scores than those from the Powers-Summer-Kearl formula. The Spache formula is:

$$\text{US grade} = (0.121 \times \text{WDS/SEN}) + (0.082 \times \text{Percent UFMWDS}) + 0.659$$

where WDS/SEN = average number of words per sentence and UFMWDS = unfamiliar words.

Deciding whether or not a word is to be regarded as 'familiar' is not always easy. The following guidlines help to work out the Spache formula.

(a) Count all letters and numbers in figures as familiar

(b) Proper nouns, or names of persons, places, are counted as familiar.

(c) Count regular verb forms of words on the list as familiar. This includes only -ing, -es, -s, -ed and those changes involving doubling of the final consonant, or dropping the final e or changing y to i when adding a suffix. Derivatives of verbs involving internal changes in spelling as ride - rode, buy - bought, break-broke, are not familiar unless on the list Verbs changed to nouns by adding a suffix are not familiar unless on the list.

(d) Count regular plurals and possessive endings of nouns as familiar. Plurals in -s, -es, -ies are familiar, irregularly formed plurals, as in ox-oxen, goose - geese, are unfamiliar unless on the list.

(e) Derivatives of verbs that function as a noun or adjective, as build - building, burn - burnt, or nouns that are changed to function as an adjective, as sleep - sleepy, sun - sunny, brave - bravery, are not familiar unless on the list.

(f) Adjectival or adverbial endings as -ly, -est, -er, -ily are considered familiar when the base word is on the list. For example, big, bigger, biggest, or brave, bravery, braves, braver are all considered familiar since big and brave are on the list.

(g) Count a word as unfamiliar only once even though it appears again or with variable endings later in the sample.

(h) A group of words, consisting of the repetition of a single word or exclamation, as oh, oh, oh and look, look, look, is counted as a single sentence regardless of punctuation.

(i) Count hyphenated words as unfamiliar unless both parts appear in the word list.

(j) Count contractions, as didn't , unfamiliar unless on the list.

(k) Count hyphenated words, compound words and numbers in figures as one word.

5. The Powers-Summer-Kearl formula (1958).

This is a relatively simple formula to work out, and although it produces few reading levels below seven years, it is more suitable for primary school books than the Flesch formula. The Powers-Summer-Kearl formula is not suitable

for secondary texts because it exhibits a marked ceiling effect, and will rarely produce a reading level above twelve, even on difficult material. The formula is:

US grade = -2.2029 + (0.0778 x WDS/SEN)
+ (0.0455 x syll/100 W)

where WDS/SEN = average number of words per sentence and syll/100 w = average number of syllables per 100 words.

6. McLaughlin's SMOG formula (1969).

This is the easiest and quickest formula of all to work out by hand, since MCLanghlin found an extremely clever way round the time - consuming business of counting every word in every sentence. This formula uses a single variable, the number of polysyllabic (i.e. three-or-more syllable) words in 30 sentences. McLaughlin' SMOG formula is:

US grade = 3 + $\sqrt{p}$ (i.e 3 plus the square root of p)

where p = the nearest perfect square to the number of polysyllabic words (i.e. three-or-more syllable words) in thirty sentences.

7. The Mugford chart (1970).

Leonard Mugford's chart is the product of years of research and classroom trials, and its letter-per-word variable takes account of difficulties in monosyllabic words like strength which many formulae would ignore. This is how you work it out.

Count a 100-word sample. Treat words joined by hyphens, e.g. boat-house, as separate words. Count contracted forms, such as wouldn't, as one word only. Count each number expressed in figures as a word.

Make four lists of the words in the sample. List one contains the polysyllabic words (i.e. words of three or more syllables). List 2 consists of the non-syllabic words (i.e words of one or two syllables) seven or more letters long. Lists 3 ard 4 contain respectively the six-letter and five-letter non-syllabic words. Do not list the same word more than once, but always count derived forms separately from their base words; e.g. child, children, children's would be listed separately.

Fig.1 The Mugford readability chart : Word length section.

Number of words in list	List 1	List 2	List 3	List 4
1	4	2	2	1
2	8	5	3	2
3	12	7	5	3
4	16	10	6	4
5	20	12	8	5
6	24	15	9	6
7	28	17	11	7
8	32	20	12	8
9	36	22	14	9
10	40	25	15	10
11	44	27	17	11
12	48	30	18	12
13	52	32	20	13
14	56	35	21	14
15	60	37	23	15
16	64	40	24	16
17	68	42	26	17
18	72	45	27	18
19	76	47	29	19
20	80	50	30	20
21	84	52	32	21
22	88	55	33	22
23	92	57	35	23
24	96	60	36	24
25	100	62	38	25
26	104	65	39	26
27	108	67	41	27
28	112	70	42	28
29	116	72	44	29
30	120	75	45	30

Proper nouns, representations of animal noises, etc., should be classified in the same way as ordinary words, but numbers expressed in figures should not be listed.

When you have worked through the entire sample, count the number of words in each list. Find the word length score for each list from figure 1 and then add these scores together to obtain the word length score for the passage. For example, an analysis of the following passage yields 5 words in list 1, 6 words in list 2, 4 words in list 3 and 10 words in list 4, giving a word length score

$$20 + 15 + 6 + 10 = 51$$

Sample Passage

The capitalist begins with money. He buys the means of production and labour power. The workers, using their labour power on the means of production, produce commodities. The capitalist takes these commodities and sells them for money. The amount of money he gets at the end of the process must be greater than the amount of money he started with. The difference is his profit.

If the amount of money at the end of the process is not greater than the amount of money he started with, then there is no profit and he stops producing. Capitalist production does not .....(100 words).

Source: English For New Ethiopia, Grade Ten.

Fig.2 The Mugford readability chart: Conversion table.

Number of Sentences					Difficulty
7 or more	6	5	4	3 or fewer	indo.
142-146	133-137	124-128	115-119	107-110	20
136-141	128-132	119-123	111-114	102-106	19
130-135	122-127	114-118	106-110	98-101	18
124-129	116-121	108-113	101-105	93-97	17
117-123	110-115	103-107	95-100	88-92	16
112-116	105-109	98-102	91-94	84-87	15
108-111	101-104	95-97	88-90	81-83	14.5
104-107	98-100	91-94	85-87	78-80	14.0
101-103	94-97	88-90	82-84	75-77	13.5
96-100	90-93	84-87	78-81	72-74	13.0
92-95	86-89	81-83	75-77	69-71	12.5
88-91	82-85	77-80	71-74	66-68	12.0
83-87	78-81	73-76	68-70	62-65	11.5
80-82	75-77	70-72	65-67	60-61	11.0
79	74	69	64	59	10.9
78	73	68	63	-	10.8
77	72	67	-	58	10.7
76	71	66	62	57	10.6
75	70	-	61	56	10.5
74	69	65	60	55	10.4
73	68	64	59	-	10.3
71-72	67	63	58	54	10.2
70	66	62	57	53	10.1
69	65	61	56	52	10.0
68	64	60	55	51	9.9
67	63	59	54	50	9.8
66	62	57-58	53	49	9.7
64-65	60-61	53	52	48	9.6
63	59	55	51	47	9.5
62	58	54	50	46	9.4
61	55-56	52	48	44	9.3

Number of Sentences					Difficulty index
7 or more	6	5	4	3 or fewer	
59-60	55-56	52	48	44	9.2
58	54	51	47	43	9.1
56-57	53	49-50	46	42	9.0
55	52	48	45	41	8.9
53-54	50-51	47	43-44	40	8.8
52	49	45-46	42	39	8.7
50-51	47-48	44	41	38	8.6
49	46	43	40	37	8.5
47-48	44-45	41-42	38-39	35-36	8.4
45-46	42-43	40	37	34	8.3
43-44	41	38-39	35-36	33	8.2
41-42	39-40	36-37	34	31-32	8.1
39-40	37-38	35	32-33	30	8.0
37-38	35-36	33-34	30-31	28-29	7.9
35-36	33-34	31-32	29	26-27	7.8
33-34	31-32	29-30	27-28	25	7.7
30-32	28-30	26-28	25-26	23-24	7.6
27-29	26-27	24-25	22-24	0-22	7.5
24-26	23-25	21-23	0-21		7.4
21-23	19-22	0-20			7.3
18-20	0-18				7.2
0-17					7.2 or less

Find the difficulty index for the sample from figure 2. Look down the appropriate column until you encounter the sample's word length score. The sample's difficulty index (which is 8.6 in this case) is on the same row.

8. The FORCAST formula (Sticht, 1973)

This formula was devised by Tom Sticht and his collaborators on US Army projects. It can be useful in assessing forms, job materials or other print which is not in normal sentence form, and which could not be assessed by a formula at all. It uses just one variable : the number of single-syllable words in a 150-word passage. The FORCAST formula is:

US grade = 20-(NOSW + 10)

where NOSW = number of one-syllable words in a passage of 150 words.

9. The Fry graph (1977)

This is one of the most straight forward ways of obtaining a readability index. The graphical form is helpful for a number of reasons. It saves time on making calculations, it offers visual information... the users of the graph can tell at a glance if a passage is in comparative forms more difficult than average in vocabulary or in sentence length. (Since the Fry graph is employed in this study, it will be treated in detail in the next chapter).

CHAPTER THREE

Methodology

The comprehension ability of 90 grade ten students randomly selected from three senior high schools in Addis Ababa was determined using the cloze procedure. A total of 12 passages (three passages from each text) were used for the cloze tests from their English, geography, history and biology textbooks. These books are prepared by kindergarten and Formal Education Curriculum Division and published by EMPA (Educational Materials Production and Distribution Agency) in the Ministry of Education for use in grade ten senior high schools throughout the country. Table 2 shows the names of the texts, number of units or chapters, their copy right dates and number of pages of each text.

Table 2 Name of textbooks, number of units, copyright dates and number of pages.

Name of the text	Number or units or chapters	copyright dates	Number of pages
Biology for grade 10	7	1977	233
English For New Ethiopia, Pupil's Book-grade 10	20	1980	352
History for grade 10	10	1980	322
Geography for grade 10	5	1981	169

The 90 students were classified into frustration, instructional and independent levels on the basis of their cloze test results. The difficulty index of the same text-

books was also determined using the Fry graph to see if the textbooks were appropriate for the grade level of the students.

3.1 The Fry graph.

The Fry graph was employed in this study to find the difficulty level of the grade ten textbooks mentioned earlier. Harrison (1980:73-74) writes the directions for using the Fry graph as follows:

1. Randomly select three sample passages and count out exactly 100 words each, beginning with the beginning of a sentence.

2. Count the number of sentences in the 100-words, calculating the length of the fraction of the last sentence to the nearest one-tenth.

3. Count the total number of syllables in the 100-word passage.

4. Enter the graph with the average number of sentences and syllables, plot a dot where the two lines intersect. The area where the dot is plotted will give you the approximate grade level.

5. When counting syllables for numerals and abbreviations, count one syllable for each symbol. For example, 1955 is four syllables, U.S.A is three syllables.

Following is an example of how to find the difficulty level of a 50-page book by taking three 100-word sample passages.

Table 3 An example on how to determine readability level.

Page	Number of words	Number of sentences	Number of syllables
6	100	7.2	100
20	100	7.8	130
45	100	6	100
Average	100	7	110

If we plot the average number of sentences (7) and syllables (110) on the Fry graph, we find that the book has an approximate difficulty level of grade 3.

3.2 Cloze Test.

3.2.1 Selection of passages.

This study followed Harrison's (1980) sampling procedure which suggests that three passages for cloze tests should randomly be selected - one from the beginning, one from the middle and one from the end. Since this procedure coincides with the procedure for using the Fry graph, the same passages were used both for the cloze tests and readability assessment. Table 4 shows the selected passages together with their source and difficulty index, .

3.2.2 Construction.

12 cloze tests were constructed by deleting every fifth word from each of the 12 passages selected from the English history, geography and biology grade ten textbooks. 50 words were deleted from each passage leaving fifty blank spaces. Thus, each student had to supply 600 words altogether (for the cloze tests see Appendix II.

Table 4 Title of passages, source and approximate grade level of the textbooks.

Passage	Title (topic of the passage	Source	Approximate grade level as measured by Fry
1	A Noble cause	E.I.E Pupil's Book Grade 10	8
2	Tired Land		
3	The Accumulation of capital		
4	The Advance of capitalism in the 1850's	History Grade 10	15
5	Lenin's Theory of Socialist Revolution		
6	Problems Encountered by the Revolution		
7	The Major Cereal crops	Geography Grade 10	11
8	Conservation of Water and Air		
9	Transportation		
10	Where are Micro-organisms found?	Biology Grade 10	9
11	How do Parasites Survive if no Host is there?		
12	The Problem of Insect Pests		

Table 5 Name, student population and location of government high schools in Addis Ababa.

No.	Name of School	Number of students			Number of grade 10 students			Location Ketena (zone)
		M	F	T	M	F	T	
1	Ayer Tena	1658	1506	3164	324	287	611	1
2	Higher 4	488	587	1074	340	280	620	1
3	Kolfe	3236	2618	5854	1115	839	1954	1
4	Abiot Kirs	3169	3004	6173	996	798	1794	2
5	Shimelis Habte	2212	2501	4713	584	627	1211	2
6	S.O.S	1290	1387	2677	259	258	517	2
7	Bole	3654	3268	6922	958	833	1791	3
8	Kokebe Tsibah	2309	2565	4874	561	711	1272	3
9	Misrak	2090	2903	4993	601	791	1392	3
10	Nefas Silk	3229	3638	6867	1003	1067	2070	3
11	Wondirad	803	890	1693	242	195	437	3
12	Entoto	2530	2993	5523	621	624	1245	4
13	Higher 12	2224	2070	4294	661	579	1240	4
14	Menilik II	4123	4315	8438	1066	1180	2246	4
15	Tikur Anbessa	1471	1082	2553	530	286	816	4
16	Yekatit 12	3074	2857	5931	846	635	1481	4
17	Addis Ketema	3065	2548	5613	656	574	1230	5
18	Ethiopia Tikdem	1538	1565	3103	564	484	1048	5
19	Higher 7	3438	3261	6699	1119	1020	2139	5
20	Medhane Alem	5770	5420	11190	1059	1062	2121	5
	TOTAL	51371	50978	102349	14105	13130	27235	

Source: Addis Ababa Schools' Office.

3.2.3 Sample Population.

Out of the 20 government high schools in Addis Ababa (see table 5) three were selected for the study by lot. Again, using the lottery method, 90 grade ten students (30 students from each school) were selected. Since four students (three from Menilik and one from Yekatit 12) later on reported that they wouldn't be able to sit for the tests for personal reasons, the number of students in Higher 12 was raised from 30 to 34 making a total of 90 students as intended. Table 6 shows the schools selected for the study together with the sample population and the number of grade ten students.

Table 6. Selected Schools by grade ten population.

Selected Schools	Sample population	Number of grade ten population
Higher 12	34	1240
Menilik II	27	2246
Yekatit 12	29	1461
Total	90	4967

3.2.4 Administration.

Before the tests were being administered to the [illegible] students a number of precautions were taken.

a) Invigilators were selected from among the staff members based on the recommendation of the school administration.

b) The objectives of the study was made clear to the students, invigilators and the directors.

c) Sufficient demonistration was given on how to fill in the blanks using simple passages.

d) They were advised to read the passages thoroughly first to get the main idea.

e) They were informed that spelling errors would not count against them if it was clear to the scorer which word was intended.

f) They were instructed to fill in only one word in each blank.

g) They were informed that they could take as much time as required working at their own pace.

The progress of the test was closely supervised by the reasearcher to check if there were any irregularities. Besides, the tests were spread over a week to avoid boredom on the part of the students.

3.2.5 Scoring And Interpretation.

In scoring the tests, two points were given for each right answer in order to change it into percentages. The percentage scores were interpreted as follows:

40% or below	Frustration Level
41% - 50%	Instructional Level
Above 50%	Independent level

CHAPTER FOUR

4. Findings And Discussion

4.1 Results of The Fry Graph

Since one of the aims of this study is to determine the readability level of the textbooks, using a formula that assigns a grade level was found appropriate. Hence, four grade ten textbooks (English For New Ethiopia - Grade Ten, History For Grade Ten, Geography For Grade Ten and Biology For Grade Ten) currently in use in the Ethiopian high schools were analyzed using the Fry graph. As has been discussed in the literature, the Fry graph is one of the best readability measurements that can be used in determining the readability level of high school texts.

One of the factors that determines the difficulty level of a text is the conceptual difficulty of words. However, as has been already stated in the literature (see chapter 2), the conceptual difficulty of a word is difficult to estimate reliably. Therefore, the Fry graph uses two variables to determine the readability level of textbooks - sentence length and word length. Sentence length is measured by counting the number of sentences in three one-hundred-word sample passages and dividing it by three to find the average number of sentences. The greater the number of sentences, the shorter the sentences. For example, if we have five sentences in a one-hundred-word sample passage, it is not

hard to calculate that the average sentence is 20 words (100 ÷ 5) long. Similarly, if the number of sentences is 10, the average sentence is 10 words (100 ÷ 10) long. The Fry graph assumes that short sentences and short words are better understood than long sentences and long words. Word length is measured by counting the number of syllables in three one-hundred- word sample passages and then dividing the sum by three to find the average number of syllables. The greater the number of syllables in a passage, the longer the words it contains. Table 7 shows the approximate grade levels of the textbooks as measured by the Fry graph. The grade levels were found by plotting the average number of syllables and the average number of sentences on the Fry graph (For the Fry graph see Appendix 3).

Table 7 Approximate grade level of the four grade ten textbooks.

	Number of Sentences				Number of Syllables				Approximate
Textbooks	P_1	P_2	P_3	Ave	P_1	P_2	P_3	Ave	grade level
History	4.6	4.3	3.4	4.1	169	174	178	174	15
Geography	8.9	8.4	5.6	7.6	154	159	179	164	11
Biology	6.	4.2	10	6.7	173	144	139	152	9
English	6.5	3.8	7.4	5.9	148	140	149	146	8

Ave = Average

P_{1-3} = Passages 1-3

Table 7 shows that the average number of sentences in the three sample passages taken from the English textbook is 5.9 while the average number of syllables is 146. By

plotting these two numbers on the Fry graph, it was found out that the approximate grade level where this textbook can be used is grade 8. This means the average grade eight student can read the textbook with understanding. Although the English textbook is comprehensible to an average grade eight student, the grade ten students are at frustration level for it. This may be due to the poor comprehension ability of the students and the use of native speaker criteria both in the Fry graph and the cloze procedure. In figure 3, the readability level of the four textbooks is compared.

Fig.3 Approximate grade level of the four textbooks.

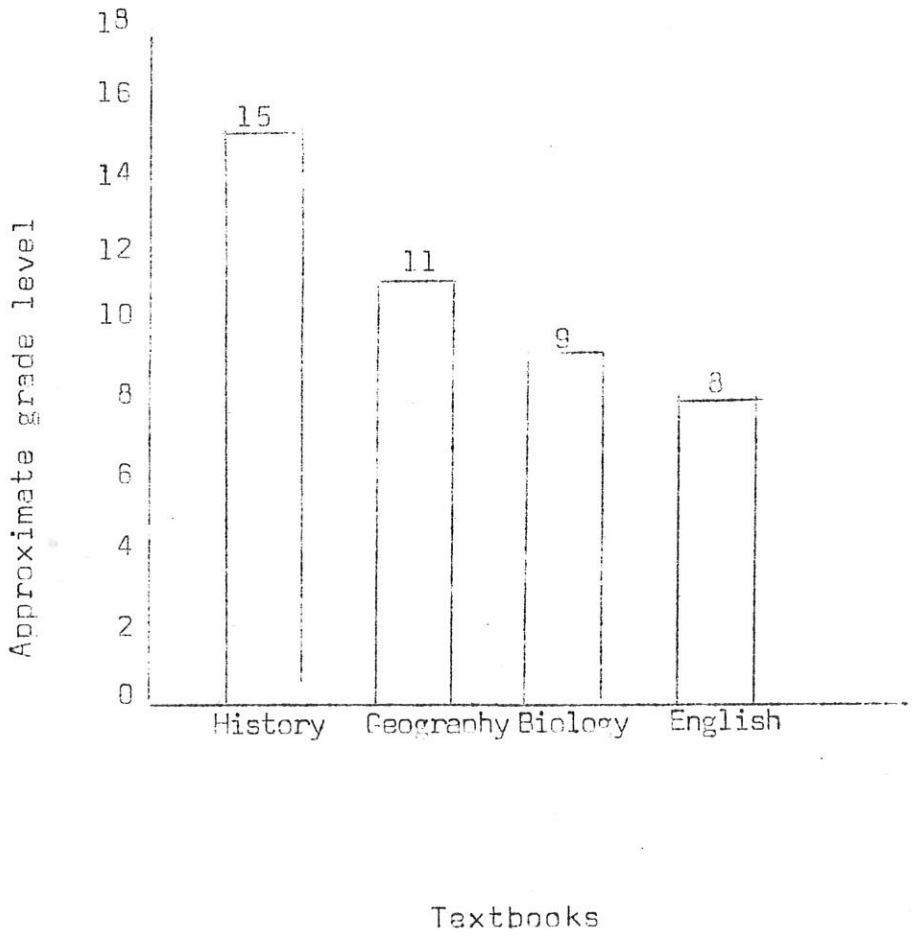


Figure 3 shows a visual representation of the readability level of the four textbooks as measured by the Fry graph. The numbers at the top of the bars indicate the grade level for which the textbooks are appropriate. For example, the history textbook is comprehensible to a third year university student while the geography textbook can be understood by an average grade eleven student.

Similarly, the biology textbook is comprehensible to an average grade nine student. As the textbooks differ in their difficulty level so do the passages. To show the variation among the passages, a comparison of sentence length, word length and readability level is made in table 8.

As indicated in table 8, the passages taken from the English textbook have the same readability level in spite of their differences in sentence length and word length. This may be attributed to the decrease of word length as the sentence length increases and vise versa. For example, passage 3 has the highest syllable count (149) but the lowest average sentence length (13.5 words per sentence). On the other hand, in the history passages, the increase in word length corresponds to the increase in sentence length (178 and 29.4 respectively). Thus, the history textbook, with its long words and sentences has been found out to be the most difficult. The lowest cloze test mean scrore of 18.4% (see table 9) confirms the findings of the Fry graph. The geography passages vary from grade eight to sixteen. This can be interpreted

Table 8 Sentence length, word length and approximate grade levels of the passages taken from the English, History, Geography and Biology textbooks.

Source	Passage	Sentence Length		Word Length	Approximate Grade level of the passages	Approximate Grade level of the textbooks
		Ave.No. of sentences /100 words	Ave. No. of words/sentence	Ave.No. of syllables /100 words		
ENE	1	6.5	15.4	148	8	
Grade	2	3.8	26.3	140	8	8
Ten	3	7.4	13.5	149	8	
History	4	4.6	21.7	169	14	
Grade	5	4.3	23.2	179	15	15
Ten	6	3.4	29.4	178	16	
Geography	7	8.9	11.2	154	8	
Grade	8	8.4	11.9	159	9	11
Ten	9	5.6	17.9	179	16	
Biology	10	6	16.7	173	14	
Grade	11	4.2	23.8	144	9	9
Ten	12	10	10	139	6	

as the geography textbook containing simple passages which can be understood by a great eight student and difficult ones comprehensible to a fourth year university student. The biology textbook also contains simple and difficult passages that require a comprehension reading level of grade five and a university sophomore.

As has been discussed earlier, one of the reasons why the textbooks differ in their readability level is because they use words and sentences of different length. Although the Fry graph uses number of sentences in a passage of one hundred words to measure sentence length, the researcher has found it necessary to convert this into words per sentence in order to make it more comprehensible to the reader. In figures 4 and 5, sentence length and word length of each textbook is compared.

By looking at figure 4, one can say that the history book uses longer sentences than the other textbooks. In the three one-hundred-word sample passages, it has an average of 23.8 words per sentence (approximately three lines of the size used in this book) while English has only 16.9. The geography textbook uses shorter sentences than the other three textbooks with an average of 13.2 words per sentence.

Fig. 4 Average sentence length in the four grade 10 textbooks.

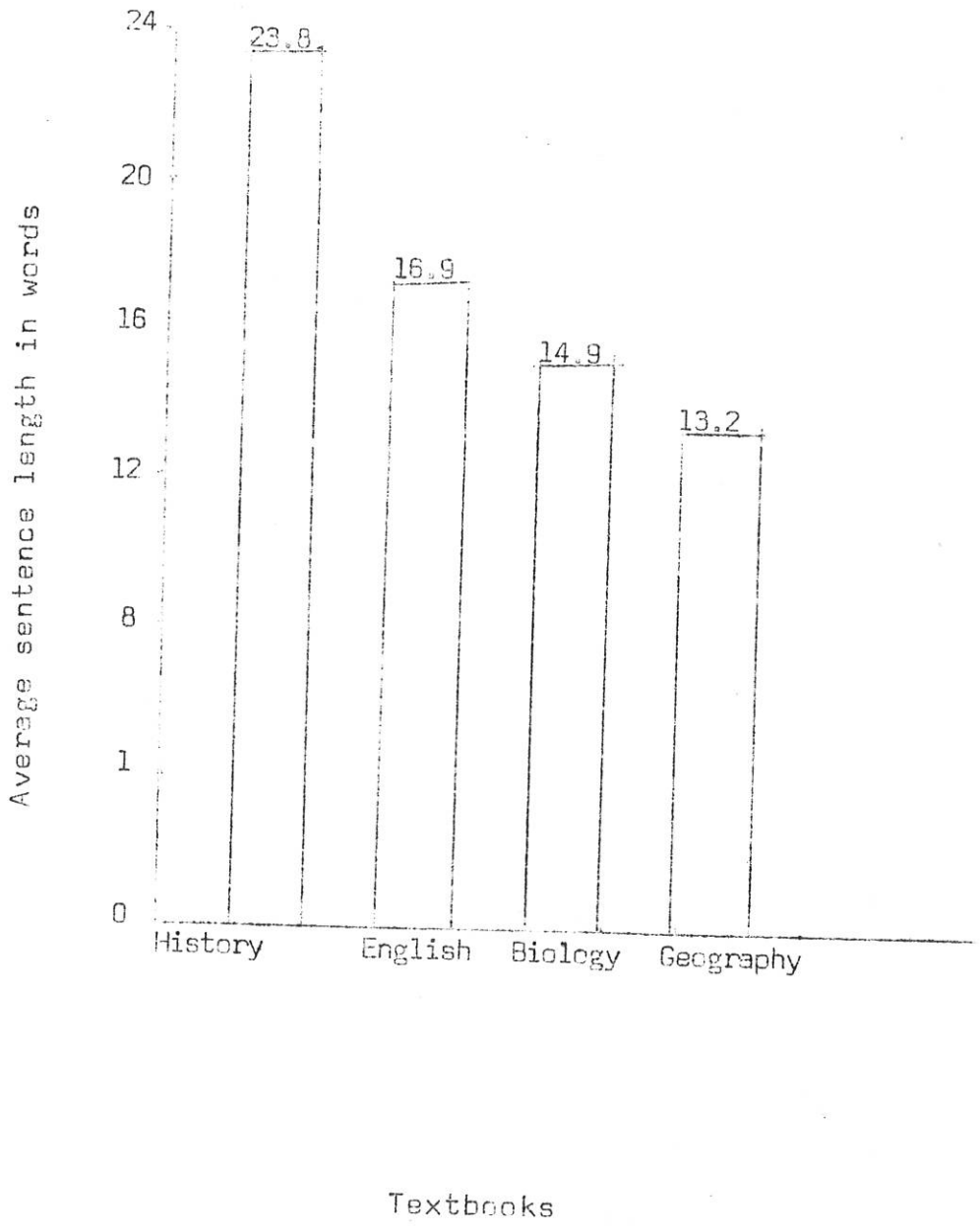
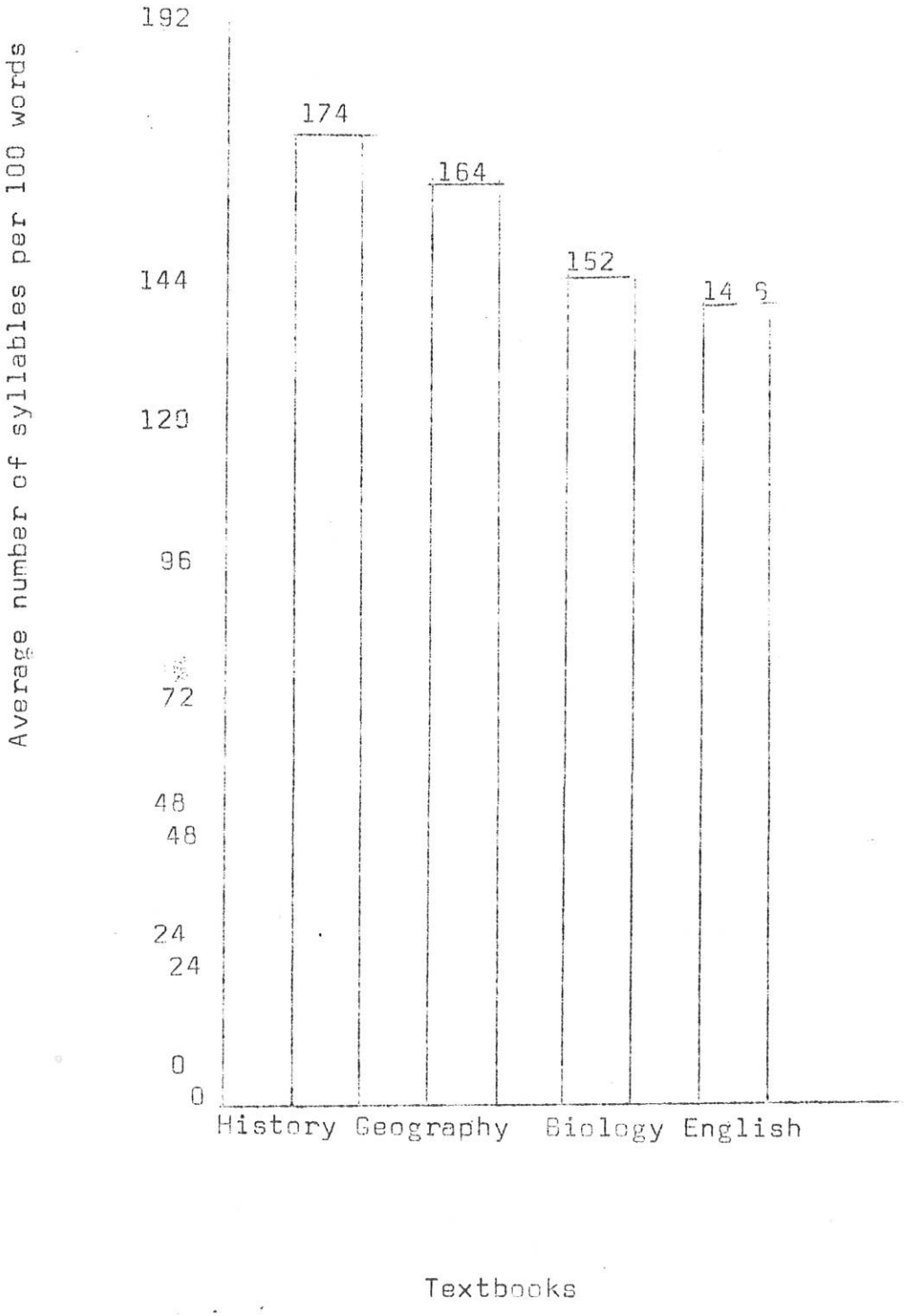


Fig. 5 Average number of syllables per 100 words in four grade ten textbooks.



Although the geography textbook uses shorter sentences than the other textbooks, it uses longer words than English and biology with an average syllable count of 164 per 100 words (Fig.5). Primarily because of its long words geography ranks second in difficulty level. As figure 5 indicates, history has the highest syllable count (174 per 100 words) and English the lowest (146). This means history uses relatively longer words than English and the other texts.

4.2 Results of the Cloze Tests.

In an attempt to find out the comprehension ability of the sampled grade ten population, twelve cloze tests (three from each of the textbooks mentioned earlier) were administered to 90 students randomly selected from three different schools in Addis Ababa (for the Cloze test results see Appendix IV). The readability of the passages ranged from grade 5 (passage 12) to grade 16 or fourth year university level (passages 9 and 6). In order to classify the students into frustration, instructional or independent levels, the frequency distribution for the cloze test results on the four textbooks was computed as follows.

Table 9 Frequency distribution for the cloze test results of grade ten sampled population.

Marks	History frequency	Geography frequency	Biology frequency	English frequency
48-53	0	0	1	2
42-47	1	2	4	3
36-41	1	2	5	4
30-35	4	3	18	9
24-29	5	4	26	20
18-23	29	42	22	31
12-17	44	32	14	17
6-11	5	5	0	3
0-5	1	0	0	0
Mean	18.4	19.7	23.4	26.3
S.D.	6.78	6.76	8.17	8.78

As shown in table 9. the mean score of the sampled population for history is 18.4, for geography 19.7, for biology 23.4 and for English 26.3. As has been explained in the preceding chapter, a cloze test score of 40 or below is interpreted as frustration level. Thus, the grade ten students are at frustration level of comprehension because of their inability to comprehend their textbooks even with the help of their teachers. Table 10 shows the percentage of students at different comprehension levels.

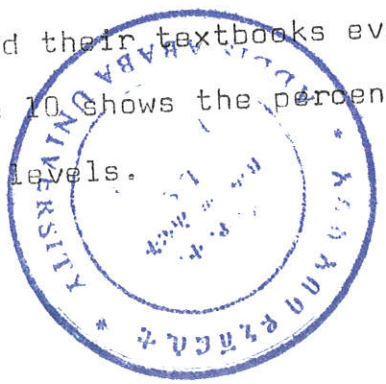


Table 10. Percentage (and number) of students at different comprehension levels for their English, biology, geography and history textbooks.

Textbooks	Percentage of Students at different Comp.levels			
	F.L	I.L	IN.L	TOTAL
English	94.4 (85)	5.6 (5)	-	100 (90)
Biology	95.6 (86)	4.4 (4)	-	100 (90)
Geography	96.7 (87)	3.3 (3)	-	100 (90)
History	97.8 (88)	2.2 (2)	-	100 (90)

F.L = Frustration level
I.L = Instructional level
In.L = Independent level

By looking at table 10, we find that only 5.6% (or 5 out of 90 students) of the sampled population are at the instructional level for their English textbook although the book is 2 years below their grade level. It appears that these students can manage to understand the textbook with the help of their teacher. The remaining 94.4% (or 85 students) are at frustration level of comprehension and therefore have a problem of understanding the textbook even with the help of their teachers. This is not surprising in view of the findings of Mendida Berkessa (1988) that Bahr Dar Teacher's College Freshmen can understand a text of grade 4 difficulty level only with the help of their teachers. As indicated in table 10, the percentage of students who are at instructional level of comprehension goes down to 4.4% or biology, 3.3% for geography and 2.2% for history.

Since the criteria used in Fry graph and the cloze procedure are for first language speakers, one would not expect second language learners to read and understand like the natives. However, this study is indicative of the relative position of our students to that of the natives. Table 11 shows the cloze test results of the three schools by passage difficulty.

As indicated in table 11, the mean scores of the students in all the three schools decrease as the readability level of the textbooks increase. For example the mean score for passage 12 which has a difficulty level of grade 5 is 31.7 while the mean score for passage 9 which has a readability level of grade 16 is 15.6. The fact that the mean score of the students decreases with the increase of passage difficulty in all the three schools shows that the cloze procedure is consistent in measuring the comprehension ability of the students. Although some of the passages have the same readability levels, the students have scored different results. This might be due to the fact that the students differed in their comprehension ability.

Table 11 Cloze test results of the three schools by passage difficulty.

Passage	Difficulty level of passages (in grades)	Source (grade 10 textbooks)	Cloze Test Results			
			Mean Score (in percentages)			
			Yekatit 12	Menilik II	Higher 12	Mean score of each passage
12	5	Biology	28.5	35.3	31.5	31.7
1	8	English	25.2	29	29.8	28.1
2	8	English	25.7	26	28.6	27.1
3	8	English	23.6	24	23.6	23.7
7	8	Geography	20.6	22.4	25.2	22.9
8	9	Geography	20.8	23	19.9	21.1
11	9	Biology	21.4	15.3	21.5	21
4	14	History	19.5	19.2	17.2	18.6
10	14	Biology	17.9	19.6	18.4	18.6
5	15	History	17.7	17.7	19.4	18.4
6	16	History	20	19	16.4	18.3
9	16	Geography	15.7	15.3	15.7	15.6

CHAPTER FIVE

5. Conclusion And Recommendations

5.1 Conclusion

At a time when a number of teachers complain about the comprehension ability of their teachers, it was necessary to conduct a study in order to find out whether there is a mismatch between the readability level of the textbooks and the grade level of the students. It was also necessary to determine whether the textbooks could be used for instructional purpose or independent reading. The findings of the Fry graph show that the approximate grade levels of the history, geography, biology and English textbooks are 15,11, 9 and 8 respectively. From these readability figures, one would conclude that the history and geography textbooks are above the grade level of the students while biology and English are below their grade level. The fact that the students are at frustration level of comprehension even for the English textbook shows that the students are not in a position to do their assignments satisfactorily.

Since more than 95% of the students are at frustration level of comprehension for the four textbooks, it can be concluded that the textbooks are not appropriate for instructional purpose in grade 10 unless the comprehension ability of the students is raised or the difficulty level of the textbooks is lowered. It seems reasonable to lower

the difficulty level of the history and geography textbooks to match the grade level of the students. Since the English and biology textbooks are below the grade level of the students, lowering down the difficulty level of these textbooks would mean lowering down the standard of education. Therefore, the comprehension ability of the students should be raised in order to enable them to read and understand textbooks within their grade level.

As the criteria used in the Fry graph and the cloze procedure are for natives, one would not expect second language learners to read and understand like the natives. However, this study is indicative of the relative position of our students to that of the natives. It appears that none of the students could understand the textbooks independently. This shows that their comprehension ability is so alarmingly low that even the brightest student needs the help of his teacher to understand his lesson. Their low level of comprehension ability coupled with the load of 14 subjects they are expected to study may produce a negative psychological effect such as mental stress and despair on the part of the students which in turn may lead to loss of interest in reading. Consequently, their comprehension ability is impaired. Unless the comprehension ability of the students matches the difficulty level of the textbooks, students may be forced to resort to rote memorization and cheating in examinations. The fact that some of these very students are sent to teach in the lower grades after completing grade 12 and one year

teacher training in spite of their poor results in the ESLCE (Ethiopian School Leaving Certificate Examination) makes the situation worse. They are made to teach English (or in English) without having a rudimentary grasp of the language. This low standard of teaching results in low standard of education and vise versa thereby making a vicious circle.

5.2 Recommendations.

The findings of the study have revealed that the history and geography textbooks are above the grade level of the students. Although the English and biology textbooks are below their grade level, an investigation of the comprehension ability has shown that the grade ten students are at frustration level for the four textbooks. Therefore, based on the findings, the following recommendations were made.

1) The history textbook should be rewritten in short sentences so as to bring it down to the grade level of the students.

2) In the geography and history textbooks, long words should be replaced by short ones.

3) The readability of textbooks should be determined before they are used in the classroom.

4) Reading must be taught as a separate lesson.

5) Comprehension passages from the English textbooks should be included both in school and ESLC examinations in order to encourage students to read the passages.

6) Teachers should be given training on reading skills.

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Appendix IA

Dale's 3,000 Word List

a
able
aboard
about
above
absent
accept
accident
account
ache(ing)
acorn
acre
across
act(s)
add
address
admire
adventure
afar
afraid
after
afternoon
after word(s)
again
against
age
aged
ago
agree
ah
ahead
aid
aim
air
airfield
airplane
airport
airship
airy
alarm
alike
alive
all
alley
alligator
allow
almost
alone
along
aloud
already
also
always
am
America
American
among
amount
an
and
angel
anger
angry
animal
another
answer
ant
any
anybody
anyhow
anyone
anything
anyway
anywhere
apart
apartment
ape
apiece
appear
apple
April
apron
are
arn't
arise
arithmetic
arm
armful
army
arose
around
arrange
arrive(d)
arrow
art
artist
as
ash(es)
aside
ask
asleep
at
ate
attack
attend
attention
August
aunt
author
auto
automobile
autumn
avenue
awake(n)
away
awful(ly)
a while
ox
boe
babe
baby (ies)
back
background
backward(s)
bacon
bad(ly)
badge
bag
bake(r)
bakery
baking
ball
balloon
banana
band

bandage
bang
banjo
bank(er)
bar
barber
bare(ly)
barefoot
bark
barn
barrel
base
baseball
basement
basket
bat
batch
bath
bathe
bathing
bathroom
bathtub
battle
battleship
bay
be(ing)
beach
bead
beam
bean
bear
beard
beast
beat(ing)
beautiful
beautify
beauty
became
because
become
becoming
bed
bedbug
bedroom
bedspread
bedtime
bee
beech
beef
beefsteak
beehive
been
beer
beet
before
beg
began
begger
begged
begin
beginning
begun
behave
behind
believe
bell
belong
below
belt
bench
bend
beneath
bent
berry(ies)
beside(s)
best
bet
better
between
bib
bible
bicycle
bid
big(ger)
bill
billboard
bin
bind
bird
birth
birthday
biscuit
bit
bite
biting
bitter
black
blackberry
blackbird
blackboard
blackness
blacksmith
blame
blank
blanket
blast
blaze
bleed
bless
blessing
blew
blind(s)
blindfold
block
blood
bloom
blossom
blot
blow
blue
blueberry
bluebird
bluejay
blush
board
boast
boat
bob
bobwhite
body(ies)
boil(er)
bold
bone
bonnet
boo
book
bookcase
bookkeeper
boom
boot
born
borrow
boss
both

bother
bottle
bottom
bought
bounce
bow
bowl
bow-wow
box(es)
boxcar
boxer
boy
boyhood
bracelet
brain
brake
bran
branch
brass
brave
bread
break
breakfast
breast
breath
breathe
breeze
brick
bride
bridge
bright
brightness
bring
broad
broadcast
broke(n)
brook
broom
brother
brought
brown
brush
bubble
bucket
buckle
bud
buffalo
bug
buggy
build
building
built
bulb
bull
bullet
bum
bumblebee
bump
bun
bunch
bundle
bunny
burn
burst
bury
bus
bush
bushel
business
bussy
but
butcher
butt
butter
buttercup
butterfly
buttermilk
butterscotch
bulton
buttonhole
buy
buzz
by
bye
cab
cabbage
cabin
cabinet
cackle
cage
cake
calendar
calf
call(er)(ing)
came
camel
camp
campfire
can
canal
canary
candle
candlestick
candy
cane
cannon
cannot
canne
can't
canyon
cap
cape
capital
captain
car
card
cardboard
care
careful
careless
carelessness
carload
carpenter
carpet
carriage
carrot
carry
cart
carve
case
cash
cashier
castle
cat
catbird
catch
catcher
caterpillar
catfish
catsup
cattle
caught
cause
cave
ceiling
cell
cellar
cent

center
cereal
certain(ly)
chain
chair
chalk
champion
chance
change
chap
charge
charm
chart
chase
chatter
cheap
cheat
check
checkers
cheek
cheer
cheese
cherry
chest
chew
chick
chicken
chief
child
childhood
children
chill(y)
chimney
chin
china
chip
chipmunk
chocolate
choice
choose
chop
chorus
chose(n)
christen
christmas
church
churn
cigarette
circle
circus
citizen
city
clang
clap
class
classmate
classroom
claw
clay
clean(er)
clear
clerk
clever
click
cliff
climb
clip
cloak
clock
close
closet
cloth
clothes
clothing
cloud(y)
clover
clown
club
cluck
clump
coach
coal
coast
coat
cob
cobbler
cocoa
coconut
cocoon
cod
codfish
coffee
coffeepot
coin
cold
collar
college
color(ed)
colt
column
comb
come
comfort
comic
coming
company
compare
conductor
cone
connect
coo
cook(ed)
cook(ing)
cooky(ie)(s)
cool(er)
coop
copper
copy
cord
cork
corn
corner
correct
cost
cot
cottage
cottons
couch
cough
could
couldn't
count
counter
country
county
course
court
cousin
cover
cow
coward(ly)
cowboy
cozy
crab
crack
cracker
cradle
cramps

crankberry
crank(y)
crash
crawl
crazy
cream(y)
creek
creep
crept
cried
croak
crook(ed)
crop
cross(ing)
cross-eyed
crow
crowd(ed)
crown
cruel
crumb
crumble
crush
crust
cry(ies)
cub
cuff
cup
cupboard
cupful
cure
curl(y)
curtain
curve
cushion
custard
customer
cut
cute
cutting
dab
dad
daddy
daily
dairy
daisy
dam
damage
dame
damp
dance(r)
dancing
dandy
danger(ous)
dare
dark(ness)
darling
darn
dart
dash
date
daughter
dawn
day
daybreak
daytime
dead
deaf
deal
dear
death
December
decide
deck
deed
deep
deer
defeat
defend
defense
delight
den
dentist
depend
deposite
describe
desert
deserve
desire
desk
destroy
devil
dew
diamond
did
didn't
die(d)(s)
difference
different
dig
dim
dime
dine
ding-dong
dinner
dip
direct
direction
dirt(y)
discover
dish
dislike
dismiss
ditch
dive
diver
divide
do
dock
doctor
does
doesn't
dog
doll
dollar
dolly
done
donkey
don't
door
doorbell
doorknob
doorstep
dope
dot
double
dough
dove
down
downstairs
downtown
dozen
drag
drain
drank
draw(er)
draw(ing)
dream
dress
dresser
dressmaker
drew
dried

drift
drill
drink
drip
drive(n)
driver
drop
drove
drown
drowsy
drug
drum
drunk
dry
duck
due
dug
dull
dumb
dump
during
dust(y)
duty
dwarf
dwell
dwelt
dying
each
eager
eagle
ear
early
earn
earth
east(ern)
easy
eat(en)
edge
egg
eh
eight
eighteen
eighth
eighty
either
elbow
elder
eldest
electric
electricity
elephant
eleven
elf
elm
else
elsewhere
empty
end(ing)
enemy
engine
engineer
English
enjoy
enough
enter
envelope
equal
erase(r)
errand
escape
eve
even
evening
ever
every
everybody
everyday
everyone
everything
everywhere
evil
exact
except
exchange
excited
exciting
excuse
exit
expect
explain
extra
eye
eyebrow
fable
face
facing
fact
factory
fail
faint
fair
fairy
faith
fake
fall
false
family
fan
fancy
far
faraway
fare
farmer
farm(ing)
far-off
farther
fashion
fast
fasten
fat
father
fault
favor
favorite
fear
feast
feather
February
fed
feed
feel
feet
fell
fellow
felt
fence
fever
few
fib
fiddle
field
fife
fifteen
fifth
fifty
fig
fight
figure

file
fill
film
finally
find
fine
finger
finish
fire
firearm
firecracker
fireplace
bireworks
firing
first
fish
fisherman
fist
fit(s)
five
fix
flag
flake
flame
flap
flash
flashlight
flat
flea
flesh
flew
flies
flight
flip
flip-flop
float
flock
flood
floor
flop
flour
flow
flower(y)
flutter
fly
foam
fog
foggy
fold
folks
follow(ing)
fond
food
fool
foolish
foot
football
footprint
for
forehead
forest
forget
forgive
forgot(ten)
fork
form
fort
forth
fortune
forty
forward
fought
found
fountain
four
fourteen
fourth
fox
frame
free
freedom
freeze
freight
French
fresh
fret
Friday
fried
friend(ly)
friendship
frighten
frog
from
front
frost
frown
froze
fruit
fry
fudge
fuel
full(y)
fun
funny
fur
furniture
further
fuzzy
gain
gallon
gallop
game
gang
garage
garbage
garden
gas
gasoline
gate
gather
gave
gay
gear
geese
general
gentle
gentleman
gentlemen
geography
get
getting
gaint
gift
gingerbread
girl
give(n)
giving
glad(ly)
glance
glass(es)
gleam
glide
glory
glove
glow
glue
go(ing)
goes
goal
goat
gobble
God(g)

godmother
gold(en)
goldfish
golf
gone
good(s)
good-by(bye)
good-looking
goodness
goody
goose
gooseberry
got
govern
government
gown
grab
gracious
grade
grain
grand
grandchild
grandchildren
grandaughter
grandfather
grandma
grandmother
grandpa
grandson
grandstand
grape(s)
grapefruit
grass
grasshopper
grateful
grave
gravel
graveyard
gravy
gray
graze
grease
great
green
greet
grew
grind
groan
grocery
ground
group
grove
grow
guard
guess
guest
guide
gulf
gum
gun
gunpowder
guy
ha
habit
had
hadn't
hail
hair
haircut
hairpin
half
hall
halt
ham
hammer
hand
handful
handker-chief
handle
handwriting
hang
happen
happily
happiness
happy
harbor
hard
hardly
hardship
hardware
hare
hark
harm
harness
harp
harvest
has
hasn't
haste(n)
hasty
hat
hatch
hatchet
hats
haul
have
haven't
having
hawk
hay
hayfield
haystack
he
head
headache
heal
health(y)
heap
hear(ing)
heard
heart
heat(er)
heaven
heavy
he'd
heel
height
held
hell
he'll
hello
helmet
help(er)
helpful
hem
hen
henhouse
her(s)
herd
here
here's
hero
herself
he's
hey
hickory
hid
hidden
hide
high
highway
hill

hillside
hilltop
hilly
him
himself
hind
hint
hip
hire
his
hiss
history
hit
hitch
hive
ho
hoe
hog
hold(er)
hole
holidy
hollow
holy
home
homely
homesick
honest
honey
honeybee
honeymoon
honk
honor
hood
hoof
hook
hoop
hop
hope(ful)

hopeless
horn
horse
horseback
horseshoe
hose
hospital
host
hot
hotel
hound
hour
house
housetop
housewife
housework
how
however
howl
hug
huge
hum
humble
hump
hundred
hung
hunger
hungry
hunk
hunt(er)
hurrah
hurried
hurry
hurt
husband
hush
hut
hymn

I
ice
icy
I'd
idea
ideal
if
ill
I'll
I'm
important
impossible
improve
in
inch(es)
income
indeed
Indian
indoors
ink
inn
insect
inside
instant
instead
insult
intend
interested
interesting
into
invite
iron
is
island
isn't
it
its
it's

itself
I've
ivory
ivy
jacket
jacks
jail
jam
January
jar
jaw
jay
jelly
jellyfish
jerk
jig
job
jockey
join
joke
joking
jolly
journey
joy(ful)
joyous
jodge
jug
juice
juicy
July
jump
June
Junior
junk
just

keen
keep
kept

kettle
key
kick
kid
kill(ed)
kind(ly)
kindness
king
kingdom
kiss
kitchen
kite
kitten
kitty
knee
kneel
knew
knife
knit
knives
knob
knock
knot
know
known
lace
lad
ladder
ladies
lady
laid
lake
lamb
lamp
land
lane
language
lantern
lap
lard
large
lash
lass
last
late
laugh
laundry
law
lawn
lawyer
lay
lazy
lead
leader
leaf
leak
lean
leap
learn(ed)
least
leather
leave(ing)
led
left
leg
lemon
lemonade
lend
length
less
lesson
let
let's
letter
letting
lettuce
level
liberty
library
lice
lick
lid
lie
life
lift
light(ness)
lightning
like
likely
liking
lily
limb
lime
limp
line
linen
lion
lip
list
listen
lit
little
live(s)
lively
liver
living
lizard
load
loaf
loan
loaves
lock
locomotive
log
lone
lonely
lonesome
long
look
lookout
loop
loose
lord
lose(r)
loss
lost
lot
loud
love
lovely
lover
low
luck(y)
lumber
lump
lunch
lying
ma
machine
machinery
mad
made
magazine
magic
maid
mail
mailbox
mailman
major
major
make
making
male

mama
mamma
man
manager
mane
manger
many
map
maple
marble
march(M)
mare
mark
market
marriage
married
marry
mask
mast
master
mat
match
matter
mattress
may(M)
maybe
mayor
maypole
me
meadow
meal
mean(s)
meant
measure
meat
medicine
meet(ing)
melt
member
men
mend
meow
merry
mess
message
met
metal
mew
mice
middle
midnight
might(y)
mile
milk
milkman
mill
miller
million
mind
mine
miner
mint
minute
mirror
mischief
miss(M)
misspell
mistake
misty
mitt
mitten
mix
moment
monday
money
monkey
month
moo
moon
moonlight
moose
mop
more
morning
morrow
moss
most(ly)
mother
motor
mount
mountain
mouse
mouth
move
movie
movies
moving
now
Mr.,Mrs.
much
mud
muddy
mug
mule
multiply
murder
music
must
my
myself
nail
name
nap
napkin
narrow
nasty
naughty
navy
near
nearby
nearly
neat
neck
necktie
need
needle
needn't
Negro
neighbor
neighborhood
neither
nerve
nest
net
never
nevermore
new
news
newspaper
next
nibble
nice
nickel
night
nightgown
nine
nineteen
ninety

no
nobody
nod
noise
noisy
none
noon
nor
north(ern)
nose
not
note
nothing
notice
November
now
nowhere
number
nurse
nut
oak
oar
oatmeal
oats
obey
ocean
o'clock
October
odd
of
off
offer
office
officer
often
oh
oil
old
oldfashioned
on
once
one
onion
only
onward
open
or
orange
orchard
order
ore
organ
other
otherwise
ouch
ought
our(s)
ourselves
out
outdoors
outfit
outlaw
outline
outside
outward
oven
over
overalls
overcoat
overeat
overhead
overhear
overnight
overturn
owe
owing
owl
own(er)
ox
pa
pace
pack
package
pad
page
paid
pail
pain(ful)
paint(er)
painting
pair
pal
palace
pale
pan
pancake
pane
pansy
pants
papa
paper
parade
pardon
parent
park
part(ly)
partner
party
pass
passenger
past
paste
pasture
pat
patch
path
patter
pave
pavement
paw
pay
payment
pea(s)
peace(ful)
peach(es)
peak
peanut
pear
pearl
peck
peek
peel
peep
peg
pen
pencil
penny
people
pepper
peppermint
perfume
perhaps
person
pet
phone
piano
pick
pickle
picnic
picture
pie
piece

pig
pigeon
piggy
pile
pill
pillow
pin
pine
pineapple
pink
pint
pipe
pistol
pit
pitch
pitcher
pity
place
plain
plan
plane
plant
plate
platform
platter
play(er)
playground
playhouse
playmate
plaything
pleasant
please
pleasure
plenty
plow
plug
plum
pocket
pocketbook
poem
point
poison
poke
pole
police
policeman
polish
polite
pond
ponies
pony
pool
poor
pop
popcorn
popped
porch
pork
possible
post
postage
postman
pot
potato(es)
pound
pour
powder
power(ful)
praise
pray
prayer
prepare
present
pretty
price
prick
prince
princess
print
prison
prize
promise
proper
protect
proud
prove
prune
public
puddle
puff
pull
pump
pumpkin
punch
punish
pup
pupil
puppy
pure
purple
purse
push
puss
pussy
pussycat
put
putting
puzzle
quack
quart
quarter
queen
queer
question
quick(ly)
quiet
quilt
quit
quite
rabbit
race
rack
radio
radish
rag
rail
railroad
railway
rain(y)
rainbow
raise
raisin
rake
ram
ran
ranch
rang
rap
rapidly
rat
rate
rather
rattle
raw
ray
reach
read
reader
reading
ready
real
really

reap
rear
reason
rebuild
receive
recess
record
red
redbird
redbreast
refuse
reindeer
rejoice
remain
remember
remind
remove
rent
repair
repay
repeat
report
rest
return
review
reward
rib
ribbon
rice
rich
rid
riddle
ride(r)
riding
right
rim
ring
rip
ripe
rise
rising
river
road
roadside
roar
roast
rob
robber
robe
robin
rock(y)
rocket
rode
roll
roller
roof
room
rooster
root
rope
rose
rosebud
rot
rotten
rough
round
route
row
rowboat
royal
rub
rubbed
rubber
rubbish
rug
rule(r)
rumble
run
rung
runner
running
rush
rust(y)
rye
sack
sad
saddle
sadness
safe
safety
said
sail
sailboat
sailor
saint
salad
sale
salt
same
sand(y)
sandwich
sang
sank
sap
sash
sat
satin
satisfactory
Saturday
sausage
savage
save
savings
saw
say
scab
scales
scare
scarf
school
schoolboy
schoolhouse
schoolmaster
schoolroom
scorch
score
scrap
scrape
scratch
scream
screen
screw
scrub
sea
seal
seam
search
season
seat
second
secret
see(ing)
seed
seek
seem
seen
seesaw
select

self
selfish
sell
send
sense
sent
sentence
separate
September
servant
serve
service
set
setting
settle
settlement
seven
seventeen
seventh
seventy
several
sew
shade
shadow
shady
shake(r)
shaking
shall
shame
shan't
shape
share
sharp
shave
she
she'd
she'll
she's
shear(s)
shed
sheep
sheet
shelf
shell
shepherd
shine
shining
shiny
ship
shirt
shock
shoe
shoemaker
shone
shook
shoot
shop
shopping
shore
short
shot
should
shoulder
shouldn't
shout
shovel
show
shower
shut
shy
sick(ness)
side
sidewalk
sideways
sigh
sight
sing
silence
silent
silk
sill
silly
silver
simple
sin
since
sing
singer
single
sink
sip
sir
sis
sissy
sister
sit
sitting
six
sixteen
sixth
sixty
size
skate
skater
ski
skin
skip
skirt
sky
slam
slap
slate
slave
sled
sleep(y)
sleeve
sleigh
slept
slice
slid
slide
sling
slip
slipped
slipper
slippery
slit
slow(ly)
sly
smack
small
smart
smell
smile
smoke
smooth
snail
snake
snap
snapping
sneeze
snow(y)
snowball
snowflake
snuff
snug
so
soak

soap
sob
socks
sod
soda
sofa
soft
soil
sold
soldier
sole
some
somebody
somehow
someone
something
sometime(s)
somewhere
son
song
soon
sore
sorrow
sorry
sort
soul
sound
soup
sour
south(ern)
space
spade
spank
sparrow
speak(er)
spear
speech
speed
spell(ing)
spend
spent
spider
spike
spill
spin
spinach
spirit
spit
splash
spoil
spoke
spook
spoon
sport
spot
spread
spring
springtime
sprinkle
square
squash
squeak
squeeze
squirrel
stable
stack
stage
stair
stall
stamp
stand
star
stare
start
starve
state
s
station
stay
steak
steal
steam
steamboat
steamer
steel
steep
steeple
steer
stem
step
stepping
stick(y)
stiff
still(ness)
sting
stir
stitch
stock
stocking
stole
stone
stood
stool
stoop
stop
stopped
stopping
store
stories
stork
storm(y)
story
stove
straight
strange(r)
strap
straw
strawberry
stream
street
stretch
string
strip
stripes
strong
stuck
study
stuff
stump
stung
subject
such
suck
sudden
suffer
sugar
suit
sum
summer
sun
Sunday
sunflower
sung
sunk
sunlight
sunny
sunrise
sunset
sunshine
supper
suppose
sure(ly)
surface

surprise
swallow
swam
swamp
swan
swat
swear
sweat
sweater
sweep
sweet(ness)
sweetheart
swell
swept
swift
swim
swimming
swing
switch
sword
swore
table
tablecloth
tablespoon
tablet
tack
tag
tail
tailor
take(n)
taking
tale
talk(er)
tall
tame
tan
tank
tap
tape
tar
tardy
task
taste
taught
tax
tea
teach(er)
team
tear
tease
teaspoon
teeth
telephone
tell
temper
ten
tennis
tent
term
terrible
test
than
thank(s)
thankful
Thanksgiving
that
that's
the
theater
thee
their
them
then
there
these
they
they'd
they'll
they're
they've
thick
thief
thimble
thin
thing
think
third
thirsty
thirteen
thirty
this
tho
thorn
those
though
thought
thousand
thread
three
threw
throat
throne
through
throw(n)
thumb
thunder
Thursday
thy
tick
ticket
tickle
tie
tiger
tight
till
time
tin
tinkle
tiny
tip
tiptoe
tire
tired
'tis
title
to
toad
toadstool
toast
tobacco
today
toe
together
toilet
told
tomato
tomorrow
ton
tone
tongue
tonight
too
took
tool
toot
tooth
toothbrush
toothpick
top
tore
torn
toss

touch
tow
toward(s)
towel
tower
town
toy
trace
track
trade
train
tramp
trap
tray
treasure
treat
tree
trick
tricycle
tried
trim
trip
trolley
trouble
truck
true
truly
trunk
trust
truth
try
tub
Tuesday
tug
tulip
tumble
tune
tunnel
turkey
turn
turtle
twelve
twenty
twice
twig
twin
two
ugly
umbrella
uncle
under
understand
underwear
undress
unfair
unfinished
unfold
unfriendly
unhappy
unhurt
uniform
United-States
unkind
unknown
unless
unpleasant
until
unwilling
up
upon
upper
upset
upside
upstairs
uptown
upward
us
use(d)
useful
valentine
valley
valuable
valve
vase
vegetable
velvet
very
vessel
victory
view
village
vine
violet
visit
visitor
voice
vote
wag
wagon
waist
wait
wake(n)
walk
wall
walnut
want
war
warm
warn
was
wash(er)
washtub
wasn't
waste
watch
watchman
water
watermelon
waterproof
wave
wax
way
wayside
we
weak(ness)
weaken
wealth
weapon
wear
weary
weather
weave
web
we'd
wedding
Wednesday
wee
weed
week
weep
weigh
welcome
well
we'll
went
were
we're
west(ern)
wet
we've
whale
what

what's
wheat
wheel
when
whenever
where
which
while
whip
whipped
whire
whisky
whisper
whistle
white
who
who'd
whole
who'll
whom
who's
whose
why
wicked
wide
wife
wiggle
wild
wildcat
will
willing
willow
win
wind(y)
windmill
window
wine
wing
wink
winner
winter
wipe
wire
wise
wish
wit
witch
with
without
woke
wolf
woman
women
won
wonder
wonderful
won't
wood(en)
woodpecker
woods
wool
woolen
word
wore
work(er)
workman
world
worm
worn
worry
worse
worst
worth
would
wouldn't
wound
wove
wrap
wrapped
wreck
wren
wring
write
writing
written
wrong
wrote
wrung
yard
yarn
year
yell
yellow
yes
yesterday
yet
yolk
yonder
you
you'd
you'll
young
youngster
your(s)
you're
yourself
yourselves
youth
you've

Appendix IB

Dale's 769 Word List

a
about
above
across
act
afraid
after
afternoon
again
aginst
ago
air
all
almost
alone
along
already
also
always
am
American
an
and
animal
another
answer
any
anything
apple
are
arm
around
as
ask
at
away
baby
back
bad
bag
ball
band
bank
basket
be
bear
beat
beautiful
because
bed
bee
been
before
began
begin
behind
being
believe
bell
belong
beside
best
better
between
big
bill
bird
bit
black
bless
blind
blood
blow
blue
board
boat
body
bone
book
born
both
bottom
bow
box
boy
branch
brave
bread
break
breakfast
bridge
bright
bring
broken
brother
brought
brown
build
building
built
burn
busy
but
butter
buy
by
cake
call
came
can
cap
captain
car
care
careful
carry
case
catch
cause
cent
center
chair
chance
change
chief
child
children
choose
christmass
church
circle
city
class
clean
clear
clock

close
cloth
clothes
cloud
coal
coat
cold
color
come
coming
company
cook
cool
corn
corner
cost
could
count
country
course
cover
cow
cried
cross
crowd
drown
cry
cup
cut
dance
dark
day
dead
dear
deep
did
die
different
dinner
do
doctor
does
dog
done
don't
door
double
down
draw
dream
dress
drink
drive
drop
dry
dust
each
ear
early
earth
east
easy
eat
edge
egg
eight
either
else
end
England
English
enough
even
evening
ever
every
everything
except
expect
eye
face
fair
fall
family
fancy
far
farm
farmer
fast
fat
father
feed
feel
feet
fell
fellow
felt
fence
few
field
fight
fill
find
fine
finger
finish
fire
first
fish
fit
five
fix
floor
flower
fly
follow
food
foot
for
forget
forth
found
four
fresh
friend
from
front
fruit
full
game
garden
gate
gave
get
gift
girl
give
glad
glass
go
God
going
gold
golden
gone
good
got
grain
grass
gray
great
green

grew
ground
grow
guess
had
hair
half
hall
hand
hang
happy
hard
has
hat
have
he
head
hear
heard
heart
heavy
help
her
here
herself
hide
high
hill
him
himself
his
hold
hole
home
hope
horse
hot
house
how
hundred
hunt
hurry
hurt
I
ice
if
in
Indian
instead
in to
iron
is
it
its
jump
just
keep
kept
kill
kind
king
kiss
knee
knew
know
lady
laid
lake
land
large
last
late
laugh
lay
lead
learn
leave
left
leg
lesson
let
letter
lie
lift
light
like
line
lion
lips
listen
little
live
load
long
look
lost
lot
loud
love
low
made
mail
make
man
many
march
mark
market
matter
may
me
mean
measure
meat
meet
men
met
middle
might
mile
milk
mill
mind
mine
minute
miss
money
month
moon
more
morning
most
mother
mountain
mouth
move
Mr.
Mrs.
much
must
my
myself
name
near
neck
need
neighbor
neither

nest
never
new
New York
next
nice
night
nine
no
noise
none
noon
nor
north
nose
not
note
nothing
now
number
oak
ocean
of
off
office
often
old
on
once
one
only
open
or
other
our
out
outside
over
own
page
paint
pair
paper
part
party
pass
path
pay
pen
people
pick
picture
piece
place
plain
plant
play
please
point
poor
post
pound
present
press
pretty
pull
put
quarter
queen
quick
quiet
quite
race
rain
ran
rather
reach
read
ready
real
reason
red
remember
rest
rich
ride
right
ring
river
road
rock
roll
roof
room
rose
round
row
run
said
sail
salt
same
sand
sat
save
saw
say
school
sea
season
seat
second
see
seed
seem
seen
self
sell
send
sent
serve
set
seven
several
shake
shall
shape
she
sheep
shine
ship
shoe
shop
short
should
shoulder
show
shut
sick
side
sign
silk
silver
sing
sir
sister
sit
six

size
skin
sky
sleep
slow
small
smile
smoke
snow
so
soft
sold
soldier
some
something
sometime
song
soon
sound
south
space
speak
spot
spread
spring
square
stand
star
start
station
stay
step
stick
still
stone
stood
stop
store
storm
story
straight
street
strike
strong
such
sugar
suit
summer
sun
suppose
sure
surprise
sweet
table
tail
take
talk
tall
taste
teach
teacher
tear
tell
ten
than
thank
that
the
their
them
then
there
these
they
thick
thin
thing
think
this
those
though
thought
thousand
three
through
throw
tie
till
time
tire(d)
to
today
together
told
tomorrow
tongue
too
took
top
touch
town
trade
train
tree
true
try
turn
twelve
twenty
two
uncle
under
until
up
upon
us
use
valley
very
visit
wait
walk
wall
want
war
warm
was
wash
waste
watch
water
wave
way
we
wear
weather
week
well
went
were
west
what
wheat
wheel
when
where
wether
which

while
white
who
whole
whom
whose
why
wide
wild
will
win
wind
window
wing
winter
wish
with
without
woman
wonder
wood
word
work
world
would
write
wrong
yard
year
yellow
yes
Yesterday
yet
you
young
your

Appendix IIA

Cloze Tests From The English Text book

Cloze Test 1

Direction: Read the whole passage thoroughly and supply the missing words using context clues. Use only one word for each blank. Write your answers on the separate answer sheet provided.

Ato Tesfaye is helping his kebele to raise funds and clothes for war displaced persons. Every evening he visits ___1___ and neighbours and asks ___2___ to contribute. Those who ___3___ poor and cannot give ___4___ give old clothes and ___5___ time. On weekends they ___6___ on buttons, mend jackets, ___7___, and dresses and sort ___8___ into manageable piles. Those ___9___ are able to give ___10___ give it to Ato ___11___. He enters the amount ___12___ in his receipt books and ___13___ a receipt for each ___14___. Bookkeeping is an important ___15___ of Ato Tesfay's job ___16___ he is used to ___17___ accurate records as he ___18___ worked in the Ministry ___19___ Finance for the last ___20___ years.

After he has ___21___ collecting, he returns to ___22___ kebele office and enters ___23___ number and type of ___24___ he has been given ___25___ the kebele's ledger. This ___26___ a large book that ___27___ two columns. One for ___28___ kebele's

expenses, another for ___29___ of money and clothes. ___30___ he has finished entering ___31___ day's contributions in the ___32___, he unlocks the kebele's ___33___ and puts the clothes ___34___.

Ato Tesfaye is used ___35___ this job, as he ___36___ being doing it for ___37___ last nine months. And ___38___ used to collect money ___39___ famine relief. Besides this, ___40___ has taken a course ___41___ book-keeping at the university, ___42___ he is quick at ___43___ up figures. He also ___44___ his time wisely. He ___45___ ahead. Before he starts ___46___ in the evenings, he ___47___ for a kebele car ___48___ pick up the clothes ___49___ 9 p.m. He tells ___50___ driver where to park and asks two or three of his friends to help carry the clothes to the car.

There are also plenty of helpers, as everyone wants to assist the war displaced persons.

Source: English For New Ethiopia: Pupils book Grade 10

Cloze Test 2

Direction: Read the whole passage thoroughly and supply the missing words using context clues. Use only one word for each blank. Write your answers on the separate answer provided.

When man grows a crop and takes it away to eat, then there are no dead leaves to fall on the ground, holding water white it sinks into the surface, or decaying and adding humus to the soil. Unless a farmer acts ___1___ knowledge and skill he ___2___ therefore to make the ___3___ poorer. To take the ___4___ of the organic matter ___5___ the crops that he ___6___, he uses some kind ___7___ fertilizer. Chemical fertilizers containing ___8___ nitrogen which is needed ___9___ make a plant grow ___10___ very helpful, but the ___11___ products of animals and ___12___ decaying remains of plants ___13___ also be put on ___14___ land. In some places ___15___ is a habit to ___16___ was material lying about, ___17___ such burning destroys the ___18___ matter in the dead ___19___. Although the ashes that ___20___ left are valuable when ___21___ on the land, a ___22___ practice is to buy ___23___ wast, so that it ___24___ and increases the humus ___25___ the soil.

In the ___26___, when the world population ___27___ ___ much lower than it ___28___ now, a man had ___29___ ___ difficulty in ordinary times ___30___ growing the

food that ___31___ needed. When a field had ___32___ cultivated for some years ___33___ had become tired, the ___34___ could move to another ___35___ to grow his crops ___36___ tired land that he ___37___ then slowly recovered. Gradually ___3838___ and other plants would ___39___ on it and its ___40___ power would be slowly ___41___ by their decay. But ___42___, left alone, would take ___43___ long time to bring ___44___ the land to its ___45___ state; the length of ___46___ required would depend on ___47___ conditions, but it might ___48___ be ten years.

The ___49___ for crops in modern ___50___ is heavy, and ten years is too long for a farmer to leave part of the land lying idle.

Source: English For New Ethiopia : Pupil's book

Grade 10

Coze Test 3

Direction: Read the whole passage thoroughly and supply the missing words using context clues. Use only one word for each blank. Write your answers on the separate answer sheet provided.

The capitalist begins with money. He buys the means ___1___ production, and labour power. ___2___ workers, using their labour ___3___ on the means of ___4___, produce commodities. The ___5___ takes these commodities and ___6___ them for money. The ___7___ of money he gets ___8___ the end of the ___9___ must be greater than ___10___ amount of money he ___11___ with. The difference is ___12___ profit.

If the amount of ___13___ at the end of ___14___ process is not greater ___15___ the amount of money ___16___ started with, then there ___17___ no profit and he ___18___ producing. Capitalist production does not begin or end with ___19___ needs. It begins and ___20___ with money.

Money cannot ___21___ more money by standing, ___22___ by being hoarded. It ___23___ only, grow by being ___24___ as capital, that is ___25___ buying the means of ___26___ and labour power, thus ___27___ a share of the ___28___ wealth created by workers ___29___ hour of every day ___30___ every year. The

capitalist ___31___ more and more profit ___32___ he can accumulate more ___33___ (means of production and ___34___ power), so he can ___35___ his profits, so he ___36___ accumulate even more capital, ___37___ etc. Now the way ___38___ increase profits is to ___39___ ___ the workers to turn ___40___ more and more goods ___41___ and faster at less ___42___ less cost.

Good idea, ___43___ how to do it? ___44___ and scientific management, that ___45___ (and is) the answer, ___46___ efficiency in the plant, ___47___ machines that enable one ___48___ to produce as much ___49___ five or more did ___50___ this is the means.

Source: English For New Ethiopia: Pupil's Book.

Grade 10

Appendix IIB

Cloze Tests From The History Textbook

Cloze Test 4

Direction: Read the whole passage thoroughly and supply the missing words using context clues. Use only one word for each blank. Write your answers on the separate answer sheet provided.

Although the revolution of 1848 had not ended in victory, the forces of reaction by this time were unable to halt the advance of social progress. The rapid growth of (1) in Europe and America (2) at the basis of (3) social changes in the (4) half of the nineteenth (5). Mechanized production had already (6) manual labour in the (7) of the countries of (8), and the USA. Large (9) factories were appearing on (10) scene in all branches (11) industry. Important technological innovations (12) transforming the economy of (13) countries. The switch from (14) to coal and then (15) as the main source (16) fuel also promoted industrial (17). The new method for (18) melted cast iron into (19) devised by Henry Bessemer (20) open-hearth furnaces made production (21) much quicker and more (22) process. Rapid advance in (23) acted as a stimulus (24) other spheres of production. (25) period also saw rapid (26) of the rail ways. The (27)

length of the world's ___28___, which had been a ___29___ 220 miles in 1830, ___30___ 150,000 miles in 1870. ___31___ discoveries in physics particularly ___32___ the field of electricity ___33___ gave rise to the ___34___ of a new form ___35___ communication the telegraphy.

In ___36___ charles Darwin's famous work ___37___. The Origin of Species ___38___ Means of Natural selection ___39___ published; it was to ___40___ a decisive role in ___41___ subsequent development of the ___42___ sciences. Important advances were ___43___ made in agronomy. More ___44___ methods of land cultivation ___45___ introduced.

Major industrial advances ___46___ to be observed in ___47___ developed industrial countries from ___48___ beginning of the 1850's ___49___. However in 1857, Europe ___50___ the United States were hit by a new type of crisis, a crisis of over production.

Source: History : Grade Ten

Cloze Test 5

Direction: Read the whole passage thoroughly and supply the missing words using context clues. Use only one word for each blank. Write your answers on the separate answer sheet provided.

It was quite natural that in the years of the imperial war, when Lenin was urging the working class of Russia and other countries to turn the war into a revolutionary struggle. He should have elaborated ___1___ perfected the basic principle, ___2___ his theory of Socialist ___3___. The struggle for socialist ___4___ was then in the ___5___ of the day.

Lenin ___6___ several important works during ___7___ war years, including Imperialism, ___8___ highest stage of capitalism, ___9___ the Military Programme of ___10___ Proletarian Revolution. Taking into ___11___ all the latest features ___12___ capitalism at the imperialist ___13___ he elaborated the tactics ___14___ strategy for the proletariat ___15___ follow in the new ___16___ conditions. On the basis ___17___ the doctrine of Marx ___18___ Engles, Lenin produced a ___19___ theory of socialist revolution ___20___ in the age of ___21___.

Lenin advanced two new ___22___ of fundamental importance. The ___23___ was that the socialist ___24___ could not triump ___25___ countries simultaneously

in view ___26___ the fact that the ___27___ countries were at different ___28___ of economic and political ___29___.

The victory of socialism ___30___ possible first in a ___31___ or even in one ___32___ country. The second new ___33___ was that the proletariat ___34___ acquire new allies in ___35___ struggle against imperialism. To ___36___ peasantry, which had already ___37___ the ally of the ___38___ in the capitalist countries ___39___ be added the anti-imperialist ___40___ of the oppressed peoples ___41___ colonial and dependent countries. ___42___ struggle of the working ___43___ against imperialism coincided with ___44___ liberation struggle of the ___45___ peoples against imperialism swelling. ___46___ forces of the anti-imperialist ___47___. These thories had immense ___48___ value, opening up new ___49___ for the working class ___50___ the revolutionary struggle.

Source: History : Grade Ten

Cloze Test 6

Direction: Read the whole passage thoroughly and supply the missing words using context clues. Use only one word for each blank. Write your answers on the separate answer sheet provided.

When one delineates the various problems encountered by the Ethiopian Revolution, one has to take February, 1974 as a starting point. This is because all ___1___ numerous plots and conspiracies ___2___ the forces of counter-Revolution ___3___ out against the Ethiopian ___4___ date from that particular ___5___ Right from there, the ___6___ of the now defunct ___7___ ruling class, determined to ___8___ the revolutionary fervor of ___9___ broad Ethiopian masses, to ___10___ their struggle in coherent and ___11___ expose to danger their ___12___ as well, erected every ___13___ conspiracy. They fervently tried ___14___ eliminate and destroy the ___15___ coordinating committee of the ___16___ Forces the police and ___17___ Army, which has just ___18___ to coordinate and lead J___19___ struggle of the broad ___20___ masses. The conspiracy of ___21___ Alem-Zewd Tessema was part ___22___ parcel of this anti-people ___23___ anti-revolution plot hatched out ___24___ the members of the ___25___ defunct feudo-bourgeois ruling class ___26___ counter-revolutionaries who were poised ___27___ subvert the Ethiopian revolution ___28___ its in fancy began to ___29___

their anti-people activities as ___30___ broad Ethiopian masses succeeded ___31___ putting under revolutionary custody ___32___ those leading feudo-bourgeous elements. ___33___ became more pronounced following ___34___ abolition of the feudal ___35___ on September 12, 1974. ___36___ the series of conspiracies ___37___ plots that were directed ___38___ the Ethiopian revolution, the ___39___ was the one led ___40___ directed by General Aman ___41___. Aman who apparently was ___42___ for his qualities of ___43___ and love of country, ___44___ February, 1974, was chosen ___45___ chairman of the Provisional ___46___ council when it was ___47___ on September 12, 1974. ___48___ Aman did not want ___49___ his leadership ability ___50___ his reputation for the good of the Ethiopian Revolution, but only as a stepping stone for the realization of his own personal ambition, he started strengthening the connection he had with the agents of internationalism particularly us imperialism.

Source: History : Grade Ten

Appendix IIC

Cloze Tests From The Geography Textbook

Cloze Test 7

C

Direction: Read the whole passage thoroughly and supply the missing words using context clues. Use only one word for each blank. Write your answers on the separate answer sheet provided.

Of all food crops cereals are important food sources. They supply most of ___1___ calories intake in our ___2___. There are many types ___3___ cereals. Here were shall ___4___ only the important cereal ___5___ wheat rice and corn.

___6___ is one of the ___7___ cereal crops. In volume ___8___ total cereal production ___9___ stands only second to ___10___ wheat is mostly produced ___11___ cool and warm temperate ___12___. It does not grow ___13___ areas of heavy precipitation ___14___ the tropical regions, except, ___15___ the highland areas where ___16___ and temperature are moderate.

___17___ is produced mostly on ___18___ mechanized extensive farms. The ___19___ extensive wheat farms are ___20___ in the prairies of ___21___. America, the Pampas of ___22___ America, the High Veld ___23___ South Africa, the Ukraine ___24___ soil areas of the ___25___ and South-Western and Southern ___26___. In Europe, wheat is ___27___ produced on small farm ___28___.

Rice is the most ___29___ cereal cultivated. It grows ___30___ in all inhabited continents. ___31___ the Monsoon areas of ___32___ Asia account for over ___33___ of the world rice ___34___. The Phelipines, Burma, India ___35___, China, Japan and Korea ___36___ the most important rice ___37___. Brazil, the United States ___38___ and Egijpt are also ___39___

In the monsoon area ___40___ occupies about one-fourth of ___41___ crop lands but supports ___42___ two third of the people ___43___ this region as a ___44___ food crop. This is ___45___ it contains a large ___46___ of starch and gives ___47___ high percentage of yield ___48___ unit area. Rice is ___49___ using intensive methods that ___50___ a good deal of human labour as well as animal labour.

Source: Geography : Grade Ten.

Cloze Text 8

Direction: Read the whole passage thoroughly and supply the missing words using context clues. Use only one word for each blank. Write your answers on the separate answer sheet provided.

It is known that all life on earth is dependent upon water and air. Both are equally vital ___1___ are needed for different ___2___. Water is required for ___3___ as a source of ___4___ and as a medium of ___5___. It has various uses ___6___ industries, like as an ___7___ a waste removal and ___8___ agent. Air is also ___9___ for our existence.

Water ___10___ air have one big ___11___ in common. This is ___12___ problem of pollution. Pollution ___13___ in form mainly man's ___14___. Water becomes polluted mainly ___15___ wastes from industries and ___16___ activities of man flow ___17___ a lake or a ___18___ in such quantities that ___19___ water's natural ability to ___20___ itself is lessened or ___21___ destroyed. Air becomes poluted ___22___ particles of liquid or ___23___ materials mix with the ___24___ so that the purity ___25___ the air is spoiled.

___26___ most obvious areas of ___27___ pollution are around cities. ___28___ is because most of ___29___ pollutant are located in ___30___ around urban areas. Filthy ___31___ products from factories deteriorate ___32___ surrounding air condition. Air is

____33____ also takes place in ____34____ areas or in non-industrialised ____35____ of the world with ____36____ activities like slash and ____37____, making of charcoal, etc.

____38____ water and air resources ____39____ the earth cannot be ____41____ so that a condition ____42____ we have seen would ____43____ created, which resembles destruction. ____44____ such disastrous state of ____45____ in water and air ____46____ be avoided through conservation ____47____ of these resources.

The ____48____ steps in the program ____49____ conservation of water and ____50____ are:

Source: Geography : Grade Ten.

Cloze Test 9

Direction: Read the whole passage thoroughly and supply the missing words using context clues. Use only one word for each blank. Write your answers on the separate answer sheet provided.

Transport plays a vital role in the economy of nations. It has a multipurpose ___1___ in connecting the various ___2___ areas of the national ___3___. It ensures production connections, ___4___ industry and agriculture, between ___5___ extractive and manufacturing industries, ___6___ further-more from the sphere ___7___ production to that of ___8___. The product is not ___9___ for consumption until it ___10___ transferred from its production ___11___ to the sphere of ___12___. Transformation exerts a considerable ___13___ on the development and ___14___ of social production. As ___15___ come in contact with ___16___ people, migrate and exchange ___17___, they also exchange ideas ___18___ goods concerning innovations, political ___19___ and many other aspects ___20___ social development.

The ___21___ stage of transportation itself ___22___ in turn the reflection ___23___ the development and distribution ___24___ the productive forces ___25___ the territory of a ___26___.

Under the capitalist system ___27___ economy there is irrational ___28___ of production establishments within ___29___ territory, Industries are highly ___30___

to only few urban ___31___. The sharp division of ___32___ countries into industrial and ___33___ economically highly developed and ___34___ areas lead to irrational ___35___ of the means of ___36___. These uneveness in the ___37___ of production, the isolation ___38___ industrial and agricultural production ___39___. the areas of consumption ___40___ also lead to the ___41___ use of raw materials, ___42___, half-finished and finished product, ___43___ in the end result ___44___ enormous waste of public ___45___ and reduces the productivity ___46___ social labour too.

In ___47___ capitalist countries the various ___48___ of transportation systems are ___49___ large monopolies. Hence ___50___ transport is characterized by competition between the different transport companies, namely, railways shipping-lines, bus and truck-lines, airlines.

Source: Geography : Grade Ten

Appendix IID

Cloze Tests From the Biology Textbook

Cloze Test 10

Direction: Read the whole passage thoroughly and supply the missing words using context clues. Use only one word for each blank. Write your answers on the separate answer sheet provided.

When you performed Pasteur's experiment you found that micro-organism or their spores are carried in air. Are micro-organisms found in ___1___ places as well? You ___2___ do a series of ___3___ to find out and ___4___ find out if micro-organisms ___5___ in air in different ___6___ in different situations.

Pasteur ___7___ spallanzani used broths made ___8___ various food substances in ___9___ to grow their micro-organisms. ___10___ koch a German, was ___11___ at about the same ___12___ as pasteur on different ___13___ of growing bacteria. He ___14___ interested in finding ways ___15___ studying bacteria under laboratory ___16___, which caused diseases in ___17___. First he found that ___18___ could be grown and ___19___ alive. To do this ___20___ placed a drop of ___21___ culture on a slide, ___24___ over so that the ___25___ of culture was hinging ___26___. He was then able ___27___ watch the activities of ___28___ bacteria under a microscope ___29___ how they grew and ___30___. Joch went on to ___31___ his methods of growing ___32___ by growing them on ___33___ of jelly. This allowed ___34___ to do many

things. ___35___ bacterium, which was placed ___36___ fell on the jelly, ___37___ to produce a colony ___38___ bacteria, which could not be ___39___ with naked eye. ___40___ colony consisted of the ___41___ sort of bacteria as ___42___ original one. Samples of ___43___ colony could therefore be ___44___ to another plate of ___45___ and pure culture produced. ___46___ allowed him to do ___47___ investigations about the characteristics ___48___ each different bacterium being ___49___. Koch's methods are still ___50___ to day, and you will use these methods if your teacher has the necessary equipment and chemicals available.

Source: Biological Science for Grade Ten.

Cloze Test 11

Direction: Read the whole passage thoroughly and supply the missing words using context clues. Use only one word for each blank. Write your answers on the separate answer sheet provided.

Parasites unlike free living organisms have usually to find a moving host or a specific plant host, which may only grow in certain areas and not in others. Many animal parasite eggs ___1___ larval are passed out ___2___ the host's body with ___3___. These may be deposited ___4___, and unless a new ___5___ passes by the larval ___6___ to exist for some ___7___ without a host.

You ___8___ already learned that hook-ward ___9___ can exist in the ___10___ for two months or ___11___, after being passed out ___12___ the faces, by eating ___13___ and organic material.

There ___14___ some larvae of parasitic ___15___ words which, if they ___16___ not find the host ___17___ can burrow into another ___18___. There they encyst until ___19___ animal they have entered ___20___ eaten by the proper ___21___ of the parasitic wardm. ___22___ worm can then grow ___23___ develop in the host's ___24___. Many of these encysted ___25___ will ultimately die because ___26___ animal

in which they ___27___ encysted is never eaten ___28___ the proper host.

Parasites ___29___ often live in water ___30___ long periods of time ___31___ by feeding on organic ___32___ in the water or ___33___ encysting. Examples of these ___34___ amoeba, giardia, which are ___35___ and typhoid fever and ___36___ bacteria. Thus, it is ___37___ that all water, which ___38___ not chemically sterilised by ___39___ government authorities, should be ___40___ before drinking it.

From ___41___ examples quoted above, it ___42___ clear that from the ___43___ point of view, the ___44___ stage from one host ___45___ another is an extremely ___46___ operation. Most of them ___47___ before they reach a ___48___ host. Many parasites over-come ___49___ problem by producing very ___50___ numbers of eggs and thus increasing the chance of some of the larvae surviving long enough to reach a new host.

Source: Biological Science for Grade Ten.

Cloze Test 12

Direction: Read the whole passage thoroughly and supply the missing words using context clues. Use only one word for each blank. Write your answers on the separate answer sheet provided.

Here in Ethiopia we grow many crops. Some of our crops ___1___ cash crops and some ___2___ produced for food, under ___3___ conditions, the farmers get ___4___ crops. Sometimes the crops ___5___ poor. They are poor ___6___ of bad weather. This ___7___ in some of our ___8___ in 1973 G.C. Often ___9___ are poor because the ___10___ has become deficient in ___11___ salts and it needs ___12___. They may be poor ___13___ cattle or other big ___14___ walked over them. They ___15___ more often poor because ___16___ are attacked by pests ___17___ pests cause a lot ___18___ damage in farms. Some ___19___ the most important pests ___20___ insects.

We depend entirely ___21___ plants and upon animals ___22___ eat plants we eat ___23___ sugar, vegetables, fruits, oil, ___24___, and many more plant ___25___. The animals and birds ___26___ we eat are almost ___27___ eaters of plants. Unfortunately, ___28___ of us, many kinds of ___29___ have the same need ___30___. also live upon plants ___31___ eat all parts of ___32___ plants; roots, stems leaves ___33___ and fruits. and fruits. There

is ___34___ any plant or any ___35___ of a plant that ___36___ not a favourite food ___37___ some insects.

Farmers lose ___38___ lot of money and ___39___ when their crops and ___40___ stores are attacked by ___41___. Much food is lost ___42___ it is stored for ___43___ or distribution, or in ___44___ homes. We fight against ___45___ insects because of the ___46___ they cause us.

When ___47___ walk around the school, ___48___ at the plants carefully. ___49___ of them are healthy. ___50___ most of the leaves are undamaged. Some plants, however, have marks on them. Some of the marks may be due to insects pests.

Source: Biological Science for Grade Ten.

Appendix III. The Fry graph

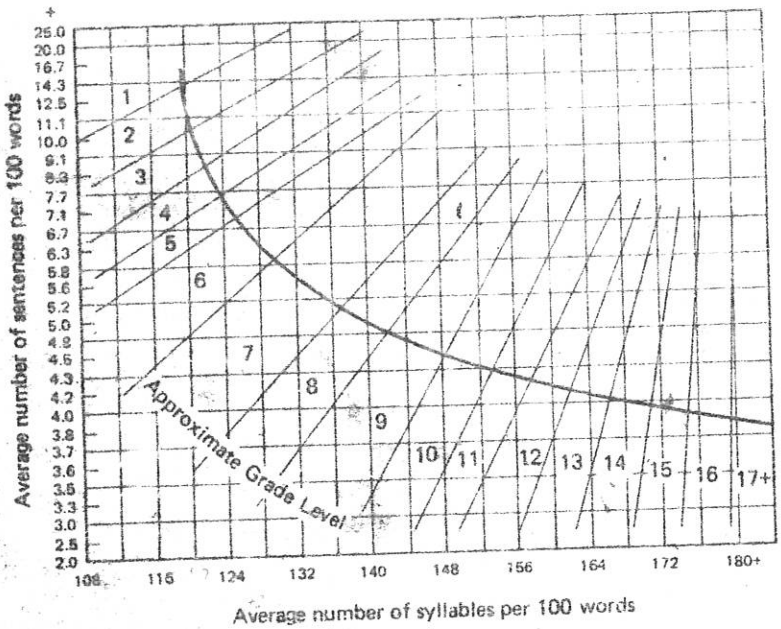


Figure 3.4. Fry's extended readability graph

Appendix IIIA

Cloze Test Results For Yekatit 12 Secondary School

Code No.	ENGLISH Cloze tests 1	2	3	AV	C.L	HISTORY Cloze tests 4	5	6	AV	C.L	GEOGRAPHY Cloze tests 7	8	9	AV	C.L	BIOLOGY Cloze tests 10	11	12	AV	C.L
01	46	40	32	39	F.L	30	28	32	30	F.L	44	28	28	33	F.L	24	30	64	39	F.L
02	34	36	32	34	"	24	26	22	24	"	24	24	18	22	"	30	18	42	30	"
03	30	20	26	25	"	22	20	34	25	"	18	20	10	16	"	12	14	24	17	"
04	22	20	18	20	"	16	12	18	15	"	20	22	14	19	"	14	20	18	17	"
05	26	34	28	29	"	20	14	16	17	"	28	22	14	21	"	20	34	52	35	"
06	10	20	18	16	"	22	12	16	17	"	18	18	14	17	"	16	20	24	20	"
07	18	22	18	19	"	30	14	16	17	"	16	26	18	20	"	24	20	24	23	"
08	20	14	16	17	"	22	12	18	17	"	16	16	12	15	"	16	16	14	15	"
09	20	28	26	25	"	22	24	22	23	"	24	14	18	19	"	20	26	26	24	"
10	38	28	30	32	"	22	22	16	20	"	20	24	14	19	"	20	24	22	22	"
11	30	28	24	27	"	20	24	20	21	"	20	22	20	21	"	14	22	26	21	"

AV = Average

C.L = Comprehension level

F.L = Frustration level

I.L = Instructional level

Cloze Te t Results For Yekatit 12 Secondary School

Code No	ENGLISH Cloze tests 1	2	3	AV	C.L	HISTORY Cloze tests 4	5	6	AV	C.L	GEOGRAPHY Cloze tests 7	8	9	AV	C.L	BIOLOGY Cloze tests 10	11	12	AV	C.L
12	36	34	24	31	F.L	30	14	24	23	"	16	24	18	19	F.L	20	30	38	29	F.L
13	22	30	24	25	"	18	20	16	18	"	18	22	20	20	"	22	20	22	21	"
14	26	28	24	26	"	16	18	14	16	"	22	18	12	17	"	18	14	36	23	"
15	28	20	20	23	"	20	2[illegible]	22	21	"	20	24	16	20	"	16	22	40	26	"
16	20	28	24	24	"	22	24	22	23	"	26	20	18	21	"	18	26	26	23	"
17	18	16	14	16	"	18	12	18	16	"	16	22	14	17	"	16	20	28	21	"
18	30	22	22	25	"	14	14	18	15	"	20	18	22	20	"	14	18	16	16	"
19	26	16	22	21	"	20	16	22	19	"	16	26	8	17	"	14	14	20	16	"
20	30	30	26	29	"	20	28	26	25	"	20	24	20	21	"	22	28	26	25	"
21	26	18	24	23	"	10	22	14	15	"	18	14	10	14	"	12	14	8	11	"

AV = Average

C.L = Comprehension level.

F.L = Frustration level

I.L = Instructional level

Cloze Test Results For Yekatit 12 Secondary School

Code	ENGLISH					HISTORY					GEOGRAPHY					BIOLOGY				
	Cloze tests					Cloze tests					Cloze tests					Cloze tests				
No.	1	2	3	AV	C.L	4	5	6	AV	C.L	7	8	9	AV	C.L	10	11	12	AV	C.L
22	20	16	16	17	F.L	10	12	12	11	F.L	14	6	10	10	F.L	14	14	20	16	F.L
23	24	28	22	25	"	22	20	24	22	"	18	22	18	19	"	14	32	26	24	"
24	22	36	24	27	"	24	12	18	18	"	26	12	14	17	"	12	22	38	24	"
25	22	22	24	23	"	16	12	20	16	"	20	24	12	19	"	18	18	24	20	"
26	28	24	30	31	"	30	20	22	24	"	22	24	16	21	"	20	26	36	27	"
27	28	28	26	27	"	14	20	24	19	"	18	24	18	19	"	12	20	26	26	"
28	14	32	28	31	"	18	12	20	17	"	24	26	16	22	"	14	16	32	21	"
29	18	16	18	17	"	16	10	14	13	"	16	16	12	15	"	16	22	28	22	"

AV = Average

C.L = Comprehension level

F.L = Frustration level

I.L = Instructional level

Appendix IV B

Cloze Test Results For Menelik Secondary School

Code	ENGLISH					HISTORY					GEOGRAPHY					BIOLOGY				
	Cloze tests					Cloze tests					Cloze tests					Cloze tests				
No.	1	2	3	AV	C.L	4	5	6	AV	C.L	7	8	9	AV	C.L	10	11	12	AV	C.L
30	20	32	32	28	F.L	26	20	16	21	F.L	30	20	20	21	F.L	26	22	34	27	F.L
31	36	26	34	32	"	22	18	18	19	"	22	20	22	21	"	22	24	42	29	"
32	32	30	26	29	"	24	18	16	19	"	12	24	22	19	"	24	22	38	28	"
33	12	26	18	19	"	8	4	4	5	"	10	12	10	11	"	26	16	12	18	"
34	16	16	22	18	"	16	10	22	16	"	20	16	10	15	"	12	16	14	14	"
35	34	26	24	28	"	8	14	16	13	"	30	22	8	20	"	16	30	64	37	"
36	12	16	24	17	"	14	14	14	14	"	12	16	18	15	"	12	8	38	19	"
37	28	22	16	22	"	16	18	16	17	"	24	20	12	19	"	16	16	18	17	"
38	32	22	32	29	"	22	20	22	21	"	22	28	14	21	"	24	12	30	22	"
39	34	32	28	31	"	24	16	24	21	"	30	32	8	23	"	16	30	48	31	"

AV = Average

C.L = Comprehension level

F.L = Frustration level

I.L = Instractional level

Cloze Test Results For Menelik Secondary School

Code	ENGLISH					HISTORY					GEOGRAPHY					BIOLOGY				
	Cloze tests					Cloze tests					Cloze tests					Cloze tests				
No.	1	2	3	AV	C.L	4	5	6	AV	C.L	7	8	9	AV	C.L	10	11	12	AV	C.L
40	24	14	22	20	F.L	16	12	18	15	F.L	18	10	10	13	F.L	12	14	66	31	F.L
41	38	30	22	30	"	16	18	26	20	"	18	22	16	19	"	10	18	64	31	"
42	36	22	22	27	"	24	18	16	19	"	24	28	20	24	"	24	22	40	29	"
43	36	30	24	30	"	18	16	18	17	"	28	22	10	20	"	14	20	60	34	"
44	24	14	16	18	"	20	20	16	19	"	14	22	8	15	"	14	18	10	14	"
45	14	8	16	13	"	8	12	10	10	"	10	18	6	11	"	12	6	16	11	"
46	52	50	46	49	I.L	46	40	40	42	I.L	42	62	28	44	I.L	42	50	52	48	I.L
47	18	26	26	23	F.L	26	12	26	21	F.L	24	28	10	21	F.L	34	20	34	29	F.L
48	48	30	22	33	"	20	16	24	20	"	20	24	20	21	"	22	26	50	33	"
49	22	22	22	22	"	14	18	14	15	"	20	16	14	17	"	12	18	18	16	"
50	16	26	20	24	"	10	10	16	12	"	12	20	14	15	"	14	20	32	22	"
51	14	22	12	16	"	14	14	18	15	"	16	12	20	16	"	16	12	30	19	"

AV = Average F.L = Frustration level

C.L = Comprehension level I.L = Instractional level

Cloze Test Results For Menelik Secondary School

Code	ENGLISH					HISTORY					GEOGRAPHY					BIOLOGY				
	Cloze tests					Cloze tests					Cloze tests					Cloze tests				
No.	1	2	3	AV	C.L	4	5	6	AV	C.L	7	8	9	AV	C.L	10	11	12	AV	C.L
52	34	28	30	31	F.L	18	18	16	17	F.L	24	16	20	20	F.L	22	24	42	29	F.L
53	48	36	34	39	"	34	36	28	33	"	40	40	28	36	"	40	28	52	40	I.L
54	32	12	20	21	"	8	16	14	13	"	30	12	6	16	"	14	14	24	17	F.L
55	16	20	20	19	"	14	12	10	12	"	18	14	16	16	"	16	16	12	15	"
56	54	46	40	47	I.L	32	38	34	35	"	34	46	22	34	"	16	16	12	15	"

AV = Average

C.L = Comprehension level

F.L = Frustration level

I.L = Instractional level

Appendix IVc

Cloze Test Results For Higher 12 Secondary School

Code No.	ENGLISH Cloze tests 1	2	3	AV	C.L	HISTORY Cloze tests 4	5	6	AV	C.L	GEOGRAPHY Cloze tests 7	8	9	AV	C.L	BIOLOGY Cloze tests 10	11	12	AV	C.L
57	26	14	20	20	F.L	16	14	12	14	F.L	24	18	6	16	F.L	10	14	18	14	F.L
58	36	20	32	29	"	16	10	16	14	"	16	24	18	19	"	22	18	42	27	"
59	22	14	18	18	"	14	14	18	15	"	26	16	6	16	"	18	18	20	19	"
60	34	28	20	27	"	22	22	10	15	"	12	20	12	15	"	18	30	24	24	"
61	44	38	28	37	"	20	28	16	21	"	44	20	22	29	"	26	30	52	36	"
62	10	22	18	17	"	18	8	10	12	"	20	18	8	15	"	16	16	24	19	"
63	36	38	26	33	"	14	16	14	15	"	24	18	14	19	"	12	26	32	23	"
64	38	38	22	33	"	24	16	20	20	"	20	18	16	17	"	14	20	32	22	"
65	50	38	48	45	I.L	45	56	28	4[illegible]	I.L	52	46	32	4[illegible]	I.L	26	58	58	47	I.L
66	54	44	42	47	"	24	46	28	33	F.L	40	50	38	43	"	38	48	58	48	"
67	42	22	18	27	F.L	14	32	18	21	"	28	26	14	23	F.L	28	34	58	40	"

AV = Average F.L = Frustration level

C.L = Comprehension level I.L = Instructional level

Cloze Test Results For Higher 12 Secondary School

Code	ENGLISH Cloze tests					HISTORY Cloze tests					GEOGRAPHY Cloze tests					BIOLOGY Cloze tests				
No.	1	2	3	Av	C.L	4	5	66	AV	C.L	7	8	9	AV	C.L	10	11	12	AV	C.L
68	28	24	16	23	F.L	10	14	18	14	F"L	34	18	14	22	F.L	16	14	28	19	F.L
69	14	20	18	17	"	4	14	8	9	"	14	10	10	11	"	6	14	10	10	"
70	30	38	24	31	"	16	20	14	17	"	22	12	16	17	"	20	20	32	24	"
71	56	32	40	43	I.L	22	22	24	23	"	34	26	20	27	"	26	24	38	29	"
72	22	46	24	31	F.L	20	14	16	17	"	32	18	26	25	"	14	18	36	23	"
73	8	28	16	17	"	20	14	18	17	"	20	16	8	15	"	18	14	26	19	"
74	12	40	16	23	"	20	22	14	19	"	24	20	16	20	"	16	18	28	21	"
75	40	36	32	36	"	28	16	18	21	"	30	36	24	30	"	20	24	36	27	"
76	42	38	28	36	"	20	30	22	24	"	30	20	16	22	"	22	22	42	39	"
77	28	30	24	27	"	12	12	16	13	"	20	18	12	17	"	18	18	28	21	"
78	30	30	24	28	"	18	22	12	17	"	32	10	16	19	"	12	20	28	20	"
79	32	22	26	27	"	12	14	16	14	"	24	8	14	15	"	26	18	14	19	"

AV = Average F.L = Frustration level

C.L = Comprehension I.L = Instructional level

Cloze Test Results For Higher 12 Secondary School

Code No.	ENGLISH Cloze tests 1	2	3	AV	C.L	HISTORY Cloze tests 4	5	6	AV	C.L	GLOGRAPHY Cloze tests 7	8	9	AV	C.L	BIOLOGY Cloze tests 10	11	12	AV	C.L
80	32	30	30	31	F.L	24	22	28	25	F.L	24	24	20	23	F.L	24	26	42	31	F.L
81	30	30	18	26	"	12	16	22	17	"	22	18	12	17	"	20	16	16	17	"
82	18	18	18	18	"	14	10	10	11	"	24	18	8	13	"	16	20	28	21	"
83	24	24	12	20	"	16	10	6	11	"	16	24	8	16	"	16	18	20	18	"
84	46	22	24	31	"	18	16	14	16	"	30	20	10	20	"	18	12	36	22	"
85	18	24	10	17	"	10	16	14	13	"	12	12	12	12	"	12	8	30	17	"
86	22	20	18	20	"	6	18	16	13	"	24	16	20	20	"	10	16	30	19	"
87	12	24	30	22	"	18	12	12	14	"	22	14	8	11	"	14	22	16	17	"
88	26	30	24	27	"	20	16	16	17	"	28	16	22	22	"	16	26	30	24	"
89	16	12	22	17	"	12	10	18	13	"	18	12	20	16	"	16	10	22	16	"
90	34	40	18	31	"	16	38	14	23	"	24	16	16	19	"	22	20	42	28	"

AV = Average

F.L = Frustration level

C.L = Comprehension level

Appendix V

Answer Key for the Cloze Tests

Cloze Test 1

1. friends	11. Tesfaye	21. finished	31. the	41. in
2. them	12. received	22. the	32. ledger	42. so
3. are	13. issues	23. the	33. shed	43. adding
4. money	14. contribution	24. clothes	34. inside	44. uses
5. their	15. part	25. in	35. to	45. thinks
6. sew	16. because	26. is	36. has	46. collecting
7. shirts	17. keeping	27. has	37. the	47. arranges
8. these	18. has	28. the	38. he	48. to
9. who	19. of	29. contribution	39. for	49. at
10. money	20. ten	30. when	40. he	50. the

Cloze Test 2

1. with	11. waste	21. put	31. was	41. restored
2. tends	12. the	22. better	32. been	42. nature
3. land	13. should	23. the	33. and	43. a
4. place	14. the	24. decays	34. farmer	44. back
5. in	15. it	25. in	35. place	45. former
6. removes	16. burn	26. past	36. the	46. time
7. of	17. but	27. was	37. left	47. local
8. the	18. organic	28. is	38. grasses	48. well
9. to	19. plants	29. little	39. appear	49. demand
10. are	20. are	30. in	40 productive	50. days

Answer Key for the Cloze Tests

Cloze Test 3

1. of	11. started	21. ends	31. of	41. out
2. the	12. his	22. become	32. seeks	42. faster
3. power	13. money	23. still	33. so	43. and
4. production	14. the	24. can	34. capital	44. but
5. capitalist	15. than	25. used	35. labour	45. machines
6. sells	16. he	26. by	36. increase	46. was
7. amount	17. is	27. production	37. can	47. Greater
8. at	18. stopes	28. getting	38. etc	48. more
9. process	19. not	29. new	39. to	49. worker
10. the	20. people's	30. every	40. get	50. as

Cloze Test 4

1. capitalism	11. of	21. a	31. Important	41. the
2. lay	12. were	22. stream lined	32. in	42. natural
3. these	13. these	23. metallurgy	33. soon	43. also
4. second	14. wood	24. to	34. appearance	44. progressive
5. century	15. oil	25. this	35. of	45. were
6. ousted	16. of	26. expansion	36. 1859	46. all
7. majority	17. progress	27. total	37. on	47. the
8. Europe	18. convesting	28. railways	38. by	48. the
9. capitalist	19. steel	29. mere	39. was	49. onwards
10. the	20. and	30. exceeded	40. play	50. hit

Answer Key for the Cloze Tests

Cloze Test 5

1. and	11. account	21. imperialism	31. few	41. of
2. of	12. of	22. principles	32. single	42. the
3. revolution	13. stage	23. first	33. principle	43. class
4. revolution	14. and	24. revolution	34. would	44. the
5. order	15. to	25. all	35. its	45. oppressed
6. wrote	16. historical	26. of	36. the	46. the
7. the	17. of	27. various	37. become	47. movement
8. the	18. and	28. stages	38. proletariat	48. practical
9. and	19. new	29. development	39. would	49. prospects
10. the	20. applicable	30. was	40. forces	50. in

Cloze Test 6

1. the	11. to	21. colonel	31. in	41. Andom
2. that	12. struggle	22. and	32. all	42. reputed
3. hatched	13. conceivable	23. and	33. this	43. leadership
4. revolution	14. to	24. by	34. the	44. before
5. period	15. young	25. now	35. monarchy	45. as
6. members	16. Armed	26. the	36. of	46. Administrat
7. feudo-bourgeois	17. Territorial	27. to	37. and	47. established
8. stop	18. started	28. at	38. against	48. Since
9. the	19. the	29. sharpen	39. first	49. to
10. make	20. Ethiopian	30. the	40. and	50. and

Answer Key for the Cloze Tests

Cloze Test 7

1. the	11. in	21. North	31. But	41. the
2. diet	12. lands	22. South	32. South-East	42. about
3. of	13. in	23. of	33. 90%	43. of
4. consider	14. of	24. Black	34. Production	44. staple
5. crops	15. over	25. USSR	35. pakistan	45. because
6. wheat	16. rainfall	26. Australia	36. are	46. percentage
7. major	17. wheat	27. mainly	37. producers	47. a
8. of	18. highly	28. plots	38. Italy	48. per
9. it	19. major	29. important	39. important	49. cultivated
10. rice	20. found	30. almost	40. rice	50. involve

Cloze Test 8

1. and	11. problem	21. completely	31. waste	41. abused
2. purposes	12. the	22. when	32. the	42. as
3. drinking	13. results	23. solid	33. pollution	43. be
4. power	14. activities	24. air	34. rural	44. so
5. transportation	15. when	25. of	35. parts	45. affairs
6. in	16. other	26. the	36. such	46. can
7. ingredient	17. into	27. air	37. burn	47. programs
8. purification	18. stream	28. This	38. Though	48 important
9. vital	19. the	29. the	39. of	49. of
10. and	20. clean	30. and	40. destroyed	50. air

Answer Key for the Cloze Tests

Cloze Test 9

1. function	11. area	21. developmental	31. areas	41. transitional
2. economic	12. consumption	22. is	32. capitalist	42. fuel
3. economy	13. influence	23. of	33. agrarian	43. and
4. between	14. distribution	24. of	34. backward	44. in
5. the	15. people	25. over	35. distribution	45. wealth
6. and	16. other	26. country	36. transportation	46. of
7. of	17. goods	27. of	37. distribution	47. many
8. consumption	18. and	28. distribution	38. of	48. means
9. ready	19. organizations	29. the	39. from	49. owned
10. is	20. of	30 concentrated	40. will	50. capitalist

Cloze Test 10

1. other	11. working	21. bacteria	31. improve	41. same
2. can	12. time	22. which	32. micro-organisms	42. the
3. investigation	13. methods	23. it	33. plates	43. this
4. to	14. was	24. slide	34. him	44. transferred
5. occur	15. of	25. drop	35. Each	45. jelly
6. numbers	16. conditions	26. downwards	36. or	46. This
7. and	17. animals	27. to	37. reproduced	47. many
8. from	18. bacteria	28. the	38. of	48. of
9. which	19. watched	29. particularly	39. seen	49. studied
10. Robert	20. he	30. reproduced	40. Each	50. used

Answer Key for the Cloze Tests

Cloze Test 11

1. or	11. more	21. host	31. either	41. the
2. of	12. in	22. the	32. material	42. is
3. faeces	13. bacteria	23. and	33. by	43. parasite's
4. anywhere	14. are	24. body	34. are	44. transfer
5. host	15. nematode	25. larvae	35. protozoans	45. to
6. have	16. do	26. the	36. dysentary	46. risky
7. time	17. immediately	27. have	37. necessary	47. die
8. have	18. animal	28. by	38. is	48. new
9. larvae	19. the	29. can	39. the	49. this
10. soil	20. is	30. for	40. boiled	50. large

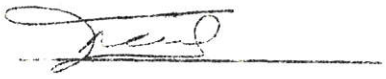
Cloze Test 12

1. are	11. mineral	21. upon	31. they	41. insects
2. are	12. fertilising	22. that	32. the	42. while
3. good	13. because	23. bread	33. buds	43. for
4. good	14. animals	24. salads	34. hardly	44. our
5. are	15. are	25. products	35. part	45. the
6. because	16. they	26. that	36. is	46. damage
7. happened	17. crop	27. entirely	37. of	47. you
8. provinces	18. of	28. for	38. a	48. look
9. they	19. of	29. insects	39. food	49. most
10. soil	20. are	30. they	40. food	50. probably

D E C L A R A T I O N

I, the undersigned, declare that this thesis is my work and that all sources of material used for this thesis have been duly acknowledged.

Name: Berhe Kahsay

Signature: 

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