
Readability Level Assessment of Modules Prepared at Abbi Addi College of Teacher Education

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Abstract: The objective of the study was to assess four selected modules' readability levels. These were modules of the courses Teaching in Ethiopian Context (PS1 111), Gender and Life Skills (PS4 111), General English (Enla 101) and English in Use (Enla 111) at Abbiyi Addi College of Teacher Education. The readability levels of the modules (computed using the Fog Index Readability formula) were found to be 10, 15.6, 12 and 11 for PS1 111, PS4 111, Enla 101 and Enla 111 respectively. The comprehension levels of the learners (assessed using cloze test) were 33.17, 29.53, 27.61 and 22.15 for PS1-111, PS4111, Enla 101 and Enla 111 respectively. These put all students' comprehension levels of the modules under category of frustration level. Instructors and students (who were using the modules) measures of the modules' readability (measured using readability checklist) revealed that the modules were of lower quality. Hence, revision of the modules in terms of content, language and design is recommended.

Introduction

"Today good reading comprehension remains the most important key for school learning." Cornold and Oakhill (1996, p. xi). To achieve this, "Schools depend on books; teachers depend on students' reading these books. Under these conditions, what happens if students don't read? Obviously the consequences are disastrous" (Guthrie, 2001, p.1).

In areas where teaching materials and books are scarce, modules could be the only resources to support the teaching – learning process. In this context, modules need to be effective vehicles for enhancing the quality of a given teaching–learning process. To this end, the modules should be prepared well with sufficient resources and adequate time allotment. Allotting

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enough resources and time could have a contribution for the preparation of modules that match the competence demand of the modules with the actual ability of the potential learners who use the modules.

However, it is believed that the modules (modules of the courses PS1 111, PS4 111, Enla 101 & Enla 111 at Abbiyi Addi College of Teacher Education) were prepared in a very short period of time without adequate preparation. Communication with the module writers and the researcher's personal observation revealed that the whole process of writing the modules was finished in two months. There was no attempt to assess the learners' learning needs. Moreover, the College had no well furnished library and internet services. Worst of all, training /orientation/ on writing modules was not given to the contributors. So, assessing the readability level of modules written in this situation was the main concern of the study.

The objective of the study was then, to assess the readability levels of the selected modules. In particular, this study tried to answer the following questions.

1. What were the readability levels of the selected modules?
2. What were the comprehension levels of the learners who were using the modules?
3. How did the module users judge the readability levels of the modules?

Assessing readability levels of modules is believed to have a contribution towards enhancing the pedagogical roles of modules. It could play an important role in reducing, if not eliminating, unnecessary complexity of concept and language of a given module.

The study is limited to assessing four modules developed to teach students who were attending the 10+3 teacher education program at Abbi Addi College of Teacher Education in 1997(E.C.) academic calendar. Students who took the course in the first semester of 1997(E.C.) academic calendar and instructors of the modules were the sources of the data used in the study.

Review of Related Literature

Reading is a process of making meaning. This is done by the interaction of a reader with a given print. In the process of interaction the reader should acquire, confront and create meaning (Gambrell, et. al, 2002). In other words, reading is the correspondence between the way in which a writer encodes a message and the way in which it is decoded by a reader.

In order to have such a correspondence, a given text should be readable. Readability, as defined by Chall and Dall in Williams, et al. (2002) is:

the sum total including interaction of those elements within a given piece of print that affect the success which a group of readers have with it. The success is the extent to which they understand it, read it at optimum speed and find it interesting. (p. 6)

According to Abedi and Heiri (2000), Gambrel (2002) and Guthrie (2001) readability can be affected by a number of factors including the following:

- Length, frequency, and type of word, phrase, and sentence;
- Concept presentation;
- Background knowledge of the reader (Experiential, cultural, subject knowledge);
- Text organization and layout; and
- Motivation

Readability of a certain text can be measured by readability formula, cloze procedure and common sense judgment of the text reader(s).

Readability formula is a mathematical equation that correlates various physical features of a text with standard measures of reading comprehension. (Quinn, 2001, p. 20). There are different types of readability formulas. Flesch Readability Formula, Gunning Fog Index, Dale-Chall's

formula, Smog's formula and Fry's formula are the common ones(Horning, 1987). Readability formulas are used to measure the reading level of a certain text to a certain target group. Readability formulas usually consider number of letters per word, number of syllables per word and number of words per sentence. There are also readability formulas like Dale-Chall's formula that list concrete words.

Cloze procedure is used to measure human ability to complete familiar but incomplete patterns. It works the same as filling a broken circle by virtue of its shape and pattern familiarity in the presence of a numbers of gaps (Williams, 2002). Taylor, quoted in Weir (1990, p. 4), also stated that a cloze procedure is "any single occurrence of a successful attempt to produce accurately a part deleted from a message by deciding from the context that reminds what the missing part should be." This technique helps to measure readers' success in interacting with a certain text. In this regard, reading process efficiency is valued from the point of view of a reader's effective guessing of the missing words. This in turn is based on" adherence to language convention, consistency and simplicity in writing style and background of the readers" (Williams et al., 2002, p. 6).

Another tool for measuring readability is common sense judgment of the text readers. This could be done by gathering data that shows the respondents' judgments on the readability level of the target text. This type of data could be gathered by readability checklist and interview.

Methodology

To investigate the readability level of the selected modules, readability formula cloze procedure test and readability checklist were used as tools of gathering pertinent data for the study.

Readability Formula

Though there are different readability formulas, this study used the Fog Index Readability formula. This formula was used because it is simple for calculation. It also accounts for most of the linguistic factors of readability.

Harris (1980), Horning (1987) and Rye (1982) outlined the following set of procedures followed in calculating readability level of the modules.

1. Select a sample passage of about 100 words long. For a lengthy piece of writing select several different 100-word passages (For Harris (1980) and Rye (1982). Taking one from near the beginning, the middle and the end is a satisfactory representation. Then, average the Fog Index.
2. Count the number of words in the selected passage.
3. Divide the number of sentences into the number of words to determine the sentence length.
4. Count the number of long words in the passage. These are words of three and more syllables. Do not count words in which affixes form the third and the final syllable. Hyphenated words or compound words are also not counted.
5. Add the average sentence length and the number of long words (totals from step 3 and 4).
6. Multiply this total by 0.4 to obtain the fog Index of the passage.
7. Round off the nearest whole number. This is the Gunning Fog Index of a passage.
8. Calculate the Fog Index of a book by using the formula:

$$\text{The Fog Index of a Book} = \frac{\text{sum of the index of the sampled passages}}{\text{Total number of sampled passages}}$$

On the basis of the procedures listed above, one passage from the beginning, one from the middle and one from the end of each module was taken to calculate the readability level of the modules. Passages selected from the modules are given in Table 1.

Table 1: Passages Selected for Readability Assessment.

Module	Passage No	Page No	No words	No sentence
PS1	1	4	109	6
	2	12	98	6
	3	25	118	8
PS4	1	-	97	5
	2	-	107	2
	3	-	103	7
Enla 101	1	5	93	5
	2	20	100	7
	3	53	129	6
Enla 101	1	9	98	6
	2	28	102	6
	3	78	102	5

Cloze Test Procedure

Assessing their suitability and size, all the passages that were used in the readability formula were used for cloze test procedure. Deletions were made using the seventh word deletion rate. Then, tests prepared for each module were given to one fourths of the students who took the course in the semester. All coordination & orientation work was done by the researcher. This was done to ensure proper administration of the tests by assigned instructors.

In marking, exact words of the passages were used to avoid subjectivity. For reliability of the result, each answer sheet was marked by three individuals. Each average score was converted into hundred to identify the comprehension level. This was done by calculating the percentage mean. Students' right scores for each test were added to get an aggregate score. Then, the mean of each test was calculated by dividing the aggregate score

by the number of students who took the test. Finally, adding the three individual means and dividing the sum into three, the learners' comprehension level of module was calculated. The criteria which were adopted from Weir (1990) were above 53.0%, 44.0-53.0%, and below 44.0% for the independent, the instructional and the frustration levels respectively. If a comprehension level of a given group of learners is at independent level, the learners can understand the message of the print text without any help. If learners are at instructional level, they can understand the message of a print text with the help of their teacher. But if learners are under the category of frustration level, they cannot understand the message of a given print text.

Readability Checklist

Readability checklist was prepared for both learners (who were taking the courses) and their instructors. This means that the students participated in the cloze tests and the instructors who taught the courses were made to give their readability level measure of the modules against the items put in the checklist.

The scales excellent, good, fair, poor and unacceptable were given the values 5, 4, 3, 2, and 1 respectively. Then, all items were computed for the mean using the formula below.

$$\bar{X} = \frac{\sum X_i f_i}{f_i}$$

Where \bar{X} = mean

X_i = Score

f_i = Frequency

Findings and Discussion

Findings from the Readability Formula

Based on the procedure given in section three, three passages from each module were taken. The readability levels of the passages were computed using the Fog Index Readability formula. The difficulty levels of the modules were found to be 10, 15.6, 12 & 11 for PS1 111, PS4 111, Enla 101 & Enla 111 respectively. The details of the findings are given in Table 2.

Table 2: Readability Difficulty Level of the Modules

Module	Passage Number	Page	No of words	No of long words	No of sentences	Av. Sentence length	Readability level	Module readability level
PS1-111	1	4	109	9	6	18.16	11	10
	2	12	98	7	6	16.3	9	
	3	25	118	8	8	14.5	9	
PS4-111	1	-	97	10	5	19.4	12	15.67
	2	-	107	9	2	53.4	25	
	3	-	103	9	7	14.71	10	
Enla101	1	5	93	9	5	18.6	11	12
	2	20	100	10	7	14.28	10	
	3	53	129	14	6	21.5	14	
Enla111	1	9	98	9	6	16.3	10	11
	2	28	102	8	6	17	10	
	3	78	102	10	5	20.4	12	

This indicates that the modules of PS1 111, PS4 111, Enla 101 and Enla 111 were appropriate for grades 10, 12+4, 12, and 11 respectively. From the result, it could be said that the modules were more or less appropriate for the target learners' grade level, except the module for PS4 111. This module seems to be difficult for 10+1 students to read and understand.

Cloze Tests

Following the procedure specified in the previous section, tests were given to the students who were using the modules. The aggregate score of each student was calculated. The average mean of each passage and the average mean of students' comprehension level for each module were calculated (Table 3).

Table 3: Cloze Test Findings

Module	Test	No students	Total score	Mean	Average mean
PS1-111	1	50	2661.5	53.23	33.6
	2	50	1836.5	36.73	
	3	50	477.6	10.85	
PS4-111	1	50	2054.2	41.08	29.53
	2	50	1264.8	25.23	
	3	50	1114.2	22.28	
Enla101	1	21	411.3	19.58	27.61
	2	21	877.1	41.76	
	3	21	451.4	21.49	
Enla111	1	30	700	23.33	22.15
	2	30	766.5	25.55	
	3	30	527.5	17.58	

The comprehension levels of the learners were 33.6, 29.53, 27.61 and 22.15 for PS1-111, PS4111, Enla 101 and Enla 111 respectively. All students' comprehension levels of the modules were under category of frustration. This shows that the modules' competence demand is beyond the learners' actual competence. In other words, the findings reveal that the learners cannot understand the messages of the text.

The Readability Checklist

The objective of the readability checklist was to gather the module users' measures on the modules' readability levels. The focus of the first two items was on the difficulty level of the words; item 3-6 were about difficulty level of sentences. The five items next to the above mentioned items in the checklist were on the introduction of concepts. Item numbers 12 and 13 were on the linkage with experience. Finally, three were four items on the design and layout of the modules.

Findings of PS1 111

Difficulty Level of the Words (items 1 and 2)

Nearly three-fourths (72.0%) of the respondents said the module was poor in using appropriate words based on students vocabulary knowledge. Similarly, more than half (67.2%) of the respondents reported that the module was poor in presenting appropriate contexts to determine meanings of difficult words. However, the group's mean was between fair and poor (2.45).

Difficulty level of Sentences (items 3-6)

Three-fourths (76.0%) of the respondents rated the module "poor" in using a fair extent of clauses. On the other hand, more than two-thirds (68.0%) of the same respondents rated the module "poor" on employing appropriate number of modifiers. The group's mean was, however, 2.58.

Introduction of Concepts (items 7-11)

More than three-fourths (77%) of the respondents categorized the module under category "poor" in introducing abstract concepts followed by concrete examples. Moreover, 64.0%, 60.0%, and 56.0% of the respondents rated the module "poor" in introducing one new concept at a time; in using lower level of abstraction; and in stating important but complex relationships using simple language respectively. A significant number (40.0%) of the

respondents confirmed that the module was good at avoiding irrelevant details. The group's mean (2.42), like the other results, did not show the exact category of the module in this regard.

Link with Experience (items 12 and 13)

Around two-thirds (68.0%, and 64.0%) of the respondents reported that the module was "poor" in relating experiential knowledge with the subject matter presented and in linking new concepts with the learners' prior knowledge. However, the group's mean was above poor (2.40).

Design and Layout (items 14-17)

A slightly more than half (56.0% and 52.0%) of the respondents reported that the module was fair in presenting appropriate table of contents and in using italic or bold face type respectively. But more than three-fourths (78.8% and 84.0%) of the respondents blamed the module for being "poor" in presenting glossary charts, graphs and other illustrations. The group's mean in this regard was 2.48.

Findings Related to PS4 111

Difficulty Level of Words (items 1 and 2)

More than three-fourths (75.2% and 76.0%) of the respondents reported that the module was poor in presenting appropriate context and using appropriate words respectively. The group's mean was 2.40.

Difficulty Level of Sentences (items 3-6)

Around half (44.0%) and more than one-third (36.0%) of the respondents judged the module "fair" and "poor" respectively in terms of sentences written in formal style language. In response to other question, 70.4%, 76.0% and 60.0% of the respondents reported that the module was poor in using clauses, modifiers, and appropriate sentences of the students' level respectively. The group's mean (2.50) also indicated that the module was between "poor" and "fair" in this regard.

Introduction of Concepts (items 7-11)

Nearly three-fourths (72.0%) of the respondents rated the module “poor” in terms of the extent to which it gives concrete examples:64.0% rated it “poor” in terms of the extent to which new concepts are introduced one at a time. Yet other aspects of the module considered were the extent to which lower level of abstraction is used and the simplicity of the language used in the modules. The module was rated “poor” in both respects.

Link with Experience (items 12 and 13)

More than two-thirds (68.0%) of the respondents to the question asked in relation to the place of experiential knowledge in the module and (60.0%) of the respondents to the question asked in connection with the extent of the module linking new concepts with the readers’ prior knowledge judged the module “poor”. The group’s mean for this category was 2.35.

Design and Layout (items 14-17)

Around one-third (32.0%) of the respondents reported that the module was good at presenting illustrations. On the contrary, just more than half (52.0%) of the respondents the module was “poor” in using “italic” and “bold” type face. On the other hand, however, 56.0% and 78.0% of the respondents said the module was “fair” in presenting proper table of contents and glossary. Similarly, the group’s mean (3.13) indicated that the module was “fair” in this regard.

Findings of Enla 101**Difficulty Level of the Words (items 1 and 2)**

Nearly half (48.0%) of the respondents confirmed that the module was “excellent” at using appropriate words based on students’ vocabulary knowledge. On the contrary, more than half (56.0%) of the respondents blamed the module for being “poor” in presenting appropriate contexts. In this regard, the group’s mean (3.40) indicated that the module was between “good” and “fair”.

Difficulty Level of Sentences (items 3-6)

The data obtained from 40.0% and 44.0% of the respondents proved that the module was “good” at using fair amount of clauses and appropriate number of modifiers respectively. On the other hand, 34.4% and 64.0% of the respondents rated the module “poor” in using sentences written in formal style and language and in using sentence appropriate to the students’ level respectively. The group’s mean was more than fair.

Introduction of Concepts (items 7-11)

More than half (56.0% and 60.0%) of the respondents rated the module “poor” in using concrete examples and in introducing new concepts one at a time respectively. Other respondents (that is, 64.4%, 58.4% and 64.0% of the respondents) reported that the module was “poor” in using lower level of abstraction, in avoiding irrelevant details and in stating important complex relationships using simple language respectively. The group’s mean (2.18) also confirmed that the modules are “poor” in concept presentation.

Link with Experience (items 12 and 13)

More than half (59.2%) of the respondents said the module was “poor” in relating content with students’ experiential knowledge. Similarly, two-thirds (64.8%) of the respondents rated the module “poor” in linking new concepts with the readers’ prior knowledge. The group’s mean (2.10) also indicated that the module was “poor” in presenting relevant and appropriate content.

Design and Layout (items 14-17)

The module was rated “poor” by nearly three-fourths (72.0%) of the respondents in using appropriate table of contents. Two-thirds (64.0%) of the respondents rated the module “poor” in presenting appropriate illustration. Similarly, three-fourths (76.0%) of the respondents blamed the module for being poor in using italic and bold face type. What is more, close to three-fourths (72.0%) of the respondents said the module is unacceptable in presenting glossary of technical words. The group’s mean (1.90) also clearly indicated the problem of the module in this regard.

Findings of Enla111

Difficulty Level of the Words (items 1 and 2)

More than half (52.0%) of the respondents indicated that the module is “excellent” in using appropriate words based on students’ vocabulary knowledge. But, (60.0%) of the respondents rated the module “poor” in presenting appropriate contexts to determine meanings of new words. The group’s mean (3.70) in this regard was close to good.

Difficulty Level of Sentences (items 3-6)

Except 57.6% of the respondents who said the module is “poor” in using sentences appropriate for the students’ level, most (56.0%, 41.6%, and 36.0%) of the respondents said the module is good in terms of using appropriate number of modifiers, fair number of clauses and in using sentences written in formal style and language respectively. The group’s mean (3.30), however, is fair.

Introduction of Concepts (items 7-11)

Unlike the responses to the question on sentence presentations, responses to question on concept introduction went to one direction poor category. Over half, that is, 57.6% and 60.0% of the respondents categorized the module under “poor” in using concrete examples and introducing new concepts one at a time respectively. Similarly, 64.0%, 66.4%, and 73.0% of the respondents said the module is poor in using lower level of abstraction, in avoiding irrelevant details and in stating important complex relationships using simple language respectively. The group’s mean is 2.40.

Link with Experience (items 12 and 13)

As far as the link between content and experience is concerned, 67.2% and 68.8% of the respondents reported that the module is poor in relating students’ experiential knowledge with the subject matter and in linking new concepts with the learners’ prior knowledge respectively. The group’s mean is 2.20.

Design and Layout (items14-17)

More than three-fourths (76.0% and 88.0%) of the respondents reported the module as “poor” in presenting proper table of contents, and glossary respectively. In addition, other 68.0% and 72.0% of the respondents rated the module “poor” in presenting illustrations and in using italic or bold type face respectively. The average mean was 2.20.

Conclusion

To see the readability level of the modules, readability formula, cloze procedure test, and readability checklist were used. The data gathered through these tools was computed and analyzed based on the procedures described in Section Three. The following concluding remarks were made based on the findings.

The readability levels of the modules (according to the readability formula used in the study) were appropriate. Except the module prepared for PS4 111 (which is appropriate for 12+4 students), the other modules were appropriate for the grade levels they were developed to score. This indicates that there was a matching between the competence demanded by the modules and the competence of learners at that level.

Unfortunately, however, the findings of the cloze tests did not match the above findings of readability formula. The findings of the cloze tests showed that the learners’ comprehension level of the modules was at the frustration level. This means that the learners couldn’t comprehend the contents in the modules. Though exact scoring might have its own impact up on the students’ results of the cloze tests, the conclusion that the modules go with the learners’ comprehension level was confirmed by the data gathered through readability checklist.

The evaluation made by the learners and instructors (who were using the modules) on the readability levels of the modules revealed that the modules’ readability levels were neither poor nor fair. They were just between the two

categories. This judgment of the users indicated that the modules were of quality. In other words, the modules were not prepared in the way they could accommodate the learners' needs in general and the learners' linguistic competence and background knowledge in particular. The possible cause for this might be a lack of adequate preparation and orientation during module writing.

To put it in a nutshell, though findings from the readability formula used in this study showed that the modules are appropriate for the level, learners who were the target of the study couldn't comprehend the contents in the module. The finding from the readability checklist also revealed that the average readability levels of the modules were between "fair" and "poor".

Recommendations

Based on the findings, the researcher proposes the following solutions to the problems.

The respective department council should revise the modules' readability level as soon as possible. The revision can be done by:

- ❖ Presenting contents that are centered on the learners' linguistic knowledge, background knowledge and interest. This in turn can be done by conducting needs analysis;
- ❖ Using enough number of charts, pictures, lists that support the written content;
- ❖ Avoiding typographical errors and rewriting the contents in such a way that "text organization" can be more explicit and relevant to the intended learners; and
- ❖ Eliminating irrelevant details and complex language use to reduce the time and effort of the learners.

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