

## Readability Assessment in the Writings of Pakistani Graduate Level Learners With Reference to Coh-Metrix

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### Abstract

*Readability is a well-defined notion that researchers and scholars started to focus on in the beginning of the twentieth century. Readability means automatically estimating the ease or difficulty of a particular text or written material by means of the linguistic characteristics of that text. According to Guo, Zhang, and Zhai (2011) readability is the ease or difficulty with which written material is read or comprehended by the readers. The present research has tried to assess the writings of Pakistani learners on the Flesch Kincaid formula with reference to text readability and grade level to mark the suitability of grade level and readability. Then, at the second level, it judges the texts of Pakistani learners on the Coh-metrix L2 Reading Scale so as to see the standard and depth of writing. The results show a significant correlation between reading easability and grade level but the L2 reading scale shows, somehow, below the required standard of writing. The learners generate text that is simpler semantically and syntactically which clues to highly coherent text but at the same time, this shows limited choice of type token ratio which might be due to inadequate linguistic knowledge.*

**Key Words:** readability, Pakistani learners, ICLE, Argumentative essays, Coh-metrix

### 1. Introduction

Readability is generally indicated as an index of the texts which is based upon a sequence of readability features which enhance or lessen a text's

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reading understanding (Harley, 2013). It is totally unlike the “reading ability”, which deals with the reading competencies of readers. Readability is also different from the term “legibility”, which is related to the physical attributes of a text. (Guo, Zhang, & Zhai (2011). Researches with regard to readability are typically classified into two broad categories: i) Classic readability studies, and ii) Modern readability studies. Classic research studies (e.g., Flesch, 1948; Kincaid, Fishburne, Rogers, & Chissom, 1975) investigated the aspects such as length of sentences, words, a particular word in several syllables, and numerals of difficult words into readability formulas – metrics that present a lone mathematical assessment of how intricate a written material is to understand by associating its intricacy concerned to a particular grade level of students or their age. Whereas, modern studies (Françoiss & Miltsakaki, 2012) use statistical tools or strategies e.g., learning via machine that let for studying the effect of many features of readability.

Readability assessment in relation to a text is a way of assessing its degree of difficulty or ease and is illustrated in following manners: first is to show the legibility of a text, secondly to indicate the easiness of reading a test due to its pleasantness, and thirdly, to represent the ease of indulgent as a result of the writing style of the tests. However, it is also believed that individual reader always perceives reading and different texts differently and factor of situation can vary for every reader.

The present research is an effort to analyze the writings of Pakistani learners in order to see the difficulty level of the writings in association to their grade level. The purpose of this is to gauge the depth of writing in order to get knowledge whether it is according to the required level or not. The readability assessment will help in providing legibility level of the writings and also the ease level parallel to the grade.

## **2. Literature Review**

Readability, as said earlier, is defined as the ease of the reader with which he understands a text. In reading ease, language dependency is the key element that has an effect on readability in a text. A number of factors are studied in this regard like: i) semantic and syntactic functions, ii) length of sentences, iii) concrete and abstract words, iv) the number of short words and number

of syllables in these words, and v) common words (McNamara. et,al, 2014). These factors are important in assessing the difficulty level. Specifically, McNamara (2014) argued that vocabulary difficulty is loaded in combination to vocabulary diversity and comprehension, it refers to more difficult level of the text. If there is smaller number of different words in a written material, such text will be easy to read and to understand for the readers.

The most common method to approximate the sentence complexity is by measuring the mean length per sentence and mean number of words in a sentence. Moreover, the latest readability assessment formulae use a combination of features to incarcerate a written material's syntactic intricacy than the traditional readability measures formulae. Because, conventional readability assessment measures use only the surface attributes of the written material, and violate the higher levels of a text processing, which are considered the essential aspects in readability. Readability formulae are logical ways to envisage readability. Several readability formulae are applied to appraise the degree of readability with regard to the texts; however, some formulae are better than others due to their accuracy. Some Popular formulae about readability were based on many empirical researches. The Use of a readability formula to find out the reading level of a text is supportive to make sure the reader's understanding. Moreover, an individual's capability to comprehend is not only assessed by his/her reading skills but also by the intensity of interest to read a specific piece of text.

Usually, readability assessment tools are applied to a wide range of linguistic qualities and thus they fabricate the higher correlations between readability measures to know the word intricacy and also the sentence length attributes. Readability indices are such devices that are generally employed to assess the degree of lucidity of the written materials. Readability indices also assess in assisting the educators that how many of years of education, is needed for learners to read and comprehend a written materials (Kincaid et al., 1975).

According to Quansah (2002), the majority of the present English assessment models about readability were based on both the sentence intricacy and word/ vocabulary intricacy. Then difference among various methods is the means to measure both complexities. A sentence is the fundamental

component in a test with respect to meaningful communication, and therefore, the sentence difficulty in written manuscripts is very important in estimating readability (McNamara & Crossley, 2008). Some general readability formulae are: Flesch-Kincaid grade level, Gunning Fog Index (GFI), Flesch-Kincaid Reading Ease (FRE), and Fry Readability Graph (FRG). These formulae calculate the readability of written material with the help of different factors including: number of syllables in each word, words in a sentence, and length of a sentence. Here it is significant to mention that many formulae to evaluate the readability indices are not entirely consistent in estimation of degree of lucidity of written materials. In present research Flesch Kincaid reading formula has been used as cohmetrix considers it reliable in drawing the results. Thus, Coh-metrix indices provide knowledge about cohesion, readability, text easability and quality of text through various indices. The identification of these features is necessary as Crossley (2014) observes that coh-metrix indices are known as functional parameters and they help in implication for writing theory, writing assessment and writing pedagogy.

### **3. Research methodology**

In present research, ICLE corpus of 308 essay written by Pakistani learners was used. Data was zxc xvc x collected in form of argumentative essays from various universities of Pakistan following the guidelines of ICLE. After compiling the data, it was tagged through an online data tool Coh-metrix v.3 one by one for getting the frequencies. The obtained results were saved in an excel file in order to perform further statistical procedures. From the results, only those features were selected that could clue the readability level as McNamara (2014) suggests. Features like RDFRE, RDFKGL, and RDL2 (Flesch Reading Ease, Flesch-Kincaid Grade Level, Coh-Metrix L2 Readability) were opted to be studied. Flesch reading ease assesses the difficulty level of the text while Flesch-Kincaid Grade level associates the difficulty to the required level of the learners and L2 readability measure places the writings of the students on a scale to judge the standard of writing. It assigns grading to the written material where lower standard means writings below the standard and higher grades means more mature and effective writing. To seek the answer of the research questions i.e. the readability level of the Pakistani learners' writings, analysis of variance was conducted as analysis of variance is conducted to see the existence or

nonexistence of specific feature in the data. It also helps to determine the variance among the variables.

#### 4. Analysis of Data

The results gained through ANOVA are as following:

**Table 1: Analysis of variance (mean squares) table**

Source	Flesch-Kincaid Grade level			Flesch Reading Ease		
	Df	MS	P-value	Df	MS	P-value
<b>Essays</b>	308	211242.00**	0.000	308	361.887**	0.000
<b>Error</b>	876	46.65		2336	0.676	
<b>Total</b>	878			2343		

\*\* = Highly significant ( $P < 0.01$ )

The results show highly significant readability existing in all the essays of learners who are having the same grade level (BS. students). There are consistent patterns of features existing in all the writings irrespective of difference of semesters (i.e. whether the student is from first or second semester etc.). Similarly, there is significant reading ease in all the essays which shows that learners are at the same level of writing using largely the same sentence, grammatical patterns, syntactic structures and semantic knowledge. There is significant relation between grade level and easability level of the writings. The students prefer to use simple vocabulary with frequent repetition of words sharing same semantic field or word meanings. For example:

<ICLE-PA-CJ-0009.1>

The present age is the age of media. In the global village the media is perhaps the language of the residents of this global village. It has become the most important thing and each and every persons are directly or indirectly affected by the media. The media is the fastest ways of communication throughout the world. You can imagine its fastness and quickness from the fact that whenever something happens anywhere in the world, the next moment it is spread and heard all over the world and each and every person living in every corner of the world immediately gets information about it. Then it becomes a source of continuous update and

people remain in touch with media to get the latest updates about the things. It shows how quick the media is and how fast the ways of communication are.

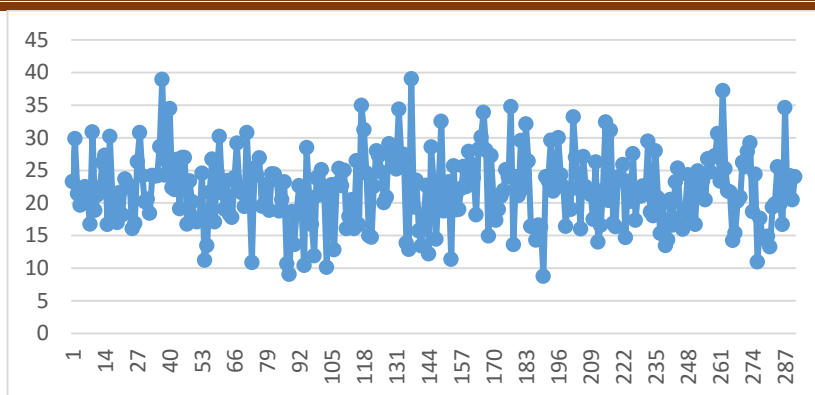
Looking at the example, we frequently see the repetition of words like media, world etc. which show less frequency of new type tokens and more similarity of same words. This phenomena according to McNamara (2014) is helpful in comprehending meaning more effectively as reader does not need to think a lot on the word meanings instead he smoothly understands the meanings from the text. Secondly, it also helps in generating more cohesive texts as less unique words means more coherence. Similarly, if we look at the sentence structure, we get either simple syntactic constructions or that clause constructions where intension is just sharing more information. This is the feature of Pakistani learners' language and it is a generalized finding.

Now we will move towards another allied issue that deals with the question whether this standard of writing is apt to the standard of the grade where learners are presently studying. To see the following charts clarify the idea further.

**Table 2: Distribution of score based on Coh-Metrix L2 Readability scale**

No. of essay	Score	Percentage
219	3	71.10
68	4	22.07
21	5-6	6.81
Total: 308		

The graph shows an inconsistent level of approach toward the writings of the essays. According to Flesh Kancaid reading assessment, 71% Pakistani learners' writing gets score ranging 3 to 5 out of 7. Only 6% students are writing up to the mark suited to the grade level. The rest of the students fall below the standard on the scale which is less than the required level. This can best be explained thorough the following figure:



**Figure 1: Coh-Metrix L2 Readability**

## 5. Discussion

The results show a significant relation among the nature and grade level of the writings of the students yet the acquired level is not up to the mark to the level of BS students. As we need to judge the writings of the students on the characteristics which researchers believed to be there in the writings of graduate level students. One of the significant characteristics of good writing is that it should be reader oriented. The readers should be apt to the requirements and standards of academic grades. The writing should be consistent and coherent and should not be fragmented.

The essay writing of the students had generally a difficult level of readability for the text like argumentative essays. There can be multiple reasons due to which the level of writing declines for example, L2 learners are not equipped generally with the delicacies of language like the use of contrastive conjunctions (whereas, so etc.) cause and effect relations and sometime counter arguments are not portrayed properly. These findings are supported by the findings of Tabassum (2019) where she suggests that Pakistani learners deal with argumentative writings as narrative writing and focus on putting and sharing information instead of floating arguments. Due to which, their writing is more narrative in nature. As far as linguistic abilities are concerned their writing shows more use of nouns and adjectives which is the feature of descriptive writing intended to share more information instead of putting arguments. The use of transitional phrases is also least in Pakistani writings which make it difficult to comprehend and less coherent.

Tabassum and Mahmood (2021) also argued about the standard of writing which according to them is below the required standard and to understand the writings of graduate students, one has to be a 10th to 12 grade or a college student.

## **6. Conclusion**

Readability assessment of Pakistani learners' writings shows that students' writings are highly reader oriented and easy to comprehend. Their writings show fewer unique words and distribution of similar meaning units at the level of semantics and syntax but this becomes problematic when assessed in terms of the required standard of grade. This finding can help the community related to academia as it is significant both for the instructor and students in an institution and plays a vital role in content analysis and is broadly employed in instructional and educational technologies. Teachers can make use of readability of the text to formulate learning materials, which are appropriate for the learners according to their age and grade level; and choose suitable content matter for scholars, to read without the help of their instructors inside or outside the classroom. Moreover, readability assessment can also assist in evaluating the quality of the written materials, and help authors to find out the feasible linguistic problems in the text. It can help to gauge the pedagogical methods in the L2 classrooms so that to produce more informed writers with more coherent writings.

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