

Readability of Abstracts Published in SRELS Journal of Information Management (2011-2015): An Analytical Study

Abhijit Chakrabarti^{1*} and Sukumar Mandal²

¹Banwarilal Bhalotia College (Govt. Sponsored), Ushagram, Asansol – 713303, West Bengal, India; knowledgeavi@gmail.com

²Department of LIS, University of Burdwan, Raiganj, Burdwan – 713104, West Bengal, India; sukumar.mandal5@gmail.com

Abstract

The paper analyses the readability of the abstracts of the articles published in different volumes of the journal, *SRELS Journal of Information Management* from 2011 to 2015. The paper examines the number of words; length of sentences, etc. and presents an average grade level according to readability formula. A total 301 abstracts of articles were selected during the period of 2011-2015 for this study. On the basis of these abstracts published in the journal, it is found that abstracts are made of 100 to 150 words. The results showed that the abstracts are not very easy to comprehend in terms of readability indices such as Gunning Fog index, Coleman Liau index, Flesch Kincaid Grade level, Automated Readability Index (ARI) and SMOG. From the study, it is clear that one requires 13 to 14 year education to understand the abstracts. At the end it is proposed that the abstracts should be more readable and clearer after the first reading.

Keywords: Abstract, Sentence Count, Letter Count, *SRELS Journal of Information Management*, Syllable Count, Readability, Word Count

1. Introduction

“Reading maketh a Full Man; Conference a Ready Man; And Writing an Exact Man.”

----- In **Of Studies** of Francis Bacon.

Readability refers to the ease with which a text can be read and understood. Readability has been mainly studied in the psychology of reading. Library and Information Science (LIS) has primarily been interested to measure readability to help readers in selecting the right texts and make writers aware of the need to make their texts readable. Research in this regards reports “readability formulas” and “readability tests”. Readability is the method to measure the understanding level of the text by the reader. It depends on the syntactical and lexical content of the text. Various software and online tools are available to measure readability score. The present study tries to measure the readability traits of *SRELS Journal of Information Management* from 2011 to 2015 using different readability indices such as Gunning Fog index,

Coleman Liau index, Flesch Kincaid Grade level, ARI (Automated Readability Index) and SMOG.

2. Objectives of the Study

The objectives are:

- To measure the average grade level of abstracts according to different readability formula.
- To find out the present trend of writing abstract published in *SRELS Journal of Information Management*.

3. Review of the Literature

Both national and international literature has been examined but there are not many notable works in this regard. In 1948 Flesch published his readability formulae in two parts. This formula became popular and reliable. In the year of 1951, Farr, Jenkins, and Patterson tried to

*Author for correspondence

simplify the formula by changing the syllable count. The new formula was:

$$\text{New reading eases score} = 1.599 \text{ NOSW} - 1.015 \text{ SL} - 31.517$$

Here: NOSW represents number of one-syllable words per 100 words and SL indicates average sentence length in words.

In 1975, the above formula was again modified and it was renamed as Flesch–Kincaid² grade-level formula. So, there are two tests – one is the Flesch Reading Ease, and the other is Flesch – Kincaid Grade Level. The Flesch Reading Ease analysis gives a score between 0 and 100, indicating the ease of reading. A lower score suggests that the text is rather difficult to read and comprehend; on the other hand a higher score indicates that the text is not so difficult to read. The Flesch – Kincaid Grade Level aims to indicate how much education is needed to understand the texts. For example, a score of 45.0 shows the grade level of fourteen and one who acquires fourteen years of completed education can understand the text. The table one represents the relation between score, grade and level of readability.

Table 1. Score, grade and level of readability

Score	Status of Readability	Grade	Level of Education
90-100	Too much easy	Fourth Grade	4 years
80-90	Easy	Fifth Grade	5 years
70-80	A little bit easy	Sixth Grade	6 years
60-70	Standard	Seventh or Eighth Grade	7 to 8 years
50-60	A little bit difficult	High School	9 to 12 years
30-50	Difficult	College	13 to 14 years
0-30	Too much difficult	More Than College	More than 14 years

Table 1 it is evident that the higher score indicates that even a lower level of education is adequate to comprehend the text; i.e., a higher score suggests a lower level of complexity in the text.

Robert Gunning published in 1944 his own simple and reliable readability formula popularly known as Gunning fog Index³. The formula is stated below:

$$\text{Grade level} = 0.4 \times \{(\text{average sentence length}) + (\text{percentage of Hard Words})\}$$

Here Hard Words indicate words with more than two syllables

Clare⁴ in 1963 discusses the measurement of readability and its application in technical papers. Bram (1977)⁵ worked on the readability of scientific and technical documents and he raised about five issues in this regard:

- “1. Familiarity with subject matter;
2. Understanding of vocabulary;
3. Poorly constructed sentences;
4. Overloaded sentences; and
5. Understanding of subject matter”.

Harry McLaughlin (1969)⁶, the main creator of SMOG readability formula, defined readability as: “the degree to which a given class of people finds certain reading matter compelling and comprehensible.” This definition stresses the interaction between the text and a class of readers of known characteristics such as reading skill, prior knowledge, and motivation.

Seaton (1975)⁷ stated the meaning of readability and its importance to librarians. Dawkins and Granowsky (1980)⁸ stated about readability and its importance to measure and how it works on writing. Harrison (1980)⁹ commented on the significance of readability in a classroom. Gazni Ali (2011)¹⁰ in his research showed that it is not always easy to understand the texts written by academicians and opined that the abstracts are not easy to understand. Charbonneau, Deborah (2012)¹¹ studied the readability of information about menopause on 25 websites content and Lei Lei and Sheng Yan (2016)¹² in their paper in Scientometrics, suggested that the readability scores were not notably connected with the number of citations.

There are other formulae and grades that are available to measure readability. There are online tools such as Online Utility Test Document Readability, Measure Text readability, Small SEO tools.com and Text analyser. Net. These have gained popularity due to their easy accessibility.

4. Scope of the Study

SRELS Journal of Information Management, a leading bi-monthly journal in Library and Information science, published by Informatics Publishing Limited on behalf of Sarada Ranganathan Endowment for Library Science has been selected for the present study. The main objective of the journal is to work for the betterment of library and information services in India. The journal was started in 1964 by Dr. S.R. Ranganathan, Father of Library Science with the title “*Library Science with a slant to Documentation*”. From 1988 (Volume 25) the name of the journal was changed to “*Library Science with a slant to Documentation and Information Studies*”. Then the name of the journal was again changed from volume 37 in 2000 and the new title is *SRELS Journal of Information Management*. An attempt has been made to analyze the

abstracts in thirty issues of 5 volumes (Vol. 48 to Vol. 52) of the Journal (2011-2015).

5. Methodology

The abstract of every paper has been examined. Before the analysis, the data was standardized to avoid misinterpretation. For the measure of readability various online tools i.e. online utility test document readability and Measure Text readability have been utilized for calculation of average number of characters without spaces, words, sentences, syllables, etc. Researchers used many indices like Coleman Liau index, Flesch Kincaid Grade Level, Automated Readability Index (ARI), SMOG to measure the average grade level by using www.online-utility.org¹³ and readability-score.com¹⁴. The measure of readability indicates the number of years of education that a person needs to be able to understand the text easily after the first reading. The data given after online test was recorded in a specially designed MS Excel format. From then summation and average have been done for minute analysis and then the data is presented in this paper in a tabular and graphical form for easy understanding.

6. Data Analysis and Interpretation

The data is presented in the Table 2 and Figure 1.

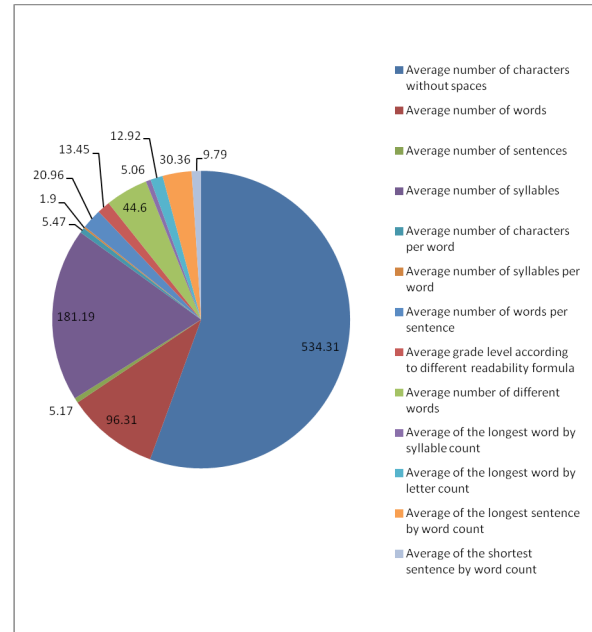


Figure 1. Readability study of abstracts from different perspectives according to their average.

From the above table and figure the following results have been noted:

- In 2014 and 2015, the highest average of maximum number of characters without spaces is observed. It is also observed that from 2011 to 2014, the average number of characters without spaces has increased

Table 2. Readability study of abstracts from different perspectives according to their average

In Abstracts	Volume Number and Year of Publication				
	48 2011	49 2012	50 2013	51 2014	52 2015
Average number of characters without spaces	534.31	585.15	708.55	814.05	814.43
Average number of words	96.31	107.52	132.75	130.45	151.81
Average number of sentences	5.17	6.41	6.63	7.30	8.56
Average number of syllables	181.19	200.41	245.39	236.65	275.21
Average number of characters per word	5.47	5.48	5.42	5.44	5.39
Average number of syllables per word	1.90	1.90	1.87	1.89	1.98
Average number of words per sentence	20.96	20.40	21.19	21.27	19.92
Average grade level according to different readability formula	13.45	13.29	13.51	13.49	13.23
Average number of different words	44.6	48.57	58.63	58.23	63.43
Average of the longest word by syllable count	5.06	4.93	5.24	5.17	5.45
Average of the longest word by letter count	12.92	13.01	13.34	13.43	13.76
Average of the longest sentence by word count	30.36	31.25	35.24	36.00	33.78
Average of the shortest sentence by word count	9.79	10.74	9.56	9.56	9.35

drastically. It is seen that that in 2013 the highest number of characters without spaces is 2054 and the lowest number of characters without spaces is 51,

- In 2015 the average number of words is the highest. In 2013 and 2014 it is almost similar. A word made of three letters or characters is found in large numbers. It is observed from the excel chart that the number of words in an abstract is 382 in 2013 and the lowest number of words in an abstract is 17 in 2014. In 2013, 382 is the maximum number of words in an abstract,
- In 2015 the average number of sentences is the highest. It is also noted from 2011 to 2014, the average number of sentences has increased. In 2014, 60 sentences are counted in an abstract as the highest in number,
- In 2015 the average number of syllables is the highest. It is also found from 2011 to 2014, the average number of syllables has increased. Monosyllabic words are found in large numbers in many abstracts. Polysyllabic words are also found in many abstracts. The matter is noteworthy as the researchers found 652 syllables in an abstract in the volume 50, issue 4 of (August 2013) and only 34 syllables in the volume 49, issue 2 (April 2012) in one abstract,
- The highest average number of characters per word is observed in 2012 and the lowest average number of characters per word in 2015,
- It is observed in 2014, 21.27 is the highest average number of words per sentence and in 2015, 19.92 is the lowest average number of words per sentence,
- The highest average grade level according to different grade level formula is 13.51 in 2013 but it is surprising to note that the figures for the remaining years are also more or less same,
- The highest number of unique words is 63.43 in 2015. From 2011 to 2014 the average number of different words has increased year after year. In 2011, the researchers found 168 different words in an abstract (volume 52, issue 6 of December, 2015),
- In 2015 the longest word by syllable count is the highest in average (5.45),
- In 2015 the longest word by letter count is the highest in average (13.76). The remaining years are also more or less same in nature except in the year of 2011 (12.92), and
- It is observed in 2014, the longest sentence by word count is 36.00 whereas in 2011, the lowest average sentence by word count is 30.36. It is noted that the average has increased from 2011 to 2014 but decreased in 2015 (33.78). The average shortest sentence by word count is the highest in average is

found in 2012 but the average shortest sentence by word count is the lowest in average is found in 2015.

7. Suggestions

After careful examination of the above table the following suggestions have been made to improve the readability of abstracts in the journal:

- Logical and clear thinking helps the writer to prepare readable abstracts,
- The writer should use common words,
- The writer should use clear and plain English avoiding ambiguous, jargon, fanciful expressions. Choice of words is very important to understand the text. The writer should use Di-syllabic to Poly-syllabic words to understand the abstracts easily,
- The writer should not write sentence in a windy way. Short sentences must be used in lieu of complex sentences in an abstract,
- He or she should use active voice rather than passive voice in an abstract, and
- The use of proper punctuation marks is necessary in an abstract to comprehend the abstract.

8. Conclusion

In a nutshell it may be said that readability lessens the gap between the reading level of written texts and the understanding level of the reader. Based on the study of 301 abstracts published during the period of 2011-2015, it may be said that the abstracts, on an average, consist of around 100 to 150 words. Based on these abstracts published in the journal, it is found that one requires 13 to 14 years of education to understand the abstracts. The grade of completed education does not indicate of one's reading level. Readability depends on many factors such as prior knowledge, reading skill, interest, motivation, etc.

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