

Role of Text Readability in Engineering Students’ Reading Comprehension

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Abstract

The ability of comprehension reflects the capability of deployment of reading skills and strategies during reading. It is also evident that proficiency in reading comprehension enhances the academic performance of the students. Thus, teaching and testing of reading comprehension has become compulsory for students from primary through tertiary level of education. Text readability is an essential technical aspect which needs to be accounted while selecting a passage for reading practice. However, majority of researchers around the world focus on the teaching and assessment of skills involved in reading comprehension but not the text readability. In an emerging area like English for Specific Purposes (ESP), the role of text readability contributes to the academic preparedness with reading ease. Thus, the study suggests the possible outcomes of using text readability while choosing a passage for teaching and assessment of engineering student’s academic reading.

Keywords: Text Readability, Flesch–Kincaid readability tests, Reading Comprehension, ESP, ELT

English for Specific Purposes

The growth of English for Specific Purposes as an essential concept of language learning and teaching started during post-war circumstances of a rapid globalizing community. The tremendous transcontinental expansion after globalization demanded a common medium of communication to flourish trade, commerce and technology which resulted in the need for the English language. The English which was then considered as the language of royalty and the elite had become the ‘work language’ for the majority of the people around the world. Thus the teaching and learning of English now became a more targeted, user oriented process resulting in

subject specific language learning studies. The need for defining the appropriate competencies, skills and performances that is required for the employee to perform in particular occupations at their work place demanded the evolution of English for Specific Purposes.

Reading in English for Specific Purposes

Reading academic texts usually explains a vital part of students' academics. In the Indian context, most of the academic textbooks at higher education are in English, which is a second language for the Indian students. Alderson (2000), states reading ability is all that is required for the students learning English because so much of professional, technical and scientific literatures are published in English today. He also states that proficiency in English ensures academic success. Therefore, the current study proposes the utility of text readability to enhance the academic reading. Based on the existing research we assume that academic reading proficiency results in academic achievements of engineering students.

Text Readability

Researchers suggest that while selecting a text for testing the testers shall take into consideration certain variables such as topic, syntactic complexity, cohesion, coherence, vocabulary and readability that affect text difficulty.

The academicians have felt that by identifying the textual features that facilitate ease of reading the difficulty level of the text might be adjusted depending upon the target readers. Researches on readability have made many attempts to develop formulae or simple measures to judge the readability of text in respect to the levels of difficulty. Their studies concentrate on producing empirical measures for the syntactic complexity and lexical density of the text. An overview of ETS text length and the CEFR standards for reading show, that the acceptable reading length for undergraduate students can be around 500 words distributed over three to five paragraphs (North B, 2000). However, these studies have developed some indicators that allow rough estimation of the text readability.

Methods and Methodology

There are many devices and methods popular among the world for testing text readability, among them Flesch readability formula is popular in Indian context. Thus, the current study has used the most deployed Flesch readability formula which is embedded in MS word.

During 1948, Flesch readability formula was used for the first time to estimate the reading level and the reading ease score of the text.

The following formula helps to determine the Grade level of the text.

$$FKRA = (0.39 \times ASL) + (11.8 \times ASW) - 15.59$$

Where, FKRA = Flesch-Kincaid Reading Age, ASL is the Average Sentence Length, which indicates the number of words divided by the number of sentences, ASW is the Average number of Syllable per Word, which indicates the number of syllables divided by the number of words (Davies, 1984). The higher the grade levels the greater is the reading difficulty level of the text. For example, the grade level 6 indicates that the text can be read by and will be appropriate to standard sixth student.

The study has used grade level 8 to 17 in our test passages. The first and fifth passages belong to grade level 10 to 11. The sixth passages have the highest grade-level of 17. The second and fourth passages have grade level 12-13. As these passages have been chosen from TOEFL passages, the grade levels are around 12. The researcher has incorporated certain editorial modification and additional information to the sixth passage to increase the grade-level.

The following formula helps us to determine the reading-ease of the text.

$$RE = 206.835 - (0.846 \times NSYLL) (1.015 \times W/S)$$

Where, NSYLL is the average number of syllables per 100 words and W/S is the average number of words per sentence (Davies, 1984:188). The higher score level out of 100 indicates that the text is easier. The score less than 10 out of 100 indicates that the text is very difficult. In this study, the used reading ease levels are 30-49, 60-70, above 80. The first two passages in the test have a reading ease ranging from 30-47. For the third passage, the reading ease is 65. In the fourth and fifth passages, the reading ease ranges from 65 & 85. In the sixth and seventh passage the reading ease ranged from 30 – 40 and 80 to 95. Even though the passages are chosen from

various text materials, they are from standard materials like TOEFL, GRE, NCERT text books and from some standard engineering text books. The researcher has modified the text to reduce the reading ease at some parts of the passages in order to make the text appropriate for the evaluation. Therefore, the passages chosen for the test adhere to the guidelines of ETS and CEFR standards also.

The test was conducted to a class of 50 engineering students and the results were analyzed for each passage in order to understand the reading performance of the students for various reading grade level and reading ease respectively.

Results and Discussions

Both reading ease and reading level has to be equally considered while testing the reading comprehension of the engineering students. The passage with greater grade level such as 16 and 18 are difficult for the students to comprehend. The passage with grade level 10 to 14 is moderately difficult for the students to comprehend. The passage with higher grade level such as 14 with reading ease above 70 is moderately comprehensible, whereas for the reading ease less than 50 is considered difficult for comprehension. Similarly, for the passage if the grade level is 10 and the reading ease is above 60 then the students feel the text appropriate for understanding the text materials. For the grade level lower than 10 and for the reading ease greater than 80 students feel the passage easily comprehensible. It can be assumed that for the passage with any reading grade level with greater reading ease will enhance the understanding of the text. Thus it is implied that the passages with greater reading ease can be used for better understanding of the subjects. However, there are limitations in reading when subject specific register are tested for meaning, in case the definition for the registers are not explained. Since these engineering students are at their undergraduate level the direct meaning for some register are not familiar unless it is stated in the passage.

Suggestions

Thus in the context of ESP, the choice of text books for teaching and learning of academic subjects demands consideration of text readability. Therefore, the students may read their textbooks with ease which may increase the academic reading performances of the

engineering students resulting in better academic achievements. Especially for technical students the reading grade levels of the textbooks are found higher than that of their comprehension levels. Therefore, there is a need for change in the selection of textbooks or modification in the reading ease as appropriate for the reading levels of the undergraduate students. In terms of testing reading comprehension, it is proper to use passages with appropriate grade level and reading ease according to the proficiency level of the students with special reference to the area of study. For example, for engineering students the reading comprehension passages can be of topics covering science and technical aspects. It is wise to use subject specific topic for academic reading evaluation to accurately grade and predict the academic reading proficiency of the students. The passages used can be different for different sets of question paper; however, choosing passages with reading grade level 10 - 14 and greater reading ease ensures accurate grading while testing of reading comprehension for undergraduate engineering students. The study also suggests that there is a need and importance of text readability measures while drafting the syllabus materials and designing the curriculum for specific courses in future.

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