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Readability Assessment of Business English Textbooks

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Abstract

Business English: An Integrated Course published in 2010 is the first series of textbook compiled in accordance with the *National Teaching Curriculum for BA Program in Business English of China*. This paper uses Flesch Reading Ease to conduct a readability assessment of its textual difficulty. The quantitative analysis indicates that there is room for improvement: 1) the four books in the series lack a scientific hierarchy of readability, 2) the readability in the same book covers an unreasonably wide range, 3) some texts are too difficult. These defects prove the important role readability can play in the compilation of business English textbooks. This research is hoped to shed light on the use of readability assessment in the compilation, revision and evaluation of business English textbooks.

Key words: Readability; Flesch Reading Ease; Business English textbook

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INTRODUCTION

Textbooks have been playing a very important role in imparting knowledge in our educational system. Yet educators are often faced with the problem of how to choose appropriate textbooks, and authors and compilers are also faced with the problem of how to write or select appropriate reading materials for the students with different reading levels. Such problems are especially obvious in the field of business English in China, where business English has not been recognized as an independent discipline until 2007.

As a new discipline, business English textbooks are in urgent demand. Some new ones have been compiled in accordance to the *National Teaching Curriculum for BA Program in Business English of China* (NTC) after its application in 2009. Among them, *Business English: An Integrated Course* is the first series of four textbooks published to be used in the first four semesters by the first and second year business English majors in China. This series, as comprehensive coursebooks, aims to meet the requirements of developing the students' English skills and building up their business knowledge as well.

Whether this series of textbooks are suitable for their target users calls for an objective and quantitative analysis of them. One important aspect of assessment is their readability, for the textual difficulty should be appropriate to ensure that the texts are not too easy so that the students can gradually develop their English skills and that they are not too difficult so that the students can efficiently understand them to acquire the language and business knowledge.

Readability is defined as "how easily written materials can be read and understood" (Richards, et al. 1992, p.306). So far, there have been mainly two ways to assess readability: the cloze procedure and the readability formulas.

In the cloze procedure, first of all, some words (normally every *nth* word) are deleted from the text to be assessed. Then with the help of the context, the subjects reading the text should try to complete it with the exact words that have been deleted. Finally the percentage of exact replacements is calculated and yields a cloze score which stands for the readability of the text. The higher the score, the easier the text.

The cloze method is not very widely accepted. The consistency and validity of the cloze score have been questioned, for they may be greatly influenced by the comprehension abilities of the subjects involved. It is also difficult to interpret the cloze scores objectively because of a lack of reference standard.

Another more popular method is the readability formula. A readability formula is an equation that estimates the readability of a text. The estimate shows the number of years of education one needs to understand the text (Kondur, 2006, p.7). Different readability formulas are used to measure the readability level of written materials. Some of them, such as the Flesch Reading Ease Formula, the Flesch–Kincaid Grade Level Index, the Dale–Chall formula and the Gunning Fog Index, are better known and more widely applied than others.

These readability formulas generally evaluate two aspects of a text: word length and sentence length. These two aspects are assumed to decide the difficulty of a particular text. The more syllables the words consist of and the longer the sentences are in a text, the less readable the text is expected to be. A weighted combination of these two factors yields a readability score for the text, which indicates its difficulty or the grade level required to understand it (Bruce and Rubin, 1988).

The major advantages of readability formulas over the cloze procedure lie in their convenient application and their quantitative and objective nature. Readability formulas can return a numerical score, which enables their users to know the precise difficulty level of a text easily (Bailin & Grafstein, 2001). This score is not affected by the readers involved, thereby guaranteeing its objectivity and validity.

With such advantages, readability formulas have very wide application. Their application is not limited to the measurement of textual difficulty for native English readers. Hamsik (1984) conducts a study to investigate whether readability formulas can be used to assess ESL readability. She specifically examines whether the four widely accepted readability formulas—the Flesch Formula, the Lorge Formula, the Dale-Call Formula and the Fry Graph—can measure reading difficulty of ESL texts. In her research, she involves forty students with intermediate to advanced levels of English reading proficiency and concludes from her analysis that the readability formulas are applicable to ESL texts and therefore can be used to select appropriate reading materials for ESL students (Hamsik, 1984).

Considering all the above, this study aims to analyze and find out 1) on the basis of the readability formula, whether the textual difficulty in *Business English: An Integrated Course* is suitable for the first and second year business English majors in China; 2) how readability formula can be used to help select appropriate text materials for business English textbooks.

1. METHODOLOGY AND DATA COLLECTION

1.1 Methodology

To analyze the readability of the business English textbooks more objectively, the Flesch Reading Ease Readability Formula is specifically used in this case study, for it is not only the most frequently used readability formula, but also it has been employed by some Chinese researchers, such as Hou (2012), Zeng and Zhu (2012) and Sun (2018), in their analysis and evaluation of the ESL readability.

Flesch Formula was developed in 1940s based on the assumption that there is a strong correlation between the word length and semantic difficulty, and between the sentence length and syntactic complexity (Flesch, 1948). Shorter words and shorter sentences are supposed to make a text easier to understand. The average number of syllables in a word and the average number of words in a sentence are calculated, and a weighted combination of them results in the readability score. The Flesch Reading Ease Readability Formula is "RE= 206.835 – (1.015 × ASL) – (84.6 × ASW)" (Flesch, 1948).

In this equation, ASL stands for the average sentence length (the total number of words divided by the total number of sentences) while ASW represents the average syllables per word (the total number of syllables divided by the total number of words). RE, the result of this equation, is the readability score of a text. The result may range from 0 to 100. The higher the score, the easier the text. Most standard texts have a readability score of about 60 to 70.

Flesch (1948) divides readability scores into seven categories, as is shown in Table 1.

Table 1
The Flesch RE Range and Reading Level

Reading Ease Score	Description	Predicted Reading Grade	Estimate Percentage of U.S. Adults
0-30	very difficult	College graduate	4.5%
30-40	difficult	College grade	33%
50-60	fairly difficult	10th-12th grade	54%
60-70	standard	8th-9th grade	83%
70-80	fairly easy	7th grade	88%
80-90	easy	6th grade	91%
90-100	very easy	5th grade	93%

RE scores range from very easy to very difficult. The scores of 90-100 are the easiest, requiring the reading level of fifth grade students. 93% of U.S. adults can understand the text with such readability level. In contrast, the scores of 0-30 are the most difficult category, which requires the reading level of college graduate and only 4.5% of U.S. adults are estimated to reach this level. The scores of 60-70 are described as the standard difficulty, which is acceptable to about 83% of U.S. adults.

1.2 Data Collection

To be more efficient, only the readability of the first text in each unit is assessed. To get the relevant data, the author follows the specific procedures below.

a. Three paragraphs with at least 100 words are randomly selected from the beginning, the middle and the end of the text. From the beginning of the paragraph, proper names are included while arabic numbers are excluded to decide the 100 words to be studied in the target paragraph.

b. The number of sentences within the 100 words in each of the selected paragraph is counted.

c. The average number of sentences in these three paragraphs is calculated, and then the average number of words per sentence (average sentence length) is obtained: 100 words/ the average number of sentences. The data are shown in Table 2.

Table 2
Average Sentence Length of Each Text in Each Book

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Average
Book 1	21.3	16.7	17.9	20.0	23.8	15.2	17.9	16.7	18.7
Book 2	20.4	23.3	25.0	20.4	27.0	22.7	22.7	22.7	20.2
Book 3	21.7	16.4	27.0	16.9	19.6	17.2	19.2	17.2	19.4
Book 4	11.1	17.9	43.5	24.4	23.8	24.4	23.8	28.6	24.7

d. The number of syllables in these three paragraphs is counted. Then the average number of syllables in 100 words is obtained and shown in Table 3.

Table 3
Average Syllables per Words of Each Text in Each Book

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Average
Book 1	163	146	158	148	159	137	151	135	150
Book 2	161	187	163	173	167	153	174	150	166
Book 3	147	146	157	156	153	146	157	173	154
Book 4	147	160	153	171	172	163	154	160	160

e. On the basis of Table 2 and Table 3, the RE of each text is calculated according to the Flesch equation and presented in Table 4.

Table 4
The RE of Each Text in Each Book

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Average
Book 1	46.6	55.7	54.3	60.6	47.4	74.9	60.2	75.1	59.4
Book 2	49.2	24.1	42.8	37.3	37.4	53.6	35.8	56.2	42.1
Book 3	59.8	66.0	45.9	57.0	56.8	65.2	53.8	42.2	55.8
Book 4	70.6	52.6	32.4	36.6	36.4	43.4	51.7	41.7	45.7

f. For each book, the number of texts at the same readability levels is added up and shown in Table 5.

Table 5
Distribution of Readability Levels in Each Book

	0-30	30-50	50-60	60-70	70-80
Book 1		2	2	2	2
Book 2	1	5	2		
Book 3		2	4	2	
Book 4		5	2		1

2. DATA ANALYSIS AND DISCUSSION

2.1 The Lack of Reasonable Difficulty Hierarchy in the Series

As is shown in Table 4, this series has an unscientific readability hierarchy among the four textbooks. The average readability score of Book 1 is the highest (59.4), indicating that it is the easiest. However, the average RE of Book 2 is the lowest (42.1), making it the most difficult. Book 3 has an average RE of 55.8, indicating that it is easier than Book 2. Book 4 has an average RE of 45.7, meaning that it is more difficult than Book 1 and Book 3 but easier than Book 2.

From Table 2 and Table 3, it can be found that the difficulty of Book 2 mainly results from its lexical difficulty, for on average there are 166 syllables per 100 words, much higher than Book 1, 3 and 4, which have an average syllable of 150, 154 and 160 respectively. This indicates that the vocabulary in Book 2 is the most difficult.

The difficulty of Book 2 at the sentence level, however, is not so obvious as that at the word level. Its average number of words per sentence is 20.2, which is just slightly higher than that of Book 1 (18.7) and Book 3 (19.4), but noticeably lower than that of Book 4 (24.7).

Since these four textbooks constitute a series, they are supposed to have a sound hierarchy in difficulty. According to Gagné's Learning Hierarchy Theory, learning takes place from simple to complex (1985). The

higher level of learning in the hierarchy is built upon the learning at lower levels and an adequate amount of previous knowledge is essential for future progress and success (1985).

Thus, if reasonably arranged, increasing difficulty should be found from Book 1 to Book 4, with Book 1 to be the easiest and Book 4 the hardest. The compilers seem to have realized the importance of difficulty hierarchy, for the texts gradually become longer: approximately 800 words in each text in Book 1, 1000 words in Book 2, 1200 words in Book 3 and 1400 words in Book 4. Text length may more or less influence comprehension, but it is not widely recognized as a decisive factor of readability.

The reason for this unsound difficulty hierarchy may be explained by the fact that each of these four books has a different editor-in-chief. They are likely to follow their own intuition to decide the difficulty of the text materials if they do not refer to an objective and consistent criterion like readability score. Such intuition may lead to the unscientific difficulty of the textbooks.

2.2 Inconsistent Difficulty of Texts in the Same Book

Another defect identified from the analysis is that the REs of the texts in the same book vary greatly, indicating that they are at different levels of difficulty. To be specific, the REs range from 40 to 80 in Book 1, 20-60 in Book 2, 40-70 in Book 3, and 30-70 in Book 4.

Besides, such differences do not follow a scientifically increasing sequence. For example, the REs of Unit 1 and Unit 5 in Book 1 are about 40, but those of Unit 2 and Unit 3 are about 50, those of Unit 4 and Unit 7 are about 60, and those of Unit 6 and Unit 8 are about 70. This means that Unit 1 and Unit 5 are the most difficult while Unit 6 and Unit 8 are the easiest.

Obviously, some texts cannot match the students' proficiency. Each textbook is intended to be used in one semester when the students' proficiency is expected to be relatively steady. Therefore, the texts in the same book should be similar in difficulty or the later texts can be slightly more difficult than the previous ones. Failure to control the difficulty of the teaching materials can have negative impact on the teaching process and outcome, with too difficult texts slowing down the teaching-learning process and too easy texts contributing little to the students' gradual development of their language skills.

The underlying reason for the inconsistent difficulty in the same book may be the fact that different units were compiled by different compilers. In these four books, there are five, nine, eight and nine compilers respectively, as is shown in the publications. This may potentially lead to a high variance in REs among units, because it is hard to ensure consistent textual complexity if there is not an objective yardstick like RE to measure it.

2.3 Inappropriate Difficulty of Some Texts

The third problem is that some of the texts may be beyond the reading comprehension level of their intended readers, who are just first or second year college students learning English as their foreign language. Table 5 reveals that about half of all texts have an RE below 50. Such RE score indicates that these texts can even be difficult for many American adults whose mother tongue is English, for, according to Flesch (1948), texts with an RE of 50 are fairly difficult and only about half of the native can comprehend. An RE lower than 50 means even lower percentage of learners can understand.

The inappropriate difficulty is especially obvious in Book 2. One text in it has an RE lower than 30; another five texts have REs between 30-50. Such low REs suggest these texts are too challenging for the first-year students and teachers may have to spend considerable time giving the students guidance and explanations.

The difficulty of textbooks should be controlled at proper level, for inappropriate difficulty can result in the learners' frustration and loss of interest in the study. According to Krashen (1985), learners should be provided with comprehensible input. Yet this does not mean that easy materials are the best choice. Actually, Krashen holds that comprehensible input is such input as is slightly more difficult than the current competence level of the language learners. If "i" is the language learners' current level of competence, then "i + 1" is the next immediate level along the development continuum. Therefore, it is significant to provide the learners with comprehensible input "i +1" when aiming at helping them to efficiently improve their learning.

2.4 The Application of RE in Business Textbook Compilation

From the above analysis, RE can be applied as an objective standard to help select proper text materials to ensure a consistent level of difficulty and sound difficulty hierarchy. This is especially significant for textbook compilation in China, where the compilation of the same textbook is usually the cooperative work of several different compilers. The compilation of business English textbooks is no exception. The subjective judgement of individual compilers is not as accurate and reliable as RE formula.

Then which reading level can be set as the target level of the textbooks for business English majors at the beginning level? Since business English is a new discipline in China, compilers of business English textbooks can firstly refer to *English Teaching Syllabus for English Majors* (ETS) to decide their textual difficulty. ETS sets forth that after one year's learning the students should be able to understand materials with readability equivalent to *Thirty-Nine Steeps* (Simplied Version) and *Reader's Digest*, whose RE is about 60-70, according to Flesch. This is a standard difficulty level in the U.S., which 75% of American adults can reach. After two

years' learning, English majors are expected to be able to understand, with 70% of accuracy in comprehension, the reading materials with difficulty similar to *Newsweek* and *Sons and Lovers*.

The REs of the reading comprehension passages in Test for English Majors Band 4 (TEM4) can also be a useful reference. English majors in China are supposed to take TEM4 in the fourth term of their study. Therefore, TEM4 requirement is the standard that English majors should reach after two years' learning. Hou (2012) analyzes the reading passages in TEM test papers from 2005 to 2011 and finds that the their REs range from 50 to 70, which complies with the requirement in ETS. Sun (2018) gets the same findings related to the readability scores in TEM 4 based on the analysis of 18 passages in TEM 4 papers from 2013 to 2017.

ETS and the TEM 4 Reading Comprehension indicate that English majors are expected to reach a readability level of "standard" and then "fairly difficult" after two years' learning at university. It is advisable that it be set as the language learning objective of business English at the beginning level. That means after two years' learning in business English, the students should be able to comprehend texts with REs of about 50. Accordingly, for the first-year college learners, textual difficulty can be set at 60-70 (standard level); for the second-year learners, it can be set at 50-60 (fairly difficult level)

CONCLUSION

Although no readability formula can exactly and fully evaluate reading complexity, text-based Flesch Reading Ease Formula is found to be easy and effective to be employed by many researchers and scholars. The assessment of business English textbook with this formula reveals 1) the four books in *Business English: An Integrated Course* lack a scientific hierarchy of readability, 2) the readability in the same book covers an unreasonably wide range, 3) some texts are too difficult. The defects in this series of textbooks show that readability evaluation can play a very important role in the future compilation of business English textbooks.

What should be pointed out is that the validity of the textbook assessment in the present study can be improved in future research, for Flesch Reading Ease Formula only focuses on two factors (word length and sentence length), excluding the interaction between readers and texts and taking no account of readers' prior knowledge, motivation and interest. Therefore, a more comprehensive evaluation can be done with questionnaires or interviews to get some first-hand feedback from textbook users to enhance the understanding of textual difficulty.

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