

A Comparison of the Readability of Advanced Accounting Textbooks

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ABSTRACT

Choosing an advanced accounting textbook for use in an undergraduate or graduate curriculum can be a challenging task for faculty. Advanced accounting textbooks, in general, cover a variety of topical areas, including accounting for business combinations, international accounting, segment reporting, government and not-for-profit accounting, partnerships, and reorganizations and liquidations. Publishers offer a variety of ancillary materials including online lectures, homework, and study tools; vignettes and case studies; and entire course management systems. While topical coverage and associated supplements are important features, instructors should also consider a textbook's readability. This study analyzes the predicted readability of six current advanced accounting texts utilizing the Flesch-Kincaid Grade Level index. T-tests are performed to determine whether significant differences in readability exist among the textbooks chosen for the study. No significant differences among the texts in terms of overall readability are found; however, some variation in readability level was discovered within topic coverage. These findings can be useful to adopters, authors, editors, and publishers of advanced accounting textbooks. Results also point to a need for a study of the types and uses of ancillary materials offered with textbooks, and the relative importance of the text in the learning process.

Keywords: readability, advanced accounting, textbook, Flesch, Flesch-Kincaid

INTRODUCTION

Selecting a textbook for use in an advanced accounting course is a challenging decision for faculty. Since advanced accounting courses are generally required in the upper-level curriculum and offered as either undergraduate or graduate level courses, most accounting majors are affected by their decision. As for any text selection, the process is complicated by multiple text attributes for faculty to consider. Attributes include a text's pedagogical approach, topical coverage, type and number of exhibits and examples, vignettes, end-of-chapter materials, and availability of student and instructor supplements. The authors' reputations, as well as instructors' past experiences with the text and/or authors also factor into the decision. In addition to all of these, a faculty member may wish to consider a text's readability in order to maximize the likelihood that a student will understand what is read.

Readability may be defined as the degree to which a class of people finds certain reading matter compelling and comprehensible (McLaughlin, 1969). Readability, in this context, refers to the qualities of writing which are related to reader comprehension, rather than legibility or formatting. A variety of techniques have been used to predict readability, including several readability formulas (or indexes) which have been used widely since the 1950s. Examples of readability indexes include SMOG (developed by McLaughlin), Flesch Reading Ease, Flesch-Kincaid Grade Level, Gunning-Fog, and Fry.

An index of readability can be helpful to faculty when making textbook adoption decisions. It has been found that one of the criteria to which faculty attach the most significance in those decisions is textbook comprehensibility (Smith & DeRidder, 1997), which can be predicted, at least in part, using a readability index. Evidence also suggests that the higher the readability (difficulty) level of textbooks, the lower the grade averages in those courses (Spinks & Wells, 1993).

LITERATURE REVIEW

An increasing, though still limited, amount of research on the readability of accounting textbooks has been conducted in the recent past. Most previous research, similar to this study, focuses on a certain level or course of study in accounting. For example, a recognized area of research concerns the readability of introductory accounting texts, those used in the first or second courses in accounting required of many business and accounting curricula (Chiang, Englebrecht, Phillips, Jr., & Wang, 2008; Plucinski, Olsavsky, & Hall, 2009; Sullivan & Benke, 1997;

Traugh, Powers, & Adedokun, 1987). It is at this ground level that understanding the basic principles of accounting is deemed critical to future student success, and therefore, deserves this attention (Phillips & Phillips, 2007). Many of these studies' results are prescriptive in nature, with results pointing to best practices in choosing an introductory text.

Several studies have focused (at least in part) on intermediate and cost accounting texts (Adelberg & Razek, 1984; Davidson, 2005; Flory, Phillips Jr., & Tassin, 1992; Plucinski, 2010; Plucinski, 2011; Razek, Hosch, & Pearl, 1982). The results of these inquiries are helpful to accounting faculty as the associated courses are required in most accounting programs. Davidson (2005) considered the long-term trends of the readability of accounting textbooks, including that of 25 intermediate and 30 advanced books published over five decades. The results showed that among intermediate and advanced texts, sentence complexity increased, while word complexity decreased over the period studied. The Davidson (2005) study investigated trends over many years; however it did not compare the readability of individual texts.

Razek, et al. (1982) examined the readability of six advanced accounting textbooks. They found that all of the texts measured at a graduate reading level or higher, and that significant differences at the .01 and .05 level existed between many of the texts. These results, although dated, also pointed out that reliance on the textbook may increase at the advanced accounting level, not only because of the depth of the coverage of content areas, but also because of the breadth of content areas addressed. Instructor class time is limited and therefore students are forced to rely on the text as a source of information and knowledge in order to be successful. Of the texts included in that study, only three of the authors (contributing to two editions of texts) are included in the current investigation. Since the most recent readability study of individual advanced accounting textbooks (Razek, et al., 1982) is over 30 years old, and the textbook offerings have changed appreciably since the 1982 study, this study is an update of the readability of advanced accounting texts.

METHODS

Choice of Readability Index

Only one of the many accounting textbook readability studies completed in the last 30 years used the Cloze Procedure (Adelberg & Razek, 1984), a procedure that gauges readability by deleting every fifth word from passages, then measuring the reader's ability to restore the passages to their original form. The remaining and more recent studies use readability indexes, specifically the Fog Index, Flesch-Kincaid Grade Level, or Flesch Reading Ease. These indexes use a formula based upon characteristics of text passages, such as average word length, number of syllables per word, average sentence length, and word complexity, to generate a readability score. The Razek, et al. (1982) study on advanced accounting textbooks utilized the Flesch Reading Ease Score. The current study uses the Flesch-Kincaid Grade Level, which is an extension of that method. The Flesch-Kincaid Grade Level index was widely used in previously published studies of readability. It can be easily generated using word processing software, thereby permitting analysis of a large amount of text with results that are objective and easily replicated.

Flesch-Kincaid Grade Level

The Flesch-Kincaid Grade Level has its roots in the Flesch Reading Ease formula developed in 1948 by Rudolf Flesch. In 1975, J. Peter Kincaid tested over 500 enlisted United States (U.S.) Navy personnel on a reading-comprehension test and also on passages from Navy training manuals. This enabled him to derive a version of the Flesch Reading Ease formula which yielded reading grade-level scores. The resulting Flesch-Kincaid Grade Level has since been adopted by the U.S. military services as the basis for deciding whether technical manuals from suppliers meet their readability requirements (Pearson, 2002). The Flesch-Kincaid index is now one of the leading readability indexes, used extensively by the U.S. government, lawyers, and professional writers (Stockmeyer, 2009).

The Flesch-Kincaid Grade Level formula is based upon sentence length and word length. The index translates to a U.S. grade level, and can also be interpreted as the number of years of education generally required to understand text, which may be more relevant at higher education (college) levels. For example, a score of 11.0 indicates that an eleventh grader can understand the document. The index is best used to compare the relative readability (difficulty) of text, as is the case in this research. It can be accessed through the spelling and grammar-checking feature in the word processing software, Microsoft Word (MS-Word). Similar features are available in other word processing software.

The formula is:

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

where:

ASL = average sentence length (the number of words divided by the number of sentences)

ASW = average number of syllables per word (the number of syllables divided by the number of words)

(Pearson, 2002)

This study uses MS-Word to calculate the Flesch-Kincaid Grade Level of select passages. The formula used by MS-Word is confirmed by agreeing the formula above to that specified in the MS-Word help file. The MS-Word calculation is then validated by manually applying the formula above to a 200-word passage and agreeing the result to that provided by the grammar-checking function in MS-Word.

Selection and Adaptation of Text Passages

An exhaustive search of advanced accounting textbooks currently being printed in English by major publishers yields six such books. Five of the texts are full-length, “traditional” advanced texts, averaging 20 chapters and 986 pages. The sixth text is a shorter, “abridged” text, with 12 chapters and 488 pages. The texts are listed in Table 1, along with each textbook’s particulars. Six chapters covering the same topical areas are selected for analysis from throughout those texts.

Table 1: Advanced Accounting Textbooks Tested

Authors	Hoyle, Schaefer, Doupnik	Jeter, Chaney	Baker, Christensen, Cottrell	Fischer, Taylor, Cheng	Beams, Anthony, Clement, Lowenshohn	Halsey, Hopkins
Title	Advanced Accounting	Advanced Accounting	Advanced Financial Accounting	Advanced Accounting	Advanced Accounting	Advanced Accounting
Edition	10th	4th	9th	10th	10th	1st
Year	2011	2010	2011	2009	2009	2012
Publisher	McGraw-Hill Irwin	John Wiley & Sons, Inc.	McGraw-Hill Irwin	South-Western Cengage Learning	Prentice Hall	Cambridge Business Publishers
ISBN 978-	0078136627	0470506981	0078110924	0324379051	0136033974	1934319291
Number of Pages	860	1005	1082	1152	831	488
Chapters Tested:						
Consolidations	1	2	1	1	1	1
Intercompany Transfers	5	7	7	4	6	4
Foreign Currency Transactions	9	12	11	10	12	6
Segment & Interim Reporting	8	14	13	12	14	11
Partnership Accounting	14	15	15	13	15	12
Governmental Accounting	16	17	17	15	18	8

The chapters (topics) targeted are those covering: consolidations, intercompany transfers, foreign currency transactions, segment and interim reporting, partnership accounting, and governmental accounting. This approach provides passages for analysis from throughout the texts, covering about 30 percent of each traditional text (50 percent of the abridged text). The amount of text material thereby analyzed far exceeds that of the previous study of advanced accounting textbook readability. Digital (computer) files of each of the six target chapters of each textbook are obtained by manually scanning the relevant pages in the textbook with optical character recognition (OCR) software. All files are then converted and imported into MS-Word for analysis.

Only the sentences in the body of the chapters are subjected to analysis. Appendices are excluded. Since the Flesch-Kincaid formula analyzes only sentences, all material in figures, exhibits, and headings is omitted from analysis. Since material in graphics and vignettes cannot be readily converted to plain text by word-processing software, it is also omitted. End-of-chapter material (e.g., vocabulary, review, problems) is omitted as well, since it is largely quantitative/tabular in appearance and does not match the textual nature of the Flesch-Kincaid index.

When a colon appears at the end of a sentence, it is replaced with a period when the sentence is originally followed by a calculation, list, figure, or journal entry. This is necessary because, in the Flesch-Kincaid calculation, MS-Word does not recognize a colon as the end of a sentence. Since calculations, lists, figures, and journal entries are removed from the text, a sentence with a colon preceding an entry, for example, would have been combined with the one following the entry, thereby inflating the length of the sentence. In that case, replacing the colon with a period “ends” the sentence before the entry. Colons appearing in sentences that eventually ended in a period are unchanged.

After converting, importing and pruning all files, the spelling and grammar function in MS-Word is applied to all files to correct occasional errors that arise and then to obtain the Flesch-Kincaid Grade Level. The text matter in the target chapters is not just sampled; the entire text matter of each of the six target chapters of each textbook is subjected to the Flesch-Kincaid calculation.

RESULTS

Comparison of Textbooks by Chapter

Table 2 shows the Flesch-Kincaid Grade Levels for the six target chapters in each of the textbooks. Mean grade levels for the six target chapters are also shown. Since the grade level indicates the U.S. school grade level required to understand a text passage, the lower the grade level the more readable the chapter.

An examination of Table 2 shows no clear pattern in the overall readability levels of the texts. The Fischer text has the lowest grade level (is most readable) for two of the six chapters. It also has the lowest mean grade level (MGL), 14.4. The Hoyle, Baker, Beams and Halsey texts each have one of the lowest grade levels in the four remaining chapters. Only the Jeter text holds no sample chapter with the most-readable designation.

Table 2: Computed Flesch-Kincaid Grade Levels of Textbook Chapters

Chapter Content	Textbook Author, et al.					
	Hoyle	Jeter	Baker	Fischer	Beams	Halsey
Consolidations	15.4	15.2	15.9	12.9	14.7	15.4
Intercompany Transfers	15.3	17.7	16.1	14.2	17.0	17.1
Foreign Currency	13.7	13.8	14.9	14.0	13.2	14.6
Segment Reporting	15.2	16.1	15.5	16.1	16.0	15.8
Partnership Accounting	14.2	14.0	13.9	14.9	15.0	15.8
Governmental Accounting	14.5	15.4	14.4	14.5	15.9	14.3
Mean Grade Level (MGL)	14.7	15.4	15.1	14.4	15.3	15.5

The Halsey text has the highest grade level (is least readable) for only one of its chapters; however, it has the highest MGL at 15.5. The Jeter, Baker, Fischer and Beams texts each have either one or two of the highest grade levels in the five remaining chapters. The Jeter text has the least readable of all sample chapters from all the texts, at 17.7. Jeter is tied with Fischer for the highest grade level in segment and interim reporting at 16.1. Only the Hoyle text has no sample chapter with the least-readable designation.

Overall Comparison of Textbooks

While some texts are more readable than others for select chapters, no one text is more readable (nor less readable) than the other texts for all six chapters. In addition many of the grade levels for each chapter, while different between texts, are very close to each other. Clearly, statistical tests are required to determine if significant differences exist between the texts overall (i.e., mean grade levels).

While the entire text of each target chapter is analyzed, those results constitute sample passages relative to the text overall. Therefore, t-tests are performed to determine whether significant differences exist between the textbooks overall. Independent-samples t-tests are performed on the sample means, without assuming equality of variances. Table 3 shows the p-values of differences between the grade level means of each textbook.

Table 3: P-Values of Differences Between Mean Grade Levels (MGLs)

Textbook Author, et al. (MGL)						
Hoyle (14.7)						
Jeter (15.4)	.351					
Baker (15.1)	.399	.725				
Fischer (14.4)	.597	.232	.250			
Beams (15.3)	.365	.935	.782	.238		
Halsey (15.5)	.149	.856	.495	.103	.773	
	Hoyle (14.7)	Jeter (15.4)	Baker (15.1)	Fischer (14.4)	Beams (15.3)	Halsey (15.5)
	Textbook Author, et al. (MGL)					

Note: No statistically significant differences at the .01, .05, or .10 levels.

No significant differences exist between the mean grade levels of the texts at the .01, .05, or .10 levels. These results are inconsistent with the Razek, et al. (1982) study, which found significant differences between many of its texts. The results of this study provide a necessary update to the literature in this area and can provide faculty, authors and publishers with a baseline from which to continuously improve their choices and offerings.

CONCLUSIONS

If faculty place substantial emphasis on readability in selecting an advanced accounting textbook, they should strongly consider the results of this study. In terms of overall readability, there is no compelling evidence to choose any one of the texts over any other. Faculty might therefore base their text adoption decision entirely on other factors, such as a text's pedagogical approach, coverage of material, exhibits, and supplements. However, faculty may want to consider the variation in the indexes among the individual content areas when choosing a text. That is, they may wish to base their choice on the relative readability of the content areas that they find to be particularly challenging for their students. Textbook authors should also examine these variations in an effort to synchronize their individual writing styles and continuously improve the cohesiveness of the text.

Editors of advanced accounting texts can also use these findings. There is more to comprehensibility of a subject than the readability of text matter. The diagrams, charts, demonstrations, calculations, and figures included in textbooks are intended to aid in the student's comprehension of the subject matter. Nonetheless, long, complicated

sentences, while sometimes necessary, may hinder a student's comprehension when used extensively. Textbook editors may use these findings to set their expectations of authors of future advanced accounting textbooks.

LIMITATIONS

One limitation in this study concerns readability formulas in general. They assume that the lower the readability level the better; but an unrealistically low readability level may lead to lower transferability of the content. In addition, readability formulas predict readability; they do not measure it. More costly and time-consuming techniques such as the Cloze Procedure are necessary to actually measure readability. While there have been many critics that questioned the validity and value of readability formulas, there is ample research to suggest that formulas, despite their faults, can predict whether one piece of text will be easier to read than another (Pearson, 2002).

Secondly, the results of this study should not be the sole basis for judging the appropriateness of a particular advanced accounting textbook. Only the main body of each target chapter was analyzed in this study. The calculations, vignettes, journal entries, charts, exhibits, graphics, figures, and end-of-chapter material are excluded from analysis. Ancillaries such as instructor and student supplements are also not considered. It is likely that faculty will subjectively evaluate the effectiveness of this material separately from the main body of the textbook.

Finally, as Smith and DeRidder (1997) indicated, business faculty, when making a textbook selection, attach the most significance to comprehensibility to students, timeliness of text material, compatibility between text material and homework problems, and exposition quality of text, respectively. The first of those criteria, comprehensibility, is addressed (at least in part) by this study. However, one of the underlying assumptions of this study may well be its greatest weakness; that is, we assume that students rely heavily on the textbook as a major source of information for a course (Razek, et al., 1982), and therefore, read it in order to comprehend the material better. Future studies might include primary research on students' perceived importance of the text relative to other course tools in the learning process. Students' motivations to read the text should be investigated, and in a manner similar to the studies conducted by Phillips & Phillips (2007) and Maksy & Zheng (2010), the motivating factors associated with both reading and utilization of alternate learning tools should be studied. In addition, a comparison of texts in terms of the type and amount of ancillary materials would broaden the resources available to faculty when facing the complex decision of adopting a textbook.

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