Scaling the Complexity of a Philippine Consumer-Finance Contract Through Reader-Based and Text-Based Measures

Rachelle Ballesteros Lintao and Marilu Rañosa Madrunio
University of Santo Tomas, Philippines
rachellelintao@gmail.com and malumadrunio@gmail.com

Abstract
This study sought to determine how a group of target users' evaluation of a Philippine consumer-finance contract compares with the measured complexity of the document. Using a text computational tool, results of the analysis through the document's computed values and substantiated by other readability computational tools employed reveal that the existing document can be understood by those within the range of the 11-CCR grade band. The complication arises since these measures do not correspond with the level of the participants, regarded to be way below the 11-CCR grade band, deemed to be only 8-10 US grade level. Conversely, the document is too difficult to be understood by the participants. The low comprehensibility of the material as scaled by the participants results from their deficient understanding of the document brought about by their lack of capability to grasp such an obfuscated or complicated document. This study has established that the use of a cognitively inspired text computational tool can be effective in validating the complexity of a reading material. Going beyond the difficulty of words and sentence length which traditional readability tools dwell on, cognitively-enthused readability tools like the coh-metrix allow for examining the deeper dimensions of the text like referential cohesion, syntactic pattern and text easability.

Keywords: complexity, readability, consumer-finance contract, coh-metrix

1.Introduction

The value of contracts lies in their capacity to foster sufficient understanding between the parties concerned that would result in satisfactory terms and the success of a deal or a transaction (Kennedy et al. 1997 as cited in Rameezden & Rodrigo, 2013). While Tiersma (1999) espouses that consumer documents must be understood by both lawyers and target non-lawyer consumers, Haapio (2011) believes that consumer contracts are effectual if the target users, who are the ordinary people, can comprehend the material well and use the document for their own purpose.

Regarding consumer contracts, Felsenfeld and Siegel (1981) observe the lopsidedly unequal dealing favoring the bank and placing the consumer at the losing end. Consumer contracts, also known as contracts of adhesion, are called such because once the consumers adhere or agree to the terms of the more powerful party, they are bound by the contract whether or not full understanding of the material is achieved. Moreover, these standardized documents that have been previously printed in bulk do not require formal negotiations or clause-by-clause bargaining or negotiating between two parties. As Patterson remarks (as cited in Felsenfeld & Siegel, 1981), "Contracts of adhesion have achieved formal status as a mild pejorative for printed forms that may or may not represent the real agreement of the real parties" (p. 39).

Generally, a significant number of literature and varied research studies aver that consumer-finance contracts are not well-understood by their target users (Bhatia, 2010; Campbell 2003; Gibbons, 2004a; Schuck, 1992; Tiersma, 1999; Williams, 2011) and promote the need for the modernization of these contracts in a manner that is clearly grasped by them and still covers the legalities (Eagleson, 2004; Felsenfeld & Siegel, 1981; Gibbons, 2003-2004b; Kimble, 2000; Tiersma, 1999).

With the reported Philippine credit card users to have reached 7.36 million (Metger & Ruse, 2012), the credit card issue has become an urgent concern considering the favorable economic

standing of the Philippines in turn translating into increased consumer spending and lending in the coming years (based on reports released by Moody's Analytics on April 25, 2013, Euromonitor in 2013 and Bangko Sentral ng Pilipinas on November 29, 2013). Prompted by such a pressing credit card issue, this study addresses this consumer-finance contract's complexity by comparing the target users' evaluation of the document and the computed readability results of this particular material.

1.1 Comprehension and Readability

While comprehensibility relates to how a reader understands a material, readability zeroes in on how complex a document is (Jones, as cited in Rameezdeen & Rodrigo, 2013). In his Construction-Integration model, Kintsch (as cited in Rameezdeen & Rodrigo) describes two cognitive stages that are vital in text comprehension. The first level consists of extracting details from the material while the second adheres to connecting to one's schema or prior knowledge what one has read. It can be said then that reading comprehension is dependent on both reader and text complexity factors.

Dale and Chall (as cited in DuBay, 2004) give a very comprehensive definition of readability:

> the sum total (including all the interactions) of all those elements within a given piece of printed material that affect the success a group of readers have with it. The success is the extent to which they understand it, read it at an optimal speed, and find it interesting (p. 3).

Klare (as cited in DuBay, 2004) defines readability as the "ease of understanding or comprehension due to style of writing" (p. 3) while Stamboltzis and Pumfrey (2000) detail it as "a cognitive process through which individuals make meaning" (p. 58). DuBay simply identifies readability as "what makes some texts easier to read than others" (p. 3).

Over the years, readability measures have been developed as tools for projecting clarity of documents and reading levels essential for text comprehension. Making certain that text difficulty estimates are consistent with potential readers' ability is one task that educators, writers and specialists find so challenging but regard with so much worth. The increase of more sophisticated readability formulas available has developed in the past twenty years in congruence with rapid technological advances. Benjamin (2012) provides a comprehensive discussion and evaluation of the existing readability methods during these past 20 years. She classifies these readability tools and methods into the following:

Traditional Methods

Favored over the years, traditional readability formulas that include the new Dale-Chall readability formula, the Lexile framework, Advantage-TASA open standard for readability and Read-X employ easily measurable traditional variables like word, phrase and sentence lengths and rate of recurrence of common words. The effectual results of these kinds of formulas are measured by drawing a direct parallelism between the reading comprehension scores alongside the formulas' predetermined readability of texts.

Stevens, Stevens and Stevens (1992) argue that traditional readability methods are defective by citing procedural failures and their inability to gauge measures of adult reading materials. They undermine the two-way measures used, namely the fixated use of sentence length and word difficulty as flawed measures of readability difficulty since shorter words do not logically entail less difficulty in comprehension. Likewise, the formula-based readability methods neglect more vital measures such as reader's background knowledge or schema, linguistic capacity, reader's interest and motivation, difficulty of material or concept and the coherence of the text (Brown, 1998; Bruce, Rubin & Starr, 1981; Cutts, 2008; Greenfield, 1999; Klare, 1974 & 1976; Stevens et al., 1992; Weaver & Kintsch, 1991; Zamanian & Heydari, 2012) and "syntactic complexity, textual cohesion, propositional density and rhetorical organization"

(Carrell, 1987, p. 32). Such disregard promotes a mismatch between "the conceptual background of the reader and conceptual load of the text" (Courtis as cited in Stevens et al., 1992, p. 70) and discounts the collaborative framework of the reading process (Carrell, 1987). In fact, results of the study conducted by Svetina, Gorin and Tatsuoka (2011) support the claim that the hardest skill on reading comprehension items pertain to intricate mental processes such as making sense of implicit and complex ideas.

Correspondingly, traditional readability methods fail to measure the intended audience's understanding of the text since scores can be calculated even for progression of words or sentences with no sense (Meade & Smith, 1991; Newton, as cited in Woods, Moscardo & Greenwood, 1998; Zamanian & Heydari, 2012). Despite the prevalent use of these conventional readability formulas spanning over 20 years, the ostensible downside hurled against these long-established readability procedures is their soundness or validity focusing on surface features. In fact, the same readability results are obtained from the two texts, one orderly structured and the other illogically organized, as long as they both contain identical words and sentences.

In the same vein, McKenna and Robinson, Means, Singer and Donlan, (all cited in Klare, 1988), Stevens et al. (1992), and, Zakaluk and Samuels (1988) subscribe to the idea that traditional readability formulas are more suited to the average reader and not to educated adult readers who are more adept with specialized vocabulary and cognitively complex skills than the average person.

Methods Inspired by Cognitive Science

In contrast to traditional readability formulas which have received varied criticisms as solely depending on surface-level sentence measures, psycholinguistic and cognitive-based readability measures explain the reader's dealings with the text including text cohesion and meaning processing (Gernsbacher, 1997; McNamara et. al, 1996 all cited in Crossley, Greenfield & McNamara, 2008). Readability methods enthused by developments in cognitive theory have started to gain ground by establishing that text difficulty and readability results go beyond just merely calculating surface structures like words and sentence lengths and frequency of common words. Benjamin (2012) conveys that specialists who are into text processing credit coherence and the different elements of a text for how texts help establish readability and complexity. She further points out that the complexities involved in handling cognitive processes necessitate the automation of readability methods inspired by cognitive theory.

Propositions and inferences, regarded as the very basic variables in cognitively associated readability methods, were first employed by Kintsch and van Dijk (as cited in Benjamin, 2012) in their theoretical framework for text analysis. Benjamin explains that sentences may be separated into significant or consequential units called propositions. Unlike sentences, propositions do not include information such as aspect, tense or voice. Kintsch and van Dijk included a predicate and at least one argument for the meaningful role of binding different strands of words within sentences.

Coherence in texts is spotted through "propositional or at least argument overlap among successive sentences" (Benjamin, 2012, p. 70). Highly cohesive texts indicate no or hardly any overlap of propositions or arguments throughout sentences. In other words, the presence of these gaps requires more effort on the part of the readers through their schema or background knowledge to connect these breaches and make sense of the texts.

Another vital tool in cognitively stimulated readability methods employed to connect text difficulty with readers' ability is the use of latent semantic analysis or LSA. Benjamin (2012) defines LSA as a "tool that represents text content as a vector in semantic space" (p. 70). LSA evaluates the semantic relatedness, both direct and indirect relatedness or connectedness between words in a

sentence or in longer stretches of sentence, of a text. By establishing a system made up of a vast corpus, LSA develops a knowledge that is able to determine words inclined to go together in certain contexts. Similarly, a text's cohesiveness is ascertained through the LSA.

1.2 Research Objective

The growing call for plain language in the international scene promotes the advancement of a global ideological goal of consumer protection that argues that legal documents must be in a form that its target users are able to understand. This study aims to substantiate in the local setting the findings of some studies pertaining to the complexity of legal documents (Bhatia, 2010; Gibbons, 2004; Schuck, 1992, Tiersma, 1999) and thus, evaluate the complexity of the material through reader-based vis a vis text-based measures. In particular, this study seeks to determine how the target users' evaluation of the document compare with the measured complexity of the existing document, the main focus of this paper.

Results of the study will serve as a basis for the possible simplification or modernization of the said consumer-finance contract, which will result in a pioneering work in the area of forensic linguistic studies in the Philippines.

2. Method

This paper, which attempts to assess the complexity of a Philippine credit card terms and conditions document, is a comparative study between the previously conducted reader-based tests and a text-based computational analysis results of the said contract.

The choice of the credit card company was premised on its prominence as the first bank in Southeast Asia and the largest bank by way of market value and overall ranking as of 2014 ("The Top Ten Financial Companies," 2015). Besides, the bank's involvement in a number of credit card litigation cases posted in the Supreme Court website has all the more bolstered such a preference. The XX[1] Credit Card Terms and Conditions (henceforth CCTC) document is a one-page informational text that comprises 28 provisions and stipulations, 51 paragraphs, 125 sentences and 5497 words. Although permission from the bank to utilize the document was sought and was subsequently granted, the authors' decision of not naming the bank was due to some ethical considerations.

In an earlier study done by Lintao and Madrunio (forthcoming) on *Status: It's Complicated?! Analyzing the Comprehensibility of a Philippine Consumer-Finance Contract*, the same XX credit card terms and conditions document was subjected to two reader-based oral and written comprehensibility tests (paraphrase and cloze) by 35 target users of the document. Employing this sample population size was prompted by the recommendation of the researchers' statistician that the number was sizeable enough to warrant statistically sound results. Moreover, the use of the purposive sampling technique in identifying the volunteers for the study (of legal age, employed or business owner, or at least a bachelor's degree holder), allowed for a more concentrated study geared towards the intended users of the material. According to a bank executive, such are the set qualities of people who are normally granted credit card approvals by financial institutions. Results of the study yielded the low comprehensibility of the document based on majority of the respondents' (26 out of 35 or 74.29%) accumulated cloze test correct score which is below the 40% mark equivalent to the frustration level. As regards the paraphrase test, a respondent averaged a score of 9.11 out of 15 or 60.76 % incorrect paraphrases. These two measures posted statistically a significant relationship using the Pearson's r correlation test. Additionally, the participants' apparent lack of understanding and familiarity with the document have a statistically significant correlation with their low paraphrase test scores. Lastly, both the open-ended and close-ended (Likert-scale) questions expose the troublesome concepts, the complex

[1] The credit card company is identified in this article as XX.

subject matter and criticisms the respondents had against the features of the text that appear to be bothersome for them.

An interesting query as a follow up of utilizing the above two reader-based tests to further evaluate its complexity is a text-based analysis of the existing document; that is, a measured complexity of the existing contract, which this study aimed to specifically accomplish. Employing another technique to cap the triangulation method would present a more conclusive confirmation of the earlier findings established as regards the comprehensibility of the current document under study. Veritably, Crossley, Greenfield and McNamara (2008) espouse the advantages that studies effectuate in utilizing triangulation that employs two or three dimensions of text comprehension measures.

The coh-metrix computational tool (McNamara, Louwerse, Cai, & Graesser, 2013), a text complexity tool enthused by cognitive science, was used in this study. The software has an available online tool (http://cohmetrix.com/) for small amounts of text. Since the document on hand had more than 4,000 words or 15,000 characters, a request for analyzing the document was forwarded to the coordinator of the Department of Psychology, Institute for Intelligent Systems of the University of Memphis, Tennessee, USA, the developer of the coh-metrix tool. A coh-metrix analysis of the data in a .csv format was promptly returned to the researchers for analysis.

Coh-Metrix Computational Tool

Developed by McNamara et al. (2013), coh-metrix is a "computational tool that measures cohesion and text difficulty at various levels of language, discourse, and conceptual analysis, as an improved means of measuring English text readability for L2 readers" (Crossley, Greenfield, McNamara, 2008, p. 475). This cognitive-based readability tool enhances the traditional readability attributes by measuring text-based features and cohesion elements in determining the measure of coherence of a text (Just & Carpenter; Pefetti; Rayner & Pollatsek, all cited in Crossley et al., 2008). It must be remembered that cohesion serves as the exterior marker of how propositions are linked in the mental scheme of a reader (coherence). Graesser, McNamara, and Louwerse, Louwerse, and Louwerse and Graesser (all cited in Graesser, McNamara, Louwerse and Cai, 2004) characterize coherence as a psychological concept while cohesion as a textual notion.

Furthermore, this web-based software computational tool has been developed as a result of advances in different fields including computational linguistics, corpus linguistics, information retrieval and discourse processing (Graesser et al., 2004; Crossley et al., 2008). The proponents of this innovative instrument have drawn inspiration from a focal point in the constructivist theory of discourse comprehension put forward by Graesser, Singer and Trabasso (as cited in Graesser et al., 2004). Dubbed as "coherence assumption" (p. 2), this modern computational tool supposes the readers' habitual effort of coherent meaning making and relating text structures.

Another significant factor leading to the formulation of this computational tool relates to the interface of "cohesion and world knowledge" underscoring the use of "cohesion gaps" that involve the readers to generate "inferences using either world knowledge of previous textual information" (Graesser et al., 2004, p. 2). As "cohesion gaps" highlight the strengths of high-level readers with their ability to make inferences, they also underpin the significance of cohesion exemplified by linguistic and discourse features in a text. The use of cohesion markers such as conjunctions, connectives and other devices ties the constituents in the sentences.

Coh-metrix measures *latent semantic analysis* or LSA. Various studies (McNamara & Kintsch, 1996; Wolfe & Goldman, 2003; Foltz,

Kintsch & Landauer, 1998) indicate how LSA serves a significant role in calculating the level of difficulty of prospective texts relating to the reader's schema or background knowledge.

In a recommendation made by Benjamin (2012), she proposes that:

> Coh-metrix could and should be used for analyzing texts for literate adult readers. A text's cohesion affects a reader's ability to comprehend a text, as illustrated by the studies in cognitively based difficulty analysis. Thus, LSA and other variables like argument and propositional overlap can actually provide the means of measuring the difficulty as well as the quality of texts that may be too sophisticated for typical readability formulas (which have nearly always been developed with school children in mind). Furthermore, analysis using LSA and propositions can be used to revise poorly written texts, a task at which traditional readability formulas have performed notoriously poorly (p. 83).

One functional use of the coh-metrix which has direct importance to the study at hand is on its readability formula tool. Focusing on coherence and cohesion, coh-metrix serves as an enhancement to long-held readability formulas that rely mainly on word and sentence lengths, disregarding more valuable language and discourse elements that resolve comprehension issues.

Coh-metrix measures characteristics of texts (i.e., aspects of cohesion) that reflect coherence of texts on 108 indices or measures of multilevel (linguistic and discourse) text features. Coh-metrix version 3.0 provides 11 major groups in which the 108 indices are subsumed:

1. *Descriptive indices* – These are descriptive measures that aid a researcher in interpreting patterns of the text. Some of the measures comprise the combined number of sentences and paragraphs in the text, the mean length of sentences, the standard deviation of the mean length of sentences in the text and the like.

2. *Text easability principal component scores* – The indices in this group are a new addition and an improvement from the previous version 2.0. Varied measures of text characteristics that extend beyond traditional readability measures and coordinated with constructs or theories of text and discourse comprehension are provided by the coh-metrix easability components.

3. *Co-reference* – Referential cohesion or co-reference refers to the extending along or overlapping of content words between sentences in the text. Co-reference serves as a linguistic signal to cue readers in establishing links employing propositions or schemes, clauses and sentences in making sense of their text base (Halliday & Hasan, 1976; McNamara & Kintsch, 1996 in http://cohmetrix.memphis.edu/cohmetrixpr/cohmetrix3.html Coh Metrix 3.0 guide).

4. *Latent semantic analysis* – A statistical standard of word and world meaning called latent semantic analysis (LSA) determines "conceptual overlap" between sentences through coh-metrix. The idea here is that the meaning of a word is identified through context or surrounding words and is computed using a formula that keeps in view the values and weighted dimensions of the words as they would likely appear in all possible combination of sentences in paragraphs.

5. *Lexical diversity* – Lexical diversity is related to cohesion since the composition of the various words in a text would directly link up to the total of new words interspersed into the discourse material. The most common lexical

diversity token used is the type-token ratio which calculates the total number of words (i.e., tokens) divided by the combined number of new words in a material (i.e., type).

6. *Connectives* – Coh-metrix puts premium in measuring cohesion as connectives serve as imperative components for determining cohesion. Two aspects of cohesion are determined. The first type includes those that are related with certain classes as determined by Halliday and Hasan, Louwerse, and Graesser, McNamara and Louwerse (all cited in Graesser et al., 2004) listed as: logical, adversative/contrastive, clarifying, additives, temporal and causal connectives; and the other has to do with positive or negative connectives such as adversative causal connectives.

7. *Situation model* – This refers to the topic or the narrative text that the material pertains to which includes characters, objects, spatial setting events, processes, emotions of characters in a narrative setting while in an information text, the subject matter described. The situation model presents inferences that are "activated by the explicit text and encoded in the meaning representation" (Goldman, Graesser & van den Broek, Graesser et al., Kintsch, McNamara & Kintsch, Wiley et al., Zwaan & Radvansky, all cited in Graesser, McNamara & Kulikowich, 2011, p. 227).

   The situation model links well with cohesion in such a way that a discontinuity in the situation model results in "break in text cohesion" causing mark ups in the reading time and the development of inferences (O' Brien et al., Rap et al., Zwn & Radvansky, all cited in Graesser et al., 2011, p. 227). Such discontinuity also necessitates the use of signaling devices (e.g. connectives, adverbs and transitional phrases), termed as particles, conveying to the reader the occurrence of such. Coh-metrix measures the ratio of cohesion particles to the "relative frequency of relevant referential content" (Graesser et al., p. 227).

8. Syntactic complexity – This presents multiple measures to evaluate syntactic structures of sentences. Sentences that have difficult syntactic calculations including jam-packed words, syntactically vague compositions, numerous embeddings and even grammatical inconsistencies are tagged.

9. *Syntactic pattern density* – Coh-metrix measures complex syntactic features going beyond the common theories of syntax designating words to part-of-speech groupings, group words into phrases and syntactic tree frameworks to sentences. Coh-metrix also computes the regularity of passive voice and comparability in syntactic structure between pairs of sentences in a paragraph. In addition, coh-metrix measures the quantity of word types and phrase types, the density of which is deemed to influence the processing difficulty of text. A text that has high incidences of noun and verb phrase is highly expected to be informationally loaded with complex syntax.

10. *Word information* – Word information in coh-metrix is drawn from MRC Psycholinguistic Database (Coltheart, as cited in Graesser et al., 2004) containing 150,837 words and facts about 26 different linguistic properties of these words. Coh-metrix calculates values for each of the following components of words, determining the mean both for the sentence and paragraph word averages. The six MRC properties of words with values ranging from 100 to 700 compose the word information in coh-metrix:
    - *familiarity* – the recurrence of words shown in text
    - *concreteness* – how words are regarded as tangible based on human ratings
    - *imageability* – the effortless building of a

word's sense in one's mental image, based on human ratings
- *Colorado meaningfulness* – significance or meaningfulness measure of a word based on Toglia and Bantig's (in Graesser et al., 2004) corpus, multiplied by 100
- *Paivo meaningfulness* – graded word meaningfulness based on the standards of Paivio, Yuille and Madigan, and Gillhooly and Logie in Graesser et al. (2004), multiplied by 100 to create a range from 100-700.
- *Age of acquisition* – the score of the age-of-acquisition norms (Gillhooly & Logie, as cited in Graesser et al., 2004) multiplied by 100 to come up with a product ranging from 100 to 700. This feature is able to reconcile the idea of how certain words occur in children's vocabulary ahead of others.

11. *Readability* – The readability of texts is determined by using primary measures in coh-metrix: the Flesch Reading Ease score and Flesch– Kincaid Grade level.

As presented in the above features, coh-metrix as a computational tool offers a great deal of measures on different language, cohesion, discourse and world knowledge levels of text. Benjamin (2012) upholds that the main test of success of a readability test method [including the coh-metrix] is determined by how its predicted results correlate with the verified reading test outcomes of readers employing the same materials.

Since quantitative aspects or indices of text complexity are measured by this kind of electronic tool, the Council of Chief State School Officers and the National Governors Association in the United States affirm that these text features that are evaluated are strenuous for a human reader to evaluate and that they are more efficiently analyzed using computer programs such as the coh-metrix.

To make sense of the numbers generated by the coh-metrix tool in analyzing the existing document, the researchers utilized the norms presented by McNamara, Graesser, McCarthy and Cai (2014), in their book, *Automated Evaluation of Text and Discourse with Coh-Metrix* as bases for comparison. These norms were created using a portion of a large corpus consisting of 119,627 paragraphs from 37,651 corpora of texts from the Touchtone Applied Science Associates (TASA), viewed to be the broadest collection for K-12 texts presently accessible for research. McNamara, Graesser, and Cai randomly chose 100 passages from the TASA corpora for the three largest domains represented: language arts, social studies and science texts and each of 13 grade levels, for an aggregate of 3,900 passages.

Since coh-metrix does not produce a single quantitative determination of text complexity, McNamara et al. (2014) adapted the readability measure called Degrees of Reading Power (DRP) by Questar Assessment, Inc. that is highly correlated with the readability measures scaled by coh-metrix, the Flesch Reading Ease and Flesch-Kincaid Grade Level measures of readability. Certified by the US Common Core State Standards (CCSS), the DRP analyzer computes three quantifiable attributes of text (word length, sentence length and word familiarity) using a computation obtained from Burmouth mean cloze readability formula. DRP has methodically developed an equal interval and vertical single scale of text complexity ranging from 0 – 100 units, with the lower units related to the easiest primers for beginning readers and the highest units with the most complicated reading materials such as professional journals.

McNamara et al. (2014) further converted these DRP measures to their equivalent grade-level projection and then collapsed or broke down to the grade level bands based on the US CCSS. The following table presents the average DRP values as well as the range of DRP values for each grade band created by McNamara et al. (2014)

Table 1.DRP Values for Each Grand Band of TASA Passages

Grade Band	N	Mean DRP	Std. Deviation	Minimum DRP	Maximum DRP
K-1	300	43.2465	2.33841	35.00	45.99
2-3	600	48.8362	1.45713	46.00	50.99
4-5	600	53.3161	1.44334	51.00	55.99
6-8	900	59.1749	1.34791	56.00	60.99
9-10	600	62.2777	0.90323	61.00	63.99
11-CCR*	900	67.4324	3.10350	64.00	85.80

*College-Career Ready

3. Results and Discussion

The CCTC document, which was designed for use of educated adults as prospective users of the credit card, as clarified by personnel from the credit card company, is expected to be on the 11-CCR (College-Career Ready) band that would have a minimum DRP score of 64.00 and 85.80 maximum values.

Aside from collapsing the DRP measures into grade bands, McNamara et al. (2014) also set up norms or standards for the 11 coh-metrix indices that would provide normative values in which to compare texts from other corpora.

Table 2.Readability Measures Between the 11-CCR Normative and CCTC Values

Readability	11-CCR Normative Values	CCTC Values
Flesch Reading Ease	51.092	18.802
Flesch Kincaid Grade	12.24	21.562
Coh-metrix L2 Reading Index	11.808	10.654

As regards readability values, the table above shows a big discrepancy in the Flesch-reading ease between the 11-CCR normative (51.092) and CCTC values (18.802) translating into a difference of 9.322 grade level difference between them (21.562 - 12.24). In terms of the Coh-Metrix L2 Reading index, the CCTC is pegged at 10.654, slightly lower than the 11-CCR normative value since the higher the reading index implies better readability measure. The three linguistic indices that are computed for the coh-metrix L2 reading index include the word frequency based on frequency norms from the CELEX database of 17.9 million-word corpus (Baayen, Piepenbrock, & Gulikers, as cited in Crossley et al., 2011), syntactic parsing relating to the similarity and reliability of parallel syntactic compositions both at the phrase and part of speech levels; and, the word overlap, which calculates how the content words overlap or go beyond between two adjoining sentences.

One noticeable difference in the descriptive component between the CCTC and the 11-CCR normative value is the sentence length: the 11-CCR level has an average of 24.764 words per sentence while the existing document is 44% more or has an equivalent of 44.223 words per sentence. This 44.22-word sentence length average is more than double the 20-word average sentence length suggested by the plain English advocates including Bailey (1996), Cutts (2009) Garner (2001), Stephens (2008) to ensure clarity of the message put across and make people understand a document upon initial reading.

Bhatia's (1994) cognitive structuring, which presents all the core ideas and other ideas or conditions in just a single syntactic structure, warrants the lengthy propositions or sentences presented in a legal document. Garner (2001) labels the idea as "overparticularization" being a deplorable habit of attempting to present "too many things at once, with too much detail and too little sense of relevance" (p.20).

In terms of text easability or ease of reading the material, it can be observed that out of the five major components of text easability, the three features namely, narrativity (how well a text presents a story, linking it to everyday conversation), syntactic simplicity (sentences with fewer words and simple constructions tend to be easier to process), and deep cohesion (the use of connectives to help the readers build more coherent and deeper understanding of the material) made the contract more difficult to process or read. Coh-metrix calculates 20.049 for CCTC as against 41.649 for the 11-CCR normative value, 22.959% syntactic simplicity for the original document as against 31.25% for the 11-CCR normative value and 89.80 % for the CCTC's deep cohesion in comparison to the 11-CCR normative value at 57.59 %.

As regards text easability components, a study done by Graesser et al. (2011) accounted for the prime correlation between the DRP grade level projection and narrativity and syntactic simplicity. They noticed the uncomplicated syntax and minimal elements of informational texts included in texts at lower grade levels. Aside from that, they observed that word concreteness would likely reduce across grade levels.

Moreover, a component for left embeddedness has the CCTC incidence score of 10.944, more than half of 11-CCR level normative value score of 5.512. Comprehension is said to be easier when there are shorter sentences as well as fewer words before the main verb of the main clause, otherwise known as left embeddedness. Graesser et al., and Perfetti, Landi and Oakhill (all cited in McNamara et al., 2014) explain that the use of embedded structures, which are usually dense, vague and grammatically unsound, results in difficulty in processing and comprehension.

Similarly, the results of Nelson, Perfetti, Liben and Liben's (2012) study yielded that syntactic simplicity, pertaining to the level to which sentences contain fewer words and simpler syntactic structure processing, is the dimension drawing a significant parallel with the grade level.

Extract 1:

> *Failure of the Cardholder to pay the TOB or the "Minimum Payment Required" on the relevant Payment Due Date stated in the SOA or within thirty (30) calendar days from actual date(s) of purchases, availments and/or cash advances, whichever occurs earlier and/or any other obligation, (including interests, charges, taxes, such as but not limited to Value Added Tax (VAT) and other disbursements allowed by law) which the Cardholder may now or hereafter owe to XX or to any member of the XX Group of Companies (BGC) or to any of their subsidiaries and affiliates such as but not limited to XX Family Bank (XXFB), XX Capital Corp., XX Leasing Corp., XX Securities Corp., and XX Direct, whether singly or jointly with another, or as principal or as surety/ guarantor, shall render Cardholder in default without necessity of demand from XX, which the Cardholder expressly waives. – 144 words*

The above 144-word sentence from the *Payment of Charges* subsection of the *Finance Charges* stipulation of the document illustrates a syntactically-complex structure with the following constituents: a base subject (*Failure of the cardholder*) and a base predicate (*shall render the cardholder in default*), 11 embedded clauses between the subject and predicate and 2 more complement clauses after the base predicate. These elements are thus enumerated as follows:

1. Failure of the cardholder – **Base Subject**
2. to pay the TOB
3. or the "Minimum Payment Required" on the relevant Payment Due Date
4. stated in the SOA
5. or within thirty (30) calendar days from actual date(s) of purchases, availments and/or cash advances,
6. whichever occurs earlier and/or any other obligation,
7. (including interests, charges, taxes, such as but not limited to Value Added Tax (VAT) and other disbursements allowed by law)
8. which the Cardholder may now or hereafter owe to XX
9. or to any member of the XX Group of Companies (BGC) or to any of their subsidiaries and affiliates
10. such as but not limited to XX Family Bank (), XX Capital Corp., XX Leasing Corp., XX Securities Corp., and XX Direct,
11. whether singly or jointly with another,
12. or as principal or as surety/guarantor,
13. shall render Cardholder in default – **Base Predicate**
14. without necessity of demand from XX,
15. which the Cardholder expressly waives.

Meanwhile, in terms of co-reference or referential cohesion, all the components of the CCTC values have higher figures than the 11-CCR level normative values. As referential cohesion or co-reference serves as a linguistic lead in guiding learners in linking "propositions, clauses and sentences in their textbase understanding"

(Halliday & Hasan, McNamara and Kintsch, all cited in McNamara et al., 2014, p.19), the higher the value would likely mean the more cohesive the material. In the case of the CCTC document, it can be said that the existing document has up-to-standard referential cohesion value, even exceeding the accepted value on the 11- CCR grade band.

In particular, referential cohesion as defined by Halliday (1985) pertains to certain participant or circumstantial elements presented in the text that are either utilized as reference point for a succeeding idea, or as premise for comparison. Referential cohesion, actualized through the use personal nouns, demonstratives and comparatives, can be spotted onward or back within or outside the text or in cases when it is self-referential or the reference is recognizable given the context or situation.

Extract 2:

> *The Cardholder and his/her supplementary and/or surety(ies) shall be jointly and severally liable for all purchases and cash advances made through the use of the CARD, including all interests, penalties, fees and all other charges without the necessity of proof of signed charge slips. If the Cardholder uses the cash advance features at any XX Automated Teller Machine (ATM) and/or authorized network, he/she hereby agrees to accept and pay for all cash advances including the corresponding interests, penalties, fees and other charges without the necessity of proof or ATM withdrawal/transaction record. The Cardholder agrees that all purchases and cash advances shall be conclusively presumed to have been personally made or authorized by the Cardholder.*

One observable example in the use of a referential cohesion using a noun overlap is presented in the above example in the second provision of the document, the *Responsibility* of the *Cardholder*. It can be noted that the noun *cash advances* is mentioned in all sentences of this provision. This is a case of a co-reference in the textual level wherein a full repetition of the phrase (cash advances) serving as a cohesive element is presented in sequence or continuum, thus the presence of noun overlap.

Two of the most apparent differences that could explain the complexity of the current document relate to the lower verb phrase incidence (CCTC- 154.630 against 11-CCR normative value-191.868) in the syntactic pattern component, and verb incidence in the word information feature (CCTC- 98.054 vs. 11-CCR normative value-124.386). High agentless passive incidence for the original document posts 14.553 score as against 4.479 for the 11-CCR normative value. Plain English advocates (Bailey, 1996; Cutts, 2009; Garner, 2001; James, 2007; Stephens, 2008 and Wydick, 2005) promote the use of more action verbs and suggest that the active voice be preferred more than the passive voice. In the same way, the low incidence of pronoun with CCTC scoring at 25.104 against 64.285 could have also added to the troublesome understanding of the document. Garner (2011) in his Garner's Dictionary of Legal Usage, stresses the value of the second-person pronoun in drafting consumer contracts.

In order to confirm the results set off from the coh-metrix values of the CCTC, additional resources were sought. Since text complexity goes beyond the surface level of measuring word frequency and sentence length, the state of science information provided by the different computer programs present more accurate and scientific measures in evaluating text complexity. The following are the other tools confirmed by the US CCSS as valid instruments in evaluating text complexity.

1. ATOS- Provided by Renaissance Learning, ATOS measures a text's three features: words in a sentence, the average grade level of words based on Graded

Vocabulary List and characters per word.
2. Flesch-Kincaid – This very popular complexity tool evaluates two variables: the types of words used and sentence length.
3. The Lexile Framework- A tool that evaluates both the text and an individual's reading capacity or ability, the Lexile Framework computes word incidence and sentence length.
4. Reading Maturity- Developed by Pearson Education, this tool utilizes the Latent Semantic Analysis (LSA) language model to determine the level of language experience necessary to be able to make sense of the word, sentence and paragraph meanings in a text. Moreover, the tool incorporates Word Maturity measure with other computational linguistic features such as difficulty, sentence length and semantic coherence in evaluating the overall intricacy and comprehensibility of the language employed in a text.
5. Text Evaluator- Created by the ETS company, the Text Evaluator tool measures eight aspects of text complexity such as sentence structure, text organization, vocabulary and genre.

Table 3. A Comparison of the Norms and Score Ranges of the 11th- CCR Grade Band from Multiple Measures vis-à-vis the XX CCTC Computed Scores

Text Complexity Automated Tool	Normative Values of the 11- CCR Grade Band *	CCTC Computed Score
1. Degrees of Reading Power (DRP)	67-74*	71
2. ATOS	11.20-14.20	13.1
3. Flesch-Kincaid	10.34-14.2	21.56
4. The Lexile Framework	1185-1385	1730
5. Reading Maturity	9.57 – 12	14
6. TextEvaluator	59-86	81.3

*(McNamara, Graesser, McCarthy and Cai used 64-85 range values)

Aside from using the DRP as a measure of reading complexity as explained in the earlier discussion, the CCTC document's complexity was likewise determined using other text complexity automated tools which are all presented in the above table. The computed scores of the existing document under study were measured up to the norms and score ranges of the 11-CCR Grade Band of these particular computational tools as provided by the US CCSS. It can be observed that there is a discrepancy between the standard range provided by McNamara et al. (2014) as they used 64-85 range values as compared to the 67-74 range scores supplied by the US CCSS. This can be explained by the US CCSS' provision for more flexibility especially in the younger grades' differing levels, thus, an overlap between grade bands is offered and two distinct values are seen.

The table above illustrates that the text complexity of the CCTC is within the range of the 11-CCR Grade Band of the Degrees of Reading Power, ATOS and TextEvaluator computational tools. On the other hand, the existing document under study is beyond the normative values of the Flesch-Kincaid, the CCTC value which is 21.56 as against the 10.34-14.2 acceptable value; the Lexile Framework 1730 value with reference to the 1185-1385 normal range; and the Reading Maturity 14 score going a little beyond the 9.57-12 within acceptable limits.

4. Conclusion

If the numbers generated from the CCTC coh-metrix indices' computed scores are akin or similar to the 11-CCR Grade Band of the coh-metrix indices' normative values and other text complexity automated tools utilized, it would seem that the measure of the CCTC document's complexity and comprehensibility is within the acceptable limits that can be understood by the respondents in this study, consumers who are at least bachelor's degree holders.

A comparison between the two national literacy assessments in the US done in 1992 and in 2003 and the Functional Literacy, Education and Mass Media Survey (FLEMMS) conducted in the Philippines in 2009 may help explain the literacy or reading level of adult Filipino consumers. The reading tasks in the US literacy assessment comprised of three types: prose, document and quantitative. Participants were then asked to read different documents and passages and answer activities related to the texts presented.

Scores were presented in five levels with level 5 representing the most difficult task to accomplish. In the 2003 assessment, levels were reduced to 4. Level 1 is regarded as "Below Basic", Level 2 as "Basic", Level 3 as "Intermediate" and Level 4 as "Proficient" level. The minimum score required for Level 4 is 340. A credit card document both used in 1992 and 2003 scored 387 and 372, respectively. The results in this US national assessment in 2003 yielded that only 13% of the assessed participants garnered a Level 4 performance, the level that would most likely necessitate processing and meaning-making with complex texts and documents like that of a credit card document.

Stygall (2010) notes that these US literacy reports and developments have weightiness on a number of forensic linguistic analyses undertaken regarding the comprehensibility of complex documents. She affirms that only a very small number of percentage of people compared to the general population are able to understand and act upon this literacy exercise. Moreover, she underscores that a high degree of correlation between literacy and income has been found between proficiency and those whose income reach more than $100 000 annually.

Locally, FLEMMS was conducted in 2009 to determine the literacy level of the Filipinos. Literacy levels were classified into four; namely, Level 00- " Cannot read and write", Level 1- "Can read, write and compute", Level 3- "Can read, write, compute and comprehend" and Level 4- "High school graduate or higher". It is important to note though that the literacy assessment in the US and in the Philippines are so distinct that in the US study, there were even cases of college graduates that were not able to reach the lowest level of functional literacy. Comparing the US and the Philippines' Literacy levels, De Dios (2013) surmises that the Philippines' Literacy Level 3 is equivalent to US' Level 1 only.

Thus, a mismatch is clearly established between the estimated comprehensibility of the existing document that is projected to be understood within the 11-CCR grade level and the actual results of the US Literacy Assessment in 2003. The document is understood by a very select few within the highest Level 4 proficient type of participants. Such disparity is even made more problematic with the tricky and confusing labeling of the literacy level among Filipinos. It can then be said that the Filipino respondents who are expected to belong to 11-CCR grade band may have a much lower grade band than their projected level.

One local study that can lend support to this assumption that the participants' actual reading level may be placed at US grade level 8-10 is the study done by Gutierrez (2014) titled, *Readability Levels of English and Filipino Texts: Implications on the Preparation of K-12 Learning Resource Materials*. A total of 548 sample passages were subjected to the SMOG and Fry readability programs and compared to the identified target levels presented in the books. Results of this study indicated that the materials were readable 2-3 grade levels higher than the acknowledged intended levels of the materials. This outcome denotes that the materials Filipinos are using are 2 to 3 levels behind the standard grade levels. One plausible reason that can explain such lackluster status of the Filipinos could be the 10-year basic education curriculum system used to be implemented before the new K-12 program that is now in place. As the participants are products of this old education curriculum, such could explain their 2-3-years-below-the-standard grade level. As avowed by the US CCSS and Gunning (2010), that there are specific vocabulary and comprehension processing skills that students must acquire at different grade levels. With this premise, the grade level of the participants of the study established at US grade level 8-10 is substantiated.

Overall, the existing CCTC's computed values of coh-metrix indices, substantiated by the other readability computational tools employed, are within the range of the 11 - CCR grade band. The complication arises since these measures do

not correspond with the level of the participants, regarded to be way below the 11-CCR grade band, deemed to be only 8-10 US grade level. Conversely, the document is too difficult to be understood by the participants. The point at issue on the resemblance between the participants' assessment of the existing document and the computational scaling of complexity of the document is thus clarified. The low comprehensibility of the material as scaled by the participants results from their deficient understanding of the document brought about by their lack of capability to grasp such an obfuscated or complicated document. To such a degree, there is a credible need to single out aspects of the document that the participants are baffled about.

This study has established that the use of a cognitively inspired text computational tool can be effective in validating the complexity of a reading material. Going beyond the difficulty of words and sentence length which traditional readability tools dwell on, cognitively-enthused readability tools like the coh-metrix allow for examining the deeper dimensions of the text like referential cohesion, syntactic pattern and text easability. Further, the use of the tool can help researchers figure out particular parts and features of the text that target users find difficulty in understanding and what needs to be done to make the document more comprehensible to the readers.

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