



Exploring Citizens' Constitution Readability Profile in Selected Anglophone African Countries

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Received: 21.06.2018 Accepted: 12.05.2019 Published: June, 2019

Abstract: A country's constitution describes the basic principles of the state, structures, and processes of government as well as fundamental rights of citizens. All of these make imperative the ability of the citizens to read and understand the document. This paper evaluates the readability profile of citizens of the English speaking African countries concerning their constitution. A descriptive research design was adopted while the stratified random sampling was implemented to select the chapters of the constitutions for analysis. The SMOG and FOG indexes were used to compute the readability scores. Measures of central tendencies, one-sample T-test, and one-way analysis of variance, with bootstrapping, were carried out with the results showing that the citizens found it difficult reading their constitutions when compared to the standard scores for public documents.

Keywords: Readability, Political Communication, Constitution, SMOG, FOG, English-speaking Africa.

Introduction

A constitution is a set of rules (or laws) that describes how other rules (or laws) are made, enforced, and applied to individuals (Shamgar,

2005). Most modern constitutions describe the basic principles of the state, structures, and processes of government as well as the fundamental rights of citizens. They

define a nation's political institutions and the related processes which are instrumental in achieving a way of life. A constitution defines a government and how it should function.

The idea of a composed constitution characterizing the structure of government and identifying the privileges of the general population is profoundly established in Anglo-American history (Kauper, 1961). The oldest truly political constitution dates back to five centuries, referred to as the Fundamental Orders of Connecticut of 1639 (Kauper, 1961). Not all countries have a written constitution - the United Kingdom for example.

Various functions of a nation's constitution have been described (Bulmer, 2014). These include declaring and defining the boundaries of the political community, identifying the nature and authority of the political community, and projecting the identity and values of a national community (e.g. national flag, anthem). A constitution also establishes and regulates the political institutions of a community, and defines the rights and duties of the citizens of that community.

It is important for the citizenry and those who rule to fully understand the details of their nation's constitution. Failure to understand one's constitution could have serious

implications. For example, one's inability to read and understand the constitution could lead to the breaking of the laws outlined in the constitution. Yet, ignorance of the law is not an excuse to guilt. Also, one's inability to understand the constitution could make citizens trample on each other's rights. Therefore, the readability of a constitution is of utmost importance in ensuring that one's rights are not abused and to ensure that citizens carry out their responsibilities as enshrined in that constitution.

Readability refers to the ease of understanding or comprehension of a text due to the style of writing (DuBay, 2004). Several factors affect the readability of a written text. These include the style of writing, the percentage of difficult words contained in the text, the length of the sentences. Besides, the intended audience informs the readability level a written material should target (Cutts, 2013). Since the constitution is written for the entire nation, it should be written such that those with even average schooling level could read and comprehend.

To assess readability, formulas have been devised. These are referred to as readability indexes. A readability formula or index brings out calculations on a text, based primarily on sentence and word length, and results in a numerical

score. Different readability formulas give different scores on the same piece of text. This is because different indexes use different aspects of a text as its basis for the formula. Therefore, it is important to adopt the same formula if you are trying to compare the readability score or level of several different texts.

Several of such indexes have been developed over the years to meet special needs. They are the SMOG Readability formula, Flesch's Reading Ease, Gunning FOG's index, New Dale-Chall formula and Spache readability formula (Bailin & Grafstein, 2016), among others. The SMOG readability formula was propounded to deal with the lapses in other readability formulas like the Gunning FOG. This formula was developed specifically for checking health messages (Hedman, 2008) but has been applied to language learning texts. The Flesch's Reading Ease is primarily used to assess the difficulty of a reading passage written in English particularly in educational materials. The FOG's index works on similar principles as that of Flesch's but doesn't have the problem of 100 one-word sentences getting a minus score. The Dale-Chall is primarily designed to gauge the readability of more advanced texts- i.e., fourth grade and beyond while Spache was crafted to access

the readability of primary texts through the end of third grade.

It has been shown that several national constitutions are hard to read and comprehend. One study which considered the readability of 189 countries in the world concluded that barely 20 percent of all had their constitutions written at 'standard' level, using Flesch reading ease (Gramener, 2014). The easiest to read constitution (Luxemburg) was rated as 'fairly easy' (FRE score of 71). None of these countries' constitutions was 'easy' to read. All other countries' constitution was either 'difficult' or 'very difficult' to read. Several African countries had the readability of their constitution at a low FRE level. For example, Ghana recorded an FRE score of 37, which is classified as difficult. Similarly, Nigeria recorded and FRE score of 18 which is categorized as very difficult. However, not all African countries were captured in this study, although they have written constitutions. For example, Tanzania, South Africa, and Zambia were not studied. Also, the investigation did not indicate what accounted for the 'difficult' nature of the constitutions in terms of its readability.

Research Questions

This paper fills in the gap by providing possible reasons why the various constitutions are 'difficult' to

read by considering three research questions:

1. How readable are constitutions of African countries when measured in terms of readability indexes?
2. What is the nature of sentence characteristics of constitutions of English speaking African countries?
3. Are there statistically significant differences in the readability of constitutions of the English speaking African countries?

Review of Related Literature

Several studies have been published on the readability of legal materials. For example, one study examined the readability of the Income Tax Act 1967 (ITA 1967) and its associated Schedules of Malaysia (Saad, Udin, & Derashid, 2013). Using FRES (Flesch Reading Ease Score) and F-KGL (Flesch – Kincaid Grade Level) analyses, these authors found that the ITA 1967 and its Schedules were complex to understand. Similarly, it has been indicated that the US constitution is 'difficult' to read even for first-year college pre-service teachers (Meier, Keith, & Dwyer, 2014). Gallagher and Patrick-Riley, (1989) considered the readability of federal land management plans in the US using the Flesch Reading Ease Scale. The scores showed that the plans were

written for people with three to six years of college education, far beyond the reading ability of the average person. Ozok (2013) evaluated the readability of policies of social networking sites. The evaluation points out that most social networking sites assume a reading grade level beyond a high school reading level. Over half of all sites (51% of the average scores) require college-level reading ability. It has been suggested that legal documents should be written in plain language to improve readability. In line with this view, Daily, Dorsey and Kumar (2010) examined the readability of the Tax Court opinions in the US using the Flesch Reading Ease formula. The analysis showed that as the plain language movement progressed over the years, the readability of these opinions has decreased. Readability can increase the trust and confidence of consumers in the sense that it increases their expectations of the claim. Moreover, we have found partial evidence to suggest that reading ease also increases the consumer's willingness to engage in legal action in the case of subsequent claim denial (Boom & Desmet, 2016). In contrast, however, Charrow and Charrow (1979) found that there was no correlation between improvement in comprehension scores on their rewritten jury instructions and the

readability scores of the instructions. Similarly, Duffy and Kabance (1982) tested the effects of rewriting reading passages to readability guidelines and concluded that rewriting to improve the readability score of a passage will not necessarily produce a more comprehensible text.

Despite the posture of Duffy and Kabance (1982), it is argued here that the effect of a more readable constitution (like any other legal document) as indicated by Boom & Desmet (2016), seems more realistic and highly probable. No matter the nature of technical legal documents (including the constitution) they can still be presented in 'easy' to read format (Gallagher & Patrick-Riley, 1989). The ease of reading can enhance civic vitality and minimize political conflict (Okorie, Loto & Omojola, 2018, Folayan et al., 2018).

Theoretical background

Our theoretical perspective in studying the readability of constitutions is based on legal communication theory. Schuetz (2009) describes legal communication theory as context-driven; it is grounded in the context of legal processes and practices and its application outside of this context may be a strained one. Legal communication theory is pragmatic (Schuetz, 2009): it is primarily

concerned with how individuals understand and participate in legal processes and outcomes. We hold that for individuals to be active participants in the legal processes and outcomes of their nations, they would require an understanding or comprehension of the written law, which is what a constitution essentially is - a legal text.

In discussing legal communication theory, Schuetz (2009) asserts that law and the language with which it is written are in an interdependent relationship. In fact, according to White (1984), the law in itself is language because it is a vehicle for expressing and enacting the statements in the legal discourse that specify what principles and conducts that people in a specified society are subject to. A constitution, as legal discourse, is a written account of laws and actions that describe what the law is and identify the necessary procedures for legal actions and practices (Schuetz, 2009). Law, and therefore a constitution, is thus a collection of complex and technical statements about conduct. Law, including a constitution, exerts power on the conduct of people by using specialized, technical language to create the impression of authority and impersonality (Schuetz, 2009). Wells (2008) lists knowledge and understanding as part of the key skills required for individuals or groups to be engaged in the civic or

political sphere. In the context of the constitution, we hold this to mean that knowledge and understanding of the provisions in that legal text would enable individuals and groups to be empowered for civic engagement and participation.

This assurance of unhindered civic engagement is a basic principle of a democratic state, and such assurance should be afforded by the state's constitution. According to Wells (2008), civic or political engagement is any activity by an individual or group that is intended to affect the community. Pinkleton (2008), in an introduction to a discourse on the theory of political involvement, relates civic/political involvement to public affairs participation. Further, Pinkleton points out that people with high civic participation are active information seekers. This means that such people would likely be interested in the constitution and how it provides the legal environment within which they may pursue their civic and political interests.

Meanwhile, Schuetz (2009) claims that legal discourses are primarily written for those with the facility to understand the technical language. This means that the specialized, technical and impersonal language of the constitution may not be accessible to most of the citizenry. If a constitution, being the foundational legal discourse of a

nation, were written in such a manner, the information it contains would be beyond the access of those with reading abilities below the levels at which such discourse is written. The consequences can be a marginalization of the powerless, a muzzling of those people unfavorably affected by the law, and a consolidation of the powers of courts and legal professionals rather than a serving of the people's interests (Hasain, 1994; Herbeck, 1995).

Based on the preceding assertion, we posit that poor readability of the constitution would be a threat to knowledge and understanding of the legal provisions in that text thereby impeding civic engagement and participation, access to civil justice, and other interests of the people.

Significance of the Study

This study is significant to political communication. It provides empirical evidence to support the theoretical assertion that legal discourses are primarily written for those with the facility to understand advanced texts (Schuetz, 2009).

The study is also significant in that it highlights potential bottlenecks to political engagement and involvement in the sampled countries. Political engagement and participation are critical to democracy. The extent of freedom for civic/political participation and engagement are or should be,

prescribed in the constitution of a state. Constitutions that were written above the literacy levels of most people in the sampled countries likely do not afford citizens the full knowledge and understanding of their rights and civic duties thereby limiting their engagement and participation in public affairs. Further, limited access to the information in the countries' constitutions presents a clear and present danger of further marginalization of the powerless; the silencing of people affected in a negative way by the law; and, an unbalanced power structure in favor of courts and the elite and potentially harmful to the 'ordinary man'. The results of this study are therefore significant in that they provide the basis for governments, civil society, corporate bodies and civic-minded individuals to push for the publishing of constitutions written at readable levels that most people in the respective countries would be comfortable with.

Methodology

Population for the study

The target population consisted of all English Speaking African countries which have written constitutions. The choice was informed because the readability indexes used are designed for English texts.

Sampling Procedure and Sample Size

A proportionate stratified sampling technique was adopted to select the constitutions of the countries using simple geographic cardinal points divisions (North, South, East, and West) of the country as the strata. Proportionate stratified sampling is a probability sampling technique wherein the researcher divides the entire population into different subgroups or strata, then randomly selects the final subjects proportionally from the different strata. The stratified sampling technique was appropriate in highlighting all geographic subgroups within the population. However, North Africa was excluded from the sample strata because none of the countries used English as their main official language (Libya uses English only partly). Also, the stratified sampling helped to observe existing relationships between these geographic subdivisions (Conchran, 1977).

The sample size was six. That is the constitutions of six countries were used as the sample frame. In all, there were 10 countries of these three strata which used English as their main official language. Table 1 below shows the various geographic strata and their corresponding English speaking nations used. It should be noted that stratification

was based on geography not geopolitical or economic.

Table 1: Sample size used for data collection

Strata	No. of countries	English Speaking	Sample	Chapters used
West	16	4 (Gambia, Liberia, Nigeria)	2 (Ghana, Nigeria)	Ghana: 2,3,8,11,12,16,17,18,19,20,22,23,25 Nigeria: 3, 5, 6, 7, 8, 10
East	9	2 (Tanzania, Ethiopia)	2 (All)	Tanzania: 1,2,4,6,7 Ethiopia: 1,2,3,8,9,10,11
South	14	3 (Zambia, Zimbabwe, South Africa)	2 (Zambia, S. Africa)	Zambia: 1,3,4,8,10 S. Africa: 1,4,7,8,12,13,14
North	7	1 (Libya; Partial usage)	None	None

Half of the number of countries, each per strata, were randomly selected for the analysis. This ensured that all the subgroups are captured.

After obtaining the selected countries, the number of chapters of each country's constitution was counted. For constitutions whose total number of chapters were even-numbered, half of the total number of chapters of each constitution was used as a representation of the entire constitution of that country. For constitutions whose total number of chapters were odd, a similar strategy employed for even numbers was used, and an extra single chapter added (see Table 1). At least half of the total number of chapters of each constitution was used to give a fair assessment. The simple random technique was adopted to select the

chapters to be included in the analysis.

Data Collection

The total text of each selected chapter (of each constitution) was copied into an online readability calculator to calculate its readability (www.webpagefx.com). This online calculator was used because of its accuracy and popularity. The SMOG and FOG indexes were used because they are among the most popular and recommended indexes for grading the readability of written materials (Hunter College, 2016). The word processor Microsoft Word was not used to compute the indexes because of the limitation that prevents it from calculating grade level values above 12.

Data Analysis

Frequencies and other descriptive were used to describe readability, and the number of years attained to be able to read (Objectives 1, and 2). A one-sample T-test was used to determine whether or not there were differences in the reading ease and the school years required to read, compared to standard scores. A one-way analysis of variance, using the bootstrapping technique, was performed for samples of 1000 to ensure robust estimates of significance or p-value, standard errors and the confident intervals.

To ensure robust confidence intervals, bias-corrected and accelerated (BCa) intervals were used since doing this ensures adjusted intervals that are more accurate (IBM, 2013). Mersenne Twister Random Number Generator was set to replicate a sequence of random numbers. This helped to

preserve the original state of the random number generator and restore that state after the analysis was completed (Arbuckle, 2010). The stratified method was used during the bootstrapping resampling with replacement from the original dataset, within the strata of the six constitutions. Games-Howell post hoc test was used to determine differences in the mean readability indexes across the six constitutions. This was because Levene's test was significant suggesting unequal variances. Under such circumstances, Games-Howell's post hoc test is the recommended analytical approach (Field, 2011)

Results and Discussion

Research Question 1: How readable are constitutions of African countries when measured in terms of readability indexes?

Table 2a: Descriptive Statistics of the Readability of Six Constitutions

		Min	Max	Mean	SD	Median	IR
Ghana	FOG	19.30	36.50	25.34	4.71	24.30	4.75
	SMOG	15.20	21.30	17.63	2.10	17.20	3.70
Nigeria	FOG	23.20	35.20	29.35	4.58	29.05	9.00
	SMOG	17.50	20.80	19.35	1.52	19.35	3.15
Ethiopia	FOG	10.60	14.00	11.77	1.21	11.45	1.67
	SMOG	9.00	20.80	11.82	4.45	10.25	3.85
Tanzania	FOG	17.50	50.50	25.33	10.55	21.60	5.80
	SMOG	16.20	31.20	19.34	5.02	17.25	3.80
South Africa	FOG	14.50	18.90	14.50	1.54	17.10	2.20
	SMOG	12.80	15.90	14.13	.92	14.10	.50
Zambia	FOG	20.70	27.20	24.30	2.84	23.20	5.25
	SMOG	16.90	20.50	19.26	1.47	19.20	2.45

Table 2a presents descriptive statistics (mean, median, etc.) of the readability of six constitutions measured using the SMOG. The measure of central tendency,

including the Shapiro-Wilk test results, are presented below in Table 2b. The two tables are tagged a and b to show that b continues from a.

Table 2b: Shapiro-Wilk test results

Constitution	Readability index	Skewness	Kurtosis	Q1	Q3	(Table 2a continued)		
						Shapiro-Wilk Test of Normality		
						Statistic	df	Sig.
Ghana	FOG	1.26	1.63	22.45	27.20	.901	13	.136
	SMOG	.747	-.784	15.85	19.50	.891	13	.101
Nigeria	FOG	.034	-1.22	25.10	34.15	.956	6	.786
	SMOG	-.551	-2.163	17.50	20.65	.822	6	.091
Ethiopia	FOG	1.54	2.68	10.90	12.57	.872	6	.233
	SMOG	2.33	5.56	9.53	13.37	.641	6	.001
Tanzania	FOG	2.46	6.38	20.40	26.20	.660	8	.001
	SMOG	2.37	5.91	16.38	20.18	.670	8	.001
South Africa	FOG	-.779	.54	16.65	18.80	.918	7	.457
	SMOG	.946	3.00	13.85	14.20	.875	7	.205
Zambia	FOG	-.01	-1.98	21.95	27.20	.868	5	.257
	SMOG	-1.22	1.55	18.05	19.20	.847	5	.184

From Table 2, it is observed that the least minimum readability was scored by the constitution of Ethiopia (SMOG = 9.00), which means that a reader requires 9 years of formal education to read and understand. The FOG index measures about 11, which is equivalent to someone who has completed SHS 2. Also, the highest maximum SMOG value was scored within the Tanzanian constitution. The SMOG value recorded was over 50, implying that the text was practically unreadable by all. On the FOG scale, a value of about 31 was recorded, suggesting that the text is practically unreadable for all intents and purposes. It was observed that the FOG index

produced a higher readability score compared to the SMOG index.

In terms of averages, the constitution with the least median readability score was Ethiopia ($Md = 10.25$; IQR: 9.53, 13.37). A person requires 9 years of formal education to read and understand about half of the Ethiopian constitution (see Table 2). Scores from the FOG index suggested that the Ethiopian constitution was written at an SHS leavers reading ability ($X = 11.77$, $SD = 1.12$). In contrast, the highest mean readability score was recorded in the Nigerian constitution (SMOG: $X=19.35$, $SD = 1.52$; FOG: $X=29.35$, $SD = 4.58$). That is nearly 20 years of formal education is

required to be able to read the Nigerian constitution and understand. This would require the reading ability of a full professor. The FOG scale produced a much higher score, which indicated that the Nigerian constitution is technically unreadable.

The recommended reading level for general-purpose documents is an 8th grade (Cutts, 2013). To determine whether or not the

various constitutions are written at this standard grade, a one-sample t-test was conducted both for the original sample, and a bootstrapped sample with 1000 replications. The results are presented in Table 3. It is observed that the reading level of all the constitutions was statistically higher ($p < 0.05$) than the standard of 8th grade when measured on the FOG readability scale.

Table 3: One-Sample Test T-test of Gunning FOG and SMOG indexes for six constitutions

Constitution	Test value = 60					
	Indices	T	df	Sig.	Mean Difference	95% confidence interval of the difference
						Lower Upper
Ghana	FOG	13.28	12.00	.00	17.34	14.49 20.18
	SMOG	16.52	12.00	.00	9.63	8.36 10.90
Nigeria	FOG	11.43	1.65	.00	21.35	16.55 26.15
	SMOG	18.24	5.00	.00	11.35	9.75 12.95
Ethiopia	FOG	7.64	5.00	.00	3.77	2.50 5.03
	SMOG	2.10	5.00	.09	3.82	-.85 8.49
Tanzania	FOG	15.51	4.00	.00	12.34	10.13 14.55
	SMOG	33.45	4.00	.00	8.76	8.03 9.49
South Africa	FOG	15.92	6.00	.00	9.24	7.82 10.66
	SMOG	17.60	6.00	.00	6.13	5.28 6.98
Zambia	FOG	4.33	4.00	.01	22.26	7.99 36.53
	SMOG	6.17	4.00	.00	14.12	7.77 20.47

Using the SMOG index however, the readability of the Ethiopian constitution was not statistically higher than the standard grade level of eight ($p>0.05$). The bootstrapped sample was used to confirm the findings from the original sample. From Table 4, the non-significant

difference in the readability of the Ethiopian constitution compared to the standard reading level of 8 was confirmed ($p > 0.05$) for the SMOG index.

The constitution of Zambia was shown not more statistically difficult to read than the recommended 8th-

grade reading level for public documents, in the bootstrapped sample, although the original sample showed a significant difference (see Table 4). This was the case in both indexes (SMOG and FOG). Since both the SMOG and FOG indexes are based on the proportion of hard words or polysyllabic words in the text, it implies that five out of the six constitutions have been written such that they contain a large proportion of polysyllabic or 'hard words'. Also, it is apparent that these constitutions have been written with a 'legalese' style instead of plain language, as it is with several legal documents. A fundamental feature

of writings in legalese style is the use of borrowed 'Latinized' words which are highly unfamiliar to most people. It has been indicated elsewhere that people value attempts to simplify wording and structure of general legal documents and that they prefer simplicity to legalese (Boom & Desmet, 2016).

In summary, five out of the six constitutions were written at a statistically higher school grade than standard. Three of the constitutions (Ghana, Nigeria, and Tanzania) were 'very difficult' to read while one each was 'difficult' (S. Africa) and 'fairly difficult' to read (Ethiopia).

Table 4: Bootstrap for one-sample t-test of Gunning FOG and SMOG Index for six constitutions

Constitution	Indices	Bootstrap ^a				
		Mean Difference	Bias	Std. Error	Sig. (2-tailed)	BCa95% confidence interval
						Lower Upper
Ghana	FOG	17.34	.04	1.26	.00	15.12 20.12
	SMOG	9.63	.02	.57	.00	8.60 10.83
Nigeria	FOG	21.35	.04	1.71	.00	18.02 24.73
	SMOG	11.35	.00	.57	.01	10.28 12.42
Ethiopia	FOG	3.77	.02	.45	.01	3.02 4.73
	SMOG	3.82	.02	1.69	.35	8.36 7.58
Tanzania	FOG	12.34	-.01	.72	.02	10.72 13.66
	SMOG	8.76	.00	.23	.00	8.34 9.18
South Africa	FOG	9.24	-.01	.55	.00	8.07 10.23
	SMOG	6.13	.00	.33	.00	5.51 6.86
Zambia	FOG	22.26	-.03	4.62	.33	16.00 32.38
	SMOG	14.12	-.01	2.06	.33	11.46 18.66

Research Question 2: What is the nature of sentence characteristics of constitutions of English speaking African countries?

Results of three aspects of sentence characteristics (average word per sentence, percentage multiple syllable words and average syllable per word) have been presented in Table 5. Concerning the average words per sentence (AWPS), it is observed from Table 5 that the Ghanaian constitution recorded the

least minimum (15.96) while South Africa recorded the highest maximum. Further, the Ethiopian constitution recorded the least minimum percentage multiples syllable per word (19.19) while Tanzania recorded the highest maximum of 92.22. The least minimum average syllable per word was recorded in the Ghanaian constitution while the highest maximum was recorded in the Zambian constitution.

Table 5: Sentence Characteristics of Six Constitutions

Constitution	Sentence characteristics	N	Min.	Max.	Mean	Sd
Ghana	Average word per sentence	13	15.96	25.68	19.50	2.84
	Percentage multiple syllable words	13	36.69	77.90	49.21	11.46
	Average syllable per word	13	1.54	1.84	1.65	.07998
Nigeria	Average word per sentence	6	16.51	20.82	18.36	1.53
	Percentage multiple syllable words	6	49.11	77.48	62.34	9.76
	Average syllable per word	6	1.57	1.69	1.63	.044
Ethiopia	Average word per sentence	6	21.95	28.19	24.97	2.02
	Percentage multiple syllable words	6	9.19	16.21	12.77	2.66
	Average syllable per word	6	1.71	1.94	1.81	.086
Tanzania	Average word per sentence	8	21.43	29.02	24.39	2.52
	Percentage multiple syllable words	8	32.55	92.22	47.82	22.61
	Average syllable per word	8	1.65	1.94	1.76	.093
South Africa	Average word per sentence	7	20.59	31.02	25.74	3.96
	Percentage multiple syllable words	7	20.13	28.96	23.59	2.87
	Average syllable per word	7	1.66	2.00	1.83	.131
Zambia	Average word per sentence	5	25.62	29.02	19.32	2.46
	Percentage multiple syllable words	5	43.96	90.22	22.84	5.97
	Average syllable per word	5	1.81	1.94	1.20	1.84

The constitution of Nigeria recorded the least AWPS ($X=18.36$, $SD = 1.53$) while the constitution of South Africa recorded the highest mean AWPS ($X=25.74$, $SD=3.96$). Generally, it is observed that half of

the six countries (Ethiopia, Tanzania, and South Africa) had their constitutions written consisting of more than a mean of 20 AWPS while the remaining half (Ghana, Nigeria, and Zambia) were below. It

is recommended that over the whole document, the average sentence length be pitched at 15–20 words (Cutts, 2013). Hence, it is apparent that the lengthy nature of the sentences within the constitutions contributed to their 'difficult' nature. Again, from Table 5, it is observed that Ethiopia's constitution recorded the least mean percentage multiple syllable words ($X=12.77$, $SD = 2.66$) while Nigeria's constitution recorded the highest mean percentage of polysyllabic words ($X=62.34$, $SD = 9.76$). It was suggested earlier that the 'very difficult' to read nature of several of the constitutions was probably due to the high percentage of polysyllabic words. This was expected since the SMOG and FOG index algorithms are anchored on polysyllabic words. It is evident that Ethiopia which recorded the least mean percentage polysyllabic words had their constitution graded at 'fairly difficult' to read. This category was the easiest to read among the six constitutions used for this study.

Besides, it is evident from the mean average syllable per word that Zambia's constitution recorded the lowest value ($X=1.20$, $SD = 1.84$) while S. Africa recorded the highest ($X=1.83$, $SD = 0.131$). Generally, all six constitutions were written such that the average syllable per word was about two. It has been shown that increasing the number of

grapho-syllables increases the probability of encountering inconsistent vowels – especially in low-frequency words – thus delaying pronunciation (Chetail, 2014). Since the findings from these results suggest only disyllabic word-usage in the writing of the constitution on the average, it is hard to conclude that the amount of syllable per word contributed substantially to the difficult nature of the constitutions. Instead, Chetail (2014) has shown that words are recognized more slowly when they have the first syllable of high frequency than of low frequency, due to stronger lexical competition between syllabic neighbors. Hence, it is likely that the majority of the words used in the constitution fell to this effect. Although the constitutions were largely written using disyllabic words on the average, it proved difficult to read under this circumstance.

Research Question 3: Are there statistically significant differences in the readability of constitutions of the six English speaking African countries?

A one-way analysis of variance was employed to answer this question. The results are presented in Tables 6 and 7 below. Table 6 shows the result of the Levene's test of equality of variances in the two readability indexes across the six constitutions.

It is observed that in both indexes the variances differ statistically across the six constitutions. It implies that one of the assumptions of ANOVA has been violated. One way to rectify this problem is to

report Welch's F instead of the 'normal' F statistic (Pallant, 2013). Hence, Welch's F has been reported and used in interpreting the ANOVA results (see Table 7).

Table 6: Levene's test of equality of variance of FOG and SMOG indexes of six constitutions

	Levene Statistic	df1	df2	Sig.
Gunning FOG	4.024	5	36	.005
SMOG Index	3.218	5	36	.017

Table 7: One-way ANOVA of FOG and SMOG indexes of six constitutions

		Statistic	df1	df2	Sig.
Gunning FOG	Welch	36.500	5	14.085	.000
SMOG Index	Welch	14.101	5	14.199	.000

The results from the Welch's test of equality of means showed that there was a statistically significant difference at the $p < .05$ level in both FOG and SMOG scores for the six constitutions [FOG: $F (5, 14.0) = 36.5, p = .000$; SMOG: $F (5, 14.2) = 14.1, p = .000$]. The differences were 'large' across the six constitutions. The effect size, calculated using eta squared, was 0.63 and 0.59 for FOG and SMOG respectively.

A statistically significant difference occurs when the signs (positive or negative) of the lower and upper limits of the confidence interval changed from one sign to the other. From Table 8, it is observed that there were statistically significant differences across all constitutions except between Ghana and Zambia on one hand, and Nigeria and Zambia on the other hand, using the FOG scores.

Table 8: Bootstrap for Multiple Comparisons of Gunning FOG and SMOG Index of Six Constitutions

Index	(I) Constitution	(J) Constitution	MD (I-J)	Bootstrap			
				Bias	Std. Error	BCa 95% Confidence Interval	
						Lower	Upper
FOG	Ghana	Nigeria	-4.01	-.14	2.17	-8.48	-.05
		Ethiopia	13.57	-.12	1.35	10.97	16.38
		Tanzania	5.00	-.08	1.45	2.31	7.93
		S. Africa	8.10	-.11	1.36	5.42	10.79
		Zambia	-4.92	-.17	5.19	-16.08	2.52
	Nigeria	Ethiopia	17.58	.02	1.88	14.06	21.41
		Tanzania	9.01	.06	1.98	5.55	13.01
		S. Africa	12.11	.03	1.90	8.60	15.88
		Zambia	-.91	-.04	5.26	-11.90	7.03
	Ethiopia	Tanzania	-8.57	.04	.94	-10.16	-6.63
		S. Africa	-5.48	.01	.74	-6.78	-3.88
		Zambia	-.18	.49	.03	5.08	-29.86
	Tanzania	S. Africa	3.10	-.03	.99	1.13	4.95
		Zambia	-9.92	-.10	.08	-21.36	-3.11
	S. Africa	Zambia	-.13	.02	.07	5.06	-24.20
SMOG	Ghana	Nigeria	-1.72	-.09	.84	-3.31	-.13
		Ethiopia	5.81	-.02	1.79	1.55	8.55
		Tanzania	.87	-.06	.62	-.33	2.08
		S. Africa	3.50	-.06	.67	2.10	4.82
		Zambia	-4.49	-.08	2.29	-9.43	-1.24
	Nigeria	Ethiopia	7.53	.08	1.79	3.40	10.25
		Tanzania	2.59	.03	.65	1.31	3.83
		S. Africa	5.22	.03	.70	3.78	6.55
		Zambia	-2.77	.00	2.30	-7.65	.47

	Ethiopia	Tanzania	-4.94	-.04	1.73	-7.32	-.81
		S. Africa	-2.31	-.04	1.74	-4.74	1.87
		Zambia	-10.30	-.06	2.73	-16.01	-5.29
	Tanzania	S. Africa	2.63	-.01	.43	1.78	3.45
		Zambia	-5.36	-.03	2.24	-10.43	-2.50
		South Africa	Zambia	-7.99	-.03	2.26	-13.09

Comparatively, there were statistically significant differences across all constitutions except between Ghana and Tanzania, Nigeria and Zambia, and Ethiopia and South Africa, using the SMOG scores. It is noted that although the Ghanaian constitution did not differ statistically in terms of readability comparative to the Tanzanian constitution when the FOG index was used, such difference was observed when the SMOG index was used. This could be attributed to the differences in the algorithm between the FOG and SMOG indexes respectively. A similar situation was observed between Ethiopia and South Africa. Other studies in which two different indexes were employed showed similar outcomes (Ozok, 2013). Considering the means of these indexes (see Table 2), it could be concluded that the Nigerian constitution was the most difficult to read among all six African constitutions, using the FOG index.

Also, the Ethiopian constitution was the easiest to read, using the FOG index. A similar conclusion was reached using the SMOG index.

Summary of Findings

According to the FOG Index, all six constitutions are harder to read than general-purpose documents written at the recommended 8th Grade reading level. According to the SMOG Index, however, the Ethiopian constitution was not more difficult to read than documents written at the recommended 8th Grade reading level. Generally, the constitutions of Ghana, Nigeria, Tanzania, Ethiopia, and South Africa were found to be statistically more difficult to read than standard documents.

Ethiopian, Tanzanian and South African constitutions had average word-per-sentence counts of over 20. This is higher than the recommended average of 18-20.

Ethiopia's constitution recorded the least mean percentage of polysyllabic words.

Average syllables per word were not deemed to have contributed to the difficulty of any of the studied constitutions. However, it is suspected that most words used in all six documents have first syllables of high frequency. Such a situation would contribute to the reading difficulties of all six constitutions (Chetall, 2014).

In general, for both SMOG and FOG indexes, reading difficulties among the six constitutions differed significantly. For both indexes, the Nigerian constitution was found to be the hardest to read, while the Ethiopian constitution was found the easiest to read.

Conclusion

How readable a text is can have a direct link to the audience's desire to read. Easy readability can also enhance the interactivity with and understanding of the document (Morah & Omojola, 2014). A text that is difficult to read will require more effort, which audiences are averse to in most cases. The findings of this paper is that the constitutions of the six African countries are mostly 'difficult' to read. Some are even 'very difficult' to read. The easiest portion within any of the constitutions requires nine years of formal education to read and understand. Most portions were practically unreadable.

A chunk part of the constitutions was flooded with high proportions of

multisyllabic words. For most of the constitutions used for this study, about 50% of the entire text were multisyllabic in nature, on the average. This contributed to the poor readability of the constitutions. Although the average syllable per word was small on average in most cases (approximately 2), the words probably had a first syllable of high frequency than of low frequency. This further contributed to the poor readability due to stronger lexical competition between syllabic neighbors.

Finally, the Nigerian constitution was found to be the most difficult among the six constitutions. The Ethiopian constitution was, however, the easiest to read among the six constitutions.

Recommendations

We recommend further study into the difficulties of the constitutions of the six nations considered in this work. We recommend that future studies use other readability indexes beyond the SMOG and FOG indexes used in this work. Such confirmatory studies could establish more firmly the reading difficulties of the constitutions as they stand now.

We recommend also that Ghana, Nigeria, Tanzania, South Africa, and Zambia consider revising their constitutions to make those documents more readable and comprehensible to the average citizen. However, since we

recognize the need for legal documents to retain their authoritative nature using language (Schuetz, 2009), we recommend that these nations consider making, at least, more readable versions of their constitutions and making these widely available to the average citizenry.

Notes

- Shamgar, On the need for a constitution, 1*
- Kauper, The state of the constitution, 2*
- Bulmer, What Is a Constitution, 2*
- Dubay, The Principles of Readability, 3*
- Cutts, Oxford Guide to Plain English, 488*
- Bailin and Graftein, Readability Formulas, 35*
- Hedman, Using the SMOG formula, 62*
- Gramener, Readability of Constitutions, 1*
- Saad, Udin, & Derashid, Complexity of the Malaysian Income Tax Act, 607*

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- Gallagher & Prick-Riley, The Readability of Federal Land Management Plans, 85*
- Ozok, Online Communities and Social Computing, 73*
- Daily, Dorsey, and Kumar, Complexity of the Malaysian income tax act, 171*
- Boom and Desmet, Easy to read, easy to claim, 187*
- Charrow and Charrow, Making legal language understandable, 1373*
- Duffy and Kabance, Testing readable writing, 733*
- Skovsmose and Borba, Research Methodology and Approaches, 49*
- Blessings and Chakrabarti, Descriptive Study I: Understanding Design, 76*
- Conchran, Sampling Techniques, 89*
- Hunter College, SMOG Readability Formula, 1*
- Field, Discovering Statistics, 163*
- Chetail, Effects of Number of Syllables, 1250*
- Pallant, SPSS Survival Manual, 190*

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