Mgr. Hana Kiková, PhD.
Constantine the Philosopher University in Nitra
Faculty of Arts
Trieda Andreja Hlinku 1
Nitra, 949 01, Slovak Republic
hkikova@ukf.sk
ORCID ID: 0009-0000-4250-3018

Hana Kiková is currently an Assistant Professor in Media and Communication Studies at Constantine the Philosopher University in Nitra. She holds a PhD. in the same field, focusing her research on Q-methodology, research methodologies and CSR with a focus on social media literacy in the digital environment. She has published on topics such as social advertising, digital media, and gender differences in CSR perception. She is a member of several research teams and actively participates in academic committees and events.

Mgr. Michaela Žuk-Olszewska
Constantine the Philosopher University in Nitra
Faculty of Arts
Trieda Andreja Hlinku 1
Nitra, 949 01, Slovak Republic
michaela.zukolszewska@ukf.sk
ORCID ID: 0009-0003-8841-9534

Michaela Žuk-Olszewska is currently pursuing her doctoral studies in Media and Communication at Constantine the Philosopher University in Nitra, where she previously earned her Master's degree. Her academic focus is primarily on digital marketing, methodological frameworks of media studies and the psychological dimensions of media consumption. As an emerging scholar, she is involved in several research teams and participates in the organisation of conferences and academic events at both national and international levels.

READABILITY AND COMPREHENSION OF DIGITAL TEXTS BY POLITICAL FIGURES

Hana KIKOVÁ – Michaela ŽUK-OLSZEWSKA

ABSTRACT:

Previous research in the media field primarily focuses on analysing political communication within the context of social media, with limited attention given to the complexity of the political texts themselves. Therefore, this small-scale study aims to investigate the readability and comprehension of digital texts published by selected political figures on Facebook. Posts from political figures are selected based on specific criteria. Readability is calculated for 200 randomly selected posts. To determine the readability level of digital texts, we adapt a modified version of the readability formula, the FOG Index, along with Mistrík's readability measure (R score). Additionally, respondents' comprehension of 10 selected texts is evaluated through a Multiple-Choice Task Test. We employ a careful word deletion strategy when creating the tests, ensuring similar levels of context support across texts. A pilot test helps refine problematic distractors and ensure appropriate item difficulty using the Facility Value indicator. Due to the non-normal distribution of the collected data, this study employs nonparametric statistical methods in its analysis. This study finds significant differences in comprehension between texts from selected political figures. Education level is also found to be associated with comprehension (p = .023). Comprehension correlates with readability (R score: r(8) = 0.77, p = .009; FOG: r(8) = -0.9, p < .001). The modified FOG Index and R score are also correlated (r(8) = -0.67, p = .033), suggesting their interchangeability in similar Slovak studies.

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1 Introduction

Social networking is a phenomenon that has intensified global communication and information exchange (Bossetta et al., 2017). Facebook, a social media platform with a monthly reach of approximately 2.9 billion active users, is still among the most popular social networking sites (Dixon, 2024). With such a large active audience, it is no surprise that platforms like Facebook have become powerful tools for political communication. According to Višňovský et al. (2023), many political figures have embraced these platforms to connect directly with their supporters, often bypassing traditional media outlets. This trend aligns with the broader observation that traditional media is losing its grip on controlling information, especially amongst younger generations who now favour online sources. This has led to a fragmented information landscape, with social media, including the accounts of politicians and public figures, often becoming primary sources for even crucial political news.

The shifting dynamics of social communication influence the way election campaigns and political communication are conducted. In the context of political communication on social media, as Kelm (2020) notes, politicians around the world are increasingly using these platforms to boost their visibility. In Germany, for example, up to 96% of parliament members used Facebook and 65% used Twitter in 2017. They stay in touch with their voters, provide information to their supporters and spread political news and views (Böhmer, 2022) through social media. There are numerous studies that look at the communication of political actors on social media from different perspectives – e.g., examining the mechanisms by which politicians share different content (Heidenreich et al., 2022), examining the presence of politicians on social media and its possible association with electoral outcomes (Brito & Adeodato, 2022), and of equal interest are the studies that focus on social media users and potential voters in the context of online political communication (Morning Consult, & Public Affair Council, n.d.), even including research on the creativity citizens use to express their political views online (Fichnová et al., 2019). Research by Morning Consult and PAC has shown that up to 45% of social media users read political posts from the political stakeholders they follow. In addition, it was found that 20% of respondents changed their opinion on an issue after having read a political post, which particularly applies to Generation Z users where more than one in three (34%) reported to having changed their mind.

Therefore, at a time when a significant part of the population primarily receives news and political information through social media, we consider it essential to understand how individuals process and interpret this information. This process is naturally influenced by the way politicians communicate on social media. As political actors seek to attract and interact with their followers through their social media presence (Böhmer, 2022), it is crucial that their posts be clear and easy to read. In this way, they can be expected to reach a wider audience (Kayam, 2018).

Although a certain degree of text complexity is necessary to express complex ideas, ideally, they should be presented as simply as possible. Research on the readability of texts assesses whether a text is appropriately challenging for the target audience. Readability is one of the most important characteristics of text that affects its understanding. It is usually defined as the ease with which a text can be read. Readability can be assessed either subjectively (respondents are asked to judge segments of text by means of scales, questionnaires, or interviews) or objectively, relying on precise linguistic measurement (Gavora, 2012). This area has been actively researched since the 19th century. Although the first frequency dictionary was published by the German Kaeding in 1898, according to Mistrík (1968), this area of research has received most attention from the Americans Bear, Ayres, Thorndike, Peterson & Tinker, Flesch, and Klare during the period 1915 – 1963 or the Polish author Pisarek (1966). These authors generally agree on the importance of word length and frequency, as well as sentence length. These parameters are used in mathematical formulas for assessing text readability. Today, there are several methods for measuring readability (primarily in English), such as the Gunning Fog Index (FOG), Flesch Reading Ease, Flesch-Kincaid Grade Level, Dale-Chall Readability Formula, Spache Readability Formula, Automated Readability Index, SMOG, LIX, RIX, and Coleman-Liau Index. However, Škvorc et al. (2018) identified several factors that can limit accuracy when applying indices to texts in languages other than English: for example, tools for measuring readability are largely simplistic and do not consider the specificities of morphology of such other languages. To make the

readability index values more interpretable, most tools for measuring the readability of texts (e.g., the FOG Index in Table 1) are related to education in a way that the score/value obtained represents the level of education needed to understand the text (Scott, 2024). The downside is that it is linked to the US education system, reflecting the level of readability between different levels of education in the US, which makes it difficult to interpret the obtained indexes in a non-US context.

Table 1. FOG Index levels

FOG Index		Description	Reading Level by Grade
Danger line	19	very difficult to read	
	18	very difficult to read	Post-Graduate
	17	very difficult to read	
	16	difficult to read	College Senior
	15	difficult to read	College Junior
	14	difficult to read	College Sophomore
	13	difficult to read	College Freshman
	12	fairly difficult to read	High-School Senior
	11	fairly difficult to read	High-School Junior
Easy reading	10	fairly difficult to read	High-School Sophomore
	9	standard language	High-School Freshman
	8	standard language	Eighth Grade
	7	fairly easy to read	Seventh Grade
	6	easy to read	Sixth Grade
	5	very easy to read	Fifth Grade

Source: Eleyan et al., 2020; Kolahi et al., 2013

Although tools for assessing readability have also been made for Slovak texts, there are no free and open solutions. In 2024, Pappová and Valko (2024) presented a solution in the form of an online Python library that uses Mistrík's readability metric for the Slovak language. Building on Mistrík's original work, they developed an open-source library to measure the readability of Slovak texts.

Readability in the context of political communication was also addressed by Kayam (2018) who examined the simplicity and readability of Donald Trump's speeches from his interviews and political debates in the media during the 2016 U.S. presidential campaign. The author found that understanding Trump's political messages required a lower level of education when compared with other candidates, which may indicate that Trump uses simple language and low readability as a rhetorical tool to gain popularity and electoral votes.

The current Slovak political scene is characterised by significant polarisation. This is evident not only in the ideological differences between political parties but also in the narratives and stereotypes associated with their electoral bases. This polarisation is also reflected by the educational level of the electorate, and it is becoming an important factor in shaping political preferences. Support for SMER-SSD (with Robert Fico as the party's chairman) is often associated with voters with lower and middle education. This narrative is supported by the party's focus on social issues and the needs of the working class, which may be more attractive to voters with a lower socioeconomic status (SMER, n.d.). On the other hand, Progresívne Slovensko (with Michal Šimečka as the party chair) is often perceived as appealing primarily to younger and university-educated voters who are more open to liberal and progressive ideas, which also stand at the core of the party's political orientation (Progresívne Slovensko, n.d.). This dichotomy in the educational level of voters suggests that education may play a significant role in the interpretation of political messages. Both political parties are active on Facebook. An analysis by Denník N showed that Robert Fico was the most popular Slovak politician on Facebook in the past year – 2023 – with 6.9 million interactions on

his posts. Although Michal Šimečka ranked tenth with 1.3 million interactions, this still makes him the most successful opposition politician on this social medium (Struhárik, 2024).

Based on the above, we hold that the level of readability of texts should also be addressed in the context of political communication. However, we believe that it is important to complement this field with research on text comprehension, as comprehension is a separate process that is equally important in the interpretation of (political) texts. In general, we speak of text comprehension as a subjective interpretation of the meaning of text by the reader. In addition to the relationship between words, sentences or phrases, text comprehension also includes the relationships between the elements of text and the elements of objective reality that are described in the text, as well as the relationships between the elements of text and the elements of the reader's cognitive structure (Gavora, 1992). Arcos (2018) defines comprehension as a process by which symbols are interpreted to create or infer a particular meaning. Simply put, it is the process through which we comprehend the texts we read (Kirby, 2007).

For the reasons outlined above, we consider it beneficial to study the readability and comprehension of digital political texts in combination. Therefore, the main objective of our study is to identify the level of comprehension and readability of digital texts published by selected political figures on Facebook and investigate the links between: *(a)* text comprehension (comprehensibility scores) and education, *(b)* text comprehension (comprehensibility scores) and the level of readability of texts; and examine whether different readability metrics yield consistent results when evaluating the same set of texts.

2 Methodology

Considering the above, we hereby formulate the following research problem: Is there a relationship between the level of education necessary for an easy reading of text and the comprehension of digital texts published by politicians on Facebook? We also formulate two hypotheses and two research questions: (H1) We hypothesise that there is a significant relationship between the respondents' level of education and the comprehensibility scores of digital texts published by political figures on Facebook. (RQ 1): How varied is the level of readability of political posts published by selected politicians on Facebook? (H2) We hypothesise that there is a significant positive correlation between the comprehensibility scores and the level of readability of texts. In other words, the higher the comprehensibility scores, the higher (i.e., better) the readability scores. (RQ 2): To what extent do the individual readability metrics yield consistent results when evaluating the same set of texts?

In the study, we approached the research problem using a mixed-methods approach. To identify the readability level of selected texts, we employed a modified version of the FOG Index and Mistrík's readability metric. The comprehension of individual texts was further assessed among the respondents using a Multiple-Choice Task Test.

Research Sample and Research Material

With a total of 68 participants, this study can be characterised as small-scale. The research sample was diverse in terms of gender (male: 29, female: 39), level of education (secondary to postgraduate), age (ranging from 17 to 73 years of age; with an average of 39). All respondents are native speakers of Slovak.

Within the research study, we identified the criteria for the selection of digital texts in the form of Facebook posts. We chose the leaders of the coalition and opposition parties in the Slovak Parliament based on the results of the 2023 snap parliamentary election held on October 30, 2023. Specifically, these include Robert Fico, leader of the winning Smer-SSD party (party: 22.94% of votes, Fico: 531,528 votes), and Michal Šimečka, leader of the Progresívne Slovensko party (party: 17.96% of votes, Šimečka: 303,423 votes). If the posts met any of the following criteria, they were excluded from the research material: (1) links to external content, (2) fewer than 20 words, (3) congratulatory or announced contests, (4) posts of a personal nature, or (5) posts with technical details. Digital texts were collected from February 18, 2023, to February 19, 2024, encompassing 110 days of the election campaign

and 110 days before and after the campaign (excluding the election silence period). From a total of 835 posts by both candidates that met the aforementioned criteria, we randomly selected (by lottery) 200 posts (Fico: 100 posts, Šimečka: 100 posts) for readability calculations. Additionally, 10 posts with a word count of between 51 and 61 were included in the comprehension test. The total word count of these posts was 569 (Fico: 280 words, Šimečka: 289 words).

Readability Measurement

Although a variety of tools and formulas exist for calculating readability, many are not directly compatible with the Slovak language, posing a challenge for analysing texts in this language. To measure the readability of texts, we utilised a combination of two mathematical formulas: the widely used FOG Index and Mistrík's readability metric. The following equation is employed for calculating the FOG Index, originally developed for English texts:

$$FOG = 0.4 * (ASL + PHW),$$

where "ASL" represents the average sentence length (in words) and "PHW" represents the percentage of words with three or more syllables (100 * (number of words with syllables >= 3 / number of words)). Shorter sentences are easier to understand and therefore reduce "fog", while longer sentences and longer words (so-called complex words or hard words) increase "fog". Since the FOG Index is dependent on the PHW variable, we consider the definition of hard words based solely on syllable count to be overly simplistic, as not all long words are necessarily difficult. Many words with three or more syllables are common in the Slovak language, and the average person has no problem understanding them. Our assertion is supported by the authors Dębowski et al. (2015), who adjusted the number of syllables threshold from 3 to 4 for calculating PHW when developing the Jasnopis programme to measure the readability of Polish texts. Given that the original FOG Index is not adapted to the specific morphology of languages other than English, and considering the morphological similarity of the West Slavic languages of Slovak and Polish (an adaptation justified by numerous similarities in the morphology of both languages, which include rich inflection, a system of cases, genders, and numbers, verb conjugation, word formation, and common/similar morphemes (Buffa, 1998)), we decided to adapt the FOG Index calculation method proposed by Polish researchers. To identify complex words that are also common words (in English, words from the List of Common English Words that are removed from the PHW calculation), we used the list of the most frequent words from the Slovak National Corpus (Slovenský národný korpus, n.d.) so that they could be subsequently removed from the calculation. The question remains whether to consider orthographic or base word forms when calculating PHW. Due to the lack of an automated tool for calculating the FOG Index for Slovak texts, all 200 analysed texts were calculated manually.

The use of Mistrík's readability metric gave us yet another perspective on the readability of the examined texts directly in the context of the Slovak language environment. As stated by Mistrík (1968), the following formula is used to calculate the relative degree of text readability (R):

$$R = 50 – ((V * S) / I),$$

where "V" represents the average sentence length in words (instrumental in expressing the complexity of verbalised thoughts), "S" represents the average word length in syllables (expressing the conceptual load of text), and "I" stands for the index of word repetition expressing the lexical variability of text. This is calculated as (I = N / L) where "N" = number of words and "L" = number of different words. The R scores were calculated using a Python library/module that scores the readability of Slovak text using Mistrík's readability and comprehension metric (Pappová & Valko, 2024).

Comprehension Measurement

Various testing methods (Figure 1) are available in the field of assessing text comprehension. We decided to use the Multiple-Choice Task Test in our study. This type of test is characterised as follows: "bits of some discourse

are omitted and the task set for the examinee is to restore the missing pieces" (Oller & Jonz, 1994, p. 19). The respondents' task was to choose the most appropriate option from the four offered choices (called distractors) for each missing word. These choices were presented with fixed-length blanks, and the respondent had to select the option that best completed the meaning of the sentence and the entire text.
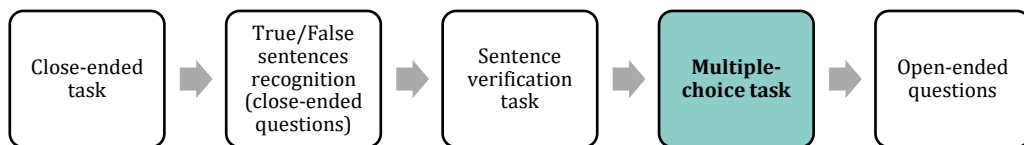

Figure 1. Types of text comprehension assessment, ranked from least to most cognitively demanding
Source: Blaži Ostojić, 2023

When developing the Multiple-Choice Task Test, we wanted to make sure that all selected texts adhere to specific criteria: (1) We employed a rational deletion strategy (Goldman & Murray, 1992) during the creation of tests, carefully selecting the omitted words to preserve specific expressions and information, as recommended by Kleijn et al. (2019). Consequently, we avoided omitting so-called guess words that could not be easily inferred from the context, such as technical terms, proper nouns, units of measurement, cardinal directions, dates, numbers, or words relying on prior knowledge (as well as overly predictable words). Additionally, numerals, prepositions, conjunctions, particles and interjections were excluded from the selection. (2) We ensured the texts exhibited comparable levels of contextual support (Shahnazari et al., 2012) necessary for reconstructing the omitted words (the average number of words per gap was calculated by dividing the total number of words in the passage by the total number of gaps). The number of omitted words was determined proportionally to the length of each text, ranging from 7 to 8 words per text (the contextual support, calculated as the average number of words per gap, ranged from 6.9 to 7.6 across the research material). As noted by Greene (2001), for non-mechanical word deletion, the deletion ratios of "1 in 9" to "1 in 11" are reasonable. (3) During the pilot test, respondents completed a questionnaire and provided feedback, identifying problematic distractors (distractors that allowed multiple correct answers without changing the meaning of text, or those that were too easy). These were subsequently adjusted. (4) As suggested by Shahnazari et al. (2012), the Facility Value (FV) indicator was used to evaluate the difficulty of test items. It represents the ratio of correct answers to the total number of attempts and helps identify problematic items. Values close to 1 indicate easy items, while values close to 0 indicate difficult ones. Pilot testing led to adjustments in some items (correcting overly simple or difficult distractors), resulting in FV values ranging from 0.6 to 0.75. The main study was conducted after a successful pilot validation.

The main study involved the creation of a test with 10 unique texts. The Multiple-Choice Task Test was presented electronically through the clozetesting.com platform. The respondents were tasked with filling in a total of 77 words (with 308 distractors in total). In the questionnaire, the texts were arranged in descending order of length to maintain respondent attention. The respondents were not explicitly aware which text belonged to which politician. After completing the questionnaire, the respondents confirmed their submissions, and the collected data were subsequently gathered and stored in the platform's repository.

Data analysis

As suggested by Öksüz and Keskin (2022), we used the Kolmogorov-Smirnov test with Lilliefors correction for normality analysis. This test showed that our data deviated significantly from a normal distribution. Therefore, we proceeded with the Wilcoxon signed-rank test (for paired samples) and the Mann-Whitney U test (for independent samples), i.e., statistical methods that do not assume the normality of data. Given the non-normal distribution of data, we employed the Kruskal-Wallis test to compare the three education groups. This test is often used when the assumptions of a one-way ANOVA (e.g., normality, equal variances) are not met. Subsequently, a Dunn-Bonferroni post-hoc test was used for pairwise comparisons to identify the groups that were significantly

different. To investigate the relationship between the readability formula scores and comprehensibility scores, we employed Spearman's rank-order correlation analysis, considering the non-normal distribution of data. The significance level for all the above tests was at 0.05.

3 Results

To address the research questions and verify the proposed hypotheses, the initial section of this chapter will focus on identifying the level of text comprehension based on the results of Multiple-Choice Task Tests. Subsequently, we will apply the indices that determine the readability level of the analysed texts and investigate the relationship between the comprehensibility scores and the various education levels, and correlation between the scores obtained by the FOG Index and Mistrík's readability metric with comprehensibility scores. Finally, we will aim to identify how the outcomes of different readability metrics compare to each other.

The Relationship between Text Comprehension and Education

In this section, we present the results of the Multiple-Choice Task Tests (T1-T10). The maximum possible score for all texts except T1 and T3 (Fico) and T9 (Šimečka) was 8 points. For the T1, T3 and T9 texts, the maximum score was 7 points, i.e., 1 point for each correct answer. To standardise the results, as mentioned by Gavora (2012), all scores were converted to percentages (with a maximum of 100%). The individual scores for all short tests are presented in the following Table 2.

Table 2. Descriptive statistics of reading comprehension

Fico						
	T1	**T2**	**T3**	**T4**	**T5**	**TOTAL**
Mean	83.82	71.32	70.79	68.01	57.35	69.89
Median	100	75	85.7	75	75	69.75
SD	*26.91*	*21.49*	*30.27*	*27.77*	*36.79*	*19.97*
Šimečka						
	T6	**T7**	**T8**	**T9**	**T10**	**TOTAL**
Mean	77.39	76.1	82.35	66.58	65.07	73.69
Median	87.5	87.5	87.5	71,4	75	79.5
SD	*24.36*	*29.35*	*27.93*	*27.66*	*28.94*	*24.47*

Source: own processing, 2024

The *Fico* group of texts had lower values (*Mdn* = 69.75) than the *Šimečka* group (*Mdn* = 79.5). A Wilcoxon Test indicated that this difference was statistically significant, $W = 486, p = <.001$. The p-value of <.001 is below the specified significance level of 0.05. The result of the Wilcoxon test was therefore significant for the present data. The effect size *r* is 0.51. With $r = 0.5$, the effect is substantial. The respondents experienced slightly greater difficulty comprehending Fico's texts (28% of respondents scored less than 60% correct answers) compared to Šimečka's texts (18% of respondents). The easiest text to comprehend was T1 by Fico, while the most challenging was T5 by Fico.

H0 There is no difference between the categories of the independent variable <u>Education</u> in terms of the dependent variable <u>Comprehension</u>.

Table 3 presents the descriptive statistics for text comprehension as a function of respondents' educational attainment for both politicians. The data include median comprehension scores (Median), Mean Rank, as well as the number (n) and percentage (%) of respondents in each educational category.

Table 3. Descriptive statistics of comprehension by education (in total)

	n	%	Median	Median Rank
Postgraduate	8	11.76%	87	43.44
University	42	61.76%	70.75	24.03
Secondary	18	26.47%	80.5	37.29
TOTAL	*68*	*100%*	*79.2*	

Source: own processing, 2024

The Kruskal-Wallis test results, with a Chi-squared value of 7.53, df of 2, and a p-value of .023 indicate that there is a statistically significant difference between the independent variable *Education* in comparison with the dependent variable *Comprehension*. Thus, with the available data, the null hypothesis was rejected. Despite the significant difference in the Kruskal-Wallis test, no pairwise group comparison was significant in the Dunn-Bonferroni test; all adjusted p values were greater than 0.05.

Table 4. Descriptive statistics of comprehension by education by individual texts (mean)

Fico	T1	T2	T3	T4	T5	TOTAL
Postgraduate	87.5	87.5	80.35	76.56	53.13	76.65
University	85.05	69.94	71.76	69.35	68.45	72.62
Secondary	79.36	67.36	64.28	61.11	33.33	60.52
Šimečka	**T6**	**T7**	**T8**	**T9**	**T10**	**TOTAL**
Postgraduate	84.38	70.31	79.69	76.78	71.88	72.44
University	77.98	78.57	85.42	68.35	66.07	75.03
Secondary	72.92	72.92	76.39	57.91	59.72	66.67

Source: own processing, 2024

Although the differences in comprehension scores between the various education levels were not statistically significant, the analysis of text comprehension results indicates that the individuals with university and postgraduate education demonstrated a higher level of comprehension compared to those with secondary education only. Figure 2 visually illustrates these findings, showcasing the mean comprehension scores and their distributions across the education categories for both Fico and Šimečka.
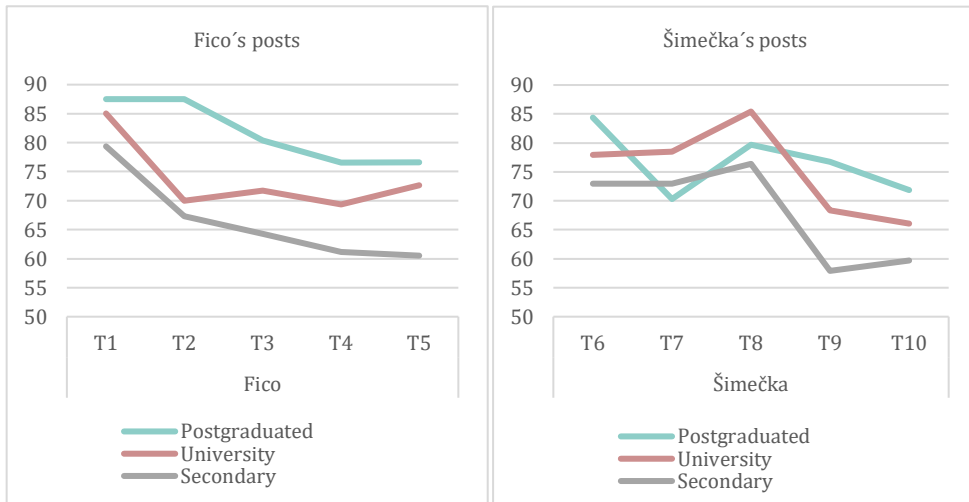
Figure 2. Charts for comprehension by education (Fico and Šimečka)
Source: own processing, 2024

Relationship between Text Comprehension and Readability

To answer RQ1 "How varied is the level of readability of political posts published by selected politicians on Facebook?", we first identified the level of readability of digital texts published by selected political figures on Facebook (Table 5). We proceeded to analyse a total of 200 randomly selected texts from both political figures (Fico: 10,388 words, Šimečka: 10,264 words).

Table 5. Descriptive statistics for the FOG index of selected texts

	n	**Mean**	**Median**	**SD**
FOG Fico	100	13.88	13.25	3.43
FOG Šimečka	100	10.35	10.55	2.36

Source: own processing, 2024

The descriptive statistics shows that the *FOG* of the Fico group of texts exhibited higher values for the dependent variable (*Mdn* = 13.25) than that of the Šimečka group (*Mdn* = 10.55). A Mann-Whitney U-Test conducted on the data revealed a statistically significant difference between the scores of the two groups with respect to the dependent variable, U = 2547.5, $n1$ = 100, $n2$ = 100 p = <.001. Also, the texts with a FOG Index value of 14 (Fico) fall within the so-called danger line of text readability, are classified as "fairly difficult to read" to "difficult to read", and necessitate a college degree for an effortless comprehension. Conversely, the texts with a FOG Index of 10 (Šimečka) are in the "easy-reading" range and a high school education suffices for their comprehension. We present the results in box plots below (Figure 3), illustrating the distribution of the FOG Index values for the digital texts posted by both politicians. As mentioned in the introductory section of the study, the FOG Index values for all 200 texts were calculated manually, which allowed us to visually represent them using boxplots. This approach provides a clear overview of the distribution of readability values within the analysed text corpus.
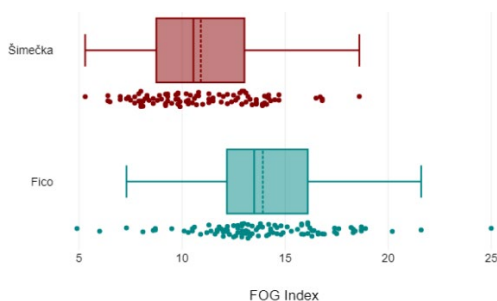
Figure 3. Box plots for the FOG Index of selected texts
Source: own processing, 2024

On the other hand, the R readability score was calculated in software for the entire text corpus, meaning we do not have individual values available for each text. Regarding the R score, a value of 37 (Fico) is considered a standard level of text readability difficulty, whereas an R score of 40 (Šimečka) indicates easier text readability. When interpreting readability results, it is crucial to consider the divergent evaluation methods employed by the metrics we used. The R score in Mistrík's formula operates on the principle that higher values indicate easier comprehension (Table 6). Conversely, the FOG Index gauges text complexity, with lower values signifying greater readability (Table 1).

Table 6. Classification of texts according to Mistrik's readability formula

R score	Difficulty
50 – 40	Very Easy
40 – 30	Standard
30 – 20	Fairly Difficult
20 – 10	Difficult
10 – 0	Very Confusing

Source: Pappová & Valko, 2024

In addition to the readability factors employed in calculating the indices, we also examined other supplementary language simplicity factors (Table 7): proportion of complex words (those comprising four or more syllables), mean number of words per sentence (sentence length) and average number of letters per word (word length), as proposed by Kayam (2018). Concurrently, Table 7 presents the values of the individual variables incorporated into the formulas used for readability computation.

Table 7. Readability factors

	Fico	Šimečka
n	100	100
% of complex words	16.3	14.7
x̄ of words per sentence	16.4	12.9
x̄ of characters per word	5.8	5.9
x̄ length of words in number of syllables	2.2	2.2
x̄ length of sentences in number of words	15	13
number of words	10,388	10,264
number of sentences	690	795
number of syllables	23,213	22,513
number of unique words	3,916	3,728
word repetition index (I = N/L)	2.65	2.75

Source: own processing, 2024

The key findings of the readability analysis are interpreted on the individual linguistic levels as proposed by Dvonč et al. (1966): lexical (vocabulary), syntactic (sentence structure) and morphological (word form). Both politicians exhibit a similar level of lexical complexity (percentage of complex words). Fico has a slightly higher percentage of complex words (16.3%) compared to Šimečka (14.7%), suggesting a possible use of specialised terminology or complex expressions. Šimečka demonstrates lower syntactic complexity (average number of words per sentence) – 12.9 compared to Fico's 16.4. This suggests that Šimečka may employ simpler sentence structures, potentially contributing to improved readability of his texts. The average word length and average number of syllables per word are nearly identical in both authors, implying a similar level of morphological complexity of words. Fico was more verbose and used unique vocabulary in his texts, which may reflect a broader range of topics or a more refined writing style. The word repetition index is slightly lower in Fico (2.65) compared to Šimečka (2.75), indicating that Fico may be using more diverse vocabulary. Šimečka's texts may be perceived as slightly easier to read due to their lower syntactic complexity, while Fico employs a richer vocabulary. However, these findings should be interpreted with caution, as readability is also influenced by other factors such as text structure, coherence and semantic complexity.

In the following section, we will focus on investigating the relationship between the readability of digital texts published by politicians on Facebook and the level of comprehension of these texts by the respondents.

H0 There is no correlation between the independent variable <u>Readability</u> in terms of the dependent variable <u>Comprehension</u>.

Table 8 presents the descriptive statistics for the FOG Index, R score, and comprehension level across various texts (T1 to T10). The preliminary descriptive data suggest that the texts with lower FOG and R scores (e.g. T1, T2, T3, T6, T7) are generally easier to read and attain higher comprehension scores. Conversely, the texts with high FOG and low R scores (e.g., T5, T10) exhibit greater reading difficulty and yield lower comprehension scores.

Table 8. Gunning's Fog-Index and R Score by comprehension (compared to ranking of readability)

Texts	Comprehension score		Gunning Fog Index (FOG)			Mistrík´s measure of readability (R score)		
	Mean	**Rank.**	**Value**	**Rank.**	**Description**	**Value**	**Rank.**	**Description**
Fico								
T1	83,82	**1.**	5	**1.**	very easy to read	35	**2.**	standard
T2	71,32	**5.**	6	**3.**	easy to read	32	**7.**	standard
T3	70,79	**6.**	7	**6.**	fairly easy to read	33	**4.**	standard
T4	68,01	**7.**	11	**8.**	fairly difficult to read	29	**8.**	fairly difficult
T5	57,35	**10.**	19	**10.**	very difficult to read	-9	**10.**	very confusing
Šimečka								
T6	77,39	**3.**	5	**2.**	very easy to read	32	**6.**	standard
T7	76,1	**4.**	6	**4.**	easy to read	37	**1.**	standard
T8	82,35	**2.**	7	**5.**	fairly easy to read	35	**3.**	standard
T9	66,58	**8.**	9	**7.**	standard language	33	**5.**	standard
T10	65,07	9.	19	9.	very difficult to read	3	9.	very confusing
Mean	*71.88*		*9.39*			*26.09*		
SD	*8.18*		*5.18*			*15.82*		

Source: own processing, 2024

To test this hypothesis, Spearman correlation was employed independently of both readability formulas. The analysis revealed a very high positive correlation between Mistrík's readability and comprehension metric scores. This correlation was statistically significant, $r(8) = 0.77$, $p = .009$. We can cautiously infer that the higher (i.e., better) comprehension scores achieved by the respondents were associated with higher (better) Mistrík readability

metric values. In contrast, the Spearman correlation analysis demonstrated a very high negative correlation between the FOG Index of readability and comprehension. This correlation was also statistically significant, r(8) = -0.9, p < .001. We can assert with caution that the higher (better) comprehension scores corresponded to the lower (better) FOG Index values. Consequently, the null hypothesis was rejected. Text No. 1 (T1) exhibiting the easiest level of reading difficulty, simultaneously achieved the highest mean value (83.82) in comprehension. In contrast, text number 5 (T5), characterised by the most difficult level of reading difficulty, displayed the lowest level of comprehension with a mean value of 57.35. From the aforementioned findings, it can be concluded that texts with the easiest level of reading difficulty (i.e., simpler texts) attain higher comprehension scores compared to texts with a higher level of reading difficulty.

To address RQ 2: "To what extent do the individual readability metrics yield consistent results when evaluating the same set of texts?" – the result of the Spearman correlation showed that there was a high negative correlation between the FOG Index of readability and Mistrík's readability metric. The correlation was statistically significant, $r(8)$ = -0.67, p = .033. Although there is a general agreement between these two metrics, there may be instances where their evaluations differ significantly.

4 Conclusion

This study aimed to investigate readability and comprehension in the context of political communication. The main objective was to identify the level of comprehension and readability of digital texts published by selected political figures (Robert Fico and Michal Šimečka) on Facebook. Furthermore, we attempted to identify the nature of the links between text comprehension, education, and the level of readability. We also examined whether different readability metrics yield consistent results when evaluating the same set of texts. While the relatively small sample size of 68 respondents might limit the generalisability of the findings, the results provide valuable insights into the relationship between readability, comprehension and education within the context of our research population. Another limitation of this study is the reliance on nonparametric statistical methods, which, while justified due to the non-normal distribution of the data, may have less statistical power compared to their parametric counterparts. Therefore, caution should be exercised when interpreting the results, particularly regarding the generalisation of findings to larger populations.

To explore the potential relationship between comprehension and education, the respondents were asked to complete a Multiple-Choice Task Test in which they filled in the missing words in 10 political posts from the political figures under study, and also stated their educational level. Subsequently, we calculated the readability scores for the selected texts using the FOG Index and Mistrík's readability metric. The most significant findings can be summarised as follows:

Regarding RQ1 (How varied is the level of readability of political posts published by selected politicians on Facebook?), Fico's Facebook posts exhibited higher FOG Index values (Mdn = 13.2) than Šimečka's (Mdn = 10.55), suggesting greater textual complexity (Mann-Whitney U Test, U = 2547.5, p < .001). This implies that Šimečka's texts, characterised by a lower percentage of complex words and shorter sentences, may be perceived as more comprehensible and easier to read than those penned by Fico. Furthermore, according to Eleyan et al. (2020), Fico's texts fall within the "danger line" of readability (FOG Index = 14), whereas Šimečka's were classified as "easy reading" (FOG Index = 10). Fico's texts were harder to read both in the context of the FOG Index (14) and in the context of the R score (37) compared to Šimečka's (FOG score of 10, R score of 40), although according to Pappová and Valko (2024), texts with an R score of 37 are classified as standard language. The aforementioned suggests that despite the confirmed correlation between the results of both readability metrics, certain discrepancies persist in their interpretation. Also, the finding that politicians with more complex and less comprehensible texts lead in opinion polls underlines the multifactorial nature of political preference. In addition to readability and

comprehension, factors such as charisma, credibility, political agenda and emotional connection with voters may also play a role.

There is a statistically significant difference between the *Education* and *Comprehension* variables according to the Kruskal-Wallis test results with a Chi-squared value of 7.53, df of 2, and a p-value of .023, where the results indicate that graduate and postgraduate respondents performed better in comprehension than secondary school educated respondents. While the university-educated individuals demonstrated the best reading comprehension in our research, they only represent 18.5% of the Slovak population according to the data from the 2021 census (Ivančíková & Podmanická, 2023). In contrast, 48.8% of the population has secondary education. Moreover, 15% of the respondents with secondary school education did not reach the minimum 60% comprehension threshold. Considering the fact that a large proportion of Smer-SSD voter base have secondary education (Focus, n.d.), this discrepancy highlights potential challenges in communication and access to information. To improve text comprehension across the population, simplifying language in public-facing texts is crucial. This could involve shortening sentences, using simpler sentence structures and simpler words with fewer syllables. Mistrík (1968) also opines that factors such as topic, writing style and readers' prior knowledge may have a greater impact on comprehension than readability alone. It is possible that the respondents were more familiar with one of the two politicians and their respective topics, or were more comfortable with their writing style, which made comprehension of their texts easier despite the more complex sentence structure or sentence length.

Next, we studied the association between text comprehension and text readability. To determine whether there is a correlation between readability and comprehension, we conducted a Spearman's correlation test, which clearly showed a positive correlation in the case of Mistrík's R score ($r(8) = 0.77$, p = .009) and a negative correlation in the case of FOG Index ($r(8) = -0.9$, p < .001). Since these tools operate on opposite principles (the lower the FOG Index score, the better the readability, and vice versa, the higher the R score, the better the readability), we can confirm that higher (i.e., better) readability is associated with higher comprehension. Additionally, when working with different readability metrics (FOG Index, R score), we found that they provide consistent results when applied on the same set of texts, with is the answer to RQ2 (To what extent do the individual readability metrics yield consistent results when evaluating the same set of texts?). Even this correlation was statistically significant, $r(8) = -0.67$, $p = .033$. Due to the differences between English and Slovak, particularly in the average word length, we propose an adaptation of the FOG Index for Slovak, where the number of syllables per complex word would be increased from 3 to 4. To refine the adjusted FOG index, we propose research examining the link between text comprehension and educational attainment in Slovakia. This would allow for the establishing of readability benchmarks for different levels of education and thus optimise the interpretation of the FOG Index for Slovak use.

Considering the above, we maintain that we have successfully met the objectives of our study and also answered both research questions. We also wish to reiterate the virtual absence of a suitable tool for calculating the FOG index for Slovak texts, which is why the values for all 200 texts had to be calculated manually. This manual process might have introduced some counting errors, which might have slightly distorted the results.

Our findings highlight the importance of tailoring communication complexity to the target audience in both political and marketing contexts. Political actors present their views, solutions and "products", which they want to sell to potential buyers – the voters. It is therefore extremely important for them to choose a style of communication that suits their target audience. It is clear from our results that political figures should tailor the complexity of their communication, especially to the age of their target audience, as this is related to the comprehension of the message they are trying to convey. According to Kayam (2018), a clear and simply articulated message can reach a wider and even mass audience. The inherent comprehensibility of any text is intrinsically linked to its purpose and context. While the primary function of language is to effectively convey information, the complexity of ideas and the use of specialised terminology can influence the ease with which a text is understood. Complex concepts often necessitate intricate phrasing, which may inadvertently hinder comprehension. Similarly, the incorporation of technical jargon can elevate the reading difficulty. Therefore, it is recommended that both politicians and marketers utilise readability assessment tools and consider factors such as sentence length and vocabulary complexity to optimise their communication strategies.

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