

TRANSPARENCY AND READABILITY OF THE ACCOUNTING STATEMENTS OF THE CEARÁ GOVERNMENT DURING THE COVID-19 PANDEMIC

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ABSTRACT

The context of exceptionality generated by the Covid-19 pandemic has made once insurmountable rules more flexible, bringing to the state the legal duty to act more transparently and understandably to avoid flaws in public spending. Based on the specific state legislation on data transparency in this period, this article aims to present the disclosure of information by the Government of the state of Ceará according to State Law nº 17,257 of August 3rd, 2020, and analyze the readability of the Explanatory Notes of the General Balance Sheet and the Social Balance Sheet for the financial year 2020 (Governo do Estado do Ceará, 2020). The case study demonstrates a cut in the control criteria of public spending from March 2020 to March 2021, evaluating the mechanism used descriptively and qualitatively when investigating the case of transparency in the scope of the information presented by the Ceará government and the application of the Flesch and Gunning-FOG indices adapted for the Portuguese language. In the end, we indicated some improvements in the level of systems integration. In conclusion, the degree of transparency was achieved, presenting total compliance with the specified information and median textual comprehensibility in six of the seven categories.

Keywords: Information disclosure. Transparency. Readability. Flesch and Gunning-FOG indices.

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1 INTRODUCTION

Knowledge is power. Based on this statement, translated from Latin “*scientia potentia est*” and attributed to Francis Bacon (1973), one can connect the principle of the democratic rule of law under which Brazil is governed. According to the Constitution of the Republic of 1988, power emanates from the people, who choose, through voting, the Government representatives who present to the population all the information from the management (Constituição Federal, 1988).

Thus, the power of information is a right of the people and a duty of the government since the public manager must provide clear, objective, and straightforward information while the population is offered transparent access to the data resulting from state action.

In this sense, transparency is the tonic of the relationship between the state and citizens. According to Lyrio et al. (2018), transparency is related to the availability of information the government provides to external actors to allow monitoring of their activities. This understanding is based on the perspective of some authors towards transparency as an essential democratic value that encompasses multiple components, such as the availability of information on internal work and government performance (Grimmelikhuijsen & Kasymova, 2015).

A transparent government is managed with more responsibility because information is available to managers, enabling the decision-making process to be as accurate as possible. On the other hand, citizens can exercise social control more effectively by accessing the data generated by representatives in decisions made with public resources in a form that is simple and easy to understand (Santos & Mota, 2020).

In peaceful and healthy periods, the Brazilian (and global) population can have easy access to government information, requesting data they are interested in through physical means or through the massification of Internet use, which facilitated the availability of data on government websites and provided more modern control and management mechanisms (Jaeger & Bertot, 2010).

The year 2020 was marked by one of the most significant health crises on a global scale experienced by humanity. The state of contamination of Covid-19, a disease caused by the new coronavirus (Sars-Cov-2), was elevated to the category of pandemic by the World Health Organization (WHO), still in the first quarter of that year, significantly modifying the way the world population perceives community life. The National Congress recognized the state of public calamity in the national territory on March 20th, 2020, through Legislative Decree n° 6, exclusively to achieve the fiscal provisions provided for in the Fiscal Responsibility Law (LRF) and the Federal Budget Guidelines Law (LDO) of 2020 (Decreto Legislativo n.º 6, 2020).

Legislative Decree n° 543 was published in symmetry with the Federal Government in the Federal Gazette of the state of Ceará dated April 3rd, 2020, which recognized the occurrence of a state of public calamity provided in items I and II of Article 65 of the Federal Complementary Law n° 101 of May 4th, 2000, under the request of the governor of the state, sent through Message n° 8,502 of April 1st, 2020, with effect until December 31st, 2020, and extended until June 30th, 2021, by Legislative Decree n° 555 of February 11th, 2001 (Decreto Legislativo n.º 543, 2020; Decreto Legislativo n.º 555, 2021).

It is also worth mentioning two state laws that address transparency and control in emergency contracts carried out during the Covid-19 pandemic in the state of Ceará, which are State Law n° 17,194 of March 27th, 2020, which provides for the exceptional public procurement procedure in the period of state health emergency; and State Law n° 17,257 of August 3rd, 2020, which provides for transparency in emergency contracts signed by the state government due to the pandemic of the new coronavirus (covid-19), within the state of Ceará (Lei Estadual n.º 17194, 2020; Lei Estadual n.º 17257, 2020).

One of the characteristics of text clarity to preserve the transparency of information is its readability, which is fundamental for quick and easy communication through the use of short sentences and words that are easy to understand (Borges & Rech, 2019). Text analysis is one of the areas of research in evidence in the field of Accounting and Finance (Li, 2008; Loughran &

McDonald, 2014; Lo et al., 2017). Researchers have been using content analysis, document readability, and “*bag-of-words*” techniques to seek new indications of accounting and financial phenomena to use the resources provided by the evolution of software in the last decade (Loughran & McDonald, 2016).

According to Borges and Rech (2019), the explanatory notes to financial statements have gained informational volume following the shift in focus from rules-based accounting to principles-based accounting in the IASB international standard, leading to an increase in the complexity of financial reporting, which in turn can lead to reduced readability.

In this regard, the text presented by the state government at the end of the financial year must contain all the necessary information so that the population can evaluate manager decision-making, that is, by the greater *stakeholder* of public accounts. Assuming that the clarity of the information is highly relevant for efficient communication, evaluating the readability of the texts produced by communications should be a prerequisite and primary factor to respect the citizen's rights since the Ceará population has different levels of education.

Readability of information refers to the degree of difficulty in understanding a text (Miranda et al., 2018). We tried to measure text complexity through formulas and the use of frequent words and complex syntactic structures to investigate the degree of textual complexity (Souza & Borba, 2021). Thus, the study presents the following research problem: **What is the degree of readability of the information contained in the 2020 financial statements of the Ceará government during the Covid-19 pandemic?**

This study aimed to analyze the level of transparency and readability of the Ceará Government concerning the information to be disclosed during the Covid-19 pandemic in the 2020 financial statements. The specific objectives are to analyze the information disclosed on the state government's website and evaluate the degree of readability of the Explanatory Notes and Social Balance Sheet presented in 2020.

Our results corroborate studies in the literature that point to the need to study factors (Lyrio et al., 2018) and conditions that impact the results of transparency in the public sector (Cucciniello et al., 2017). This research is justified in the importance of the readability of accounting information and, consequently, in the disclosure of government data since it is the tonic of social participation in controlling and supervising public spending. Thus, this article seeks to indicate which mechanisms were implemented by the Ceará government in the context of exceptional legal standards in compliance with the principle of transparency and help the readability of such information.

The study is divided into five sections. This section introduces the study objective with a contextualization of the topic addressed; the second describes the theoretical foundation that underpins the work, going through the issues of transparency, readability, and the pandemic context; the third presents the methodology used in the research; the fourth analyzes and discusses the result of the work; and the final section presents the conclusion, with limitations and contributions to future studies.

2 THEORETICAL BASIS

2.1 Transparency in Public Administration

Transparency can be understood as the availability of information in the decision-making process (Santos & Mota, 2020). When considering the economic aspect, transparency reduces the asymmetries of information. It culminates in reducing transaction costs (acquisitions and contracts), benefiting the stakeholders - state, population, bidders, etc. - with access to such information (Boehm & Olaya, 2006).

Thus, access to information comprises a means and an end in itself, as it is understood that more transparent and responsible systems can provide more criteria and references to decision-makers than other not-so-integral systems (Rose-Ackerman, 1999).

The review of the specialized literature by Cucciniello et al. (2017) on government transparency between 1990 and 2015 shows that transparency works for some objectives under some conditions but not others. Thus, the authors seek to outline an agenda for future research in government transparency focusing on the systematic investigation of under which contextual conditions transparency is formatted, replicating studies with varied methodologies, investigating transparency in neglected countries, and paying greater attention to little-studied claims of transparency, such as in management and decision-making.

Another review of the specialized literature provided by Lyrio et al. (2018) on transparency, accountability, and corruption in the public sector from 1984 to 2013 reveals increased research interest in these topics. The authors point out that the fight against corruption and its relationship with accountability and transparency in the public sector is not a purely technical issue but involves the government's relationship with society and the need for greater participation in controlling the actions of public agents.

Founded in 1993, Transparency International has been working to combat corruption by disseminating and improving the transparency processes of governments worldwide (*Transparency International*, 2003). Transparency International-Brazil is part of a global movement with the same purpose, seeking to act “in supporting and mobilizing local groups to fight corruption, produce knowledge, raise awareness, and commit companies and governments to the best global practices of transparency and integrity, among other activities” (Transparency International Brasil, 2023, our translation).

In Brazil, the legal framework of transparency finds its cradle in the Federal Constitution of 1988, which brings in Article 5 the individual and collective rights and duties belonging to fundamental rights so that all are equal before the law, without distinction of any kind, ensuring Brazilians and foreigners residing in the country the inviolability of the right to life, liberty, equality, security, and property (Constituição Federal, Art. 5º, 1988). The constitutional formalization of the right to access to information was regulated by Law nº 12,527 of November 18th, 2011 (known as the Access to Information Law - LAI), which provided for the procedures to be observed by the Union, States, Federal District, and Municipalities (Constituição Federal, 1988; Lei n. 12.527, 2011).

In this regard, it is essential to consider that the constitutional principle of publicity imposes on the administrator (representative of the people, elected or not) the duty to give broad knowledge to the people (holders of the constitutional right) concerning how the public (*res publica*, object of law) is managed and how those people who have been granted the duty-power to administer the state apparatus have been acting, in line with the principles of democracy and popular sovereignty. The principle of publicity is enshrined in the administrative duty to maintain complete transparency in their behavior, as pointed out by Mello (2015).

Mello (2015) understands that the right to information has two faces that complement each other: personal information must be provided to the interested party (mainly upon request) since it is of an intimate nature, having no interest to others, while information of an eminently public nature must be provided to citizens (inherent holders of the right), regardless of any provocation to do so.

Quick and easy access to public data is also a consequence of the constitutional principle of efficiency, as pointed out by Moraes (2001), since it represents the pursuit of the common good, impartially exercising legal powers with transparent, neutral, impartial, participatory, effective, and de-bureaucratized action. What would be the means of communication to meet the maximum efficiency and effectiveness of access to the population, other than the internet, in the current global context?

Although not transmitted directly by the State (such as the Federal Gazette), the Internet is a skillful means to reach citizens easily and quickly and demonstrate the government's activities in performing its duties. In this sense, Jesus (2008) states that communication between citizens and government is increasingly interactive through new information and communication

technologies that use multidirectional data flows with affordable prices, considering the investment in this type of technology.

It should be noted that the allocation of information on the websites of public entities must be organized (principle of efficiency), separating the data into *links* classified and named according to the object to be informed (data taxonomy). Thus, information is simply cataloged, improving the user experience and increasing proximity to the public context (Lima et al., 2021).

For Armstrong (2011), government transparency is a fundamental and essential requirement for citizens to exercise control over governments. The author also indicates that the more information governments disclose on websites from reliable sources, the more positive the image of administrators is before the population. There are two reasons for this perception: there is a considerable improvement in the dialogue between citizens and public administrators, and more people begin to monitor government actions to prevent errors by administrators (Andrade et al., 2022).

Reddick & Frank (2007) point out that easy and continuous access to government information through the Internet, free of charge, and at any time is a great asset for transparency. In this sense, many researchers have been diving into the transparency of public acts through the Internet, reaching information measurement levels not previously reached (Jaeger & Bertot, 2010).

2.2 Readability of Accounting Information

Initially, it is essential to note the difference between readability and comprehensibility of the texts, considering that the measurement forms are different in both cases (Smith & Taffler, 1992). The linguistic and syntactic complexity of the text are not the only variables that determine the difficulty of understanding a document. The reader's characteristics and abilities are also considered.

In this sense, it is possible that understanding different texts is easier for some people, although others consider it difficult. Thus, it is necessary to adapt the texts due to the specific characteristics of the target readers (Castilhos et al., 2017). It is important to emphasize that readability should be understood as the ability of the text to be read easily and quickly, thus characteristic of the depth of the textual narrative (Sena et al., 2023). On the other hand, comprehensibility is related to the ability of the person reading the text to understand it; that is, it is the skills of each reader (Smith & Taffler, 1992).

The term readability is challenging to define precisely. For Loughran and McDonald (2014), leveling text schooling is the core of measuring readability. Confused or distorted writing does not help the reader understand the messages fluidly, especially if unnecessary, unknown, or verbose words are used (Courtis, 2004).

In this sense, readability can be understood in difficulty reading levels, ordering the texts from the most difficult to the easiest. It can also be understood as the ability that indicates ease of reading the text. It is observed that readability is an attribute of textual clarity, essential for speed and ease of communication by using short sentences and words that are easy to understand (Borges & Rech, 2019).

Peleias (2017) presents some concepts of readability found during his research, as shown in Table 1:

Table 1
Concepts of Readability

Authors (Year)	Definition
Klare (1963)	The user's ease of understanding or comprehending according to the style of the written text.
McLaughlin (1969)	Related to the difficulty some people have when reading and understanding passages of a text and the text in full.
Gibson and Schroeder (1990)	Quality of writing that results in easy and fast communication.
Chall (1978 as cited in Jones & Schoemaker, 1994)	The total, including interactions, of all those elements within a written material that influence a reader's level of reading success.
Dubay (2004)	That which makes some texts easier to read than others.
Fernandes and Silva (2009)	There is no definition of <i>readability</i> but of <i>understandability</i> .
Cunha and Silva (2009)	Quality of writing that determines the ease of reading a text.
Fakhfakh and Ntim (2016)	Characteristic relevant to writing techniques and communication theories. It concerns how easily a text can be read and understood.

Source: Peleias (2017).

2.2.1 Studies concerning the readability of Accounting Information

Fakhfakh and Ntim (2016) analyzed the degree of readability of audit reports of consolidated financial statements in Tunisia using tools such as the *Flesh Kincaid Reading Ease (FRES)* and the *FOG index*. These tools are metrics applied to investigate readability. They are considered in the final information validation process before their disclosure to the market, seeking to highlight aspects of communication, such as clarity, objectivity, and expected readability.

Holtz and Santos (2020) analyzed the readability of the explanatory notes of Brazilian companies listed in B3 and concluded that they were difficult to read by applying the FRES. This study found that size and performance affected the degree of readability since size connects with the complexity of the business, and performance relates to a tendency towards obscurity. Borges and Rech (2019) investigated the readability determinants in the explanatory notes of Brazilian publicly-held companies. Using FRES, the statistical results showed that the explanatory notes are of low readability and that the size, operational complexity, listing time, corporate governance, audit by one of the four largest consultancies (big four consulting firms), and length of the report are statistically significant to determine the readability of the explanatory notes. In this article, the readability indices are used to measure the difficulty in understanding the public texts referring to the 2020 fiscal year in Ceará, specifically regarding the Explanatory Notes to the General Balance Sheet and the Social Balance Sheet.

Given these concepts, Peleias (2017, p. 23, our translation) teaches that “readability is the quality of writing, linked to the quality of accounting information, whose objective is to facilitate the reading and understanding of financial statements resulting in easier and faster communication of accounting information to its users”. Formulas have been developed with the advancement of research to estimate textual syntactic complexity without the reader having to read and issue an opinion (Miranda et al., 2018). Among other advantages, such metrics allow large numbers of companies in various sectors and public reports to be studied, demonstrating objectivity in the analysis (Lehavy, Li & Merkley, 2011).

Readability indices are used to measure the readability of texts. Various combinations of variables are used to achieve the econometric result based on mathematical models. Although the sophistication of readability measures has evolved, most are still based on the length of words and/or the size of sentences as primary determinants to establish the level of reading of documents (Baker & Kare, 1992).

Gunning et al. (1952) developed the FOG Index based on two variables: the percentage of complex words (with more than two syllables) and the average of words per sentence. As a result, the index indicates the years of formal education necessary for a reader of average intelligence to read the text once and understand it without additional effort (Ajina et al., 2016).

The ease of calculating this index is attributed to the great popularity of its use (Loughran & McDonald, 2014). Table 2 demonstrates that values with higher indices indicate texts with greater reading complexity. In turn, Flesch (1979) teaches that the basis for clear and straightforward language would be the form prayers are constructed, with human psychology having a fundamental role in the difficulty in understanding the reading of the text (see Table 2).

Table 2
FOG and Flesch Indices

Index *	Education	Flesch Index **	Ease of Understanding	Education
06	6th. Year	0-30	Very Difficult	Complete Higher Education
07	7th. Year	30-50	Difficult	Complete High School or Incomplete Higher Education
08	8th. Year	50-60	Relatively Difficult	Incomplete High School
09	High School 1st. Year	60-70	Standard	7th. and 8th. Year
10	High School	70-80	Relatively Easy	6th. Year
11	High School	80-90	Easy	5th. Year
12	Complete High School	90-100	Very Easy	4th. Year
13	Higher Education 1. Year			
14	Higher Education 2. Year			
15	Higher Education 3. Year			
16	Higher Education 4. Year			
17	Complete Higher Education			

Source: Adapted from *Dubay (2004) and **Flesch (1979).

In this sense, the Flesch index also considers the same variables as the FOG index: the average number of words per sentence and the number of syllables per word. In other words, the larger the sentences or the number of syllables per word, the more difficult it will be to read the text. However, the larger the index, the better the readability of the text.

English is commonly used in research on business and financial statements (Castilhos et al., 2017). The indices presented were created considering the structures of English phrases and vocabulary but have already been adapted for other languages, such as Spanish (Fernández, 2013) and Portuguese (Valentim & Meirelles, 2021).

Martins et al. (1996) presented an essential adaptation of the Flesch index for Portuguese, considering that the first naturally presents words with more syllables than in English. Thus, it was necessary to add 42 points to the result for texts in the Portuguese language for the index to translate the real purpose (Valentim & Meirelles, 2021) (Table 3).

Table 3
Comparison between the original Flesch Index and the Portuguese (adapted)

Flesch (1979)		Martins et al. (1996)	
Index	Difficulty level	Index	Difficulty level
0-30	Very Difficult	0 - 25	Very Difficult
30-50	Difficult	25 - 50	Reasonably Difficult
50-60	Relatively Difficult	50 - 75	Easy
60-70	Standard	50 - 75	Easy
70-80	Relatively Easy	75 - 100	Very Easy
80-90	Easy	75 - 100	Very Easy
90-100	Very Easy	75 - 100	Very Easy

Although the doctrine regarding their validity questions such indices, they remain one of the educational tools that best translate textual readability (Cotra & Jacobson, 2014). Instead of evaluating individual values, these measures help to promote relative comparisons, demonstrating good proxies of readability and textual complexity (Klare, 1981), resulting in skillful tools for predicting comprehensibility, with simple formulas for calculating reading level.

3 METHODOLOGICAL PROCEDURES

3.1 Research characterization

This work presents descriptive research since, as taught by Silva & Menezes (2005), it should describe the characteristics of a phenomenon, generally taking the form of an information survey. It corroborates the understanding of Vergara (2005) concerning the research being descriptive since the objective is to expose transparency, establishing a correlation between the information provided by the state and the population's understanding, not committing to explain the phenomena it describes, despite serving as the basis for the explanation.

The research is still classified as qualitative, not requiring statistical methods and techniques, but data collection in the natural environment in which the researcher is the key instrument. It is also classified as documentary and bibliographic, identifying factual information in documents, seeking to extract from them the reasons for its creation and dissemination, as Gil (2002) teaches, using materials that have not yet received analytical treatment, that is, the primary sources.

Thus, we sought the data already published in the documents analyzed by the state government, using their analysis techniques through content treatment procedures, considering that the study began from the analysis of specific data sources extracted during the global pandemic.

This research is also considered a case study since it seeks to investigate a phenomenon considering its context, analyzing the situation under the real conjuncture (Yin, 2015). It is precisely in this perspective that the concrete case of transparency currently within the scope of information presented by the government of the state of Ceará is investigated.

3.2 Data collection

This article seeks to evaluate the control and transparency criteria provided for in specific state legislation during the emergency period decreed in a specific act of the Executive Branch - March 2020 to March 2021 - using the financial statements of the 2020 financial year.

The Ceará government maintains a specific official website, <https://ceartransparente.ce.gov.br>, to allow citizens to become supervisors of public actions, increasing the transparency of management and the fight against corruption. According to information on the webpage, the portal was designed to be an important instrument of transparency of government actions. Thus, the intention is to provide the citizens with didactic and fast access to the primary information of the State Administration through a single channel.

The home page presents a button to consult the data related to the Covid-19 pandemic, with information related to expenses, donations, legislation, statistics, and epidemiological bulletins, among other social protection measures. Specifically regarding expenses, the state government uses the Tableau Plus software to consolidate the data on the page with metadata updated daily containing information on Expenses in the Fight Against Coronavirus in Ceará, Expenses by Supplier, and Expenses per Agency, using information extracted from the Sistema de Gestão Governamental por Resultado (S2GPR, Governmental Management System by Result), culminating in a list with 1,477 contracts concluded and 3,958 commitments made in the analyzed period. This software provides a search tool that indicates filters such as number and date of commitment, contracting agency, contract number, date of conclusion and validity, committed amount, place of execution, supplier and Corporate Taxpayer Identification Number (CNPJ), bidding mode, expense item, description of commitment, quantity, unit value, and total value.

The specific legislation provides for the rules to be used in contracts concluded by the State Administration in the face of the emergency to combat the Covid-19 pandemic, given that speed should be a priority provided it is accompanied by legality, publicity, and efficiency.

The Comptroller and Ombudsman General of the state of Ceará (CGE) informed that all contracts or acquisitions made based on State Law nº 17,194/2020 will be made available in the Ceará Transparente containing, where appropriate, the information provided in paragraphs 3 of Article 11 of State Law nº 15,175/2012 (Law on Access to State Information) and other information that complements State Law nº 17,257/2020. Thus, Table 4 presents the data indicated by the CGE (State Law nº 15,175/2012).

Table 4

Checklist of analyzed items arising from contracts according to State Law nº 17,257 and State Law nº 15,175

TRANSPARENCY IN EMERGENCY CONTRACTS (State Law nº 17,257 of August 3rd, 2020, cc State Law nº 15,175 of June 28th, 2012, and data indicated by the CGE)	
	Contracts signed on an emergency basis arising from the Covid-19 pandemic
WHAT	Contracts signed to prevent, combat the advance, or mitigate the consequences of the Covid-19 pandemic.
	Breakdown of goods purchased or services contracted.
WHO	Name and Corporate Taxpayer Identification Number/Individual Taxpayer Registrar (CNPJ/CPF) of the contracting parties and legal representatives
WHY	Motivation and justification of the emergency contract
HOW MUCH	Overall contract value
	Object installments
	Available or blocked balance
	Quantity delivered in each unit during the execution of the contract
WHEN	Duration of the contract
	Delivery time
HOW	Bidding waiver document published in the Federal Gazette
	Act authorizing direct contracting
	Extract from the contract
	Information on any contractual addendums
WHERE	Place of delivery or supply

Source: Research data, 2020.

Based on the data obtained, we will use Table 5 to evaluate whether the criteria defined above are met.

Table 5
Data assessment

DATA SERVICE LEVELS	
COMPLETE	Information is present on the specific COVID site.
PARTIAL	Information is not present on the specific COVID site but in the integrated systems.
NO SERVICE	Information is not present on the specific COVID site.

Source: Research data, 2020.

Additionally, the balance sheets for each financial year are consolidated on the same website of the transparency portal of Ceará https://cearatransparente.ce.gov.br/portal-da-transparencia/paginas/balanco-geral-do-estado?__=__. This research is limited to analyzing the readability of two instruments in the 2020 General Balance Sheet: the Explanatory Notes to the General Balance Sheet and the Social Balance Sheet (Governo do Estado do Ceará, 2020).

The Explanatory Notes of a general nature bring the operational context of the 2020 financial year, demonstrating “(...) the results achieved by the Government of the state of Ceará as a function of the government actions developed based on the accounting information contained in the General Balance Sheet”, which, in turn, “(...) consolidates the accounts of the bodies and entities of direct and indirect administration of all Powers (Executive, Legislative, and Judicial), the Public Prosecution Service, and the Public Defender's Office, members of the Fiscal Budget and Social Security”. The Social Balance Sheet "(...) complements the General Balance Sheet of Ceará with qualitative information on the actions carried out by the Ceará government in 2020" (Governo do Estado do Ceará, 2020, our translation). In this sense, the primary purpose of the documents is:

to provide the various users with information on managing the state's public assets and contribute to the economic and financial management's accountability in the period to which they refer. It provides society with information on the position and mutations of public assets, economic and financial performance, budget execution, cash flows, and other information that helps in the evaluation of the economic and financial management of the State Government (Governo do Estado do Ceará, 2020).

Both documents were extracted in PDF format and converted to editable text. Text editing tools found in Adobe Acrobat and Microsoft Word were used in this process.

Subsequently, the editable texts were submitted to the Análise de Legibilidade Textual (ALT, Textual Readability Analysis) software, available at <https://legibilidade.com/>, developed from original readability metrics adapted to the Portuguese language, available on the internet, to reduce communication difficulties.

According to the software creators (Moreno et al., 2022), the ALT program was built to meet two needs: 1. Enable textual readability analysis for texts written in Portuguese; 2. Fill an existing gap in the scientific environment since researchers from several areas develop studies focusing on textual readability in Portuguese and end up using international software based on readability indices unsuitable for this language.

Although the software presents the metrics of six different readability indexes, we chose to use only two, the Flesch (Figure 1/ Table 6) and FOG (Figure 2/ Table 7) indexes, both adapted for the Portuguese language. We use the Gunning FOG Index since it considers complex words, such as those that contain three or more syllables. We used the criterion of Moreno et al. (2022), which verifies the vocabulary with a word bank from Linguateca, a resource center for Portuguese language computational processing. Thus, two distinct criteria are used to calculate the readability of a text.

Figure 1

Formula for calculating the Flesch readability index considered for the Portuguese language

$$\text{Flesch Readability Index} = 227 - 1.04x \left(\frac{\text{words}}{\text{sentences}} \right) - 72x \left(\frac{\text{syllables}}{\text{words}} \right)$$

Table 6

Coefficients for the Flesch Readability Index obtained via multiple linear regression.

R2= 0.890742				
	Reference	Value	Standard error	p-value
C1	Intercept	226.614882	8.744455	0.00000
C2	Words/sentences	-1.036134	0.0930814	0.00000
C3	Syllables/words	-72.451284	4.336399	0.00000

Figure 2

Formula for calculating the Gunning Fog Index considered for the Portuguese language.

$$\text{Gunning Fog Index} = 0,49x \left(\frac{\text{words}}{\text{sentences}} \right) + 19x \left(\frac{\text{complex words}}{\text{words}} \right)$$

Table 7

Coefficients for the Gunning Fog Index obtained via multiple linear regression.

R2= 0.77333				
	Reference	Value	Standard error	p-value
C1	Intercept	1.00156	1.28036	0.43599
C2	Words/sentences	-0.49261	0.02764	0.00000
C3	Complex words/words	18.66057	5.6943	0.00146

4 RESULTS

This article seeks to verify compliance with the transparency criteria provided for in State Law n° 17,257 of August 3rd, 2020, which provides for transparency in emergency contracts signed by the state government due to the public calamity resulting from the Covid-19 pandemic within Ceará. Using the provisions of item 3.2 (Tables 4 and 5), we have:

Table 8
Analysis results

TRANSPARENCY IN EMERGENCY CONTRACTS (State Law n° 17,257 of August 3rd, 2020, cc State Law n° 15,175 of June 28th, 2012, and data indicated by the CGE)		SERVICE
WHAT	Contracts signed on an emergency basis arising from the Covid-19 pandemic.	Complete
	Contracts signed to prevent, combat the advance, or mitigate the consequences of the Covid-19 pandemic.	Complete
WHO	Breakdown of goods purchased or services contracted.	Complete
	Name and Corporate Taxpayer Identification Number/Individual Taxpayer Registrar (CNPJ/CPF) of the contracting parties and legal representatives.	Complete
WHY	Motivation and justification of the emergency contract.	NO SERVICE
HOW MUCH	Overall contract value.	Complete
	Object installments.	NO SERVICE
	Available or blocked balance.	NO SERVICE
	Quantity delivered in each unit during the execution of the contract.	Complete
WHEN	Duration of the contract.	Complete
	Delivery time.	NO SERVICE
HOW	Bidding waiver document published in the Federal Gazette.	Partial
	Act authorizing direct contracting.	Partial
	Extract from the contract.	Partial
	Information on any contractual addendums.	Partial
WHERE	Place of delivery or supply.	Complete

Source: Research data, 2020.

Evaluating the information collected, it is initially observed that the specific transparency website with Covid-19 data does not contain all the information for which it is intended. However, it indicates an access link to detailed data in other government systems, such as the Sistema de Acompanhamento de Contratos e Convênios (SACC, Contracts and Agreements Monitoring System).

It is noticed that the motivation and justification of the emergency contract are not present among the criteria evaluated as "no service". Such data are necessary for any government contract before the duty arising from the principle of motivation of administrative acts, demonstrating the reasons of law.

However, it must be considered redundant information, although relevant, given that the core of the motivation is the state of calamity caused by the Covid-19 pandemic. Thus, as provided in Article 5, VI of Law n° 17,194/20, such information is presumed to be met.

Subsequently, financial information regarding the installments of the object and the available or blocked balance is also not available. In search of the other systems correlated to the site, such information was also not found in easy access. At this point, it is necessary to point out that such data are a tool for effective social control as a popular mechanism for monitoring the execution of signed contracts.

Regularity in supervising public expenditures is prevented once the financial data is absent since they can be divided or delivered at different times due to the nature of the contracted objects. Therefore, it is considered essential to present the information mentioned above throughout the execution of the contract, updating the platform as the contract is executed.

The criteria assessed as "partial" are the legal documents formalizing the procedure for

waiving bidding, contracting, and possible additives generated during the pandemic period. This categorization is due to the absence of information on the specific site but located after a brief search in the SACC system.

The bidding waiver document published in the Federal Gazette is the determination provided for in the Bidding Law (Law nº 8,666/93), which in Article 26 indicates the need for a specific document to ratify and publicize in the official press within 5 (five) days, as a condition for the efficacy of the acts. Thus, the legislator observed the need for proof of the exceptionality of that contracting through an act that expressly authorizes direct contracting (Law nº 8,666, 1993).

The extract arising from the contract is the document that will be published in the Federal Gazette containing the essential information of the expense (data of the contracted party, term, amount, object) in compliance with the principle of publicity. On the other hand, the information on contractual additives is fundamental to monitoring contractual execution since it can modify the object of the contract, increase or reduce it, extend it, or even technically adapt the objective or change the execution regime. These criteria show data that formalize the initiation and execution of contracts.

The delivery time is similar since it is a piece of contractual information fully available in the contract with the SACC system. This period may vary depending on the specific case (immediate delivery, in installments, on a specific date) since it is specific data for each contractual object. The information is also characterized as belonging to the execution of the contract, specifically stipulating when the contractual object will be made available to the contracting party.

In turn, the results shown in Tables 9 and 10 were extracted by analyzing the Explanatory Notes to the General and Social Balance and the ALT software regarding the readability of the financial statements.

Table 9

Result of the readability analysis of the Explanatory Notes to the General Balance Sheet

EXPLANATORY NOTES TO THE GENERAL BALANCE SHEET	
METRIC	SCORING
Adapted Flesch Reading Ease Test	40.5
Adapted Gunning's FOG Index	12.1
DESCRIPTIVE SUMMARY	QUANTITY
Letters	30944
Syllables	13468
Words	5863
Sentences	303
Letters/word	5.3
Syllables/word	2.3
Words/sentence	19.3
Complex words	798 (13.6%)

Source: Table created with ATL software data.

Table 10
Result of the readability analysis of the explanatory notes to the Social Balance

SOCIAL BALANCE	
METRIC	SCORING
Adapted Flesch Reading Ease Test	43.2
Adapted Gunning's FOG Index	13.3
DESCRIPTIVE SUMMARY	QUANTITY
Letters	60171
Syllables	26813
Words	12079
Sentences	546
Letters/word	5.0
Syllables/word	2.2
Words/sentence	22.1
Complex words	1563 (12.9%)

Source: Table created with ATL software data.

It is worth remembering that the editable texts were submitted to the Análise de Legibilidade Textual (ALT, Textual Readability Analysis) software, available at <https://legibilidade.com/>, developed from original readability metrics adapted for the Portuguese language.

For the Explanatory Notes to the General Balance Sheet, the Flesch score was 40.5 and the adapted FOG Gunning score was 12.1, demonstrating a reasonably difficult level of comprehension, predicting that people with at least High School education would have the necessary skill to understand the text in the first reading.

In turn, the Social Balance presented metrics of 43.2 and 13.3 in the Flesch and FOG Gunning adapted indices, respectively, representing readability levels compatible with the Explanatory Notes, even if it is a document with an eminently social scope aimed at the general population.

In comparison to the data contained in the social indicators of Ceará in 2019 (only published in 2021) indicated by the Instituto de Pesquisa e Estratégia Econômica do Ceará (IPECE, Institute for Economic Research and Strategy of Ceará) - an autarchy linked to the Secretariat of Planning and Management of the state of Ceará - https://www.ipece.ce.gov.br/wp-content/uploads/sites/45/2022/04/Indicadores_Sociais_2019_.pdf, the proportion of individuals without education or with less than one year of study (12.6%) is higher than those who have completed Higher Education (12.1%) in Ceará (Instituto de Pesquisa e Estratégia Econômica do Ceará, 2021).

The study also indicates that the proportion of Ceará residents who completed compulsory primary education in Brazil, that is, completed at least High School, reached 40.3% in 2019. In other words, less than half of the Ceará population completed the compulsory cycle (IPECE, 2021).

Thus, the Explanatory Notes to the General Balance Sheet and the Social Balance would only be clearly and easily understood at first reading by 40.3% of the population that may have access to such documents. Therefore, it is salutary to realize the importance of highlighting aspects of communication, such as clarity, objectivity, and the expected readability of documents necessary for social control.

The results obtained through the software demonstrate that both texts have similar language characteristics. It is standard to use the cultured standard and formal language. However, there is a widespread effort in public agencies to implement simple language to facilitate the management of information by users.

In this context, it is worth noting the initiative of the Ceará government, with the edition of Law n° 18.246 of December 1st, 2022, which instituted the State Policy of Simple Language in the bodies and entities of the direct and indirect administration of Ceará (Law n° 18,246 2022).

The general objective of the State Policy of Simple Language is to stimulate a change in the culture of administrative communication in Ceará Public Management, prioritizing the focus on citizens and giving clear and understandable information to the population (Law n° 18,246, 2022).

5 CONCLUSION

The information gathered from the website made available by the government of the state of Ceará, specifically for monitoring expenses by the government during the Covid-19 pandemic, showed attention to legal norms, although not completely.

The research question regarding how and at what level of detail the government of the state of Ceará has been working on transparency in the dissemination of information during the Covid-19 pandemic was answered in the data collected from the government *website* and subsequent categorization in the proposed framework with the checklist of analyzed items.

We found that the government of the state of Ceará disclosed the information, albeit partially, in accordance with State Law n° 17,257 of August 3rd, 2020. Specifically, after analyzing the government website, the degree of care was assessed as good, considering that four of the seven categories presented positive data.

Additionally, the readability of the documents processed in this article has similar characteristics since they were created by the same institution, following standards of the cultured norm of the Portuguese language. The ALT software used objectively demonstrates that the indices presented in Tables 9 and 10 are not yet easy for the general population to understand.

The indices in Tables 9 and 10 show that the texts have average readability. In other words, the difficulty level in reading comprehension and understanding is average. Therefore, it is understood that they can be well understood by university students at the beginning of their undergraduate studies, even though the population of Ceará is formed by 40.3% of individuals who have completed high school.

There were no limiting setbacks in the research that significantly impeded its conclusion beyond minor technical difficulties in accessing sites integrated into the specific website with information on government data in the context of the pandemic, the absence of financial information regarding the parcels of the object, and the available or blocked balance, or even regarding the necessary conversions of texts in editable format to use them in the readability software. Access to the internet is already a constant in the reality of the university researcher, facilitating the search.

All the essential data to identify the contracts are clearly and objectively posted on the website, and the balance sheet data are listed on the transparency portal of the same website. Some data, perhaps insufficient, can be obtained in other systems maintained by the government, which are integrated into the Portal Ceará Transparente website.

The opinion is positive concerning the proactivity of the Comptroller and Ombudsman General of the state, as a central body with the attribution of valuing the transparency of state Information and the manager of the systems and databases linked to public expenditures. In this scenario, the emergency procurement and contracting guide related to Covid-19 proved very enlightening for public managers, detailing the state legislation referenced in the article (Controladoria e Ouvidoria Geral do Estado, 2023).

The same opinion extends to the staff of the Secretariat of Finance by compiling the accounting data of all sectors of the state of Ceará in single files according to the financial year, including explanatory notes with sufficient information to understand the state accounting operations.

There is room for improvement, especially concerning the simultaneous monitoring of the execution of contracts as a mechanism for effective social control of government quality management and performance indicators of public spending. Still, integrating all data in a single platform would facilitate access to the concentration of information and the complete cut of the expense.

It is also understood that there will be a positive aspect in the implementation of simple language, according to the State Policy of Simple Language, which will lead to increased readability of government texts, given that the texts analyzed still have an average level of difficulty, which makes it difficult for the general population to understand.

In conclusion, the research achieved its objective, considering the average readability index of government documents (explanatory notes of the General Balance Sheet and the Social Balance Sheets) and the high degree of transparency of the government of the state of Ceará regarding public spending in the emergency period, given that six of the seven categories of information specified in State Law nº 17,257 of August 3rd, 2020, are provided for in the Ceará Transparente portal, albeit partially.

Therefore, the work shows contributions to society since it exposes the transparency criteria used by the state government (according to the legislation and publicization) and for professionals both in the public (emphasizing the good practices exercised) and private spheres (encouraging the use of mechanisms of social control over public information).

Regarding future studies, the academy can benefit from the information in the text since improvements can be expected in conducting a study correlating the transparency and readability of texts. Additionally, the work could gain national reach by extending the analysis demonstrated to the other states of the Federation.

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