The Transparency Gap: Quantifying Cognitive Load in User Agreements vs. Marketing Material

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Abstract

This paper looks at the "Transparency Gap", the difference in how hard it is to read marketing text versus legal text. We looked at 10 different companies, including Apple and the FBI, and used the Flesch-Kincaid formula to grade their content. The results showed a clear gap: Marketing text averaged a score of 11.7 (High School level), while Privacy Policies averaged 15.4 (Post-Grad level). This big jump makes it hard for users to understand what they are signing. Because of this gap, users are "primed" with easy text and then hit with difficult legal terms they likely won't read. To fix this, we are proposing a new AI tool called *TermsAndConditionsApplied* that simplifies legal text in real-time.

1. Introduction

1.1 The Problem of Cognitive Load

According to the Interaction Design Foundation, Cognitive load refers to the amount of effort that is exerted or required while reasoning and thinking. Any mental process, from memory to perception to language, creates a cognitive load because it requires energy and effort. The cognitive load for privacy policies, terms of service and user agreements is very high. McDonald and Cranor [2] estimated that if American netizens were to read all such encountered policies, it would cost 201 hours annually (~$781 billion worth of lost productivity). Further, according to Jasmin Kaur et al, research indicates that the privacy policies are long, include incomplete information, and are hard to read. Research also shows that users are not inclined to read these long and verbose policies.

1.2 Study Objective

The goal of this study is to measure the difference in reading difficulty between what companies show you in order to market themselves vs. what they show you in legally binding policies.

2. Methodology

2.1 Data Collection

A dataset of N=10 was used. Since the value of N was small, data collection was done by hand. The Homepage Marketing and Privacy Policies of 10 different companies were collected from their official websites to use for analysis. The companies selected vary largely; including but not limited to education institutions like RIT, social media like Instagram, government agencies like the FBI, sports brands like Nike and charitable organizations like the Gates Foundation.

2.2 Data Cleaning & Noise Reduction

Initially, the data was noisy since the homepages were directly copied; words found on the Page Titles and footnotes were also considered thus varying the metrics. However, this issue was corrected by filtering out everything that wasn't the proper Homepage Marketing.

2.3 The Flesch-Kincaid Grade Level Algorithm

The Flesch-Kincaid Grade Level Algorithm as defined by "The art of readable writing" [*Flesch*] is an algorithm that can take content of at least a 100 words and assign a grade level to it. As stated by websites including readable.com, a grade of 9-12 falls under the High School category, a grade of 12-15 falls under a College category, while a grade of 15-18 is the Post-Grad category and is difficult to read. The formula it uses is (.39 x ASL) + (11.8 x ASW) – 15.59

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

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

This algorithm was implemented using a Python library from PyPi called Readability.

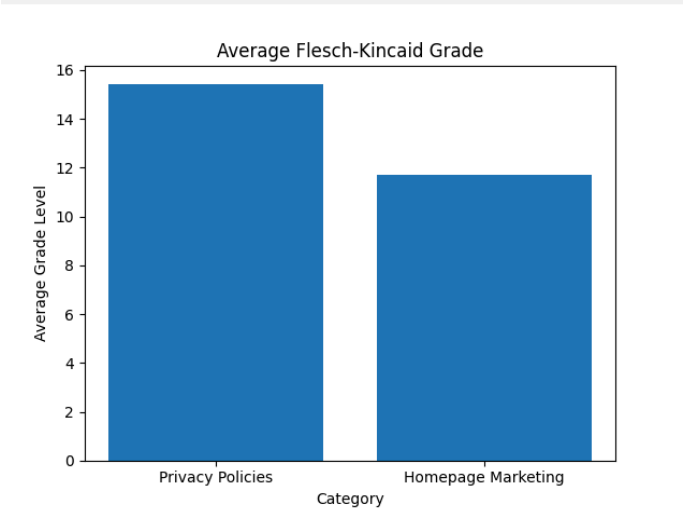
3. Results

3.1 Quantitative Findings

Company	**Marketing Grade Level**	**Legal Grade Level**	**The "Gap"**
Apple	8	14	6

Chase Bank	12	15	3
CogBias	11	9	-2
FBI	16	17	1
GatesFoundation	14	17	3
Instagram	8	18	10
Nike	11	14	3
OpenAI	12	16	4
RIT	15	18	3
TikTok	10	16	6
Average	**11.7**	**15.4**	**3.7**

3.2 Visual Analysis



[Figure 1: Comparison of Flesch-Kincaid Grade Levels across domains.]

4. Discussion: The Transparency Gap

4.1 The "Bait and Switch" of Complexity

The average of the Flesch Kincaid Grade Level of Homepage Marketing was found to be 11.7 while that of Privacy Policies was 15.4. This means that the Homepage Marketing can be considered High School level while the Privacy Policies fall under the Post-Grad category. Further, the Flesch Kincaid grade does not take into consideration the length of the content. Once that is taken as a factor too, it can be understood that the Privacy Policies require high cognitive load to understand especially when compared to the Homepage Marketing.

4.2 Unexpected Grade Level

It was expected that the Flesch Kincaid grade level for Homepage Marketing would fall even lower into the Elementary or Middle School level. However it is important to understand that some of these websites including the FBI and Chase Bank will certainly have harder-to-understand words due to the nature of their business. In some cases like CogBias, the Marketing had a higher grade than the Privacy Policy which means that although the majority of the companies have complicated Privacy Policies, it’s certainly not every single one.

5. Proposed Solution: The Cognitive Simplifier

5.1 Technology Overview

In order to allow users to understand what they are really agreeing to, a tool named *TermsAndConditionsApplied* is being developed which will present the same content with a lower Flesch Kincaid Grade Level without losing its meaning. It will also have a quick summary

that contains the answers to the user's big questions such as "What information does it have access to?" or "Is the information deleted when my account is deleted?". This will be implemented by using an LLM to parse and return the reduced policy. The tool will be similar to ToSense - an similar ongoing project.

5.2 Implementation Strategy

A React Frontend and a Node.js backend that scores text in real time and provides the reduced policy from the LLM. Possible additions can include PostgreSQL for storage to incorporate the entire PERN architecture.

6. Conclusion

Transparency isn't just about posting a policy online; it's about making sure users can actually understand it. This study demonstrated that there is a real gap of about 3.7 grade levels between the homepage marketing and the privacy policy. Expecting a user to jump from a high school reading level to a post-grad reading level in one click is unrealistic. This high cognitive load is a major reason why people don't read the terms.

While some complex words are necessary for legal reasons, the gap is too consistent across all industries to be an accident. We believe that tools like *TermsAndConditionsApplied* are necessary to help users finally understand what they are agreeing to. By reducing the complexity of the text, we can turn "blind agreement" into actual informed consent.

7. References

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