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The Critical Overlap of Digital Accessibility and Plain Language

How Ethics and Comprehensibility Call for the Inclusion of Plain Language in Digital Accessibility

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By

Ashley Miller

aemiller02@gmail.com

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Drew Eisenhauer, thesis director

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Abstract

This thesis aims to investigate whether and where there is a critical overlap between plain language and digital accessibility, and why discussing and highlighting this intersection is necessary in order for maximum effectiveness in digital communication. This advancement, in turn, would result in the production of a more effective and wide-reaching type of digital communication. The aim of this thesis is to serve as a starting point and springboard for how those involved with digital content creation would be elevating their content's impact by taking plain language into consideration during their development process. Through both academic research and an analysis of two internationally recognized standards for "best practice" in both digital accessibility and plain language, the research presented in this thesis confirms the idea that plain language is an integral and necessary part of digital accessibility. True, ethical, comprehensible "access" of digital content can be satisfied by adding plain language to the digital accessibility implementation processes.

Keywords: *digital accessibility, plain language, ethical content creation, comprehensibility*

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I. Introduction

> We have learned in this century that technological progress does not necessarily mean human progress. The tools of communication have as much power to alienate people as to bring them together. This troubling duality is a characteristic of advances in the arts and sciences that we often choose to overlook in our scramble to make progress. (Haigh et al., 1981, preface)

Although the statement above is more than 40 years old, the concept could not be more applicable to the situation of today's world – a world that is becoming increasingly dependent on technology for its information. Also a world, however, that needs to slow down enough to understand the criticality of implementing certain practices so that this potential technological advancement does not result, in turn, in the aforementioned notion of alienation. It is no longer enough to assume that the ability to access the technology, and thus the digital information that ensues, equates to proper usage and understanding of the content. As we propel forward with technological advances and achievements, stepping back to examine the necessary communicative accouterments that must intertwine with this technology is non-negotiable and necessary. This is ultimately how both technological and human progress will occur.

This paper came to be as a quest to determine how the art of language can affect digital content and the ability to both understand and use this content as intended by the author. Although digital accessibility, which typically entails the access of digital content by those who are disabled, is very much an established notion (Web Content Accessibility Guidelines 2.2) and even deemed a human right in today's society by the United Nations, there is a need for clarification on how language and accessibility fit together. Determining how the two concepts of plain language and digital accessibility relate, interplay and overlap with one another can help lead the charge towards changing the way "accessible" information is viewed, and the steps that digital content creators must take to ensure that accessibility occurs.

Of high importance for conducting this research, was to determine where the breakdown was in relation to defining "accessible" information. Whereas the progression of society has been seen by means of including people who are disabled through accessibility laws, directives and standards, there is still variation and disagreement regarding how to actually define "accessibility" (Vollenwyder, 2022, p. 11). To view accessibility relative to physical barriers alone can no longer suffice in regards to technology if wanting to properly

break down barriers so that people can truly "access" information on a level that results in comprehensibility (Perego, 2020, p. 21). Thus, this leads to the need for examination of how digital accessibility and plain language converge so that the proper access of information can occur.

The lack of academic information discussing the intersection of digital accessibility and plain language led to the need for a much more intricate deep dive into both subjects: how and where they may be related, but in more obscure and less obvious ways. Thus, the literature review for this paper includes much more specific information about the sources used than perhaps found in more traditional literature reviews. The author chose this structure so that the reader could understand and absorb the background of the information on a more profound level which in theory would add to both the appreciation and impact of the discussion and analysis to follow. It must also be mentioned that in order to both strengthen the argument in this paper and supplement the lack of available academic research, there is an analysis of two "best-practice" international guidelines for the proper implementation of both digital accessibility (Web Content Accessibility Guidelines 2.2) and plain language (the International Organization for Standardization's ISO/DIS 24495-1:2022 (E)). The analysis of the two aims to shed light on, from an international level, how the two concepts both align and differ. Of note is that the similarities found are just as relevant as the deviations that were determined.

This study was not meant to detract from or lessen the importance of digital accessibility in regards to disability; the analysis and discussions to follow are meant only as baseline information for those involved in digital content creation to reflect upon and reconsider how they approach both the subject of accessibility as well as their content creation. Since the awareness centered around digital accessibility itself is lacking (Vollenwyder, 2022), any steps towards its incorporation into the process of digital content creation is already movement forwards. Thus, folding in the addition of plain language into the mix may be too advanced and overwhelming at this present moment. However, keeping in mind the quote from the start of the paper, it is easy to overlook or even dismiss something critical in frenetic moments, which is why in this analysis, the incorporation of plain language is presented to the digital content creator as one of the necessities in order to create this inclusive, accessible material. Perhaps too optimistic for the current state of technological content creation, but with hope nonetheless, the thesis ends with ways to aid the marriage of digital accessibility and plain language.

1.1 Presentation of Research Question

Taking into consideration this need to reexamine the concept of accessibility in regards to digital communication, and setting out to determine how plain language can help satisfy the process and implementation of digital accessibility, leads us to the following core research questions.

Where, if at all, do plain language and digital accessibility intersect?

The first research question's goal is to help define where and how the components of the two concepts overlap. This is critical in order to properly understand both plain language and digital accessibility on a deeper level, but also where and how they may intersect in a way that could help to better the digital accessibility practices already in place. The question is quite overarching and vague, but this is due to the intricacies involved in defining many terms that compose their identities and goals. This myriad of variables could either positively or negatively affect their potential intersection, which is why the research was quite specific yet vast. The research question led to conclusions not initially foreseen, which confirmed the need for both the academic analysis and as well as the inclusion of the analysis from the comparison of both the Web Content Accessibility Guidelines 2.2 (WCAG 2.2) and the International Organization for Standardization's ISO/DIS 24495-1:2022 (E) (PL ISO).

Based on the conclusions, are there recommendations for the digital content community?

The second research question stemmed from the belief that should there be information gleaned that was pertinent to the fields of digital accessibility and plain language, that this information should be analyzed and synthesized in a way that would aid the digital community and their creation of content. The implementation of new practices are potentially hard to put in place, but by showing the digital content community why these ideas would be beneficial to their audience(s), it would hopefully result in recommendations that add value to both the creators and the users alike.

1.2 Thesis Structure

The analytical part of the thesis will commence with the applicable history of both plain language and digital communication, so as to give deeper insight into the interconnected framework of this examination. Additionally, the relevance of each topic to the thesis at large will be highlighted. From there, the reader will be introduced to the intersection of the two concepts in academic research, starting with the overarching topic of using plain language in digital content. The first subsection will examine the use of plain language in regards to

ethicality. The second subsection will be a deep dive into the related topic of comprehensibility as well as an examination of different components of digital content, accommodations currently used to access the material, and how they both could potentially benefit from the incorporation of plain language. This section will finish with an examination of how the application of plain language within the current "de facto" guidelines of digital accessibility (the WCAG 2.2) could also add to both a deeper comprehension and more wide-spread implementation of these digital accessibility standards.

The following chapter, Plain Language Principles in the WCAG 2.2, will aim to sift through and analyze the content and guidelines of two internationally recognized documents that represent "best-practice" for both digital accessibility and plain language, and where the overlap (and deviations) may lie. WCAG 2.2 will be used for digital accessibility, and the International Organization for Standardization's (ISO's) draft version of ISO/DIS 24495-1:2022 (E) will be used for plain language. A chart that summarizes the findings will be included in the annex of the thesis. In addition to an examination on both a structural and conceptual level of the two documents, the inclusion of standard EN 301 549 serves to shed light on the "A" rating system of the WCAG 2.2 and what this means for the depth of the documents' overlap.

Based on the findings from both the academic research component and the analysis of the two international best-practice documents, the conclusion and recommendations chapter will lay the groundwork for helping the reader to understand where the current intersection of plain language and digital accessibility exists, in addition to suggesting concepts and processes that could aid in redefining best-practice in the field of digital communication. Perhaps of most interest in this chapter is the examination of how plain language and digital accessibility also deviate from one another, and how this deviation stands to block their ability to mesh as necessary.

Compounding on the analysis of the conclusion is the further applications chapter, as the author has determined there to be a multitude of trajectories that a continuation of this research could take. From the cultural implication of plain language to an in-depth analytical study of the interconnection between plain language and digital accessibility, followed by the suggestion of creating a model or tool specific to plain language, there is still lots to explore. Of note, these ideas were initially intended for inclusion in this thesis, but due to the determined scope and orientation of the work, they have been currently set aside for a future project. Regardless, the amount of beneficial information yet to be gleaned is immeasurable.

A personal explanation of the process and the rerouting of the thesis research are explained in the final section, a note from the author.

II. Literature Review

The literature used for this thesis is varied and vast, primarily due to the lack of specific (and current) information directly related to the intersection of plain language and digital accessibility. The research itself has dictated the direction of the thesis, mostly in part due to the focus in an area that has yet to be streamlined and thoroughly studied. However, it is critical to note that despite the gap in research, there is trusted material available to prove the idea that indeed plain language and digital accessibility can go hand in hand.

The literature review is organized thematically, starting with the materials consulted that determine how to properly address people with disabilities. From there, the sources discussed and reviewed pertain to more specific disabilities and how they relate to the overlap of digital accessibility and plain language. Following, the review will broaden its vantage point in order to discuss pertinent materials supporting how plain language supports accessibility for people with cognitive disabilities in general, as well as the general population at large. As with all research, it is necessary to include ethicality, so sources pertaining to this research will follow.

As a final expansion of the applicable material, there will be a comprehensive look at what the research says about the actual intersection of plain language and the Web Content Accessibility Guidelines (WCAG 2.2), the most reputable guidelines for implementing digital accessibility. The literature review will close by citing the current applicable research reviewed regarding the various languages used to help in accessibility, as well as the potential weakness of plain language.

Terminology Pertinent to Disability

Before addressing the needs of individuals in regards to accessibility, it is necessary to properly define how these individuals should be addressed. The sources used and adhered to for proper terminology usage in this thesis are the American Psychological Association as well as *Disability and Health Journal*. The American Psychological Association, in their *APA 7th Manual Made Easy: Full Concise Guide Simplified for Students (2021),* suggests both "person-first" language and forgoing the idea of using adjectives as nouns when discussing disabilities. The recent article, *The evolution of disability language: Choosing terms to describe disability,* published in 2022 in the *Disability and Health Journal*, and written by Erin E. Andrews, PsyD, ABPP, Robyn M. Powell, PhD, JD, and Kara Ayers, PhD, confirms that while person-first language (language that places the person before the disability) is used with best intentions, there are people who prefer to be addressed as identity-first. Notably, the

Deaf culture. Therefore, there will be a mix of both people-first and identity-first language. Using the sources cited above as the guide, this thesis aims to properly incorporate disability language into all elements of the project. However, for the literature review, the terms used are the ones specific to the authors in the context of the content that they have provided.

Specific Disabilities and the Connection with Plain Language and Digital Accessibility

Boldyreff, Burd, Donkin and Marshall (2001) present the idea that plain language (specifically Plain English) is a way of helping to make online information more accessible for those individuals with both hearing and visual disabilities. The authors set up the background for this conclusion by citing applicable literature as well as discussing quantitative results from both surveys and research studies. In the first study mentioned, the authors discuss the use of British Sign Language (BSL), commenting on how many choose to use BSL as their first language, therefore defaulting to English as a second language. This then highlights the need for text to be written in a way that is clear and simple, as it is being offered readers who use English as a second language. The authors reaffirm this need for clear and simple language through citations from the Web Content Accessibility Guidelines (WCAG) as well as quotes from the internet powerhouses, Jakob Nielsen and Tim Berners-Lee.

Boldyreff et al. (2001) also provide a well-detailed view of the complications that arise for users who are both aurally and visually impaired, including the conclusion that although there are more accommodations available for those users who are visually impaired (such as a variety of text-to-speech browsers and mark-up languages), for those users who are aurally impaired, the accommodations are lacking. For both groups of users, however, the simplification found in Plain English would be of benefit due to the necessity of software use that takes the text and then presents it either by speech or sign language. Additionally, although readability can be assessed (and bettered, to align with the components of Plain English) through means such as the Kincaid Formula and the Flesch Easy Reading Formula, Boldyreff et al. point out that a potential issue from being dependent on those scores is that they don't take into consideration the readers who are not native English speakers (BSL being included in that group). Therefore, there is the need for developers to do more than just assess the readability level, a theme seen throughout the research.

Boldyreff et al. conclude with suggestions for English-speaking developers if they are looking to begin the process of using Plain English. The article outlines possible resources, such as The Plain English Campaign (for navigation and layout), Bobby (for accessibility checkpoints), and Clear Language and Design (CLAD) documents from East End Literacy

from Toronto, Canada. These resources must also be combined with reader-oriented approaches, such as user-testing.

Boldyreff et al.'s article, although quite dated due to its publication date of 2001, still serves as the foundation for this thesis since it directly highlights the connection between plain language and digital accessibility through its examinations of how Plain English increases Web accessibility. Although the idea of plain language and digital accessibility are tangentially interlinked frequently in other sources, this work and its analysis serve as the sole academic written source expanding upon their explicit interconnection.

Pascual-Almenara, Turro and Granollers (2015) take a slightly different route by examining the role that the ease of digital accessibility has on the user's emotions, by conducting a study based around severely Deaf users, who, as previously mentioned (Boldyreff et al., 2001), are one of the groups most affected by the barriers presented by poorly implemented digital accessibility. The study, conducted in plain language, resulted in negative moods being associated with situations when there were no captions for audio, no captions for video, and complex text. The control website in the study that was deemed accessible through a multitude of controls, was written in plain language, and proved to be, by the participants of the study, much easier and enjoyable to access than one written more complexly. In reference to the study results, and in combination with other studies that have been conducted, the authors conclude that the WCAG guidelines do not properly address the idea of complex text, and believe that it should be considered as an "AA" priority so that it is enforced.

McCarthy and Swierenga (2010), in their short paper, *What we know about dyslexia and Web accessibility: a research review*, offer ways on how to aid people with dyslexia in regards to digital accessibility. Multiple times they reiterate the fact that there is an absence of information about how people with dyslexia use the Internet, so they therefore draw from research on both dyslexia and digital accessibility, and examine where those two topics intersect. The authors also highlight the idea that by increasing the accessibility of a website, it is not only dyslexic users that will benefit, but a much wider collection of users (including the more frequently visually impaired user). McCarthy and Swierenga offer theory-based suggestions such as the need to keep typeface (size and font) in mind, as well as colors and their role as designators, as well. Of note is their mention that the use of plain language is also a vital part of making the site accessible – again, not just for people with dyslexia, but for users in general. McCarthy and Swierenga, by also citing Boldyreff et al. (2001), add to

the case that digital accessibility and plain language are very much intertwined and co-dependent.

Also focusing on specific disabilities is Ruth-Janneck, Lecturer at the University of Dresden, in her analytical paper, *Experienced Barriers in Web Applications and Their Comparison to the WCAG Guidelines* (2011a), which draws primarily from a 2008 German study conducted by the organization "Aktion Mensch" that examined how users with specific disabilities access the Internet. With 671 participants and both quantitative and qualitative data collected, the study is a sound foundation for showcasing the needs and concerns confronted by users with disabilities. Although the study yielded a lack of information about how people with dyslexia and cognitive impairments use the Internet, there was valuable information learned about how visual and aurally impaired users as well as those with motor and dexterity impairments struggle with various elements of accessibility. The author creates a chart that breaks down both the disability, and the assistive technology used most often, as well as another one that states the disability, the share of use, and then specifies the problems encountered. Ruth-Janneck (2011a) also comments on a German study done in 2010 that confirms the importance of the Internet for people with disabilities, one of the reasons it is also critical that they are able to easily access it (see Willerton, 2015). Of the problems stated, the largest one is the reading of wikis (highest for the Deaf population), which in turn confirms the issue of comprehensibility.

Ruth-Janneck (2011a) goes a step further to compare the issues concluded by the 2008 study to the WCAG 2.0 guidelines, so as to assess what is properly being discussed and accommodated. Most applicable to plain language is the broad and critical issue of language, falling under the umbrella of WCAG 2.0, principle 3.0, "Understandability." Included in this category, and determined by the study, are difficult language, foreign words, forms and error messages, names of links and navigation, and content in general, as well as the critical need for alt text. Ruth-Janneck (2011a) points out that unlike many checkpoints in the WCAG 2.0, comprehensibility can only be assessed completely by a human. Boldyreff et al. (2001) also concur.

Ruth-Janneck continues to strengthen the argument for plain language and adds more insight into the types of issues confronted by those with disabilities while accessing the Web by drawing once more on the study conducted in 2008 by "Aktion Mensch" entitled, *Opportunities and Risks of the Internet of the Future from the Perspective of People with Disabilities* in her article, *An Integrative Accessibility Engineering Approach Using Multidimensional Classifications of Barriers in the Web* (2011b). In this article, Ruth-

Janneck breaks the types of disabilities that typically use assistive technologies to access the web into four categories: visual impairment and blindness, hardness of hearing and deafness, motor and dexterity impairments, and learning disabilities and cognitive impairments. Of note, three of the four categories related to the issues encountered relate directly to plain language: editorial and content-related barriers, organizational barriers, and design[er] barriers. The other category, technical barriers, is related tangentially. Part of her conclusion that understandability poses the largest barrier is also related to the idea that people who are hearing-impaired and Deaf have a more difficult time with the spoken and written word due to sign language not being similar to German (in this case it was in reference to German Sign Language), an idea also seen presented by Boldyreff et al. (2001). Ruth-Janneck's (2011b) conclusions also reference cognitive impairments in general, tying them as well to the barrier of understandability, which will be expanded upon in the following works.

Plain Language for People With Cognitive Disabilities

The information about individual and specific disabilities shows us that there is a strong need to use plain language as part of the implementation of digital accessibility. However, it can get very precise and finite when sorting out how plain language specifically applies to each situation. In his recent article for *Forbes* magazine, Andrew Pulrang (2020) addresses digital accessibility and plain language for cognitive disabilities in general. Pulrang draws a direct connection between accessibility and plain language, stating that information for people with cognitive disabilities is not commonly addressed in public communication, but should be. The author, in addition to explaining the basic components of plain language, also highlights the idea that plain language allows for critical information to be available to those who are cognitively disabled, thus keeping them rightfully informed (Lazar et al., 2015). Also of importance is the author's explanation about how plain language can actually lengthen the text, sometimes due to the omission of informal language (such as metaphors and idioms). This concept supports the author's claims that plain language is not to be deemed an "easy version" of the information, and in fact, can actually be more complicated from an editorial standpoint as well. Despite the fact that plain language can be challenging to author, it aligns with the Americans with Disabilities Act's requirement for effective communication, thus making it a way to reduce barriers and comply with the law.

Compounding upon the aforementioned rationale for plain language use is the web presentation given by Dr. Bradley Montgomery, a digital accessibility architect for the Library of Congress, at the 2022 Plain Language Summit. In her presentation, Bradley Montgomery discusses digital accessibility best practices for users who are cognitively-

impaired, while also highlighting the frequent issue of oversimplification of cognitive and learning disabilities. Included in this oversimplification would be temporary difficulties that are not always considered to fall under the umbrella of "disabilities," such as a situational cognitive disability brought on by an environmental factor (stress and fatigue relating to COVID-19 for example). Bradley Montgomery (2022) also discusses the importance of recognizing the varying levels of disability, a key when assessing best practices in accessibility. Despite these oversimplifications and variations, however, the idea still exists that there are guidelines that, when followed, aid a range of cognitive disabilities. She points to *Making Content Usable for People with Cognitive Disabilities*, a document created by the Cognitive Accessibility Task Force of W3C, to address and discuss what these best practices entail. While addressing objective number 3, "Use Clear and Understandable Content," she states the necessity for using plain language in order to satisfy this objective. Further into the presentation, and similar to Shpigelman and Gill (2014) as well as Pascual-Almenara et al. (2015), the case is made once more for user-testing in plain language.

This need for plain language carries over into published digital content as well as Bradley Montgomery once again ties plain language content to digital accessibility as she is discussing usability. This presentation is an undisputable link between digital accessibility and plain language, even incorporating the W3C's plain language recommendation as well in a way that is absent in the WCAG itself.

The Benefits of Plain Language for the General Population

However, it is not necessarily only the law or specific recommended guidelines that propel some authors to use plain language when considering digital accessibility. Vollenwyder, Schneider, Krueger, Brühlmann, Opwis and Mekler (2018) in their paper, *How to Use Plain and Easy-to-Read Language for a Positive User Experience on Websites*, discuss their findings related to an online study that was conducted in tandem with Swiss Federal Railways. The study, consisting of 336 non-disabled participants, was to determine if there was best practice in how to eliminate online language complexity. By presenting the participants with three different types of text: conventional language, plain language and a dynamic presentation of Easy-to-Read text, the results led the study to conclude that potentially combining plain language and Easy-to-Read texts could be most effective. Of note, the study states that language is a factor of web accessibility, but WCAG 2.0 guidelines are broad. This study aims to determine whether plain language, Easy-to-Read language, or a combination of the two, help to address the WCAG guidelines (3.1.3, 3.1.4 & 3.1.5) on

language complexity. This article helps to strengthen the case that plain language is a critical part of digital accessibility, regardless of the audience.

Schomberg and Turner (2016) add to this idea, by examining the usability of documentation through both accessibility and Universal Design for Learning (UDL), adding in Gestalt theory and plain language as a means of specifying how to design and write content. By explaining the given principles of plain language in relation to how they aid the reader, the authors make the case for why plain language directly relates to both UDL and accessibility. The authors, under the heading "Assuring usable, accessible documentation," use the quote, "Great text + weak design and weak text + great design will both have the same effect: a document that doesn't achieve its goals" (2016, p. 13). The authors also suggest that design, specifically headers and sub headers, is part of the goal of plain language. This then begs the question of what exactly is to be included under the umbrella of plain language, and therefore which WCAG 2.0 guidelines are applicable?

Of note is that Schomberg and Turner when discussing good document design, are taking into consideration not only the website audience, but also potential employees that may also benefit from adherence to accessibility guidelines, a theme seen in other articles as well. Additionally, the authors point out there is a large, important difference between accessibility and accommodation, with the burden being on the users for accommodation. This difference will be only one of the topics examined further in this thesis that incorporates ethics into the discussion.

Ethics and Accessibility

Willerton, in his book, *Plain Language and Ethical Action: A Dialogical Approach to Technical Content in the 21st Century*, presents and supports the idea that plain language is directly connected to the practice of ethics, and that those in the field should possess this vision. Through the introduction of the BUROC model of situations (bureaucratic, unfamiliar, rights-oriented and critical) he makes the argument that these are the types of situations where plain language can aid in the ethicality of the situation. This is the case, as a multitude of text and documents found online that are directly related to the rights and well-being of citizens (ex: voting, healthcare, etc.) can be dense and complicated, and therefore hinder the possibility of someone making the right decision or choosing the correct path. Connected to this is that not only can the individual better understand the information, but they can then exercise their rights as citizens.

Willerton also discusses and emphasizes the work of philosopher Martin Buber, whose work in dialogic ethics sets the stage for seeing the importance of knowing and

appreciating and understanding your audience. Through the "I-You" relationship, your ability to connect and reach the reader increases, which is where plain language can be of extreme importance and use. Although digital accessibility is not explicitly stated, this idea of writing to an audience so that they can understand it is at the forefront of digital accessibility guidelines.

Supporting this idea of plain language and digital accessibility being interrelated is Willerton's description of how plain language went from an idea focused on the readability score of the document to its role today in producing a document that is comprehensively easier to understand.

Important to note is that Willerton highlights areas of resistance in regards to plain language, which proves to only strengthens his case for plain language. This is so, as he then follows up these concerns by way of case studies that prove how plain language has worked, and therefore why it is unethical to not consider plain language when creating certain types of content.

The same sentiment is also present in Shpigelman and Gill's (2014) article, *How do adults with intellectual disabilities use Facebook?* as they take a close, unprecedented look at the obstacles that intellectually disabled individuals face when using the social media site Facebook. In addition to using Facebook for social purposes, the authors outline the important fact that it is also sometimes used as a vehicle for communicating disaster and hazard-related information, thereby increasing the importance that it is made accessible. A survey, written in accessible language, was conducted online using the site SurveyGizmo, in order to properly collect the data necessary to draw conclusions about what changes Facebook needed to make in order to make it more accessible. In addition to the response that Facebook should include speech-to-text software and more graphics (therefore lowering the amount of text), the authors also point out that other areas such as privacy settings and policies are incomprehensible. Although this article does not deal directly with accessibility and plain language, it still highlights the fact that people's rights, privacy, and potentially safety are at risk if they do not understand what they are reading, reinforcing the idea that ethics and comprehensibility are very much intertwined.

Lazar, J., Goldstein, D., and Taylor, A. (2015), in their book, *Ensuring Digital Accessibility Through Process and Policy*, lay the foundation for the need and importance of digital accessibility while also discussing the role ethics plays in the implementation of digital accessibility. The authors provide not only a thorough foundation of digital accessibility through history, practice and law, but also add an ethical component to the book

by presenting various models of how societies view people with disabilities and how positive change can come about. The critical information found in this book regarding specific models of disability are not only relevant to this thesis, but to potential further applications of the research conclusion as well.

Specific to plain language, were topics such as closed captioning, and the view that edited closed captioning could be likened to censorship. Although not explicitly mentioned in *Ensuring Digital Accessibility Through Process and Policy*, it could be implied that it is therefore best to start with a text that is more accessible (i.e., written in plain language) so that the captioning can be verbatim. In keeping with this idea is Lazar et al.'s view that making material accessible also helps those without disabilities, thus strengthening the need for plain language as the default way to author the material.

Lazar et al. discuss the two possible interpretations of accessibility: being able to actually access something versus being able to easily use it. This is important to note as it will be examined further in this thesis.

Finally, the doctoral thesis work of Beat Vollenwyder (2022), *Why Web Professionals Design for Accessibility: The Importance of User Involvement and Product Quality,* is a deep dive into examining the "why" in regards to the current lack of implementation of digital accessibility. In addition to discussing current accessibility areas where there has been a lack of adhesion, resulting in failed accessibility tests, he highlights how critical the role of web professional is in proper adoption of the accessibility guidelines. Whereas the apparent link between ethics and Vollenwyder's work may not be initially apparent, the fact that "attitude was found to be the most predictive antecedent for the intention to consider web accessibility" (2002, p. 18), speaks to the fact that currently not all web professionals feel compelled to comply with the idea of digital accessibility. This will factor into the analysis of where plain language and digital accessibility can benefit from putting in place proper training for those involved (at any level) with the implementation of digital accessibility.

Web Content Accessibility Guidelines (WCAG) 2.0 and Their Mis-Alignment With Plain Language

Comprehensibility, or lack thereof, is what some authors (to be discussed further below) are saying about the WCAG 2.0 guidelines – the very document that is dictating how digital accessibility is approached. Brys and Vanderbauwhede (2006), in their article, *Communication Challenges in the WC3's Web Content Accessibility Guidelines,* published in the journal of *Technical Communication*, challenge the language of the (at the time) proposed version 2.0 of the WCAG. They are quick to introduce the concept of universal design – the

need to keep all users in mind when designing content – and then spend the following pages of their article applying this idea to the proposed WCAG, version 2.0.

Yet, according to Brys and Vanderbauwhede, despite the best intentions of the WCAG 2.0 to keep all users in mind, the authors present the idea that web accessibility is a complex and layered subject, which in and of itself creates challenges for those tasked with understanding and implementing the WCAG 2.0 guidelines. The authors group the projected WCAG 2.0 audiences into four categories: policy makers, managers, web content authors and web developers. Immediately following, they introduce the problem that the guidelines do not actually adhere to the guidance of the W3C, which is to write in a way that is applicable and understandable to all readers. This article brings to light many questions that factor into the efficacy and impact of the guidelines. This then begs the question that if the WCAG 2.0 is not written in plain (or comprehensible) language, and also gives a very vague explanation of what this actually entails (as mentioned by Brys and Vanderbauwhede), then how can the general population be expected to incorporate this into their adherence to the guidelines? This concern with the comprehensibility of the WCAG is also present in the writings of Clark (2006), and Law et al. (2010).

Which Type of Language?

Despite potential complexity with the actual accessibility guidelines, the overarching idea remains the same: that it is a necessity. However, there is more current research that adds a layer of complexity to whether plain language is the best language to use to accomplish this accessibility.

Perego, in her book, *Accessible Communication: a Cross-country Journey* (2020), gives specific mention to the connection between plain language and accessibility, but by addressing the concept of accessibility by its broader meaning, which is that the text or material is available to all, not just to people with disabilities. She highlights this concept by stating, “We use the expression ‘accessible communication’ to refer to any form of simple or simplified communication that prevents communicative exclusion” (Perego, 2020). Perego goes on to give a brief background on plain language, and how it has found its way into government documentation as well as standards and laws.

Although a thorough case is made by Perego as to why plain language creates a more equal footing for people to access online material, she goes one step further to differentiate accessibility in regards to language simplification, citing both plain language and Easy Language as possibilities dependent upon the type of content and the target audience. To help with the discussion regarding the two types of language simplification, she also references

Inclusion Europe 2014's umbrella term of Easy-to-Understand. Perego's deduction of who the different audiences are for plain language versus Easy Language somewhat deviates from the idea of a comprehensive term in that the purposes and audiences of the two languages do not largely overlap. Whereas Easy Language focuses on people with disabilities, plain language is said to be for a more broad, comprehensive audience. Regardless, the idea still holds strong that plain language equals a higher level of accessibility for readers, even if it is not inclusive of the population at-large.

Once more focusing on the relationship between language and comprehensibility is the *Handbook of Easy Languages in Europe*, by Lindholm and Vanhatalo (2021). Although experts more in the field of Easy Read, they also present plain language as a variety of English that is tied directly to the goal of accessibility. The authors discuss the plain language movement, in reference to both the United Kingdom government and on a more global scale, hence solidifying its importance in the role of accessibility. Similarly to Perego (2020), however, plain language is presented more as a language for the greater public, with Easy Read as the language for those who are disabled, more specifically, intellectually disabled. This tends to deviate with the role of plain language presented by other scholars, as in this case plain language would not be connected as directly with digital accessibility in the context of disability.

Additional Sources

In addition to the sources mentioned thus far are a myriad of other articles that strengthen and support the main ideas of this thesis. Information pertinent to the background of plain language will come primarily from three works: Shriver's *Plain Language in the US Gains Momentum: 1940-2015,* the International Organization for Standardization's draft version standard *ISO/DIS 24495-1:2022 (E)*, and Martin Cutts's *Oxford's Guide to Plain English* (2020*)*. Cutts's guide, despite being more reference in nature, also serves to strengthen the need for plain language in digital web content due to his chapter, "Clarifying for the Web."

Digital accessibility, to streamline ideas and definitions, will be explained and supported primarily by the information found in the WCAG 2.2 and from information supplied by the W3C. Overarching ideas and concepts about digital accessibility have also been gleaned from W3Cx's online class, "WAIO.1x: Introduction to Web Accessibility." Articles both in support of the WCAG and concerned about components of the WCAG have been consulted so as to shed light on potential areas of concern when it comes to this prevalent and widely accepted guide for digital accessibility.

As standards and guidelines are an integral part of this thesis, and will be used to support and validate the information discussed, there are ones that should be mentioned in accordance to digital accessibility. As previously mentioned in this thesis, the primary worldwide set of guidelines for digital accessibility is WCAG 2.2. Specific to Europe, is EN 301 549, as well as EU Directive 2016/2102. The United Nations' Committee on the Rights of Persons with Disabilities (CRPD) not only directly adheres to the WCAG 2.2 standards, but also creates reports about where countries are both excelling and lagging behind in their support of people with disabilities, including digital accessibility.

The Current Fraught Relationship Between Plain Language and Digital Accessibility

In summary, it can be said that the literature available pertaining to the intersection of plain language and digital accessibility, while in general dated and lacking, can still form a holistic, encouraging picture for the use of plain language in digital material. The lack of research, or perhaps more like the rare explicit mention of plain language being a critical part of digital accessibility, speaks to the fact that currently the two camps appear to be siloed. Both parties recognize the importance of one another, as can be seen from both the draft of the ISO standard on plain language, and the WCAG 2.2 guidelines. In the draft version of ISO/DIS 24495-1: 2022 (E), it specifically states, "It does not include existing technical guidance about accessibility and digital documents, although this Standard's guidance can apply to both" (PL ISO, 2022). WCAG 2.2's success criteria 3.0 is titled, "Understandable," as it relates to understandability and comprehensibility. Not surprisingly, ISO/DIS 24495-1: 2022 (E) shares "understandable" as one of its main principles as well. Where they meet in the middle will be determined and discussed in the pages that follow.

Analyzing the available studies on specifically how individuals access the Internet and what successful access entails, in combination with best-practice plain language and digital accessibility standards and guidelines, the following pages will create movement surrounding the necessity to view plain language and digital accessibility as one.

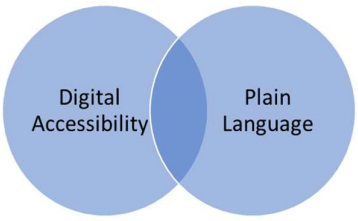
III. Methodology

The research in this thesis is composed primarily of reputable secondary sources, and is descriptive in nature. Additionally, the research is qualitative, relying solely on the information garnered from pre-existing sources. These methods were chosen due to the relatively unknown nature of the problem in regards to the "how" and "where" (McCombes, 2019). The research questions, although perhaps vague in nature, serve to highlight the current disjointedness of two overarching concepts deemed best practice in digital information. Therefore, any movement into the minutiae and therefore implementation of new practices would come after the determination of the "how" and "where" this disjointedness is present. Thus, the research in this thesis aims to show "how" and "where" there may be an intersection or overlap of both digital accessibility and plain language.

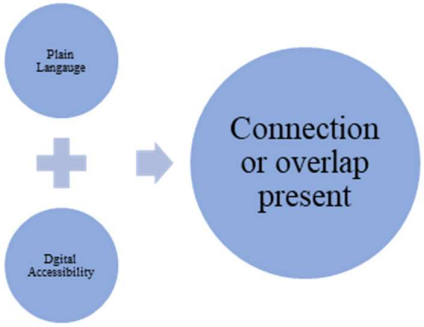
As the onset of the research was focused on academic sources looking specifically at the explicit connection between plain language and digital accessibility, due to a lack of sources on this topic, a reroute was in order. Following a reexamination of the overarching goal of the research, the research then gravitated towards articles where the topics of both plain language and digital accessibility were presented or discussed, but perhaps in a more implicit manner.

A visual representation of the content-related strategy for the initial round of research is found below in *figure 1*:

Figure 1*: The Content Connection by Research Phase (Author's Depiction).*



Content gleaned from round one of initial research stage.



Content gleaned from round two of initial research stage.

The need for a redirection of the research was an important indication that the secondary sources alone would not be sufficient for a satisfactory conclusion of the research questions. Therefore, a second stage of research was added that would supplement the academic secondary sources.

Upon reflecting once more on how best to determine the conclusion to the research questions at hand, it was determined to use two internationally recognized standards that both demonstrate the principles of the given concepts in question and serve to exemplify "best practices" in the given areas of digital accessibility and plain language. The WCAG 2.2 (draft version) was the standard chosen to represent digital accessibility, and plain language principles (ISO/DIS 24495-1:2022 (E)), also in draft form, was chosen to represent plain language. Please note that the addition of expert interviews was considered, but the author deemed it more critical to lay a foundation via concrete information prior to adding in first-hand opinions. This is of high consideration, however, if the research is to continue.

After a careful analysis of both standards, the two were then compared and contrasted, to come to a conclusion about where, if any, an overlap between the two exists. The overall representation of the findings from the second phase of research is included in a chart in the annex of this thesis, Appendix 6, entitled, *Overlap of Plain Language Principles (ISO/DIS 24495-1:2022 (E)) in the WCAG 2.2.* This chart is by no means exhaustive, but serves to provide critical information to the picture presented by the academic research alone.

The research for this thesis, although extensive and sufficient for its given purpose, leaves many stones unturned. If the concepts were to be further developed, adding in primary sources and expert interviews, the additional research would serve to elevate the understanding of the topic at hand, and move it forward in a way that could better serve the population-at-large in regards to digital accessibility, a United Nations-deemed human right.

IV. Findings - Discussion/Results/Analysis

4.1 Synthetical Overview of Plain Language

Plain language is seen written multiple ways in regards to the capitalization of the "p" and the "l." For the sake of consistency in this thesis, and when not in a direct quote, the author has chosen to implement the same capitalization used in the 2022 International Organization for Standardization (ISO) draft standard on plain language, ISO/DIS 24495-1:2022 (E), thus "plain language."

4.1.1 Plain Language Definition and Variations

Although gaining serious steam over the past 40 years (Shriver, 2017, p. 3), using simpler language is a concept that has been around for centuries, having been first linked to Chaucer in the 14th century (Cutts, 2020, p. 307). Another notable author from the more recent whose argument was in favor of plain language for social purposes was George Orwell (Shriver, 2017, pg. 7). He equated plain language with clear thought (Shriver, 2017, p. 3) and blamed complicated language for a lack of transparency and honesty (Shiver, 2017, p. 3). In today's society, plain language is also seen as a way of writing that allows readers to both access and digest the information with the ultimate goal of comprehensibility and usability. For the sake of its relevance in this thesis, the specific definition from Plain Language Association International (PLAIN) will be used: "A communication is in plain language if its wording, structure, and design are so clear that the intended audience can easily find what they need, understand what they find, and use that information" (PLAIN, 2023).

Where this PLAIN plain language definition deviates from the idea of readability alone, is by the verbiage use, or application of the material. The draft of the International Standard Organization (ISO)'s Plain Language standard ISO/DIS 24495-1:2022 (E) states that, "Plain language focuses on how successfully readers can use the document rather than mechanical measures such as readability formulas" (PL ISO, 2022, p. v). Thus, plain language is more comprehensive than just the wording alone, and takes into consideration factors such as structure, layout, design, etc., all with the end-goal of both comprehensibility and usability (PL ISO, 2022).

Perego, in her publication, *Accessible Communication: a Cross-Country Journey*, uses the term "accessibility" and deems it one of the core principles of comprehensibility (2020, p. 21), but first by pointing out that in its universal sense, it is not for disabled people alone, but instead related to the general idea of using products or services (Perego, 2020, p. 21). She combines the concept of accessibility with the process of writing in plain language

by her statement that, “we use the expression ‘accessible communication’ to refer to any form of simple or simplified communication that prevents communicative exclusion” (Perego, 2020, p. 21). This idea of “accessible communication” will factor into the analysis in the pages to follow, and is therefore of importance to note.

Plain language is not the only type of language or accessible communication that is available to aid readers in their quest for understanding, yet for the sake of the scope and nature of this thesis, it is what will be used in the analysis to follow. However, it is not without note that there are multiple types of “languages” available in today’s digital world to help users in their quest for comprehension, with Easy Language (also called Easy Read in the United Kingdom), (Lindholm & Vanhatalo, 2021, p. 624) gaining traction as well. Perego supports the idea of both types of languages in her declaration that, “the benefits of language simplification in several contexts and the impact of plain and Easy Language in granting full participation and communicative inclusion are now clearer than ever” (2022, p. 26). Going in the opposite direction in regards to level of comprehension, are Standard Language and Expert Languages or Languages for Special Purposes (Lindholm & Vanhatalo, 2021, p. 29). The diagram below, *figure 2*, which is an adaptation taken from Lindholm and Vanhatalo (2021, p. 30), shows that progression of languages and their level of comprehensibility.

Figure 2: *Progression of Languages and Their Level of Comprehensibility (Adaptation Taken From Lindholm & Vanhatalo, 2021, p. 30).*

There are varying trains of thought in which type of language is applicable to which type of audience, with the current issue as well that the standardization of each type of language is still varied (Lindholm & Vanhatalo, 2021, p. 30). Therefore, and not to discount this lack of standardization, but for the sake of pertinence to this thesis, plain language will be viewed as a method to not only aid in comprehensibility for the population-at-large, but for people with disabilities as well (Lindholm & Vanhatalo, 2021, p. 32), and thus, applicable to and reaching a wide audience. Easy Language is for those who are not able to use plain language, as it also includes further simplification and easification (Lindholm & Vanhatalo, 2021, p. 32). Whereas Easy Language also could be a feasible “language” to focus on when discussing

language and digital accessibility, plain language is closer to Standard Language, and therefore the language of choice for this thesis. Additionally, there is already use of plain language at the government-level for many large nations (United States, United Kingdom, New Zealand, etc.) who have designated it the specified language for certain types of government-issued information, thus highlighting its current acceptance already in society today.

4.1.2 Applicable Laws and Standards

Plain language is not only suggested as a best practice, in some countries its use is mandated. As previously mentioned, governments such as the United States and the United Kingdom are already proponents of using plain language, and in the case of the United States of America, as of 2010, requiring, by law, government agencies to write their communications with the public in plain language (Shriver, 2017, p. 42). In the United Kingdom, it was in 2014 that the Government Digital Service announced their guidelines for content in plain English on government web pages (Cunningham, 2017). Please note that in the United Kingdom they do not use the terminology "plain language", but instead plain English (Cutts, 2020, p. xv). The plain language movement is gaining steam in the European Union (EU) as well, (Shriver, 2017, p. 43) and can be viewed on an EU country-level through the work of European Languages in a Public Sphere (ELIPS). By way of ELIPS's survey, you can find data about policies and actions by European public authorities, regarding for example the use of plain language, easy-to-read language, terminology or the training of civil servants (ELIPS, 2019). New Zealand, in 2022, passed "The Plain Language Act," which mandates the use of plain language in government communication (McClure, 2022).

On an international, more comprehensive level, and as previously mentioned at the start of this section, is the ISO draft standard ISO/DIS 24495-1:2022 (E) (PL ISO). Although ISO standards are not requirements or law, they are internationally recognized guidelines and ideas to help comply with best practices set out by experts in the relevant fields. Despite being written in English, the standard aims to apply to most, if not all, languages (PL ISO, 2022). To note and perhaps reflect upon, is the recent publication year of 2022 (and in draft form), which clearly exemplifies the newness of plain language on the world stage. There are also two international organizations whose goal it is to advocate for the use of plain language: PLAIN (previously mentioned), and Clarity International (more specifically for plain legal language).

4.1.3 Present Day Implementation and Potential Complications

In addition to its proponents viewing the use of plain language as a means for creating accessible information, this accessible information also aligns with the concept of ethical action. Willerton, in his book, *Plain Language and Ethical Action*, and through his BUROC model, presents the idea that plain language gives citizens and consumers better access to their rights (2015, preface). This strengthens the case for plain language, as well its support at various levels. Yet, there can be complications when it comes to the implementation of plain language, which is important to mention for transparency on the subject.

As seen previously, plain language, when done correctly, can aid in accomplishing the critical and ethical goal of accessibility and comprehensibility in both printed and digital material (Perego, 2017; Willerton, 2015). Yet, getting to that point, can prove difficult for those tasked with producing the material, and can even result in text that was longer than the initial version (Pulrang, 2020). Additionally, being able to produce a piece of content that more clearly explains information, means that the author themselves must truly embrace the content material and have deep content understanding (Pulrang, 2020), which can be difficult for those who may be wearing multiple hats in the process of content creation. Perego complements this idea in her statement that, "Anglophones are also aware that writing in a clear style is difficult and time-consuming" (2020, p. 22). This look into the reality of plain language content creation does not detract from the overarching success of its correct implementation, but does draw attention to the fact that plain language is not so "plain," but indeed entails proper know-how and execution.

4.2 The Concept of Digital Accessibility

Digital accessibility, as its name connotes, relates to the "digital realm," as in technology and online information communications and services (EN 301 549 v3.2.1). Due to the fact that we live in a world that is "online" for most of its information, digital technology can be a successful way of bringing people together (Lazar et al., 2015, p. 5). However, and of relevance to this thesis, is that idea that digital information, despite not having "barriers" in the physical way that one may equate to accessibility, still needs to be made accessible to users, both with adaptive technological means as well as through the creation of the content itself. There is a bifurcation amongst professionals involved in digital accessibility in regards to who is included and how accessibility should be defined (Vollenwyder, 2022, p. 11). But, regardless of these differing beliefs, the idea still holds strong that digital accessibility is essential for people with disabilities and useful for all (Lazar et al., 2015, p. 2). One example of a far-reaching digital accessibility practice is closed captioning. Although intended for

Deaf people or those who are hard of hearing, it can also be beneficial to people in environments where sound is compromised, or when trying to learn a second language (Lazar et al., 2015, p. 7).

4.2.1 The Varying Faces of Digital Accessibility

This thesis will use the Web Accessibility Initiative (WAI)'s Web Content Accessibility Guidelines (WCAG), version 2.2, as the main source for digital accessibility rules, ideas and protocol when analyzing its relationship to plain language. Although there are other applicable standards and laws, the WCAG 2.2 is country-independent and open-source, so therefore the chosen set of guidelines for this thesis and the "de facto" standard for web accessibility (Vollenwyder, 2022, pg. 13). Other standards and directives will also be discussed and examined, however, so as to highlight the relevance and importance of the topic, but also to introduce a means for comparison. Due to the limited scope of this thesis, and because digital accessibility is a broad, overarching concept with a cadre of concepts that fall beneath it, accessibility, in the context of digital accessibility, will be defined as follows: "[the] extent to which products, systems, services and environments and facilities can be used by people from a population with the widest range of user needs, characteristics and capabilities, to achieve identified goals in identified contexts of use" (ISO 9241-11:2018 [i.15] (EN 301 549 V3.2.1, p. 15). As can be seen from the citation information, it is taken from an international standard (ISO 9241-11:2018 [i.15]) related to human-computer interaction, referenced in the harmonized European standard EN 301 549 V3.2.1 (2021-03). Please note that in this definition of accessibility, disability is not specifically addressed. Instead, the chosen definition for the sake of defining accessibility in this context is more extensive and wide-reaching. The author of this thesis also adheres to the idea that digital accessibility can benefit more than just those who are disabled. Yet, there are those who believe that digital accessibility relates specifically and uniquely to those digital users with disabilities (WAIO.1x, 2022).

4.2.1.1 Disability Defined

Similarly to how the concept of digital accessibility has varying definitions (Vollenwyder, 2022), the concept of disability itself has varying models and definitions (Lazar et al., 2015). The preamble in the United Nations Conventions on the Rights of Persons with Disabilities (UNCRPD) Optional Protocol recognizes this and confirms this with letter *(e)* in its preamble, "Recognizing that disability is an evolving concept and that disability results from the interaction between persons with impairments and attitudinal and

environmental barriers that hinder their full and effective participation in society on an equal basis with others" (2006). This can be equated to the *social model* of disability, the idea that the environment of the user creates the barriers (Vollenwyder, 2022, p. 9). In stark contrast, and still being used by countries today (for example, France), is the *medical model or "welfare" model* of disability (Lazar et al., 2015, p. 102). In France's 2003 International Disability Rights Compendium Report, they define a person with disabilities as one, "for whom the possibility of obtaining or retaining employment is effectively reduced due to a deficiency or diminution of physical or mental capacity" (Lazar et al., 2015, p. 113). This model unfortunately aligns well with the UNCRPD's belief that environmental barriers hinder the participation of those with disabilities in society if the state itself sees people with disabilities as medically "handicapped;" a derogatory word (Andrews et al., 2022, p. 2) still used today in France for people who are disabled, and therefore, in accordance with the medical model, also "treatable" by segregation and charity (UNCRPD/C/FRA?CO/1; Lazar et al., 2015, p. 102).

The medical model is therefore hard to align with the idea of digital accessibility, as it is seen to support the idea of disability being the individual's problem (Vollenwyder, 2022, p. 9) and not the environment being held responsible for creating the barrier (Vollenwyder, 2022, p. 9). This connection between accessibility and disability model has been discussed before as it also relates to law, protection and rights (Lazar et al., 2015, pp. 101-103). Too large for the scope of this thesis, but perhaps of future interest, could be the analysis of the disability model by country and its link to adherence to digital accessibility mandates and laws. This could prove to determine how a country's mindset relates to putting the tools in place for progression towards equality (and thus UNCRPD compliance). To further this, would be an examination of how access to clear (and plain) language relates to their country's definition of accessibility and disability.

Although the medical model of disability is not optimal for digital accessibility to be recognized and enforced, the social model, as well as the civil-rights approach and the human rights approach (as defined by Lazar et al., 2015), set their citizens up for the possibility of equality. Despite the varying models of disability, and regardless of the disability model adhered to by each nation, the fact remains that as of March 7, 2023, there is an estimated 1.3 billion people experiencing significant disability (WHO, 2023). This number is representative of 16 % of the world's population (WHO, 2023), and is not a comprehensive number due to its exclusion of temporary disability (such as COVID-19-induced anxiety) (Bradley Montgomery, 2022). In a world where there is a projected 1.6 billion people with disabilities

(WHO, 2023) the way disability is defined and digital accessibility is defined and addressed, is critical for the fair, equitable treatment of humankind; and thus, a human-rights issue.

Similarly to the idea that there is not a streamlined definition for both digital accessibility and disability, is lack of consistency regarding how countries actually monitor and control the implementation of the laws and guidelines put in place for successful digital accessibility practices (Lazar et al., 2015). In the next section the international policies and laws in place that focus on digital accessibility will be presented, including the United Nations Conventions on the Rights of Persons with Disabilities (UNCRPD). As the focus of this thesis is more so the European Union than the United States of America, despite there being beneficial material present in Section 504 and Section 508 of the American Rehabilitation Act, the USA's policies and laws will not be included in this thesis.

In addition to the types of disability models, and of equal importance, is how to address individuals with disabilities. As already noted, the concept of disability does not have a "one size fits all" definition (Lazar et al., 2015). The same is similar for how to refer to people with disabilities, as language and mentalities shift and change with time (Andrews et al., 2022, p. 1). What is critical to note in the framework of this thesis, is that the language used to address people with disabilities is related to how both individuals with disabilities and the society at-large view these individuals (Andrews et al., 2022, p. 2). Being aware of, and understanding the beliefs behind the disability language would not only be empathetic, but would serve to give a more personal connection to the importance of digital accessibility.

4.2.2 Applicable Directives and Standards

It is necessary to mention the rules, regulations and directives that exist in order to help draw attention to and enforce the practices that would result in effective digital accessibility. For the sake of ease and comparison, the chart below, *figure 3,* highlights the most applicable European Union and international legislation that has been used in this research. A larger, more expansive version of this chart is found in Appendix A.

Figure 3: *Chart of Legislation Applicable to Digital Accessibility (Author's Depiction).*

Name	Organization Responsible	Type of Legislation	Year Published	Additional Information
Web Content Accessibility Guidelines (WCAG) Version 2.2	W3C – World Wide Web Consortium	International standard for digital	2023 (most updated version), a 3.0	Guidelines ranked A, AA and AAA, with

		accessibility compliance	is being worked on	A and AA considered mandatory
ISO/IEC 405000:2012: Information Technology – W3C Web Content Accessibility Guidelines (WCAG) 2.0	International Organization for Standardization (ISO)	International standard for digital accessibility compliance	2012	Identical to the WCAG 2.0
EN 301 549 V3.2.1	ETSI, CEN, CENELEC	Harmonized European Standard	2021	Information and Communications Technology (ICT) products and services
Directive (EU) 2016/2102	European Parliament and of the Council	Directive of the European Parliament, Legislative Act	2016	For public sector bodies, related to the accessibility of websites and mobile apps
Conventions on the Rights of Persons with Disabilities	United Nations	Optional Protocol for all UN Members	2006	Applicable to all governments

Despite there being multiple guidelines available, some are not accessible themselves due to the hefty-fee (most ISO standards), or in the case of the WCAG 2.2, the content itself; to be discussed further in section 3.3. Another issue that is present, is the enforceability of the standards or laws. According to Vollenwyder, WebAIM million found that 96.8% of all home pages had detectable digital accessibility failures (2022, p. 13). Therefore, despite these standards and laws being put in place, there is much to be done in order to ensure that they are being both adhered to and enforced.

4.2.3 Training for the Advancement of Digital Accessibility

The enforceability of the laws and standards will advance the impact of digital accessibility. Another area that will improve the implementation of digital accessibility is

rooted in the proper education and training of the professionals who must understand and properly create digitally accessible content. Properly educating, informing and guiding those involved in the content creation process, such as IT professionals, web developers and operators, would help to streamline and systematize the process (Lazare et al., 2015, pg. 103). McEwan and Weerts go so far as to deem accessibility a fundamental competency of a web developer (2007, p. 3). As can be seen by the WebAim million percentage of home pages that were not digitally accessible, content creation is not in alignment with necessary and critical digital accessibility competency (Vollenwyder, 2022); this is something that can be aided with proper training and information. Vollenwyder (2022) offers brief ideas for both *top-down* and *bottom-up* approaches for how this could occur, yet also includes the necessity for insight as to why and how web professionals consider accessibility. Perhaps of most importance, or of extreme relevance, is the idea that the person creating the content must also be willing and interested, and be of the right attitude or mindset (Vollenwyder, 2022, p. 18).

4.3 What the Research Says About the Marriage of Plain Language and Digital Accessibility

After the aforementioned insight into both the subjects of plain language and digital accessibility, the focus will now be on how these two subjects are found to be intertwined, and on what level this interconnectedness exists. This will then serve as a means of comparison for section 4, which will be a more concrete analysis of this intersection using the concepts indigenous to both digital accessibility and plain language, as represented and presented by an international "best-practice" standard for each.

4.3.1 Ethicality of Using Plain Language in Digital Materials

Prior to delving into what the research says about plain language and digital accessibility in regards to ethics, is the importance of repeating that digital accessibility is deemed a human right by the United Nations in their Convention on the Rights of Persons with Disabilities and Optional Protocol (UNCRPD). Article 3 of this convention, named "General Principles," lists accessibility as one of the core principles of the UNCRPD (2006, p. 5). Article 9, "Accessibility," opens with the resolute text of, "To enable persons with disabilities to live independently and participate fully in all aspects of life…" (UNCRPD, 2006, p. 9). Although an over encompassing, blanket statement, this idea is followed by multiple resolutions, with one resolution relating specifically to the topic at hand: "*(g)* To promote access for persons with disabilities to new information and communications technologies and systems, including the Internet" (UNCRPD, 2006, p. 10). The verb

"promote" in this case is critical, as it implies that the concept of digital accessibility is already known to the author or engineer. One can only (intentionally) promote something they are already cognizant of. Therefore, only if the idea of digital accessibility is known to the person responsible for the transfer of information, will the use of plain language potentially be used to satisfy this goal. Therefore, it could be implied that if digital accessibility is not a known (or important) concept to the author or engineer, there is little hope for the intentional inclusion of plain language. This is a slippery slope, as will be seen below, since people's rights and assets are at stake if information is either not supplied, or not supplied correctly (Willerton, 2015).

The potential lack of understanding when it comes to the criticality and magnitude of digital accessibility, leads to the need to examine how plain language and digital accessibility can affect one of the UNCRPD's core principles, accessibility, and its belief that those with disabilities should be able to, "live independently and participate fully in all aspects of life" (UNCRPD, p. 9). In regards to digital accessibility, this right is one that takes effort on the part of the person responsible for the production of the digital material at play, as it relates to both the barriers created by technology and comprehensibility. In order to first understand why one should be ethically and morally motivated to implement and enforce digital accessibility, the research of Lazar, J., Goldstein, D., and Taylor, A. in their publication, *Ensuring Digital Accessibility Through Process and Policy* (2015) will be looked at once again.

4.3.1.1 Understanding Models of Disability and their Connection to Digital Accessibility

Lazar et al. discuss the types of models associated with disability, in addition to the multitude of laws and regulations that have taken shape around this topic of digital accessibility (2015). The disability models alone assist in explaining why some people (and countries) may be slower to embrace the need for digital accessibility. Although lengthy in size, it is important to include the following passage from chapter six in *Ensuring Digital Accessibility Through Process and Policy*, as it supplies details about the root of why the criticality of digital accessibility varies from country to country (and thus from person to person).

> The authors of a leading treatise on disability rights distinguish broadly between two models of protection of people with disabilities, the civil rights approach and the human rights approach. On the one hand we have the American with Disabilities Act in the United States, which focuses on removing barriers to access and allowing equal opportunity for people with disabilities while the other countries look to inherent

> dignity and value of people with disabilities using a human rights approach. This latter approach sees states as responsible for removing the social barriers to full participation and integration of people with disabilities on a basis of equality. Both approaches recognize persons with disabilities as rights holders, and both reject the "medical model" which views people with disabilities as problems to be fixed through medical intervention, and if not, to be dealt with charitably. That last view supports welfare for persons with disabilities, but does not attempt to involve people with disabilities in society through employment and full participation and is slowly being recognized as inconsistent with an equal rights narrative for people with disabilities. However, the "welfare" approach continues in some countries, notably France (Lazar et al., 2015, p. 102).

This information summarizes the idea that societies' view of disability can also dictate how those people with disabilities are viewed, and thus treated. Therefore, despite what the UNCRPD may suggest and request, the concept that everyone deserves the right to access digital information will be a more abstract contact for some countries and their citizens where people with disabilities are not viewed as equal. In addition, the above passage from *Ensuring Digital Accessibility Through Process and Policy*, adds to the previous idea that incorporating plain language into digital content will be more complicated if digital accessibility is not deemed a necessity and a right.

4.3.1.2 The Dark Side of In-Accessible Digital Content

In addition to equality in general, digital accessibility, if not implemented properly, can also be a source of other reasons for concern. In today's society, and in light of the recent COVID-19 pandemic, critical information is being posted online incessantly, and it is necessary that everyone can access that information at the same speed (Lindholm & Vanhatalo, 2021). Lazar et al. states that, "When you don't have access to digital content at the same time as others, you are removed from the conversation" (2015, p. 44). The same holds true for information that can't be understood.

Digital accessibility alone won't accomplish the ethical obligation that digital content producers have to make information such that it satisfies the UNCRPD criteria of helping those with disabilities to "liv[e] independently," and being able to "participate fully," in society (2006, p. 9). If the reader can't understand the material being read on a comprehensible level, then it clearly is not accessible. It must therefore be evaluated how advanced or complicated language can potentially interfere with information retrieval, and how plain language will help to satisfy the human right of accessible digital information.

Numerous governments, through both mandates as well as the interest in and adherence to best practice, have forged ahead with the use of plain language (Shriver, 2017) so that a larger swath of their citizens can participate in the daily life of the country. Yet, when there is information that is incomprehensible or complicated, it can leave the user not only left-out, but potentially at risk or oppressed (Cutts, 2020). An individual can be misinformed or under-informed in a myriad of categories: "information vital to health, safety, legal rights and opportunities, and financial security" (Pulrang, 2020). This misinformation or lack of information due to the inability to access the information (in regards to language) is the foundation of Willerton's BUROC model, described in his book, *Plain Language and Ethical Action*. Willerton believes that when determining whether to use plain language, you must consider the content of the text; in turn, you are making the ethical choice to write in plain language (2014, p. 15). Willerton's BUROC model is composed of the following five parts: B is for bureaucratic, U is for unfamiliar, R and O are for rights-oriented, and C is for critical (Willerton, 2014, preface XV). Those five topics describe types of information that could somehow negatively interfere with the reader. Therefore, the author should feel compelled to write content that the reader can understand, leading to better comprehension and choices for the reader (Cutts, 2020). Taking it one step further, is Willerton's mention of Martin Buber's dialogical view of ethics (2014, p. 43). Despite its higher-level concept, the overarching idea of respecting the reader (Willerton, 2014, p. 44) lends itself well to the idea of introducing digital content to the reader that they can actually understand.

Using the BUROC model, more than one of the concepts can be applied to perhaps the less obvious right of civic participation in rule-making. However, people can't or won't participate in rule-making if they are unaware, uninformed, or unable to read the content. Rule-making at the governmental level should include the public, be transparent, and be easily understood (MacKinney et al., 2020), a concept that unites with ethics on multiple levels. MacKinney et al. also believe that digital accessibility should also be improved as part of this transparency, citing plain language as a way to help accomplish that (2022, p. 4).

For the sake of streamlining what is an inordinate amount of information on plain language, the author of this thesis has chosen primarily to focus on government communication, as it has been readily studied and also includes a high percentage of the categories of information considered relevant and necessary for the population-at-large. Despite this being said, it is important to highlight information gleaned from two sources that use first-hand information from social media users with disabilities. Social media, although sometimes deemed more frivolous in nature than government-issued information, can also be

a necessary source of information in moments such as emergency or crisis (Shpigelman & Gill, 2014). Additionally, sites like Facebook have privacy settings and other critical safety settings that require higher levels of literacy (WAIO.1x, 2022; Shpigelman & Gill, 2014). It is also critical to note that understanding the documents you are required to sign for joining sites such as Facebook can also be stress-inducing (WAIO.1x, 2022), not to mention legally binding as well as a threat to your privacy and/or safety (Shpigelman & Gill, 2014).

4.3.1.3 Censorship and Digital Accessibility

Excluded from the concepts found in the BUROC model (Willerton, 2014), but intertwined with ethics, is that of censorship. Digital accessibility in its rawest form, means being able to physically access information. Plain language allows for accessibility on another level, in that users can truly "access" or understand the information, information that could be critical to their well-being. However, there is also the issue of censorship and the withholding of information. This is relevant to digital accessibility and plain language in that for users with hearing issues, frequently captions are used; sometimes being edited or changed. Deaf advocacy groups respond to the use of modified captions by saying that, "to offer anything less than verbatim captioning is censorship and would be limiting access to information" (Lazar at al., 2015, p. 49). Since one of the reasons given for potential modification is to lower the level of reading comprehension (Lazar et al., 2015, p. 49), it seems only fit to introduce plain language into the picture as a standard way of writing text that may be converted without issue into captioning. Pulrang (2020) compounds upon this idea, with his thought that, "Plain Language done right ensures that accessible information is complete and fully informative – not over-simplified, heavily edited or censored. Providing less information on a subject or significantly editing out details is not access" (Pulrang, 2020, p. 4).

4.3.2 Comprehensibility

Accessibility can have more than one definition (Law et al., 2010); expanding the potential for positive outcomes, but also adding to the need for a deeper understanding in order for proper implementation at all levels. As mentioned, a common misconception about accessibility is that it still only relates to the actual "access" of information – that barriers, in the case of digital accessibility, to get to the information, are dissolved. However, once that information is available to the reader, it still needs to be understood by the reader, and therefore "accessed" on another, deeper level (Lazar et al., 2015). To view it from another angle is to learn the comparison between accommodation and accessibility. From the paper,

Accessibility Compliance: One State, Two Approaches, accommodations are "reasonable academic adjustments or auxiliary aids that provide equal access to programs and services on an individual basis" (Adams et al., 2018, p. 163). Although the word "access" is still present, the concept of accommodation is one that singles out the user, instead of having a situation present that benefits all users, regardless of what disability or device they bring to the table (Adams et al., 2018, p. 164). Turner and Schomberg (2016) solidify this difference through their strong words: "Accessibility is not accommodation" (p. 2).

To take it one step further, Pascual-Almenara et al. in their paper, *Impact of Web accessibility barriers on users with hearing impairments*, describe an accessibility barrier as "any condition that makes it difficult for people with disabilities or special needs to achieve a goal while they are browsing a website, even if they use the appropriate assistive technology" (2015, p. 234). The critical word here is "goal," as it implies that there is more to be gained from simply logging onto the computer and being able to get the page to function, a more comprehensive "goal" that includes understanding the material at hand.

As briefly discussed in the previous section, digital accessibility, in its more austere, currently-communicated form, relates to the literal access of digital material. If using this concept as a starting point, one must reflect on some of the technological advancements (falling into the category of accommodations) that have allowed for people with disabilities to have a more equitable on-line presence, thus making them a part of the larger picture in regards to digital material consumption. Of highest relevance to plain language would be the screen reader, and text-to-speech/text-to-sign language functions (WAIO.1x, 2022). These features aid the user in accessing the actual content on the screen, but it is the use of plain language that makes it truly "accessible." This is due to the fact that if choosing to use plain language for your site content, you would be aiding in the comprehensibility of the text for not only people who have hearing or visual disabilities but the population in general (Boldyreff et al., 2001), thus leading to a better subjective comprehension in general (Wollenwyder et al., 2018). Prior to understanding how plain language is a critical part of digital accessibility through its allowance of true "access" to the information in the form of comprehensibility, let's first examine the role that plain language plays in comprehensibility versus readability.

4.3.2.1 Comprehensibility Versus Readability

Important to note is that the concept of readability is often deemed synonymous with comprehensibility. Readability refers primarily to the reading level of the text, but does not take other components into consideration (Bolydreff et al., 2001). The plain language ISO,

"ISO/DIS 24495-1:2022 (E)," also discourages readability formulas as the sole, mechanical means for gauging the success of the document (2022, p. v). Regardless of this, reading level (as in meeting the reader at their level) is considered an important part of both plain language and digital accessibility, and therefore must be included in the mention of their intersection. The WCAG 2.2 supports both the idea of readability formulas and adhering to specific reading levels as set by the United Nations Educational, Scientific and Cultural Organization (UNESCO). However, and in contrast to the WCAG's support of these readability formulas as the means of determining "understandable" content, Rudolph Flesch, the founder of one of the most frequently used readability tests, says otherwise:

> Some readers, I am afraid, will expect a magic formula for good writing and will be disappointed with my simple yard stick. Others, with a passion for accuracy, will wallow in the little rules and computations but lose sight of the principles of plain English (Cutts, 183).

Ruth-Janneck also makes clear that only humans can check whether or not the wording is truly understandable (2011b). The WCAG 2.2's dependence on the readability formula as a means of determining accessible text perhaps highlights why plain language and digital accessibility overlap, but aren't yet holding hands. The fact that "understandable" is not viewed in the same way by both the working bodies associated with plain language and digital accessibility signals an area for discussion and alignment. This is also why one must not assume that through assistive technology and readability alone individuals are able to truly comprehend the given material. Through the introduction of plain language into the material (or another type of Easy Language), the goal of comprehensibility will be more easily met (Perego, 2020).

4.3.2.2 Sign Language

Sign language is a language of its own (Ruth-Janneck, 2011a). Therefore, people that communicate via sign language have that as potentially a native or preferred language (Bolydreff et al., 2001). This means that information not in sign language is conceivably more difficult for them to understand (Ruth-Janneck, 2011a). With this as the case, it is therefore critical to have measures in place so that digital content can be understood as well as possible by those users who are Deaf or aurally challenged. In general, this can be done without the use of any assistive technology (Boldyreff et al., 2011) which is why it is of even higher consequence that the content is written and presented in such a way that lends itself to comprehension. At the time that the article *The Case for the Use of Plain Language to Increase Web Accessibility* was written, programs that allowed for a text-to-sign language

function did not exist. Today they do, and therefore fall into the same category as text-to-speech in regards to how plain language would aid in their accessibility.

Regardless of the technology now available, the concept remains the same that less complex language is easier to translate (Boldyreff et al., 2001), and therefore writing digital content in plain language will aid those users who either translate their information from sign language or to sign language (or any other sort of language-to-language translation). Translations and users alike who are not reading in their first language would also benefit from texts low in jargon and slang (Boldyreff et al., 2001). These more successful translations will result in better understanding of the original content, thus resulting in a true "access" of the information.

4.3.2.3 Screen Readers

Screen readers bring to life the words on the page and are a technology that is used by a multitude of users with a variety of needs and end-goals (WAIO.1x, 2022). Although users with sight difficulties are one of the most frequent types of screen-reader users, other users who don't have any vision issues, but instead have processing disorders, also choose to use screen readers (WAIO.1x, 2022). Dyslexic users (or those with similar symptoms), who (at the time of the article's publication in 2009) composed up to one-third of the Internet's users, also chose to use screen readers to access digital material (McCarthy & Swierenga, 2009). Therefore, a plethora of Internet users are using this technology.

Along the same lines as the text-to-sign language function is the idea of text-to-speech, a capability of screen readers. Whomever the user, and regardless of why they chose to use the assistive technology, their end-goal is accessing and processing information. Unlike text-to-sign language where there is a translation necessary (Boldyreff et al., 2001), the source text in this case (in theory) is the material at hand, with no translation from another language needed. In fact, many people who use screen readers prefer not to have an augmented version of the text (Theofanos & Reddish, 2003) which is another reason why being mindful when creating the source text is critical. Thus, the idea still remains that the level of comprehensibility of the base text will affect how much the user understands as they are listening to the "speech," yet again making plain language a viable way of making the digital material "accessible communication" (Perego, 2021, p. 21).

4.3.2.4 Digital Design Features

Screen readers not only pull from the text of the digital source, they also use the design elements of the website to help guide the reader. A well-constructed site, in turn, also adds to the user's understanding of both the website and the information found on the website

(Cutts, 2020, pp. 247-248), thus allowing for "digital access." Therefore, the strength of the design, pertaining to elements that are both front end (visible to the user) and back end (in the code of the site), is also a factor in whether the digital content is truly accessible. As plain language includes the layout and formatting of the text as part of its core concepts (PL ISO, 2022), this is also another area of overlap, and one that speaks more so to the structure of the content than the wording itself.

Yet, structure of the web content is an important part of understandability (Ruth-Janneck, 2011a), not only for the sake of user's activity, but also, as previously touched upon, in order for screen readers and other assistive technologies to do their job properly. For the user, they must be met with understandable text that guides them properly (Ruth-Janneck, 2011a), as if they are led astray, and will perhaps not find what they need, then they will not fully comprehend the information. This can also be alleviated by navigable content with the proper and consistent headings (Shomberg & Tuner, 2016). Color and font size, as well, can also help add (or detract) from successful navigation (McCarthy & Swierenga, 2010), which supports the idea that paying attention to contrast is imperative as well (Ruth-Janneck, 2011b; Cutts, 2020).

4.3.2.5 ALT Text and Other Technical Features

In addition to structure and headings, a critical yet frequently overlooked part of comprehensibility in relation to digital material accessed through assistive technology, is the "ALT" tag (McEwan & Weerts 2007; Ruth-Janneck 2011b). The alt tag is considered back end as it relates to the technical code of the website. Regardless, this is perhaps one of the most crucial parts of digital accessibility that can be aided by plain language, as it gives a description for any graphics that a screen reader or text-to-speech/text-to-sign function comes across. The coded text of the ALT tag is the information that the reader receives which explains what the photo or graphic is about. For some users, it also aids in their understanding of implied content (Bradley Montgomery, 2021). Furthermore, usually the text included on graphics is not able to be read by screen readers (Cutts, 2020), thus making properly worded ALT text even more important. McEwan and Weerts, in their article, *ALT Text and Basic Accessibility*, include the concept of "purpose" when defining how to properly construct an ALT tag (2007, p. 2). This means that it is not just a description of the picture, but helps explain *why* the picture is there. An explanation of the "why" for the picture puts the reader one step closer to comprehension. Yet, adhering to plain language principles when constructing the text, will elevate the reader's comprehension even further. Ruth-Janneck, in *Experienced Barriers in Web Applications and their Comparison to the WCAG Guidelines*,

references three studies that also lead to the conclusion that, “another main problem [is] missing or unhelpful alt text for pictures and videos” (Ruth-Janneck, 2011b, p. 13). A way to aid the reader on their path towards comprehension and thus true digital accessibility, is well-formulated, plain language ALT text.

The comprehensibility of the text also affects perhaps overlooked components of digital accessibility in relation to critical components of the digital experience. As previously discussed in section 3.1, “Ethicality of using plain language in digital materials,” you can potentially put the user at risk in a myriad of ways if you don’t include language that allows them to understand the digital content they are interacting with. The same concept applies to information included in coded text such as error messages, buttons, labels, links, suggestions and forms requesting input (Ruth-Janneck 2011a; WAIO.1x, 2022). These items must also be written in a way that users will be able to properly and successfully execute the tasks at hand. Additionally, code elements such as “label” and “language” attribute (Ruth-Janneck 2011b) allow screen readers to offer information to the user that also assists in a deeper understanding of the material. Adding a jargon tag in the XML would also alert the reader that the information is context specific and may need further investigation (ideally a glossary or definition will be given if this is the case) (Boldyreff et al., 2001). Suffice it to say, plain language is a comprehensive part of digital material, and should be considered during all steps of the content development.

4.3.3 Future Application of Plain Language in Digital Accessibility

Comprehensibility does not only apply to the digital material found *on* websites, but for some in the field of digital accessibility, it is a concept missing from the actual digital accessibility guidelines themselves, the WCAG (Brys & Vanderbauwhede, 2006; Clark, 2006). An area of concern centered around the WCAG, is the fact that it itself is hard to understand; the document itself is not “accessible.” Brys and Vanderbauwhede (2006) lay out seven different communication challenges the WCAG faces when imparting complex information to a “varied audience,” an audience which includes: policy makers, managers, web content authors and web developers. This wide-ranging audience parallels the idea that online content, in general, must also be written in a way that allows access (and comprehension) by a non-homogeneous audience. Yet, according to Brys and Vanderbauwhede (2006) the WCAG does not follow its own guidelines, and falls short of the mark in both language and structure. In keeping with the alignment of the goal of presenting ways in which digital accessibility and plain language overlap, is the recommendation that

plain language be considered when examining the comprehensibility of the WCAG. Reworking the language and terminology so that it is appropriate for a wide-ranging audience would result in a document on accessibility that in turn is truly accessible.

Another potential use of plain language in digital accessibility, is in the user-testing stage. In the research conducted for this content of the thesis, a concept that emerged was using plain language to conduct usability tests for online content (Pascual-Almenara et al., 2016; Shpigelman & Gill, 2014). This user-testing not only sheds light on where the digital content falls in regards to comprehensibility, but also allows for more accessible testing, and therefore more accurate results.

4.4 Plain Language Principles (ISO/DIS 24495-1:2022 (E)) in the WCAG 2.2

The analysis that follows is based primarily off of the two documents: 1) ISO/DIS 24495-1:2022 (E) and 2) the draft version of WCAG 2.2. These two documents are the current leading standards in both plain language and web accessibility, which is why they have been chosen for this scrutiny. Please note that at the time of this research, the ISO/DIS 24495-1:2022 (E) was still in draft form, as was the WCAG 2.2. A previous version of the WCAG 2.2, WCAG 2.0, is also an approved ISO standard: ISO/IEC 40500:2012. For the sake of adhering to the most recent version of the WCAG, however, the WCAG 2.2 is the version referenced in this analysis. Additionally, due to the enormity of the WCAG 2.2 and the fact that in addition to the guidelines there are multiple other sources available on the website to aid in the implementation of digital accessibility, the author chose primarily to focus on the material covered in the WCAG 2.2 guidelines and success criteria, as the scope would otherwise be too large for a paper of this nature.

4.4.1 Current Intersection

As previously mentioned, the WCAG 2.2 is a document that aims to take a comprehensive look at what best practices should be followed so that readers with disabilities can both access and understand the digital content at hand (Campbell et al., 2023). Although most of the requirements in the WCAG 2.2 are technologically-based (back-end), as the ultimate goal is creating a positive technical user-experience, there are front-end recommendations as well. When considering this in regards to plain language, an outward reference to using this type of writing in the WCAG 2.2 requirements, success criteria and techniques is not seen. However, there is an exception, which is one-time mention in the "Understanding Success Criterion 3.1.5: Reading Level," when the document is discussing a

possible solution for scientific material. It states, “A scientific journal includes articles written in highly technical language aimed at specialists in the field. The journal’s Table of Contents page includes a plain-language summary of each article” (Campbell et al., 2023, p. 3). This one mention leads us to believe that the authors do see the relevance in using this sort of language, despite its lack of explicit mention in the guidelines.

Notwithstanding this sole reference to “plain-language” in the WCAG 2.2 success criterion 3.1.5, “Reading Level,” there are a multitude of less-explicit references to plain language in the WCAG 2.2, which is why it is necessary to examine the varying structural levels of both the PL ISO and WCAG 2.2 in order to get the larger, more comprehensive picture as to where and how they overlap.

Prior to this examination and excluded from the more intricate analysis to follow due to these sections being structurally separate from the WCAG 2.2’s primary guidelines of “Perceivable” “Operable,” “Understandable” and “Robust” (POUR), are instances of either the explicit mention of or allusion to concepts related to plain language elsewhere in the WCAG content. For instance, in the “WCAG 2 Documents” section of the WCAG 2.2 (found under Web Content - WCAG 2), which refers to a page composed of links and websites provided to help with further information and explanations, plain language-related concepts do emerge. Despite “WCAG 2 Documents” being structurally independent from the WCAG 2.2 guidelines and success criterion and deemed “non-required,” it nonetheless mentions multiple concepts also found in the PL ISO, and states that its purpose is to aid in meeting accessibility needs for those users with cognitive and learning disabilities (Campbell et al., 2023).

The two overarching WCAG 2.2 “Cognitive Accessibility Objectives” referenced on the “Supplemental Guidance” page (nested within “WCAG 2 Documents”) that are most applicable to the PL ISO standard, are: “Help Users Find What They Need” and “Use Clear and Understandable Content.” Despite the components of these WCAG 2.2 “Cognitive Accessibility Objectives” having multiple distinct overlaps with the specific parts of the PL ISO standard, there is little detective work necessary even from the outset. If dialing out to look at the larger picture, the second and third overarching principles of the PL ISO are, “Findable” and “Understandable” which is a direct correlation to WCAG 2.2’s “Help Users Find What They Need” and “Use Clear and Understandable Content.” What is important to note, however, is that there is a deviation in the two guidelines as to how they term the idea of specific types of language. In the “WCAG 2.2 Cognitive Accessibility Objectives” the

terms “clear” and “easy to understand” are used, therefore not referencing plain language directly.

Additionally, there is a list of sources available for the WCAG 2.2 users in the “Related Resources” section for Success Criterion 3.1.5 that includes three plain language websites (including PLAIN) amongst other subject matter. Written at the top of the “Related Resources” page with all of the links is the disclaimer, “Resources are for information purposes only, no endorsement implied” (Campbell et al., 2023).

The purpose of including this information in the analysis, is that it would perhaps be over-looked otherwise, should a user just choose to adhere to the mandatory sections of WCAG 2.2 (“A” and “AA”) and the content provided by the WCAG 2.2 principles alone. However, as it relates to aiding the user in accessible content creation, it should still be relevant and familiar to the user as it also takes plain language into consideration. Yet, this lack of outward reference to plain language within the confines of the WCAG 2.2 guidelines despite being mentioned elsewhere on the WCAG 2.2 site, leads back to the idea that it is necessary to enact a deeper level examination on the emphasis WCAG 2.2 has placed on making the digital material simpler to comprehend and use, thus engaging with the principles of plain language.

4.4.2 Structural Level

Previously discussed in the prior section was an overlap of concepts that are not found specifically in the WCAG 2.2 requirements, success criterion and techniques, but in supplemental documents of the WCAG 2.2. Now, we will look specifically at how these WCAG 2.2 requirements, success criterion and techniques intersect with the PL ISO. To properly do this, it is critical to present the structure of the WCAG 2.2 so that the reader can visualize where the initial overlap occurs. For an overarching visual depiction of the WCAG 2.2 structure, please see *figure 4* below:

Figure 4: *Overall Structure of the WCAG 2.2 (Author’s Depiction).*

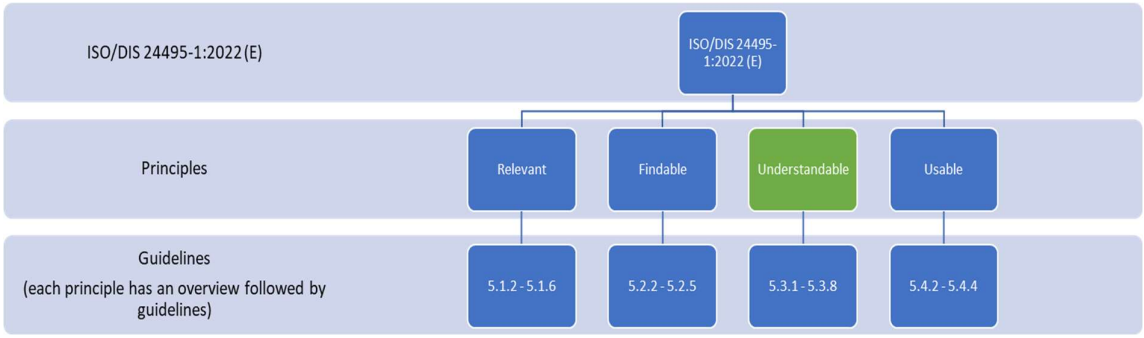
For a larger, easier-to-read version, please see Appendix B, *Structure of the WCAG 2.2.*

The principle highlighted in green in *figure 4*, is "Understandable." The guidelines that fall under its umbrella, are "Readable," "Predictable," and "Input Assistance" and all have success criteria listed within the guidelines (now shown in this chart depiction above) that aid in helping to accomplish the guidelines and principles put forth.

For the PL ISO, ISO/DIS 24495-1:2022 (E), the overall structure stays the same as the WCAG 2.2 in that there are principles that lead to guidelines that then offer ways to succeed in accomplishing the principles. As expected, however, the variation of the content differs. To view the overall structure of the PL ISO, please refer to *figure 5* below. For a larger, easier-to-read version, please see Appendix C.

Figure 5*: Overall Structure of the ISO/DIS 24495-1:2022 (E) (Author's Depiction)*

.



Whereas the WCAG 2.2 includes success criteria for each guideline, the PL ISO uses its guidelines to express the ideas, concepts and information pertinent to achieving the given principles. Therefore, the PL ISO stops at the "guideline" level and does not include further information like the WCAG 2.2 does with the success criteria.

Of extreme importance, and regardless of the difference in how the structures may unfold, is the fact that both the WCAG 2.2 and the PL ISO have "Understandable" as their third guiding principle. This confirms that both standards deem the concept of "understandable" to be not only a critical part of their material, but also a main goal when implementing their standard. It could be deduced that due to this major structural overlap, the foundation of the principle "Understandable" is also the same. However, once looking below the surface, it becomes apparent that what makes something "understandable" from the vantage of the WCAG 2.2 is not in exact alignment with what the PL ISO purports to be the basis for making something understandable. Before discussing the dissimilarities of the

structure, however, we must first review how the two standards align in regards to the concept of "understandable."

As visible in *figure 5* above, the WCAG 2.2 principle of "Understandable" has three guidelines: "Readable" (3.1), "Predictable" (3.2), and "Input Assistance" (3.3). These three guidelines, along with their success criteria, are what help the user of the WCAG 2.2 determine what it means to create a digital document that is comprehensible and understandable, which is also a main goal of plain language and the PL ISO. The specificities of the WCAG 2.2 "Understandable" guidelines and success criteria will be discussed further in section 4.4, "Overlap of principles." For now, however, it is of significance to note that the WCAG 2.2 guideline of "Readable" (3.1) (which falls under the principle of "Understandable") is structurally and conceptually most similar to the PL ISO principle of "Understandable." Using *figure 6* below as a visual representation, the standards' principle of "Understandable" align four times:

Figure 6*: Principle of "Understandable" in Both Guidelines (Author's Depiction, With Information Taken From Both the WCAG 2.2 and the ISO PL).*

WCAG 2.2 Success Criteria	*WCAG Guideline*	*WCAG 2.2 Principle*	*ISO PL Guideline*	*ISO PL Principle*
3.1.3 Unusual Words	3.1 Readable	Understandable	5.3.2.c Use specialized terms only in specific cases	Understandable
3.1.4 Abbreviations	3.1 Readable	Understandable	5.3.2.d Use abbreviations only when appropriate	Understandable
3.1.5 Reading Level	3.1 Readable	Understandable	5.3 Understandable	Understandable
3.1.6 Pronunciation	3.1 Readable	Understandable	5.3.2 Choose familiar words	Understandable

Despite there being this outward, visible overlap, there are differences lurking beneath the seemingly similar structure. For the WCAG 2.2, the guidelines and success criteria for the principle of "Understandable," (focusing primarily on the guideline of "Readable") short of success criteria 3.1.5, "Reading Level," relate more to specific, individual components of the text, and not the text as a whole (WCAG 2.2 "Readable" success criteria: "Language of the Page" (3.1.1), "Language of the Parts" (3.1.2), "Unusual Words" (3.1.3), "Abbreviations" (3.1.4), and "Pronunciation" (3.1.6)). These success criteria are primarily associated with

individual components of a text. In opposition, is the PL ISO's principle of "Understandable," which has more to do with overall comprehension of the text. The first part of PL ISO's principle 3, "Understandable," is 5.3.1 "Overview," which states that, "Individual elements of a document, such as wording and structure, should be easy to understand. These individual elements should work together so that readers comprehend the document as a cohesive whole" (PL ISO, 2022, p. 6).

To go one level deeper into the differences of how the two standards view the concept of "understandable," is to state that most of the success criteria related to the WCAG 2.2, principle 3, guideline 3.1, "Readable," that overlap with guidelines from the PL ISO, are labeled with a rating of "AAA" which means that they are suggested, but optional. This means that although structurally there is a separate principle for the digital material being understandable, it is not as weighty as perhaps some of the other WCAG 2.2 principles.

Another type of complication emerges in that the WCAG 2.2 guideline 3.2, "Predictable" which falls under the principle of "Understandable," overlaps structurally with one of the guidelines in the PL ISO, guideline 2, "Findable." The overlap of concepts, despite not being found under the same level structurally, also sheds light on the differing views of how the authors of both standards view the concept of understandable.

The structural misalignment will be discussed more thoroughly in the next section, "Concept of Predictable," which examines the concept of predictability for digital text and media via the two standards being discussed. WCAG 2.2's principle of "Understandable" includes this concept as one of its guidelines (3.2 "Predictable"). However, this is structurally diverse from the PL ISO, as in this standard, the concept of predictability is included instead under the principle of "Findable" (principle 5.2.4: Use headings to help readers *predict* what comes next). So, although predictability is present on the structural level for both standards, the idea falls under different guidelines. The ramifications this has on the actual overlap of concepts will be expanded upon in the following section.

4.4.3 Concept of Predictable

In order to properly visualize where the concept of predictability falls structurally for both the WCAG 2.2 and the PL ISO, please see *figure 7* below which shows the two different principles and guidelines for the concept of predictability:

***Figure** 7: Concept of Predictability by Guideline (Author's Depiction).*

WCAG 2.2	**PL ISO: ISO/DIS 24495-1:2022 (E)**
Principle: Understandable	**Principle:** Findable
Guidelines: • 3.1 Readable • 3.2 **Predictable** • 3.3 Input Assistance	**Guidelines:** • 5.2.2 Structure the document for readers • 5.2.3 Use information design techniques that enable readers to find information • 5.2.4 Use headings to help readers **predict** what comes next • 5.2.5 Keep supplementary information separate

Please note that there is a longer, more comprehensive version of the above diagram in Annex D of this thesis, which is named Chart 3, *Concept of Predictability by Guideline.* This version includes a side-by-side visual of all of the guidelines for both the WCAG 2.2 and the PL ISO.

It is critical to point out the fact that although the concept of predictability is not perhaps what comes to mind when considering the readability and comprehensibility of a text, it is indeed necessary in order to aid the reader on their journey towards comprehension and understanding. This idea is confirmed by both standards having included predictability as a guideline. WCAG 2.2, as previously mentioned, places the guideline of "Predictable" (3.2), under the principle of "Understandable." Going one layer deeper to the WCAG 2.2 success criterion, "Predictable" has three success criteria that relate and overlap with the PL ISO. Unlike before with "Readable" where the referenced success criteria were ranked "AAA," this time, all three are "A" or "AA" which means that they are mandatory in most situations and therefore deemed necessary. The three success criteria are: "Consistent Navigation" (3.2.3), "Consistent Identification" (3.2.4), and "Consistent Help" (3.2.6). "Consistent" is a theme here, and one can draw the conclusion that the WCAG 2.2 authors believe that consistency in structure, presentation and layout will aid in understandability and will

diminish concerns centered around where and what comes next. The section "Benefits" found under success criterion 3.2.3, "Consistent Navigation," states that,

> Ensuring that repeated components occur in the same order on each page of a site helps users become comfortable that they will be able to predict where they can find things on each page. This helps users with **cognitive limitations**, users with **low vision**, users with **intellectual disabilities**, and also those who are **blind** (Campbell et al., 2023).

The PL ISO standard, in regards to the concept of predictability, also sees it as a functional part of text retrieval. The PL ISO, in its guideline 5.2.4, "Use headings to help readers predict what comes next," continues to give specific advice about the use of headings, even including five guidelines about how to create proper, successful headings. The overview on PL ISO principle 2, "Findable" also mentions the importance of headings in predictability: "Headings are one of the many techniques to help readers predict what comes next and are especially helpful in documents longer than a few paragraphs" (PL ISO, 2022, p. 5). The WCAG 2.2 also includes headers as an "Advisory Technique" for success criteria 3.2.3, "Consistent Navigation." The WCAG 2.2 technique "PDF14: Providing running headers and footers in PDF documents," provides methods for both back-end and front-end authors to help add headings and structure to the digital content.

PL ISO 5.2.3 "Use Information Design Techniques" also overlaps with concepts found in the WCAG 2.2 success criteria that fall under the guideline of "Predictable." Both WCAG 2.2 success criterion 3.2.3, "Consistent Navigation," and WCAG 2.2 success criterion 3.2.4, "Consistent Identification," overlap with guidelines and ideas touting the importance of structural and informational design, the main goal of PL ISO principle 2, "Findable." So, yet again there is a mismatch when it comes to overarching overlap of principles, but a connection at the guideline level is present, nonetheless.

Despite it being a less overt connection than with the matching WCAG 2.2 and ISO PL principles of "Understandable," there is still interconnection found with the concept of predictability in both the standards. A deep dive and a much further analysis would need to happen in order to properly explain where the information in both standards truly overlaps, as there are many layers for both documents. However, for the sake of the argument of this thesis, at the current level of analysis, it is reasonable to say that the content of the two standards overlap. The next section will highlight some more of these interconnections, focusing on WCAG success criteria to help guide the process.

4.4.4 Further Dissection of Principles and Concepts

Thus far, in regards to the comparison being made of the WCAG 2.2 and ISO PL standard, ISO/DIS 24495-1:2022 (E), it has been discussed how both standards have a guiding principle termed "Understandable." At the guideline level (a level below principle), the comparison and contrast was made for the concept of predictability, which is also a theoretical overlap of the two standards, and thus digital accessibility and plain language.

In this section, the remaining WCAG 2.2 success criteria that could also be deemed potential points of intersection or overlap with the PL ISO will be examined. As this thesis aims to look specifically where, if at all, the potential overlap of digital accessibility and plain language exists, the analysis to follow was conducted with this goal in mind. To add to this is the fact that the analysis is from one perspective, and despite taking all components of the standards into consideration when making deductions, the take away is independent of guidance from the authors of the standards and their potential implicit meanings that may have not been included in the analysis. A chart, entitled *Overlap of WCAG 2.2 and ISO/DIS 24495-1:2022 (E) in Regards to Plain Language Principles*, that includes all of the information obtained during the analysis (including additional notes) can be found in Annex F of this thesis. It is highly recommended to access the chart in the annex prior to reading the analysis that follows.

The chart, whose header column is seen as depicted below in *figure 8*, has been designed in the following way for means of comparison:

***Figure 8**: Header Column of the Chart, "Overlap of WCAG 2.2 and ISO/DIS 24495-1:2022 (E) in Regards to Plain Language Principles" (Author's Depiction).*

WCAG 2.2 Success Criterion	**WCAG 2.2 Guideline**	**WCAG 2.2 Principle**	**Description** (the most applicable component)	**ISO Plain Language Guideline** (if applicable)	**ISO Plain Language Principle**	**Connection** (in general)	**Additional Notes/ Connections**

Of high relevance to note in this thesis is the column titled "Connection (in general)." The inclusion of "in general" in parentheses is to signal to the reader that there are perhaps other connections possible, but for the sake of this analysis, the text included in this column is solely to highlight the overarching connection of the two components being compared from the two standards under examination. This connection is specifically from the viewpoint of the author who has used the plain language concept of comprehensibility as a guiding factor.

The remainder of the analysis below will include the informational break-down found in the chart, *Overlap of WCAG 2.2 and ISO/DIS 24495-1:2022 (E) in Regards to Plain Language Principles,* which, as noted before, is found in Annex F. As can be seen in the chart header above, the chart begins by referring to specific WCAG 2.2 success criteria which, on a structural level, fall below both "principal" and "guideline." These success criteria, therefore, allow one to see where, on a much deeper level, the possibility of specific overlap may occur in reference to both the WCAG 2.2 and the PL ISO.

Although this section's aim is to highlight the more specific, deeper connections between the WCAG 2.2 and the PL ISO, the comparison will be discussed, for sake of organization, by using the WCAG 2.2 principles, "POUR." To remind the reader, this stands for, "Perceivable," "Operable," "Understandable," and "Robust." The rationale for using the WCAG 2.2 principles to guide the analysis of the chart, *Overlap of WCAG 2.2 and ISO/DIS 24495-1:2022 (E) in Regards to Plain Language Principles*, is that on a structural level both standards are too layered and dense to do a one-by-one, side-by-side comparison. Thus, it was necessary to choose a more comprehensive way to discuss the findings. It is also essential to note that the following written analyses are supplemental to the chart, *Overlap of WCAG 2.2 and ISO/DIS 24495-1:2022 (E) in Regards to Plain Language Principles*, and therefore are to be read and understood in conjunction with the chart.

Present for each success criterion listed on the chart is a rating of "A," "AA," or "AAA." As previously discussed, this is a classification system given to the success criteria on how critical the WCAG 2.2 authors deem the implementation of that success criterion. Satisfying the criteria with a rating of "A" and "AA" is typically required in order for the document to be considered "accessible" (Campbell et al., 2023). For the sake of the analysis below all success criteria that overlap with PL ISO concepts will be included, regardless of their classification.

4.4.4.1 Perceivable

The first eight WCAG 2.2 success criteria that are present on the chart also fall under the principle of "Perceivable." Additionally, they are shared amongst three WCAG 2.2 guidelines, 1.1 "Text Alternatives," 1.2 "Time-based Media," and 1.4 "Distinguishable." As can be seen from the fact that there is no 1.3 WCAG 2.2 guideline present on the chart, there was not an overt overlap of this guideline with any distinguishable PL ISO guidelines. This would also preclude any success criteria from the WCAG 2.2 guideline 1.3 from being present, as the success criteria structurally fall beneath the guidelines.

It is also valuable to recall that the PL ISO has a similar structure to the WCAG 2.2 in that there are overarching principles, followed by guidelines. Unlike the WCAG 2.2, however, the PL ISO does not have success criteria. Therefore, the overlap of these standards will only pertain to principles and guidelines in reference to the PL ISO. This being said, for the WCAG 2.2 principle of "Perceivable," the chart highlights and overlaps concepts found in the PL ISO principle of "Understandable." The PL ISO guidelines that are applicable to WCAG 2.2 relevant guidelines of: 1.1 "Text Alternatives," 1.2 "Time-based Media," and 1.4 "Distinguishable," are primarily 5.3.2 "Choose familiar words," 5.3.3 "Write clear sentences," and 5.3.6 "Images/multimedia." Additionally, for the WCAG 2.2 principle of "Perceivable," but only pertaining to two of the eight WCAG 2.2 success criteria from the WCAG 2.2 guideline of 1.4 "Distinguishable," is PL ISO guideline 5.2.3, "Use information design techniques that enable readers to find information," which falls under the PL ISO guideline of "Findable."

As the potential scope for the analysis of the chart could stand alone as a paper, for the sake of this thesis, the connection drawn for each guideline overlap will be brief and over-encompassing. With this being said, it can be concluded that the interconnection between digital accessibility (via the WCAG 2.2) and the plain language principles put forth in the PL ISO in regards to the eight applicable success criteria from the WCAG 2.2 principle of "Perceivable," is relevant to the importance of the reader or user's comprehension of the digital material at-hand.

4.4.4.2 Operable

Building off of the prior information, are three relevant WCAG 2.2 success criteria that fall under the WCAG 2.2 principle of "Operable." Although the three success criteria are all connected to the WCAG 2.4 guideline of "Navigable," there is also a separate mention of the guideline 2.2 "Enough Time" without a tangential success criterion, as it pertains indirectly to PL ISO's principle of "Understandable." As the description specifically states in PL ISO 5.3, "Understandable," "Readers can understand what they find" (PL ISO, p. 6). Therefore, if the reader doesn't have enough time (the main concept of WCAG 2.2 guideline's 2.2 "Enough Time"), they will not be able to understand the material.

Going back to the three aforementioned "Operable" WCAG 2.2 success criteria, which also all fall under the guideline of 2.4 "Navigable," an overlap with two PL ISO principles is found. Whereas the first two designated success criteria, 2.4.2 "Page Titled," and 2.4.6 "Headings and Label" relate to the PL ISO guideline of, 5.3 "Readers can understand the material," and therefore the overarching principle of "Understandable," the third

applicable WCAG 2.2 success criteria is linked to guideline 5.2.4 “Use headings to help,” and therefore relevant to the principle of “Findable” as well.

Regardless of how and where structurally the two standards overlap in the WCAG 2.2 principle of “Operable,” the tie-together for the two standards is big picture. The digital material will not be navigable and therefore operable, unless readers can understand the material, which includes easily finding the material they need.

4.4.4.3 Understandable

The connection between digital accessibility and plain language via the principle of “Understandable” for both the WCAG 2.2 and the PL ISO has previously been discussed in section 4.2, “Structural level.” However, the chart, *Overlap of WCAG 2.2 and ISO/DIS 24495-1:2022(E) in Regards to Plain Language Principles* gives a more visual representation of where the specific overlap of “Understandable” then deviates to the PL ISO principle of “Findable.” Regardless of this deviation, however, are 12 “Understandable” WCAG 2.2 success criteria that are intertwined with the PL ISO. This is the largest, most direct overlap out of the four WCAG 2.2 principles. As also previously mentioned, success criterion 3.1.5 “Reading Level,” is where the phrase “plain-language” in the WCAG 2.2 is found.

As there are 12 WCAG 2.2 “Understandable” success criteria that stem from the three guidelines of 3.1 “Readable,” 3.2 “Predictable,” and 3.3 “Input Assistance,” there is no simple conclusion about how these ideas and concepts relate to the PL ISO, as there is more than just direct, overt connections being drawn. The overlapping PL ISO guidelines, as can be seen from the chart, are, 5.1.6 “Select content that the readers need,” 5.1.6.f “Select content ethically,” 5.2 “Findable,” 5.2.3 “Use information design technique,” 5.3 “Understandable,” 5.3.2 “Choose familiar words,” 5.3.2.c “Use specialized terms only in specific cases,” and 5.3.2.d “Use abbreviations only when appropriate.”

Therefore, with the conclusion drawn that there are 12 WCAG 2.2 success criteria and three WCAG 2.2 guidelines overlapping with the PL ISO in the context of three PL ISO principles (including “Relevant” as it is a sub-connection in a few cases) in addition to eight PL ISO guidelines, the WCAG 2.2 principle of “Understandable,” leaves a lot to discuss and examine further.

What can be concluded from the multi-level, multi-dimensional overlap of the two standards at the WCAG 2.2 principle of “Understandable,” is that understandability and comprehensibility are two areas where the two standards, and thus the two concepts of digital accessibility and plain language, intersect. However, the juxtaposition and comparison of the two standards also sheds light on areas where the two standards seem to differ in their take on

what comprehensibility may mean, and how it can be measured. As seen in section 3.2 of this thesis entitled, "Comprehensibility," readability and comprehensibility cannot be measured by formulas alone (Boldyreff et al., 2001). This idea is also reaffirmed in the introduction of the PL ISO through the text, "Thus, plain language focuses on how successfully readers can use the document rather than on mechanical measures such as readability formulas" (2022, p. v).

Another relevant concept to highlight here in regards to "understandable," is that of ethicality. Although this topic has already been discussed in this thesis in section 3.1, "Ethicality of plain language usage," in the context of academic works, the ethics involved in a reader understanding the digital content at hand is a concern that is also clearly discussed and defined in the PL ISO. PL ISO guideline 5.1.6, "Select content that readers need," has an "f" clause that states,

Select content ethically:

- Select accurate content.
- Do not include false or misleading content.
- Do not hide or leave out content that readers need to know (PL ISO, 2022, p. 5).

Although this is also alluded to in the WCAG 2.2 in success criterion 3.3.4, "Error Prevention (Legal, Financial, Data)" and success criterion 3.3.6, "Error Prevention (All)," nowhere in the verbiage does it make reference to the ethics involved in properly creating and supplying digital content. In success criterion 3.3.4, "Error Prevention (Legal, Financial, Data)," it does state that, "The intent of this Success Criterion is to help users with disabilities avoid serious consequences as the result of a mistake when performing an action that cannot be reversed" (Campbell et al., 2023). Although that statement reinforces the importance that the content creator plays in the safety and success of the user, it does not outwardly indicate the ethical role one plays when also trying to help users avoid errors (in addition to other potential situations and content). Thus, although the implication is present, it would be in the best interest of the WCAG 2.2 (and the population at large) to add specific verbiage about ethicality to their error prevention success criteria.

4.4.4.4 Robust

Although the connection between the WCAG 2.2 principle of "Robust" and plain language may not be immediate, the chart concludes otherwise. There is only one WCAG 2.2 success criterion present in relation to the principle of "Robust," falling under the guideline of 4.1 "Compatible." This success criterion is 4.1.3, "Status Messages," and it discusses how

to apply and implement status messages in digital material. The PL ISO connection is another overt, overarching concept, as without fail it can be linked to the PL ISO principle of "Understandable" (and therefore the PL ISO guideline 5.3, "Understandable" as well). If a user can't understand the text of a status message, they could be prohibited from moving forward in their activity; thus, this is the opposite of "accessible."

4.4.5 Application of information to EN 301 549

In the previous section, 2.2, "Applicable directives and standards," EN 301549 V3.2.1 (2021-03) was presented as one of the European standards focused on the correct implementation of digital accessibility (in the case of EN 301 549 V3.2.1, the standard is specific to information and communications technology products and services). Although not applicable to all sectors, the standard holds valuable weight in that it is also the standard that Directive (EU) 2016/2102 (standard specific to the digital accessibility of websites or mobile apps of the public sector), references when discussing the principles and guidelines specific to digital accessibility. Clause 37 of the Directive (EU) 2016/2102, states that,

> The four principles of accessibility are perceivability, meaning that information and user interface components must be presentable to users in ways that can perceive; operability, meaning that the user interface components and navigation must be operable; understandability, meaning that information and the operation of the user interface must be understandable; and robustness, meaning that content must be robust enough to be interpreted reliably by a wide variety of user agents, including assistive technologies. Those principles of accessibility are translated into testable success criteria, such as those forming the basis of the European standard EN 301 549 V1.1.2 … the relevant clauses of the European standard EN 301 549 V1.1.2 (2015-04) should be considered as the minimum means of putting those principles into practice (2016, p. L 327/5).

Therefore, it should be noted that there is almost complete alignment with the WCAG 2.2 and the digital accessibility concepts found in both EN 301 549 V3.2.1, and the Directive (EU) 2016/2102. Thus, taking this information into consideration, this also means that there is therefore an extensive overlap of plain language principles and guidelines with these two very impactful, widely implemented European directives.

Where there is a deviation, however, is that in EN 301 549 V3.2.1, the document is separated into concepts (identical to the WCAG 2.2 success criterion) by rating level. This rating system is identical to the one found in the WCAG 2.2 ("A," "AA," "AAA").

Therefore, the concepts (success criteria) that are deemed mandatory can be found in Table A.1 of EN 301 549 V3.2.1: Web Content - relationship between the present document and the essential requirements of Directive 2016/2102/EU (p. 90). Those criteria deemed optional (with an "AAA" rating), are in a separate document within the EN 301549 V3.2.1 standard (see *figure 9* below). In this table, they are referred to as WCAG success criteria, and the numbers align with the 2.1 version of the WCAG, an older version than was used for this thesis and analysis. Regardless, the concepts, guidelines and success criterion numbers are almost completely identical to the WCAG 2.2.

***Figure 9**: WCAG 2.1 Level "AAA" Success Criteria (Sourced From EN 301549 V3.2.1, p. 51).*

Table 9.1: WCAG 2.1 Level AAA Success Criteria

No.	Guideline	Success Criterion Number	Success Criteria Name
1	Time-based media	1.2.6	Sign Language (Prerecorded)
2	Time-based media	1.2.7	Extended Audio Description (Prerecorded)
3	Time-based media	1.2.8	Media Alternative (Prerecorded)
4	Time-based media	1.2.9	Audio-only (Live)
5	Adaptable	1.3.6	Identify Purpose
6	Distinguishable	1.4.6	Contrast (Enhanced)
7	Distinguishable	1.4.7	Low or No Background Audio
8	Distinguishable	1.4.8	Visual Presentation
9	Distinguishable	1.4.9	Images of Text (No Exception)
10	Keyboard Accessible	2.1.3	Keyboard (No Exception)
11	Enough time	2.2.3	No Timing
12	Enough time	2.2.4	Interruptions
13	Enough time	2.2.5	Re-authenticating
14	Enough time	2.2.6	Timeouts
15	Seizures and physical reactions	2.3.2	Three Flashes
16	Seizures and physical reactions	2.3.3	Animation form Interactions
17	Navigable	2.4.8	Location
18	Navigable	2.4.9	Link Purpose (Link Only)
19	Navigable	2.4.10	Section Headings
20	Input modalities	2.5.5	Target Size
21	Input modalities	2.5.6	Concurrent Input Mechanisms
22	Readable	3.1.3	Unusual Words
23	Readable	3.1.4	Abbreviations
24	Readable	3.1.5	Reading Level
25	Readable	3.1.6	Pronunciation
26	Predictable	3.2.5	Change on Request
27	Input assistance	3.3.5	Help
28	Input assistance	3.3.6	Error Prevention (All)

Taking this separation of success criteria by rating level into consideration, the overlap of PL ISO concepts with the mandatory digital accessibility requirements in both the EN 301549 V3.2.1 (2021-03) and the Directive (EU) 2016/2021 is naturally lower than the entirety of the WCAG 2.2. The chart *Overlap of WCAG 2.2 and ISO/DIS 24495-1:2022 (E) in Regards to Plain Language Principles* in Appendix F, has found that concepts relevant to plain language in the WCAG 2.2 overlap with the PL ISO approximately 26 times. If the WCAG 2.2 success criterion that are ranked Level "AAA" (and therefore not considered

mandatory) were to be removed, there is an overlap 16 times. Success criteria 3.2.6, "Consistent Help," is Level "A" in WCAG 2.2, and yet is not a part of EN 301 549 V3.2.1. Thus, if WCAG 2.2 success criteria 3.2.6 were present in the EN 301 549 V3.2.1 standard, it would be an additional overlap of WCAG 2.2 and PL ISO. Despite there being less overlap of plain language principles and the WCAG-aligned success criterion listed in Annex A of EN 301 549 V3.2.1 (2021-03) than if using the entire WCAG 2.2 document in a stand-alone fashion, the fact remains that plain language cannot be overlooked when fulfilling both standard EN 301 546 V3.2.1 and Directive (EU) 2016/2021 as well.

4.6 Potential Extension of Overlap

Following an in-depth comparison of the WCAG 2.2 and the PL ISO, and having read a multitude of works relating to both, it must be stated that there is potentially an applicable concept that has been excluded from the PL ISO which would extend its overlap with the WCAG 2.2. The subject of color, not simply in regards to design, but also as a means of allowing for proper contrast and visibility for those who may have vision difficulties, is a critical part of information retrieval, which is a guideline in the PL ISO (5.2.3 "Use information design techniques that enable readers to find information") (PL ISO, 2022, p. 6). Cutts, in his *Oxford Guide to Plain English*, states that, "For most purposes, there needs to be strong contrast between foreground (the type) and background. If you use dark-green type on a pale-green background, you're asking for trouble, especially as about 8 percent of males are colour blind for green and red and may see these colours as grey" (Cutts, 2020). Cutts also discusses color in general by saying that, "Use [colors] mainly to help people navigate through the document, perhaps by applying the same colour to all headings and or to one level of heading" (Cutts, p. 291). The PL ISO does reference contrast in guideline 5.2.3.f – "Use typography such as fonts, font size, line spacing, and contrast that make the physical act of reading easier" (PL ISO, 2022, p. 6) – but otherwise the concept of color is not present.

If the concept of color were to be added to the PL ISO in a similar manner to the WCAG 2.2's usage in success criterion, 1.4.1, "Use of Color" – "Color is not used as the only visual means of conveying information, indicating an action, prompting a response, or distinguishing a visual element" (Campbell et al., 2023) – then this would not only strengthen the PL ISO's guidance for information retrieval, but also increase the overlap between the two standards.

V. Conclusion/Recommendations

As previously mentioned, the research for this thesis was conducted to explore both digital accessibility and plain language in the context of digital communication and what type of relationship they may currently have. The findings, highlighting both their interdependence, as well as their divergences, will be noted in this final chapter. In addition, there will be a restatement of both the research problems as well as methods used in this study. The final bulk of this chapter will be an analytical summary of the results infused with recommendations intended for moving this symbiotic relationship forward.

To remind the reader, the questions asked in the introduction, were as follows:

Where, if at all, do plain language and digital accessibility intersect?

Based on the conclusions, are there recommendations for the digital content community?

In order to sufficiently research these questions, the author relied primarily on desk research that consisted of online academic journals in addition to text books pertinent to the two main subjects being examined. In order to properly both understand the material and analyze it, it was also necessary to become familiar with a host of directives, international standards and laws, best-practice guidelines, and human rights documents. Through the picture painted via the previously mentioned documents, in addition to an analytical comparison of two international standards of best-practice for both digital accessibility and plain language, the author was able to determine, on a comprehensive level, where the overlap of plain language and digital accessibility lies. This overlap also sheds light on where there could be positive change for both the digital content community and the population at large, with recommendations to follow.

Using both the analysis determined from the comparison of the WCAG 2.2 to the PL ISO, as well as the academic research conducted, the largest overlap determined on an international stage between digital accessibility and plain language, would be in regards to the concept of "accessible." The idea of accessibility, whether it be just on a technical level, or folding in the idea of comprehensibility, is the ultimate goal of both digital accessibility and plain language; allowing the reader "access" to information. For digital accessibility and plain language alike, this also means structure and design techniques that allow the information to be retrieved in a manner that is as easy as possible.

Along the same vein, and dependent on the concept of "accessible," is the concept of "understandability." Although plain language and digital accessibility diverge in regards to

what exactly that means in pertinence to their own specific goals, the fact still remains that both concepts adhere to the overarching goal of creating digital content that the user can understand. Whether the intended audience be users with disabilities, or the population at-large, both digital accessibility and plain language have a shared aim of content creation that the user can both access and grasp. The ways in which the plain language and digital accessibility differ in respect to defining "understandable" and its associated goals, will be discussed further below.

Perhaps the issue is not "how" plain language and digital accessibility are interrelated, but more so an exclamation of how intricately interrelated they are. Yet, parceled into this exclamation is determining the steps necessary to take in order to cajole the technical world into seeing this interdependence, as the two worlds have yet to truly collide. Made clear from the picture painted in the previous chapters, it is not possible to create fully accessible information if it isn't written in a way that is comprehensible to the reader, which, for the sake of this analysis, includes plain language. And, as is critical to the analysis in this thesis, readability is different from comprehensibility and also at the root of a detrimental difference in mindset found between the WCAG 2.2 and the PL ISO whose standards are both trying to fulfill the goal of "understandable" content. Currently the WCAG 2.2 appears to be relying more so on readability than comprehensibility in its quest for fair and equitable digital information, leaving users without the right tools for true access.

Relying mainly on reading level is in opposition to the current practices in place that factor in comprehensibility (or the true "access") in regards to digital accessibility, thus defying the idea that the information, if readable, is usable. Suffice it to say, it is still progress to focus on readability in regards to digital content, but by focusing on readability alone, it fails to fully aid in the UNCRPD's "environmental barriers" being dissolved – less so on a societal level like in the case of the mental model, but in this case, on a conceptual, intangible level. The use of plain language is one way to help dissolve the barrier that comprehensibility can create, but its use must be a choice, and one that currently involves extra time and training.

A visual depiction of the aforementioned shared concepts of plain language and digital accessibility, in addition their point of bifurcation, is seen below in *figure 10*.

***Figure 10**: Relationship of Overarching Concepts in Plain Language and Digital Accessibility (Author's Depiction)*

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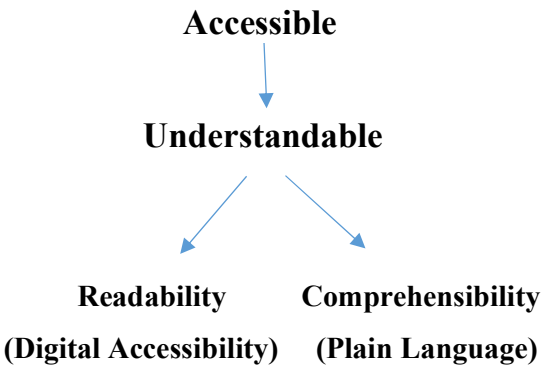
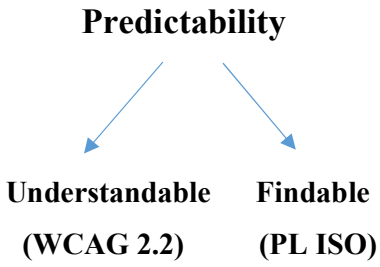


Another conceptually relevant point of both intersection and discrepancy found between plain language and digital accessibility is that of predictability. This conclusion came as a result of comparing both the WCAG 2.2 and the PL ISO. Both standards deem it a necessity for the text to be predictable, which aids the user in content navigation and retrieval. However, the difference in how the two standards view the concept of predictability once again draws attention to the idea that on a deeper level, there is still much disconnect. *Figure 11* helps to remind the reader of where this conceptual divide occurs.

***Figure 11**: The Concept of Predictability in the WCAG 2.2 and PL ISO (Author's Depiction)*

.



It has also been discussed that on an ethical level, information needs to be accessible, not just in terms of the literal ability to get to the information, but then to be able to comprehend, digest and use the information properly as well, which is where the need for plain language comes in. By not being able to fully process the accessed information, a person's health or safety could be at risk or they could be excluded from civic rights and processes. With adaptive technology, ethics come into play as well in regards to, yet again, the need for supplying the user with information that they can both access *and* understand. It

is important to remember as well that an accommodation is not accessibility, but instead, is a stepping stone on the path towards accessibility. The content being accessed by the accommodation is just as important as the means of accessing it, once again, reaffirming the need for content that is comprehensible, and thus in plain language.

In relation to the more mechanical side of digital accessibility, is also the potential lack of information present due to the exclusion of properly written ALT text, modified captions, or a base text that has been poorly translated. Plain language, used in all of these cases, can aid in providing the users what they deserve and are entitled to, information they can process and use properly.

If a reader can log onto the information about a pandemic, but can't understand it, the information is invalid, thus inaccessible. At the same time, the person responsible for the information has to be aware that this comprehensibility, this ability to understand the material, must be an interwoven part of the content creation. Yet, the information has shockingly demonstrated that those involved at all levels of digital content are either unaware or disinterested in the proper implementation of digital accessibility. Whether it be due to training incompetencies or living in a country that doesn't follow a disability model that values those rights of the disabled, the fact still remains that the information on digital accessibility is not mainstream nor highly regarded.

Going hand in hand with the difficulties surrounding proper implementation of digital accessibility, is the fact that, unfortunately, plain language is also not easy to create. One must understand the contextual information themselves in order to properly rephrase and reorder it in a way that is more beneficial and accessible for the reader. This means getting those involved in content creation informed and onboard at the foundation level, as part of their fabric as a technical communicator or content creator. As well, getting people involved on an ethical level, so that they see the value in how and why they are creating the content that they are, and how it will aid in digital content creation that is not solely to check boxes, but is conceived with the reader in mind. Whether this be at the university level or as part of corporate training, the idea remains that there is still work to be done on how to create a future workforce that is aware of, invested in, and capable of proper implementation of both digital accessibility and plain language.

In addition to the mindset shift needed in regards to the role that plain language plays within the implementation of digital accessibility and how to create content with both in mind, is the societal view in general of disability. It would be remiss not to add in the fact that it will be hard to fully implement digital accessibility, if there are both individuals and

societies that don't value the need for this equality. The disability model embraced by a country, and the idea of disability in society, will largely influence how societies deem both disability and accessibility. Plain language will not be as well-received if a nation doesn't deem accessibility important, or people with disabilities, for that matter. Despite plain language being an ethical way to write information, again, the mindset of both the individual and the nation must see the value in using it.

There is lots of work to be done in order for the world to see that digital accessibility begs for the permanent inclusion of plain language. From streamlining and clarifying the varying types of "accessible language," to mainstreaming the definition of accessibility to include the components of comprehensibility, to properly training those in digital content development so that they see the value in what needs to be done and have the proper communication skills to execute it, the list feels daunting (and never-ending). Yet, the scaffolding is already in place for something powerful and far-reaching to take place. Due to the fact that the WCAG 2.2 does value and include the idea of "understandable" in its current guidelines, the first, feasible step is a re-work of this principle so that it includes plain language. Secondly, in order for it to be taken more seriously (as in, implemented), the W3C needs to deem the addition of plain language in content creation a necessity, and take steps towards a change where all components that fall underneath the principle of "Understandable" that relate to comprehension, are now considered mandatory, and thus rated "A" or "AA."

Putting these prior ideas into practice would just be a start, and as already discussed, there are items to consider in regards to properly trained staff and the complexity of writing in plain language as well. Yet, the ball would be set in motion for digital content that is written with both content *and* comprehension in mind: how digital accessibility and plain language complement each other best, and how the idea of being barrier-free due to comprehensibility would result in a more inclusive digital content community.

VI. Further Applications

Cultural Ramifications

France, despite being part of the European Union – which has put multiple initiatives in place for digital accessibility (see EU directive, 2016/2021, *Accessibility Requirements for ICT Products and Services*) as well as plain language initiatives and tools (ELIPS) – is still falling way behind when it comes to the implementation of digital accessibility (UNCRPD France report CRPD/C/FRA/CO/1 2021), and potentially not even aware of the importance of language in the application of digital accessibility, failing to take part in ELIPS, as well as other initiatives. As the concern was raised in this thesis (and in adherence to the finding of the UNCRPD Concluding Observations on the initial report of France (CRPD/C/FRA/CO/1 2021)), the medical model is also still the main model used in relation to disability in France. France also still uses the term "handicapped," which is no longer deemed appropriate (Andrews et al., 2022, p. 2) as it relates to the ancient disability model of "moral model" which equates disability to sin or moral failing (Andrew et al., 2022, p. 2).

To study the connection between societal views of disability and the lack of adherence to digital accessibility (including plain language as well), would potentially result in information that could help determine cultural gaps, and thus determine ways to help reexamine the presentation of these concepts to countries which are currently not in alignment with more widely-accepted views on disability.

To incorporate plain language on a deeper level, one could ask the question of whether cultural values (looking at theorists such as Hofstede, Hall, etc.) intertwine with plain language and the acceptance of it. For example, if looking at Hofstede's 6-D model, specifically the dimension of power distance, an example of two countries that are culturally different in regards to power distance are France and the United States of America. France is considered a high-power distance country, meaning that they believe that a superior is actually superior in the deepest sense (Hofstede). In contrast, the United States of America is a lower power distance nation. How, then, does this relate to the acceptance of both plain language and its relevance to digital accessibility? In addition, one could factor in Hofstede's uncertainty avoidance, Trompenaar's universalism, etc.

Baring these theorists in mind and adding onto the idea of plain language and culture is the question of whether plain language appeals to one type of culture over another? And if so, is it being used effectively to aid those cultures that deem it favorable? Again, using France as an example, do the refugees that are coming to France share the same cultural

views, and how do these views relate to the use of plain language, a tool we have learned aids language-learners?

In 2020, France had the largest migration from the countries of Afghanistan, Guinea, and Bangladesh. Using the Hofstede individualism scale this time, France is deemed an "I" country (score of 71) vs. Bangladesh which is a "we" country (score of 20). The differences are stark. What role then does plain language play in the potential communication of information? Does plain language appeal to one type of culture over another, and if so, is it being used effectively to aid those cultures that deem it favorable?

For those who wear the educator hat, and as a final potential application for the study of plain language, there is the connection between plain language and transversal competencies – how teaching the foundation of plain language would add to a deeper understanding of people's needs and abilities (empathy). Would this, in turn, on a professional level, also aid with a more proper and consistent implementation of digital accessibility?

In regards to incorporating plain language into schooling on the primary level, should programs such as UP2EA in France (*Unite pedagogique d'enseignment pour eleves allophone arrivant*) be teaching immigrants in plain language?

Adding Theory to Deepen the Connection

To do a deeper dive into the intricate connection between plain language and digital accessibility, would be to take the components of plain language and examine each idea on an individual basis as to why they would benefit digital accessibility. Theorists already determined to be of use for an analysis such as this would be Lenz, Maatz, and Sanders (active voice), Beaugrande and Dressler (Seven Standards of Textuality), DITA (structure), Gestalt (design), J. Nielsen (usability and design), Kincaid (readability), etc. Using these theorists and adding to this list would help to clarify the connection between plain language principles and digital accessibility on a deeper, more thorough level.

Creating a Model to Aid With Plain Language Implementation

Of perhaps most interest to the professionals engaged in creating and implementing plain language, and due to the fact that it is hard to quantify when a text satisfies a guideline or set of guidelines, would be the creation of a model or tool to aid in the measurement of plain language. A tool of this sort would allow for more widespread implementation of a concept that is currently complicated to measure by formula alone. Whereas a readability score can be factored in, as mentioned previously in the research component of this thesis, it is not a valid measure alone for how comprehensible a text is. As Boldyreff et al. comment,

plain language is subjective (2001). For those creating content, the idea of subjectivity can be off-putting and daunting, and thus having a tool to help in its creation would help to offer guidance and confidence.

The need for a type of plain language tool is mentioned in both academic material and legislation alike. Clause 48 of the EU Directive 2016/2102 of the European Parliament and of the council (2016), *Accessibility of Websites and Mobile Apps for the Public Sector,* states that Member states should, "promote the use of authoring tools that allow for better implementation of the accessibility requirements" (p. L 327/7). Although not specific to plain language, the same concept still applies as plain language is a component of digital accessibility. In the WCAG 2.2 success criterion 3.1.5, "Reading Level," in the Note section at the end of the Intent content, is the sentence, "Using the clearest and simplest language is highly desirable, but the WCAG Working Group could not find a way to test if this has been achieved" (Campbell et al., p. 3). From *Accessible Communication, A Cross-Country Journey*, Perego reminds readers that,

> Recommendations are not evidence-based, but just the result of consensus between professionals in particular areas… A theoretical reference model that can sustain their validity is still missing and attempts to test and valid these standard guidelines have been very few… further research is needed in order to provide empirical support for existing guidelines (2021, p. 46).

Shriver, an expert in plain language, concludes this thought with the idea that there are "Few methods beyond readability formulas for judging what is plain" (2007, p. 12). Thus, the creation of a tool that can aid in both the creation and implementation of plain language could not only aid content creators, but could also help digital content become more easily accessible.

VII. Note From the Author

Hello reader,

Thank you for taking the time to read the thesis and my apologies for the injection of informality at the end of what was intended as a formal, academic work. However, I felt it non-negotiable to include the (perhaps frowned upon) sentiment that in addition to the writing process being time-intensive and taking a frustrating reroute mid-process, the immense impact and personal mental shift that has resulted as a by-product of the research, I will forever be grateful for.

When we start out on a journey, regardless of the goal or the intended result, we can get lost along the way. The wander and reroute in this case were where I found all of my motivation, as this subject went from being hypothetical and abstract, to one where I can no longer disconnect from the weight I feel when thinking about how critical it is that as a society, we learn to communicate in a way that is as far-reaching and equitable as possible.

My initial intention was to tie up my research in a well-written and well-structured bow, but after the impact it has had on me as a writer, a student, a researcher and a human, I now feel compelled to continue on the quest to allow others to feel the satisfaction and humanity that I do when knowing that by simply changing the way you address your audience, you can in turn not only make a difference, but potentially save a life.

In today's society, giving back can feel hard-to-reach, or we table it for when we are living "less" busy, exhausting lives. But, as technology's presence is here to stay, by simply tuning into *how* to write for its content in addition to what to write, we can change the world. The excellent news is that people are catching on to the impact that plain language can have on both human rights and digital accessibility (and their interconnection). But, as can be seen from the research in this thesis, there is still much work to do.

My hope for moving forward is to help lead this charge…to help better the world and the information within it. Whether this be by creating a model that would make plain language easier to implement, or by championing the addition of plain language instruction in university classrooms, my work, despite this being the last page of content of my thesis, is not done.

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Appendices

Appendix A

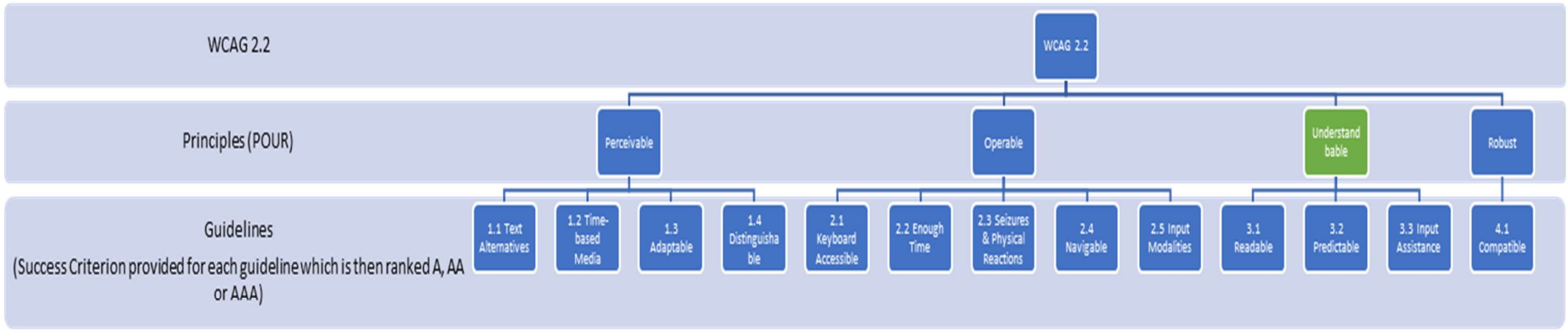
Chart 1, *Chart of Legislation Applicable to Digital Accessibility (Author's Depiction).*

Name	Organization Responsible	Type of Legislation	Year Published	Additional Information
Web Content Accessibility Guidelines (WCAG) Version 2.2	W3C – World Wide Web Consortium	International standard for digital accessibility compliance	2023 (most updated version), a 3.0 is being worked on	Guidelines ranked A, AA and AAA, with A and AA considered mandatory
ISO/IEC 405000:2012: Information Technology – W3C Web Content Accessibility Guidelines (WCAG) 2.0	International Organization for Standardization (ISO)	International standard for digital accessibility compliance	2012	Identical to the WCAG 2.0
EN 301 549 V3.2.1	ETSI, CEN, CENELEC	Harmonized European Standard	2021	Information and Communications Technology (ICT) products and services

Directive (EU) 2016/2102	European Parliament and of the Council	Directive of the European Parliament, Legislative Act	2016	For public sector bodies, related to the accessibility of websites and mobile apps
Conventions on the Rights of Persons with Disabilities	United Nations	Optional Protocol for all UN Members	2006	Applicable to all governments

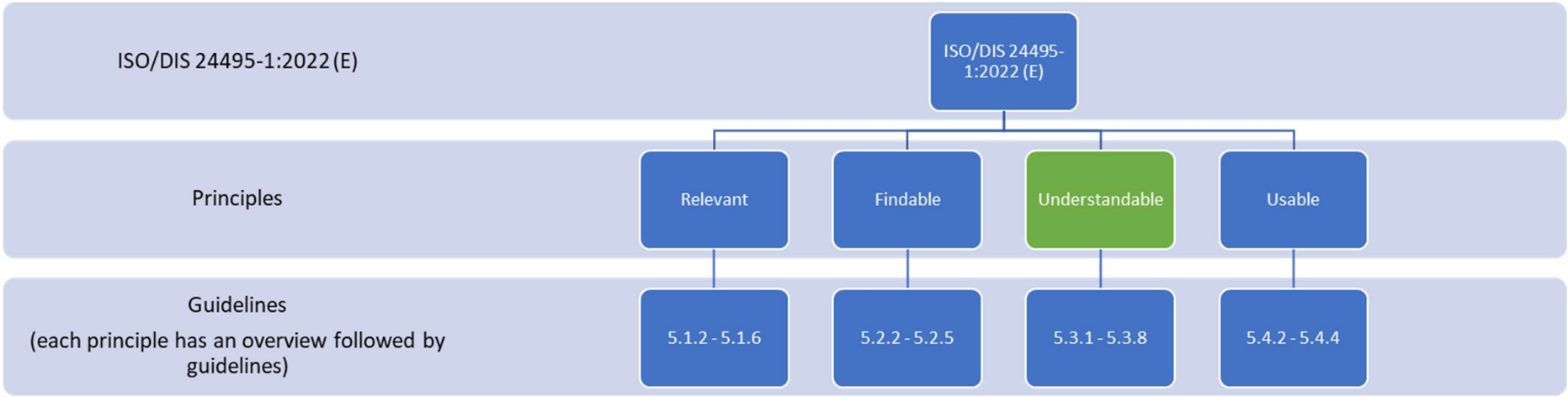
Appendix B

Chart 2, *Overall Structure of the WCAG 2.2 (Author's Depiction).*



Appendix C

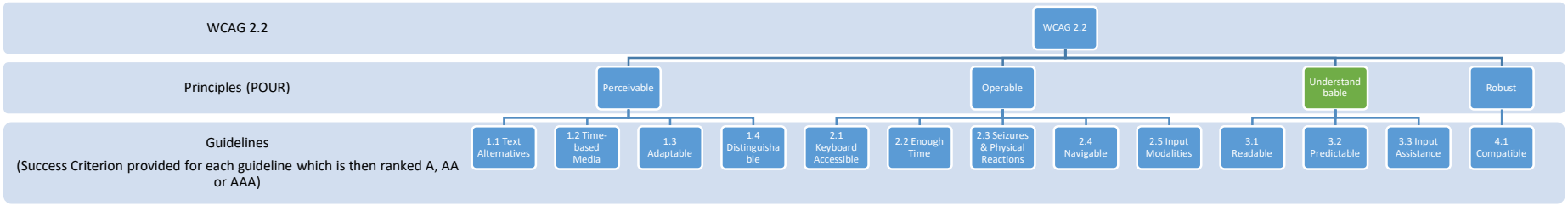
Chart 3, *Overall Structure of the ISO/DIS 24495-1:2022 (E) (Author's Depiction).*



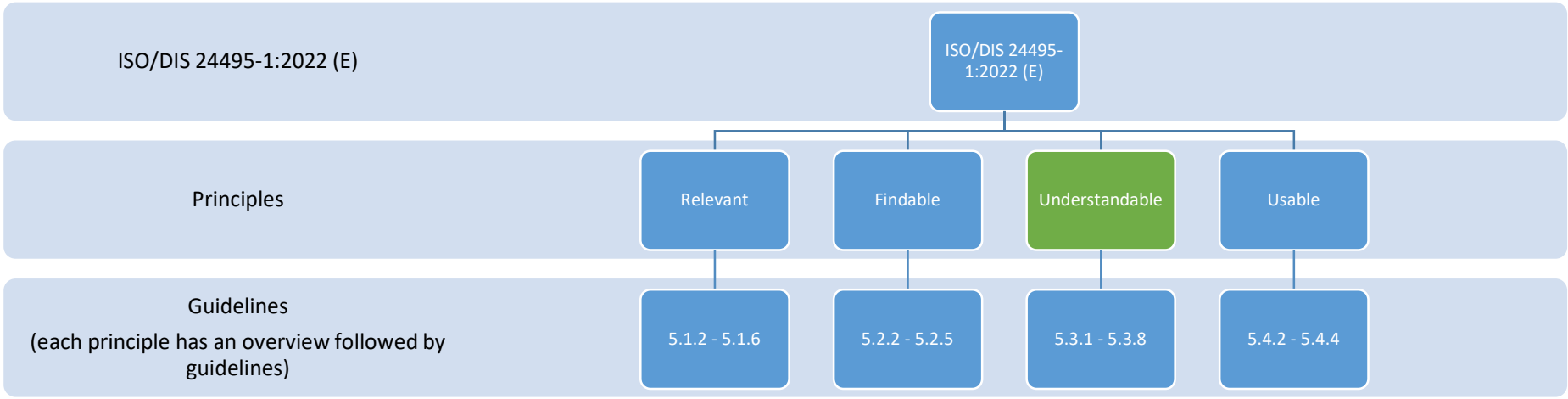
Appendix D

Chart 4, *Chart for the Overall Structure of WCAG 2.2 and ISO/DIS 24495-1:2022 (E) (Author's Depiction).*

WCAG 2.2: Web Content Accessibility Guidelines Version 2.2



ISO/DIS 24495-1:2022 (E)



Appendix E

Chart 5, *Concept of Predictability by Guideline (Author's Depiction).*

WCAG 2.2

- **Perceivable 1.0**
  - 1.1 Text Alternatives
  - 1.2 Time-based Media
  - 1.3 Adaptable
  - 1.4 Distinguishable
- **Operable 2.0**
  - 2.1 Keyboard Accessible
  - 2.2 Enough Time
  - 2.3 Seizures & Physical Reactions
  - 2.4 Navigable
  - 2.5 Input Modalities
- **Understandable 3.0**
  - 3.1 Readable
  - 3.2 **Predictable (5.2.4)**
  - 3.3 Input Assistance
- **Robust 4.0**
  - 4.1 Compatible

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- **Relevant**
  - 5.1.2 Identify the readers
  - 5.1.3 Identify the readers' purpose
  - 5.1.4 Identify the context in which the readers will read the document
  - 5.1.5 Select the document type
  - 5.1.6 Select content that readers need
- **Findable**
  - 5.2.2 Structure the document for readers
  - 5.2.3 Use information design techniques that enable readers to find information
  - **5.2.4** Use headings to help readers **predict** what comes next
  - 5.2.5 Keep supplementary information separate
- **Understandable**
  - 5.3.2 Choose familiar words (WCAG 3.1.3)
  - 5.3.3 Write clear sentences
  - 5.3.4 Write concise sentences
  - 5.3.5 Write clear and concise paragraphs
  - 5.3.6 Consider including images and multimedia

- 5.3.7 Project a tone that respects readers' needs and situation
- 5.3.8 Ensure that the document is cohesive

- **Usable**
  - 5.4.2 Evaluate the document continually as it is developed
  - 5.4.3 Evaluate the document further with readers
  - 5.4.4 Continue to evaluate readers' use of the document

Appendix F

Chart 6, *Overlap of WCAG 2.2 and ISO/DIS 24495-1:2022 (E) in Regards to Plain Language Principles.*

WCAG 2.2 levels of conformance from lowest to highest: Level A, Level AA, Level AAA (it is widely accepted that conformance to standards and directives include both Level A and Level AA).

WCAG 2.2 Success Criterion	**WCAG 2.2 Guideline**	**WCAG 2.2 Principle**	**Description of the success criterion** (the most applicable component)	**ISO Plain Language Guideline** (if applicable)	**ISO Plain Language Principle**	**Connection** (in general)	**Additional Notes/ Connections**
1.1.1 Non-text Content (Level A)	1.1 Text Alternatives	Perceivable	Provide text for images/non-text content	5.3.2 - Choose familiar words 5.3.3 - Write clear sentences 5.3.6 - Images/multimedia	Understandable	Text of any sort should be written with the reader's comprehension in mind.	Helps with implied content (Bradley Montgomery, 2022)
1.2.1 Audio-only and Video-only (Prerecorded) (Level A)	1.2 Time-based media	Perceivable	Provide a transcript or audio track to represent what is presented visually	5.3.2 - Choose familiar words 5.3.3 - Write clear sentences 5.3.6 - Images/multimedia	Understandable	Text of any sort should be written with the reader's comprehension in mind.	Helps with implied content (Bradley Montgomery, 2022)
1.2.3 Audio Description	1.2 Time-based media	Perceivable	Provide audio description of video content	5.3.2 - Choose familiar words	Understandable	Text of any sort should be written with the reader's	Helps with implied content (Bradley

or Media Alternative (Prerecorded) (Level A)			or text describing all visual content	5.3.3 - Write clear sentences		comprehension in mind.	Montgomery, 2022)
1.2.5 Audio Description (Prerecorded) (Level AA)	1.2 Time-based media	Perceivable	Audio description is provided for all prerecorded video	5.3.2 - Choose familiar words 5.3.3 - Write clear sentences	Understandable	Text of any sort should be written with the reader's comprehension in mind.	Helps with implied content (Bradley Montgomery, 2022)
1.2.7 Extended Audio Description (Prerecorded) (Level AAA)	1.2 Time-based media	Perceivable	Additional audio description during a media presentation to further explain the media	5.3.2 - Choose familiar words 5.3.3 - Write clear sentences	Understandable	Text of any sort should be written with the reader's comprehension in mind.	Helps with implied content (Bradley Montgomery, 2022)
1.2.8 Media Alternative (Prerecorded) (Level AAA)	1.2 Time-based media	Perceivable	Providing all of the information in the synchronized media (both visual and auditory) in text form	5.3.2 - Choose familiar words 5.3.3 - Write clear sentences	Understandable	Text of any sort should be written with the reader's comprehension in mind.	

1.4.3 Contrast (Minimum) (Level AA)	1.4 Distinguishable	Perceivable	Text and images of text have a contrast ratio of at least 4.5:1 (with exceptions)	5.2.3 - Use information design techniques that enable readers to find information	Findable		
1.4.6 Contrast (Enhanced) (Level AAA)	1.4 Distinguishable	Perceivable	Text and images of text have a contrast ratio of at least 7:1 (with exceptions)	5.2.3 - Use information design techniques that enable readers to find information	Findable		
*No success criteria; the guideline in general	2.2 Enough Time	Operable	Users need to be given enough time to read and use content	5.3 Understandable	Understandable	The description specifically states that it is connected to reading. Therefore the textual content itself needs to be considered.	This is a success criterion heading that has 5 success criteria related to / following it.
2.4.2 Page Titled (Level A)	2.4 Navigable	Operable	Web pages have titles that describe the topic or purpose	5.3 Readers can understand the material	Understandable	It is critical that the reader/user understands the first point of contact with the page; its title.	The argument could be made that this WCAG 2.2 success criteria also relates to

							5.2 (Findable), yet that is more so from the structural side.
2.4.6 Headings and Label (Level AA)	2.4 Navigable	Operable	Headings and labels describe topic or purpose	5.3 Readers can understand the material	Understandable	It is critical that the reader/user understands the headings and labels on the page so that they can navigate it properly.	The argument could be made that from the structural side, 2.4.6 also relates to 5.2 (Findable), yet in this case, 2.4.6 is specifically about the text content.
2.4.10 Section Headings (Level AAA)	2.4 Navigable	Operable	Section headings are used to organize the content	5.2.4 Use headings to help the reader predict what comes next	Findable	Headings help the readers not only navigate the material, but understand it better as well.	
3.1.3 Unusual Words (Level AAA)	3.1 Readable	Understandable	Potentially difficult words or phrases have a way ("mechanism") to help define them	5.3.2.c Use specialized terms only in specific cases	Understandable	Specialized or difficult terms can interfere with readability and comprehension.	In this case, the connection is more about the idea that WCAG 2.2 should suggest avoidance of

							the potentially difficult terms due to their impeding comprehension (as well as a "mechanism" for clarification).
3.1.4 Abbreviations (Level AAA)	3.1 Readable	Understandable	There is a way to expand upon an abbreviation	5.3.2.d Use abbreviations only when appropriate	Understandable	Abbreviations, when not properly accommodated, can be a source of incomprehension.	5.3.2.d gives ways to best expand upon abbreviations so as to maximize comprehension and readability.
3.1.5 Reading Level (Level AAA)	3.1 Readable	Understandable	Supplemental content is available is the text is above a lower secondary education level	5.3 Understandable	Understandable	Offering material that is written in a clear, understandable (and audience appropriate) way leads to comprehension.	The issue here is that WCAG is equating readability to comprehensible; and using readability formulas as the means of determination.
3.1.6	3.1 Readable	Understandable	Supplemental information (a	5.3.2	Understandable	Understanding words (and in	This is less an overlap and

Pronunciation (Level AAA)			"mechanism") is present to help aid with ambiguous words	Chose familiar words		context) is critical to comprehensibility.	more taking from 5.3.2 to suggest choosing words in the first place that are not ambiguous or need further explanation.
3.2.3 Consistent Navigation (Level AA)	3.2 Predictable	Understandable	Navigational structure is repeated and consistent	5.2.3 Use information design techniques 5.2.4 Use headings to help readers predict what comes next	Findable	The structure can influence readability and comprehensibility just as much as the text can.	Using the suggestions from 5.2.3 and 5.2.4 could aid in accomplishing WCAG success criteria 3.2.3.
3.2.4 Consistent Identification (Level AA)	3.2 Predictable	Understandable	Use of consistent presentation and layout	5.2.3 Use information design techniques	Findable	The structure can influence readability and comprehensibility just as much as the text can.	Using the suggestions from 5.2.3 could aid in accomplishing WCAG success criteria 3.2.4
3.2.6 Consistent Help (Level A)	3.2 Predictable	Understandable	"Help" information occurs in the same relative	5.2 Findable	Findable	The structure can influence readability and comprehensibility	The mention of consistency in content is not mentioned

			order to other page content (exceptions apply)			just as much as the text can; consistent structure aligns with this.	outright in 5.2, but adheres to the idea of good structure and design.
3.3.1 Error Identification (Level A)	3.3 Input Assistance	Understandable	Errors are identified and described to the user in text	5.3 Understandable	Understandable Readers can understand the text	If the user can't understand the text of the error message, they can't move forward.	
3.3.2 Labels or Instructions (Level A)	3.3 Input Assistance	Understandable	When content requires the user to participate, labels or instructions are provided	5.3 Understandable	Understandable	If the user can't understand the text of the label or instruction, they can't move forward.	
3.3.3 Error Suggestion (Level AA)	3.3 Input Assistance		If an input error is detected, suggestions are given to the user on how to fix it	5.3 Understandable	Understandable	If the user can't understand the text of the given message, they can't move forward.	
3.3.4	3.3	Understandable	For web pages that incur	5.3 Understandable	Understandable	There can be severe	Ethics comes into play here,

Error Prevention (Legal, Financial, Data) (Level AA)	Input Assistance		legal commitments, there is the possibility for the user to review the information	5.1.6 Select content that the readers need 5.1.6.f Select content ethically	Relevant	consequences if the user has not properly understood the text or how to go back to review it; therefore the material must be chosen so that mistakes are avoided.	which is mentioned in 5.1.6.f. If the content is not created ethically, the user could be legally bound to something unintended.
3.3.5 Help (Level AAA)	3.3 Input Assistance	Understandable	If necessary, context-specific help is supplied	5.3 Understandable	Understandable	If the user can't understand the page text AND the help supplied, there is the possibility for failure on the side of the user.	
3.3.6 Error Prevention (All) (Level AAA)	3.3 Input Assistance	Understandable	For web pages that ask for information submission, there is the possibility for the user to review the information	5.3 Understandable 5.1.6 Select content that the readers need 5.1.6.f	Understandable Relevant	There can be consequences if the user has not properly understood the text or how to go back to review it; therefore the material must be chosen so that	

				Select content ethically		mistakes are avoided.	
4.1.3 Status Messages (Level AA)	4.1 Compatible	Robust	Discusses how to apply and implement status messages	5.3 Understandable	Understandable	If the user can't understand the text of the given message, they can't move forward.	