Guidelines for Digital Accessibility

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Hello!

This is an introductory material with content to raise awareness of functional diversity and disabilities, as well as presents guidelines for making digital materials and websites accessible.

I hope that this content is useful and that APOYOnline can become more and more inclusive!
Accessibility is the condition of access to environments, products, and equipment so that people with disabilities, or with functional diversity, are guaranteed to exercise citizenship with full equality of opportunity with other people.

(Salasar, 2019, p. 13)

International Symbol of Accessibility developed by the United Nations in 2015. It symbolizes the disabled person in interaction with different contexts.
Example:

When a website has keyboard navigation and describes all images, it allows visually impaired people to access all the information available on the page.
The concept of equity translates respect for difference and seeks to promote justice so that there are equal opportunities between people, respecting their characteristics and situations related to their contexts.
This image displays that equity, translated into respect for difference, allows different people to ride bicycles successfully.

However, the bicycle should be adapted to each person and not the other way around.
Inclusion happens when we have a single product, equipment or environment that can be used / receive people with different characteristics without there being barriers to use.
Inclusion

Example:

A single book, with braille, pictograms, simple language, and audio description, allows all children to read together, each in their own way.
Nowadays many prefer the use of the term "functional diversity" rather than disability, since it is understood that people function in different ways, and that functional difference is an inherent condition of human diversity.

However, no international organization has yet recognized this term as a substitute for the term person with a disability.
One example of Functional Diversity is that some people speak with their hands and others speak with their voice.
Neurodiversity

This concept recognizes that there are neurological differences between people and that this is a natural part of human diversity.
Example:

Examples of neurodiverse people are:

- people with autism spectrum disorder
- people with dyslexia
- people with attention deficit hyperactivity disorder.
Capacitism/Ableism

It is characterized by prejudice, discrimination, and oppression against people with disabilities because of their disability. It is derived from the English term "ableism", used since 1981.
Capacitism/Ableism

Example:

1. When you believe that disability is something that should be corrected.

2. When you compare the person without a disability to people with disabilities by calling them "normal."

3. If you are shocked or surprised when a person with a disability has a professional degree, is married, has children, has a job or a business, or basically does/has something that others without disabilities do/have.
A person with a disability is considered one who has some characteristic with long-term limiting factors, whether physical, intellectual, or sensory.

However, it should be noted that disability is not always the limiting factor for the person's access, often access is limited due to the lack of accessibility in society.

The term person with disabilities was defined as the correct one to be used at the General Assembly of the United Nations (UN) in December 13, 2006.
However, terminology is something that follows the dynamics of society and adapts according to contexts.

Terms such as “disabled,” “crippled,” “special,” and “special needs” should not be used because they do not translate disability as a characteristic of the person.
Visual impairment is defined as total or partial loss of vision, which can be acquired or congenital. There are two groups that form visual impairment:

**Blindness**: person who has visual acuity equal to or less than 0.05 in the best eye, even with optical correction.

**Low vision**: person who has visual acuity between 0.3 and 0.05 in the best eye, even with optical correction. A person who in the sum of the visual field measurement in both eyes is equal to or less than 60°.
A person is considered to have hearing impairment when one has a bilateral loss, partial or total, of forty-one decibels (dB) or more, measured by audiogram.

It is noteworthy, therefore, that there is a very great diversity in deafness. There are deaf people who are oralized, that is, they communicate through speech, even without hearing, because they do lip reading and were educated with speech therapy.

They can also be people who have lost their hearing after having already acquired oral speech.
There are deaf people who communicate through sign languages, identifying with the deaf community, constituting an identity of this linguistic community.

In this way, in addition to the biological lack of hearing, deafness is recognized as a social construct, where deaf people fully assume their role in society.
A person with intellectual disability is one who has a reduction in cognitive development, that is, who has an IQ score below the expected range for their chronological age.

A person with intellectual disability may, also, have slower speech development and other neuropsychomotor skills.

Its cause can be genetic, congenital, or acquired.
A person with a physical disability is one who has some complete or partial alteration of one or more parts of the body, which compromises its physical function.

Congenital or acquired malformation produces functional difficulties.
Person with Physical/Motor Disability

Plegia: Absence of movement
Paresis: Decreased sensitivity

There are also physical disabilities that are considered "invisible" as is the case with ostomized people.
A person with reduced mobility is one who has some type of limitation or difficulty moving, whether temporary or permanent.

Examples are elderly people, pregnant women, and obese people.
People with ASD are those who have deficits in two or more areas of development such as social interaction, communication, behavior, and sensory sensitivity.

The term "spectrum" is used to indicate that there are various levels of impairment as well as different associated conditions. This means that no person with autism is the same as another. There are some symptoms that are common, but the uniqueness of each case prevails.
Some symptoms of ASD are difficulty maintaining eye contact, repetitive use of language, intense interest in specific things, aversion to touch, or extreme need for contact.

In Brazil, for all legal purposes, people with autism spectrum disorder are considered people with disabilities.
People with dyslexia have difficulties in reading and writing. It is a specific learning disability that has a neurological origin.

They cannot properly recognize words and have difficulties decoding.
Person with Color Blindness

Color blindness is characterized by the inability of ocular retinal cells (cones) to encode colors, so there is difficulty in distinguishing them.

The types of color blindness are linked to three different types of color receptors: red cones (protan), green cones (deutan), or blue cones (tritan).
Deficiencies in the cones can be total or partial, being:

**Totals:** Protanopia, deuteranopia and tritanopia.

**Partial:** Protanomaly, deuteranomaly and tritanomaly.
Guidelines for inclusive digital learning materials
Teaching materials are means of teaching and learning that give people a better understanding of the content being shared. Therefore, its content and form should function as means of access and not as barriers.

To do so, we must structure teaching materials in such a way as to make it accessible to as many people as possible, considering that it will be essential to think of different formats to reach different audiences.
Written information can become a barrier for many audiences, so it is critical to follow some structures:

- Seek to structure the information being passed on.

- Remember: **LESS IS MORE.**

- In general, a text should be objective and synthetic, and should avoid unnecessary information and words. The most important information (the fact to be communicated) should be at the beginning of the text.

- If possible, organize the text by topics, so that the text becomes clearer and facilitates understanding.
1. It is important to avoid technical terms whenever possible. When it is necessary to use them, the technical terms should be explained in a way that is clear to those who are not experts in the field.

2. Always try to use more than one language in the texts, so that those people who do not have command of the primary language used are not excluded.

To learn more about Simple Language see Ekarv Method.
1. Written Communication

As for formatting:

1. Sources: try to use sans serif fonts (verdana, arial, tahoma, helvetica)

2. Spacing: 1.5 between rows

3. Alignment: left

4. Font size: minimum 12 – preferable between 14 and 16.

Texts with fine print, little spacing between lines and justified alignment make it difficult for elderly users and people with low vision and other audiences to read.
1. Color documents must follow a contrasting color pattern with at least 70% contrast between text and background.

2. Materials where there is no contrast between text and background color, depending on the colors being used, can make reading inaccessible to all readers.

To make colors accessible to people with color blindness we can use the Color AD color code.

https://www.coloradd.net/pt
1.2 Images

Images are often fundamental to a more concrete understanding of what is being said. However, in an inclusive didactic material it is necessary to take into account that people with visual impairment will not have access to this content if it is not described.

So, every time you use an image in your material, you should describe it.
To describe an image, you can use the most basic formula for description:

Format + subject + landscape + action

Describe only what you are seeing in the image, without assigning conceptual values.
1.2 Images

Important tips!

Recognize the main element of the image and make it the starting point for your description.

The information should be orderly, accurate and succinct.

The text should be short and as complete as possible, avoiding repetition of words.

Invitations and posters to publicize events should have the information separated into two blocks: INFORMATION and IMAGE DESCRIPTION.
The image description can be included through an alt text field or ALT, in English.

You can also put the image description for everyone to see. This option also helps in the dissemination of the resource to new audiences.

It is important to remember that maps and graphs should also be described since they have a visual element relevant to the understanding of the content.
In the image description you should not:

- **Make value judgments**: saying something is beautiful or ugly, for example.

- **Interpret the image**: explain what you are "assuming" the image is showing.

- **Provide information that is not in the image**: Information should be in the caption and not in the description.
When saving a document, you need to be careful:

If the pdf document is a scan of a book (for example) it will be "read" by screen readers as an image and not as a text, thus making it inaccessible to people with visual impairments.

In these cases, to make the document accessible it will be necessary to transform it into text so that the screen reader can do the reading.
Do not forget that every time images are used, they should be described!

Some programs such as Adobe Acrobat (PRO) already help in the process of making a PDF accessible.

The program itself highlights the points that must be improved in the document for it to become accessible. The steps are simple and intuitive.

Simply access the Tools menu > action wizard > make it accessible.

After starting the process, it will open a window with fields for you to fill in. Fill in and save your changes.
3. Audiovisual Communication

Video productions should take into account:

1. A very long video, with a lot of information, regardless of the viewers' level of interest in the subject, will likely not be watched in full.

2. If the video presents an erudite language, with many technical terms, only people who are experts in the field will understand it.

3. If the video has audio in only one oral language (such as Portuguese, for example) speakers of other languages will not have access to the information that is being transmitted there.
3. Audiovisual Communication

1. If the video has audio only in oral language, the deaf community will not understand what is being spoken.

2. If the video contains only images, visually impaired people will not comprehend the contents.
3. Audiovisual Communication

In this way, a video to be inclusive should consider that:

Videos should be subtitled, so that deaf and hard of hearing people can also follow along.

Subtitles are also very useful in places where there is a lot of noise, and you can't hear the audio.

When there are images that are significant to the understanding of the video, these should be described.
3. Audiovisual Communication

It is critical that the videos also contain a window for a sign language interpreter to translate for the deaf community.

The main guidelines for the sign language window are:

- **Positioning:** to the right of the screen, with no image or overlapping symbols.
- **Height:** At least half the height of the screen.
- **Width:** must occupy at least one-fourth of the width of the screen.

It is important to pay attention to the background. This should be in blue or green colors, in a shade compatible with the Chroma Keyer editing technique.

In cases of videos where you cannot have a human translator / interpreter, use existing virtual translators, but take care because artificial intelligence does not always make a reliable translation.
Subtitles for the deaf and hard of hearing:

They must have a maximum of two lines, with approximately 145, 160, 180 ppm, with permanence on the screen for four to six seconds for a total of a maximum of 78 characters.

For subtitle formats:
https://www.w3.org/TR/webvtt/
In cases of online meeting:

- Choose a communication platform that has accessibility features such as automatic audio transcription and the option to pin windows (which is critical for deaf people to pin sign language interpreters).

The platforms that already offer these features are Google Meet, Zoom and Microsoft Teams.

Google Meet premium also has a noise cancellation feature, which can be an important feature to eliminate barriers.
3. Audiovisual Communication

In cases of online meetings:

- Try to eliminate or decrease visual distractions.

Whenever documents are shared on the screen it is essential that they are also accessible or, if necessary, that the images, graphs, or tables are described live.

Tips for making video audio media accessible:
https://www.w3.org/WAI/media/av/

Tips for making events accessible:
https://www.w3.org/WAI/teach-advocate/accessible-presentations/
Guidelines for an accessible website
Web accessibility allows users to have reach, perception and understanding of the sites and services available on the Internet in equal opportunities and with security and autonomy. To this end, it is essential to remove barriers to access that may arise.

It is relevant to note, that in some cases, the web is the only means of access to information and communication that some people may have, so it is necessary to develop a website for all people, regardless of their characteristics.

An accessible website benefits a wide audience, since it allows any user to find information in a more agile manner, have security and fill out forms in a simple and intuitive way.
Web accessibility covers:

- Technical requirements that include underlying code and are not related to the visual appearance of the site.

These requirements allow websites to function properly with the use of assistive technology features, without creating barriers to access.
- Technical requirements for user interaction, including visual design.

Inclusive design is one of the ways that helps eliminate significant barriers for people with disabilities and neurodiverse people.

Understandable instructions and feedback for website forms and applications are good for equitable usability. Without such requirements, some people with disabilities may be prevented from using the Web.
"Web accessibility is essential for people with disabilities and useful for everyone" (Tim Berners-Lee).
In 1994 Tim Berners-Lee founded the World Wide Web Consortium (W3C), an international consortium that works together to develop web standards that reach a wide audience through the seven principles of Universal Design.

Universal Design presupposes that products, equipment and environments are developed based on human diversity.
The W3C has also developed the **Web Content Accessibility Guidelines (WCAG)**, which are guidelines for web accessibility. These guidelines allow designers, developers, and project managers to have a guide to guide themselves.

WCAG has an international ISSO/IEC 40500 standard. However, while the guidelines are important, the W3C recommends that in addition to following these steps, the interaction and **participation of real people** in the development of web accessibility is critical.
The four WCAG principles that form the basis of web accessibility are:

Noticeable - The information and components of the user interface should be presented in ways that can be perceived by the user.

Operable - User interface components and navigation must be operable.

Understandable - The information and operation of the user interface must be understandable.

Robust - Content must be robust enough to be reliably interpreted by a wide variety of user agents, including assistive technologies.

Source: https://www.w3.org/Translations/WCAG20-pt-br/
In addition to WCAG guidelines, the W3C Web Accessibility Initiative (WAI) develops standards and materials that assist in the implementation of web accessibility.

These accessibility standards are important for inclusive design, since by following the basic principles of accessibility and using them to develop and evaluate the initial prototypes it is possible to ensure that a wide range of issues are addressed appropriately.

To learn more:
https://www.w3.org/WAI/fundamentals/accessibility-principles/
As far as developer teams are concerned, by following these standards from the beginning and understanding the basic principles of accessibility, the development and evaluation of initial prototypes will be smoother.

Starting to work on accessibility issues in more advanced stages will be more complicated and much more difficult.
Following the Web Content Accessibility Guidelines (WCAG) to begin making design more inclusive and the user interface more accessible for people with disabilities is necessary:

- **Provide sufficient contrast between foreground and background**

Web browsers should allow people to change the color of text and background, and Web pages need to work when people change color.

Guideline for minimal contrast:
https://www.w3.org/WAI/WCAG21/quickref/#contrast-minimum

Tools for contrast assessment:
https://www.w3.org/TR/UNDERSTANDING-WCAG20/visual-audio-contrast-contrast-contrast.html#visual-audio-contrast-contrast-resources-head
• Do not use colors alone to convey information

Colors should not be the only way to transmit information. In addition to using color to differentiate elements, you must also put additional information that can be an asterisk, numbers, or other characters. Identify the areas in the charts with labels, not just the colors.

Source: W3C

Guideline for the use of color:
https://www.w3.org/WAI/WCAG21/quickref/#use-of-color
Designing for Web Accessibility

- **Make sure interactive elements are easy to identify**

It is essential that users can access the interactive elements of the site through the keyboard, for this it is important to provide distinct styles for interactive elements (links and buttons) so that when switching the link, the user can identify it regardless of whether it is using the mouse, keyboard focus or touch screen activation.

The keyboard focus can be done through a highlight or a border that moves as the user navigates the page.

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**Guideline for visible focus:**
https://www.w3.org/WAI/WCAG21/quickref/#focus-visible

**Guideline for consistent identification:**
https://www.w3.org/WAI/WCAG21/quickref/#consistent-identification
• Provide clear and consistent navigation options!

Site navigation should have different nomenclature, style, and positions. It is important to make more than one method of navigation available on the site (site map or site search).

Assist users by guiding them, providing guidance tips and creating a useable site structure.

Guideline for consistent navigation:
https://www.w3.org/WAI/WCAG21/quickref/#consistent-navigation
• **Make sure that forms’ elements include clearly associated labels**

All form-filling fields must have a descriptive label adjacent to the field.

In left-to-right languages, you must position labels to the right of radio buttons and check boxes.

The goal should be to maintain the close and distinct visual relationship between the label and the form control.

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**Guideline for labels and instructions:**
https://www.w3.org/WAI/WCAG21/quickref/#labels-or-instructions

**Guideline for titles and labels:**
https://www.w3.org/WAI/WCAG21/quickref/#headings-and-labels
• Provide easily identifiable feedback

Whenever something goes wrong or there is any change in the page the user must be notified, either at the level of feedback for interactions, confirmation of sending forms or alerts.

Source: W3C

Guidelines for error identification:
https://www.w3.org/WAI/WCAG21/quickref/#error-identification

Label guidelines or instructions:
https://www.w3.org/WAI/WCAG21/quickref/#labels-or-instructions

Guidelines towards suggestion from error:
https://www.w3.org/WAI/WCAG21/quickref/#error-suggestion
Designing for Web Accessibility

• Use titles and spacing to group related content

To make it easier for users to read and understand, it is important to group the information, reduce possible confusion and keep the content of the site more clear to users.

Source: W3C

Guidelines for titles and labels:
https://www.w3.org/WAI/WCAG21/quickref/#headings-and-labels

Guidelines for section titles:
https://www.w3.org/WAI/tips/designing/
Designing for Web Accessibility

• Design for different viewport sizes

The information on the site should be presented in viewports (user-visible areas) of different sizes so that they can adapt to both a computer screen and a mobile screen.

For a better use of space, it is suggested that the presentation of the main elements (header and navigation) be highlighted. Attention should be paid to the size of the text and the width so that it is readable.

Guidelines:

1. Small screen size :
   https://www.w3.org/TR/mobile-accessibility-mapping/#h-small-screen-size

1. Mobile considerations related to comprehensibility:
   https://www.w3.org/TR/mobile-accessibility-mapping/#mobile-accessibility-considerations-related-primarily-to-principle-3-understandable
Include image and media alternatives in your design

It is important to designate spaces for the inclusion of image and media alternatives.

One should consider spaces for the inclusion of links to audio transcripts, for versions with audio description and descriptions of tables and graphs.

Guideline for non-text content:
https://www.w3.org/WAI/WCAG21/quickref/#non-text-content
• Provide controls for content that starts automatically

Content that has autoplay must provide visible controls to authorize its interruption.

This parameter is applicable to background sounds and videos, carousels, and image sliders.

Guidelines for audio control:
https://www.w3.org/WAI/WCAG21/quickref/#section-headings

Guidelines for pausing, stopping, and hiding:
https://www.w3.org/WAI/WCAG21/quickref/#pause-stop-hide
Other important information:

Guidelines for cognitive accessibility:
https://www.w3.org/WAI/WCAG2/supplemental/#cognitiveaccessibilityguidance

Development of websites for the elderly:
https://www.w3.org/WAI/older-users/developing/
Automatic validators are very important to verify that the site complies with web accessibility guidelines.

The following is a list of tools that can be used:

https://www.w3.org/WAI/ER/tools/
Currently, the rating of the APOYOOnline website by the AccessMonitor validator is 4.5/10.
The evaluation was conducted in March 2023.

Source:
Although they do not represent a W3C or WAI compliance validation, content providers may use the compliance logos for the Web Content Accessibility Guidelines (WACG) to indicate that they follow these guidelines.
The following levels of compliance are defined on the WCAG website:

For Level A compliance (the minimum level of compliance), the web page meets all Level A Success Criteria or an alternative compliant version is provided.

For Level AA compliance, the web page meets all Level A and Level AA Success Criteria, or an alternative version is provided that complies with Level AA.

For Level AAA compliance, the Web page meets all Level A, Level AA, and Level AAA Success Criteria, or an alternative version is provided that complies with Level AAA.

Source: https://www.w3.org/WAI/standards-guidelines/wcag/conformance-logos/
Although content providers are responsible for the use of these logos, it is essential that before placing them on the site, it is evaluated and that it indeed complies with the WCAG Guidelines.

Source: WCAG
Guidelines for Social Networks
Social Networks are improving issues related to accessibility every day.

It is important to reflect that whenever a publication does not provide accessibility features it is excluding a large portion of the population.

Currently it is possible to make them more accessible both manually and with technological resources.

Both on Facebook and Instagram it is possible to access the images that are in the Feed, as well as the stories and videos /IGVT.
Instagram and Facebook have the **Alt Text** feature to make images accessible to visually impaired users and users using screen readers.

Without the **Alt Text** feature there is no precise way to identify what's in the content and pass it on to the user.
How to insert Alt Text by iPhone

After you add the photo, on the caption screen, click:

1. Advanced settings
2. Accessibility + write alt text
3. Make the description in the text field
How to enter Alt Text on Android

After posting the photo,

1. Click on the three-ball menu that is in the upper right corner of the photo.
2. Click Edit.
3. Click Edit alt text.
4. Describe the photo and complete the action.
How to Enter Alt Text on Facebook

When creating the post and adding the photo
1. Click edit.
2. Click alt text.
3. Add the description and save.
4. Share the post.
In addition to Alt Text, you can do the Image Description in the caption. Just insert the description at the end of the caption and do not forget to put a Hashtag.

Hashtags:
#pracegover
#pratodosverem
#descreviparavocê
One should also pay attention to the structure of the text so that it is no longer a barrier for users.

Thus, it is recommended to use Simple Language to make texts more inclusive.

It is important to remember that texts that are very long and that are divided into posts and comments, in their great majority, are not read by users.

Communication is in clear language if the text, structure, and design are so clear that the target audience can easily find what they need, understand what they find, and use that information.

( International Simple Language Association)
Instead of putting a lengthy text in the caption of the post, consider putting it in Simple Language and dividing it into images (with description in Alt Text), for example.
To make videos accessible on Social Networks there are three possibilities:

- Insert window with sign language interpreter
- Insert subtitles
- Make the summary description of the video

About the subtitles:
- White or yellow color
- Use sans serif font
- Contrast with opaque black
- Background Should stay on the screen between 1 and 6 seconds. Each line must be a maximum of 32 characters.
Some applications that can help:

- CapCut (for subtitling videos)
- InShot (for subtitling videos)
- Hand Talk (virtual sign language translator)
This material was developed to initiate good digital and web accessibility practices in the context of APOYOOnline.

It is important to highlight that its content addresses the main ways of eliminating barriers, being the beginning of a journey that is intended to be increasingly inclusive.

It is highlighted, once again, that the role of people with disabilities working together in the implementation of these resources and guidelines cited in this material is fundamental to ensure their success.
Some Important Links
Guia de Produção Audiovisuais Acessíveis.

Hald Talk: https://www.handtalk.me/br/conteudos/

Manual de Acessibilidade para Redes Sociais.
Jorge Rodrigues.
https://www.inclusive.org.br/arquivos/32177

Movimento Web para todos (Brasil):
https://mwpt.com.br/

Um museu para todos: manual para programas de acessibilidade:
http://guaiaca.ufpel.edu.br/handle/prefix/4390

WAI - Web Accessibility Initiative
https://www.w3.org/WAI/

WACG 2.0:
https://www.w3.org/Translations/WCAG20-pt-br/