Web Accessibility Initiative WAI

Diverse Abilities and Barriers

in How People with Disabilities Use the Web (https://www.w3.org/WAI/people-use-web/)

Summary

This page explores the wide diversity of people and abilities. It highlights some web accessibility barriers that people commonly experience because of inaccessible websites and web tools.

Note: This page is illustrative and is not a complete list of all disabilities and barriers.

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Diversity of abilities

There are many reasons why people may be experiencing varying degrees of auditory, cognitive, physical, speech, and visual disabilities. For instance, some may have disabilities from birth, an illness, disease, or accident, or they may develop impairments with age. Some may not consider themselves to have disabilities even if they do experience such functional limitations.

+ More about diversity of abilities

Auditory

Auditory disabilities range from mild or moderate hearing loss in one or both ears (“hard of hearing”) to substantial and uncorrectable hearing loss in both ears (“deafness”). Some people with auditory disabilities can hear sounds but sometimes not sufficiently to understand all speech, especially when there is background noise. This can include people using hearing aids.

+ More about auditory disabilities

+ Examples of auditory disabilities

+ Examples of barriers for people with auditory disabilities

+ Stories related to auditory disabilities

Cognitive, learning, and neurological

Cognitive, learning, and neurological disabilities involve neurodiversity and neurological disorders, as well as behavioral and mental health disorders that are not necessarily neurological. They may affect any part of the nervous system and impact how well people hear, move, see, speak, and understand information. Cognitive, learning, and neurological disabilities do not necessarily affect the intelligence of a person.

– More about cognitive, learning, and neurological disabilities

Computer technologies and the Web provide many opportunities for people with cognitive, learning, and neurological disabilities to interact with content and to process information in ways that are more usable to them. For example, people can navigate web content using different strategies, access information in text, audio, or other formats, and change the presentation of the content according to their individual needs or preferences.

Depending on the individual needs, people with cognitive, learning, and neurological disabilities often rely on:

- Clearly structured content that facilitates overview and orientation;
- Consistent labeling of forms, buttons, and other content parts;

- Predictable link targets, functionality, and overall interaction;
- Different ways of navigating websites, such as hierarchical menu and search;
- Options to suppress blinking, flickering, flashing, and otherwise distracting content;
- Simpler text that is supplemented by images, graphs, and other illustrations;

People with cognitive, learning, and neurological disabilities use different types of web browsing methods, depending on their particular needs. For example, some people use text-to-speech software to hear the information while reading it visually or use captions to read the information while hearing it. Some people use tools that resize text and spacing or customize colors to assist reading. Others use grammar and spelling tools to support writing. For these web browsing methods to work, developers need to consider web accessibility requirements which are often shared by people with hearing, physical, speech, and visual disabilities.

– Examples of cognitive, learning, and neurological disabilities

- **Attention deficit hyperactivity disorder (ADHD)** (formerly "attention deficit disorder (ADD)") – involves difficulty focusing on a single task, focusing for longer periods, or being easily distracted.
- **Autism spectrum disorder (ASD)** (includes "autism," "Asperger syndrome," and "pervasive developmental disorder" (PDD)) - involves impairments of social communication and interaction abilities, and sometimes restricted habits and interests.
- **Intellectual disabilities** (sometimes called "learning disabilities(⇘ #learning)" in Europe and some other countries, and "developmental disabilities" in other regions) – involves impairments of intelligence, learning more slowly, or difficulty understanding complex concepts. Down syndrome is one among many different causes of intellectual disabilities.
- **Learning disabilities** – is a functional term rather than a medical condition, and is not uniformly defined. In Europe and some other countries, it refers to intellectual disabilities(⇘ #intellectual), while in Australia, Canada, the U.S., and some other countries it refers to perceptual disabilities(⇘ #perceptual).
- **Mental health disabilities** – includes anxiety, delirium, depression, paranoia, schizophrenia, and many other disorders. These conditions may cause difficulty focusing on information, processing information, or understanding it. In particular medication for these disorders may have side effects including blurred vision, hand tremors, and other impairments.
- **Memory impairments** – involves limited short-term memory, missing long-term memory, or limited ability to recall language. Dementia is one among many

different causes of memory impairments.

- **Multiple sclerosis** – causes damage to nerve cells in the brain and spinal cord, and can affect auditory, cognitive, physical, or visual abilities, in particular during relapses.
- **Neurodiversity** – is a societal rather than medical term to describe the natural diversity in neurocognitive functioning, like gender, ethnicity, sexual orientation, and disability.
- **Perceptual disabilities** (sometimes called "learning disabilities(↘ #learning)" in Australia, Canada, the U.S., and some other countries) – involves difficulty processing auditory, tactile, visual, or other sensory information. This can impact reading (dyslexia), writing (dysgraphia), processing numbers (dyscalculia), or spatial and temporal orientation.
- **Seizure disorders** – includes different types of epilepsy and migraines, which may be in reaction to visual flickering or audio signals at certain frequencies or patterns.

⊞ Examples of barriers for people with cognitive, learning, and neurological disabilities

⊞ Stories related to cognitive, learning, and neurological disabilities

Physical

Physical disabilities (sometimes called "motor disabilities") include weakness and limitations of muscular control (such as involuntary movements including tremors, lack of coordination, or paralysis), limitations of sensation, joint disorders (such as arthritis), pain that impedes movement, and missing limbs.

⊞ More about physical disabilities

⊞ Examples of physical disabilities

⊞ Examples of barriers for people with physical disabilities

Stories related to physical disabilities

Speech

Speech disabilities include difficulty producing speech that is recognizable by others or by voice recognition software. For example, the loudness or clarity of someone's voice might be difficult to understand.

More about speech disabilities

Examples of speech disabilities

Examples of barriers for people with speech disabilities

Visual

Visual disabilities range from mild or moderate vision loss in one or both eyes ("low vision") to substantial and uncorrectable vision loss in both eyes ("blindness"). Some people have reduced or lack of sensitivity to certain colors ("color blindness"), or increased sensitivity to bright colors. These variations in perception of colors and brightness can be independent of the visual acuity.

More about visual disabilities

Examples of visual disabilities

Examples of barriers for people with visual disabilities

Stories related to visual disabilities

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Stories of Web Users (https://www.w3.org/WAI/people-use-web/user-stories/)

Next: Tools and Techniques (https://www.w3.org/WAI/people-use-web/tools-techniques/)

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