Key challenges faced by people with visual, auditory, physical and cognitive disabilities when interacting with media.

1.1 Visual: Blindness

People who are blind cannot access visual information in videos, player controls, status indicators, etc. They need the information in an alternative representation of audio or text. People who are blind use a screen reader and/or refreshable Braille display, and media content needs to be operable with these assistive technologies (ATs).

1.2 Visual: Low vision

People with low vision can use some visual information. Depending on their visual ability they might have specific issues such as difficulty discriminating foreground information from background information, or discriminating colours. Glare caused by excessive scattering in the eye can be a significant challenge, especially for very bright content or surroundings. They may be unable to react quickly to transient information, and may have a narrow angle of view and so may not detect key information presented temporarily where they are not looking, or in text that is moving or scrolling. A person will likely use screen magnification software. This means that they will only be viewing a portion of the screen, and so must manage tracking media content via their AT. They may have difficulty reading when text is too small, has poor background contrast (too high or too low), or when outlined or other fancy font types or effects are used. If the font is an image, it is likely to appear grainy when magnified. They may be using an AT that adjusts all the colours of the screen, such as inverting the colours, so the media content must be viewable through theAT. Users with low vision will often benefit from the same text streams and instructions that are sometimes hidden or displayed off screen for users of screen readers or refreshable Braille.

1.3 Visual: Atypical colour perception

People with atypical colour perception (often called "colour blindness") may not be able to discriminate between different colours, or may miss key information when coded with colour only, such as colours in media controls and text overlays.

1.4 Auditory: Deafness

People who are deaf generally cannot use audio. Thus, an alternative representation is required, typically through synchronized captions and/or sign translation.

1.5 Auditory: Hard of hearing

People who are hard of hearing may be able to use some audio material, but might not be able to discriminate certain types of sound, and may miss any information presented as audio only if it contains frequencies they can't hear, or is masked by background noise or distortion. They may miss audio which is too quiet, or of poor quality. Speech may be challenging if it is too fast and cannot be played back more slowly. Information presented using multichannel audio (e.g., stereo) may not be perceived by people who are deaf in one ear. People with cochlear implants may not have issues with audio volume levels, but comprehension may be challenging if the media experience is overwhelming.

1.6 Auditory & Visual: Deaf-blind

Individuals who are deaf-blind have a combination of conditions that may result in one of the following: blindness and deafness; blindness and difficulty in hearing; low vision and deafness; or low vision and difficulty in hearing. Depending on their combination of conditions, individuals who are deaf-blind may need captions that can be enlarged, changed to high-contrast colours, or otherwise styled; or they may need captions and/or described video that can be presented with AT (e.g., a refreshable Braille display). They may need synchronized captions and/or described video, or they may need a non-time-based transcript which they can read at their own pace.

1.7 Physical impairment

Some people with physical disabilities such as limited muscle control (including tremors, lack of coordination, and paralysis), pain that impedes movement, or missing limbs cannot use a keyboard or mouse to interact with content and controls. Some use a keyboard but not a pointing device, some use a switch with an on-screen keyboard, and some use other assistive technology.

The media player must be usable with only a keyboard, including access to all player controls and methods for selecting alternative content.

1.8 Cognitive disabilities

Cognitive disabilities include a wide range of conditions that may include intellectual disabilities (called learning disabilities in some regions), autism-spectrum disorders, memory impairments, mental-health disabilities, attention-deficit disorders, audio- and/or visual-perceptive disorders, dyslexia and dyscalculia (called learning disabilities in some regions), or seizure disorders. The accessibility supports for these different conditions vary widely. Individuals with some conditions may process information aurally better than by reading text; therefore, information that is presented as text embedded in a video should also be available as audio descriptions. Individuals with other conditions may need to reduce distractions or flashing in presentations of video. Some conditions, such as autism-spectrum disorders, may have multisystem effects. Individuals may need a combination of different accommodations. Overall, the media experience for people on the autism spectrum should be customizable and well designed so as to not be overwhelming. Care must be taken to present a media experience that focuses on the purpose of the content and provides alternative content in a clear, concise manner.

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[i] *Adapted from Media Accessibility User Requirements, W3C Working Group Note 03 December 2015*