Epilepsy and Assistive Technology

ALLEGRA HOSFORD SCHEIRER, PH.D.

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Epilepsy is a brain disorder that causes seizures

- There are many different types of epilepsy.

- There are also many different kinds of seizures.

- Some causes of epilepsy are stroke, brain tumor, and traumatic brain injury, but 2/3rds of epilepsy cases are *idiopathic* (of unknown cause).

- Seizures are classified as focal (affecting one side of the brain or general (affecting both sides of the brain).

- Seizures are also classified by level of awareness during the seizure.

- Epilepsy is one of the most common conditions affecting the brain: in the U.S., ~5.1 million people have a history of epilepsy & 3.4 million people have active epilepsy.

- Epilepsy can be controlled with medication and surgery.

Source: https://www.cdc.gov/epilepsy

Many assistive devices are geared toward seizure detection

Seizure activity is monitored with sensors that detect movement:

- Seizure mats placed on bed or flat surface
- Smart watches that detect unusual movement or heart rate patterns that are associated with seizures
- Location tracking devices

Source: https://epilepsyqueensland.com.au/news/what-devices-are-available-to-assist-with-epilepsy/

Epilepsy assistance may also include technology for

- Memory loss
- Stress reduction
- Communication
- Photosensitivity
- Balance

Sources: https://guides.library.illinois.edu/c.php?g=1040703&p=7547862, https://askjan.org/disabilities/Epilepsy-Seizure-Disorder.cfm

My story…

A brain tumor…

Neurocognitive effects…

Ever heard of "proprioception or kinesthesia?

My parting thoughts: The single most critical adjustment that speakers can make to minimize discomfort and maximize endurance (thus maximizing engagement) at a virtual or in-person talk or conference for attendees with neurological issues pertains to use of the pointer. It is common for speakers to circle a laser or mouse pointer over the images or plots they are discussing. <mark>When you point at something on a slide, hold the pointer steady.</mark>

- Avoid or eliminate animations, especially if elements in the animation are rapid or require rapid clicks. Similarly, avoid embedded movies.

- If such visual elements are unavoidable, provide a brief verbal or written caution before advancing. This allows the affected attendee to prepare for slide motion in a manner that minimizes their discomfort such as closing their eyes. <mark>A simple oral or written caution</mark> such as "Movie/animation on next slide" goes a long way for viewers with neurological issues. Also, slow down & pause for a couple of seconds before clicking to the next animated item.

- Avoid rapidly scrolling through slides, especially when answering questions following the talk. To minimize discomfort, consider the following adjustments:

- Number the slides. Audience members can refer to slide(s) by number when they have questions after the presentation.

- To return to a numbered slide, the presenter must **exit** "Slide Show" view -- what we think of as the presentation view – so as not to rapidly scroll backward or forward while in Slide Show view to locate the slide(s) in question.

- Upon exiting Slide Show view, choose "**Slide Sorter**" view to locate the slide(s) of interest. This is view is easier than "Normal" view for attendees with neurological issues because slides appear as thumbnails; finding the slide(s) in question requires little to no scrolling.

- The "Normal" view (what we use when creating slides) is OK for answering questions -- <mark>if the presenter avoids rapidly scrolling</mark> through the slide icons at left. Slowly moving the slider bar is OK but Slide Sorter is best because it helps to re-train our actions as speakers.

Source: Allegra Hosford Scheirer

Stanford University