Issue Paper Summaries

# Symbol Users with Speech, Language, and Literacy Difficulties

## Problems:

Some users communicate through the use of symbols, rather than written text. Symbol users face a wide variety of barriers to accessing web content, but one of the main challenges is a lack of a standardized symbol library or a mechanism for translating between text and symbols, and across multiple symbol libraries.

## Solution:

Map symbol libraries to common concepts so that symbols can be converted and presented to users in their preferred symbol library.

## Further Work:

* Explore the use of AUI-symbol = "uri" and the Concept Coding Framework (CCF) to link and map symbols based on concept coding.
* Work with symbol dataset providers to publish symbols and concepts as "Linked Open Data.”
* See <https://w3c.github.io/personalization-semantics/content/index.html#symbol-explanation> and <https://github.com/w3c/personalization-semantics/wiki/Implementations-of-Semantics> for progress on this work

# Task Completion and Emotional Disabilities

## Problems:

Users experiencing anxiety, depression or other emotional disabilities may experience difficulty completing online tasks. This is especially true if the tasks are timed or require the user to complete steps involving multiple screens.

## Solutions:

Provide feedback to users if a task is not complete and provide a way for users to know:

* How long a task will take
* Where they are within a task
* How to move to the next step or go back to a previous step
* How to make corrections or change their input
* How to receive help online and/or from a human being
* How to extend timed tasks
* Reduce unwanted interruptions, without reducing critical or wanted interruptions
* Reducing the amount of “noise”, distractions and cognitive load

## Further Work:

* Outline existing WCAG 2.1 success criteria that support task completion and define techniques for the remaining solutions.
* Create additional techniques
* Create supporting architectures. See [Adaptable Tools](https://w3c.github.io/personalization-semantics/tools/index.html) (https://w3c.github.io/personalization-semantics/tools/index.html) and <https://github.com/w3c/personalization-semantics/wiki/Implementations-of-Semantics> for progress on this work

# Graded Help

## Problems:

Users with cognitive impairments may need different levels and different types of help, depending on their circumstances.

## Solutions:

Offer multiple means of help and a consistent mechanism for users to choose the type of help they need. For example:

* Help is located in one location on every screen
* The user is able to customize the type of help they want (e.g. tool tips, definitions, etc.)
* It is clear how to open and close the help feature
* Help may be left open while the task is being completed so that the user can refer back to the help
* Users can choose different types of help files (e.g. graphic, text, symbol, flowchart, etc.)
* Information is provided for how to contact human help
* Enable help to change as user needs and abilities change

## Further Work:

* Define help use cases for various platforms and language needs.
* Create supporting techniques and semantics
* Define user needs to include help preferences
* See Adaptable Help and support (<https://w3c.github.io/personalization-semantics/help/index.html>) and user needs collections (<https://github.com/w3c/personalization-semantics/wiki/User-needs-collections>) for progress on this work.

# Way Finding

## Problems:

People with cognitive impairments may experience problems navigating through buildings such as museums, hospitals, airports, and public transportation stations. Navigation difficulties can be caused by problems with:

* Memory
* Executive function
* Attention
* Language
* Perception processing and or
* Knowledge

Problems occur with wayfinding apps include:

* interruptions
* difficulty finding controls and settings
* changes in the directions that increase the chances of the user get lost
* inability to select simplicity of speed
* changes in the screen orientation
* confusion over instructions and terms used
* confusion with directional terms such as left and right

## Solutions:

* Ease-of-use principles (e.g. use of color, consistent layout, use of symbols or images, clearly marked directions, etc.)
* Guidelines for wayfinding technologies
* Guidelines for wearable technologies

## Further Work:

* Explore current wayfinding technologies and applications for people with cognitive impairments.
* Develop example wayfinding techniques to use when designing solutions with the needs of cognitive impairments in mind.

# Web of Things (WoT)

## Problems:

People with cognitive impairments may experience multiple difficulties with devices that are part of the Internet of Things. For example, some people may have trouble processing text and numbers. The test or symbols used may not be intuitive to the user. Other people may have difficulty with auditory information, spatial orientation, or responding to prompts on devices before the prompts time out. These types of difficulties could prohibit people with cognitive disabilities from operating smart devices that have impacts on their health and safety.

## Solutions:

* Provide guidance to support consistent design for navigation, familiar terms and symbols, functional user preferences, contextual clues and personal use patterns, consistent layout, and the effective use of multimedia.
* Provide interfaces to support:
* Adaptability
* Compatibility with supportive API's, or
* Alternative simplified control

## Further Work:

* Review and evaluate the application of API's such as URC <http://www.openurc.org/>
* Review IoT API's to determine if they provide cognitive supports, such as the ability to have fewer features presented to the end user
* Define simplification requirements for IoT APIs

Ensure proper semantic markup of web and IoT interfaces See <https://w3c.github.io/personalization-semantics> for progress on this work