

Designing interfaces to meet the needs of users with cognitive disabilities

 This page describes some research that was undertaken for the [Community for All project](#).

Background reading and resources:

- [Simplicity in cognitive assistive technology: a framework and agenda for research \(Lewis, Clayton\)](#)
- [Cognitive Disabilities - book chapter \(Lewis, Clayton\)](#)
- [WebAIM - Cognitive Disabilities - Introduction](#)
- [WebAIM - Evaluating Cognitive Web Accessibility](#)
- [WebAIM - Cognitive Disabilities Part I](#)
- [WebAIM - Cognitive Disabilities Part II](#)
- [Self-Advocacy Online - website including videos of self-advocacy stories](#)
- [The Center on Human Policy website](#)
- [W3C Cognitive Accessibility User Research](#)

Main Points

This is a brief summary of a few of the main ideas in the papers and resources listed above, as well as thoughts that came out of a conversation with Clayton Lewis and the Community for All design institute. Much research and work has been done in this area; for more details please refer to the specific resources above, and feel free to add any that you find useful.

The Complexity of Simplification

- simplification can take many forms
- what is simple for one user may introduce complexity for another
 - e.g. showing a Table of Contents may help some users navigate the page while adding complexity for others
- allowing for customization is the best way to ensure that all users' needs are met, however consider:
 - consider the complexity of the configuration apparatus (e.g. the process of selecting items to show/hide in a toolbar is often buried in a menu and/or requires a number of steps to complete)
 - context-dependent, dynamically configuring interfaces can introduce complexity for users who rely on proceduralisation (memorised steps) to complete a task

Depth vs. Breadth in Interface Design

- consider the trade-off of reduced clutter with having to navigate through multiple layers of the interface
- maintaining intention through multiple layers can be difficult for some users
- adding depth introduces the need for appropriate and clear conceptual categorisation
 - also need good-quality cues to indicate the logic of categories

Designing for Self-advocacy - Main Considerations

1. quick access to word meanings (dictionary on demand)
2. consistent use of icons and symbols across the space
3. the use of standard readability tests
 - results of standard readability tests on naturally-occurring text are usually accurate, however, once a text has been modified to achieve a higher readability score, the results may become inaccurate
 - e.g. chopping up sentences into shorter sentences improves readability score but can actually make the text more difficult to comprehend
 - trying to avoid complex words based on assumptions about user comprehension can make text more difficult to comprehend
 - depending on the context, using plain language may actually introduce complexity by replacing commonly-understood words or expressions (e.g. "security deposit")
 - a better solution would be to provide word definitions on demand

The Role of Assistance

- want to encourage peer-to-peer assistance as much as possible
 - to support user autonomy
 - to give all users opportunity to contribute as well as receive help
 - to facilitate growth of a supportive community for every user
 - to facilitate participation in a community
- how can we design tools/functionality to support mutual aid between users?
- social matching - finding others who have similar needs

- sharing of preference sets/configurations/customized content between users is one way of achieving this
- consider also the role of family and non-expert service providers - how can the tools we design support their role in providing assistance while continuing to support user autonomy?
 - e.g. allowing an assistant to pre-configure an interface - how can user confirm that their needs are being met?
 - how can the tools we design allow a user to discover for themselves what their preferences are?

The Role of User Testing

- while frequent and early user testing is important, this design approach can still result an interface which is inaccessible to many users
- engaging in a co-design process where a broad range of end-users contribute to the design from inception to implementation means that user needs are more likely to be met

User as Designer

- how can we provide configurability beyond simple transformations?
 - allow community of users to shape content as well as form and presentation
- see [Some thoughts on an inclusive design process](#)