

Accessibility through inclusive design thinking

Inclusive Design Research Centre
OCAD University, Toronto
idrc.ocadu.ca



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March 11, 2019



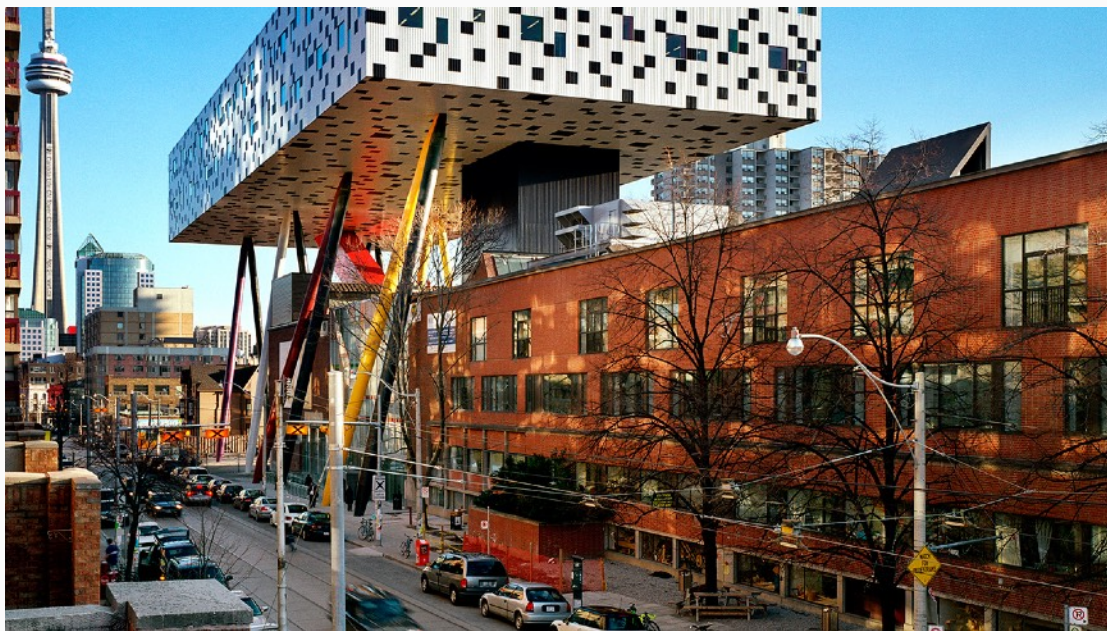
Inclusive Design Research Centre

idrc.ocadu.ca



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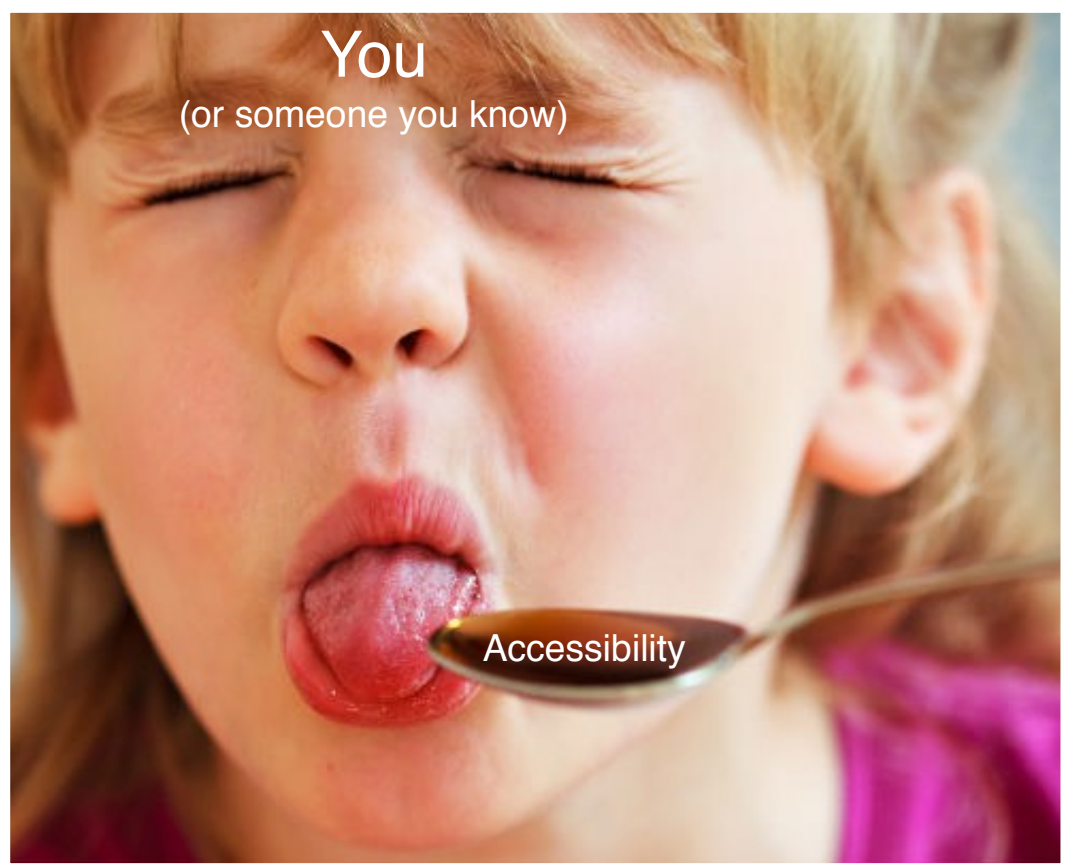


Image source: [clevelandclinic.org](https://www.clevelandclinic.org)



Photo by Storylanding. Source: Wikipedia. CC0.



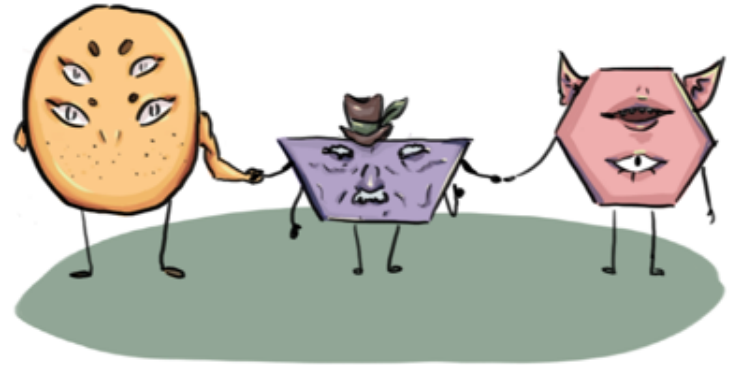
Accessibility by way of Inclusive Design

What is “Inclusive Design”?

Recognize diversity

Inclusive processes and tools

Design for a complex adaptive system



Principle 1: Recognize Diversity

Disability (“Them”)



Contextually Disabled



Mismatched Needs
 (“All of us”)



Principle 2:

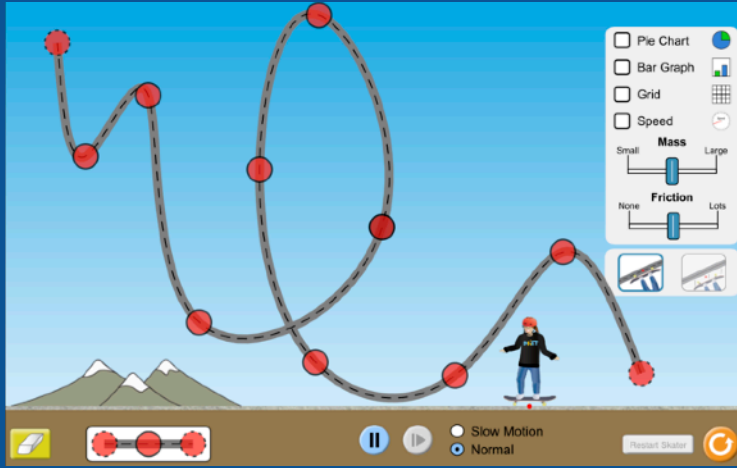
Inclusive processes and tools

PhET Project

Bringing Accessibility to Physics Simulations



Principle 1: Recognize diversity
Principle 2: Inclusive processes and tools
PhET Co-design



“Who’s at the table?”

Principle 2: Inclusive processes and tools

Build on Small Successes

John Travoltage

Description

John is standing with a foot off the rug, and his hand is close to the doorknob.

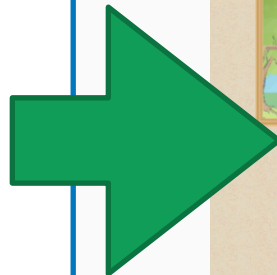
Controls

Total electrons: 0.

- Foot Position:
- Hand Position:

Options (currently not functional in this demo)

Enable Sounds



<https://jhung.github.io/john-travoltage-html/>

Principle 2: Inclusive processes and tools

Innovation at the edges



Why inclusive processes and tools?

“Impossible Understanding

One of the first lessons I learned is that no amount of background research and statistics; no persona (however well researched, fulsome, evocative, and motivating); and, no empathy exercises or disability simulations; can ever teach you enough about the very personal and unique requirements and characteristics these individuals bring. It is a shameful conceit to suggest that you are an expert, or that you have more knowledge and insight, it is even hubris to suggest that you really understand. You cannot understand until you have no option but to live it. Even if that were to happen, it won't be the same experience.”

<https://medium.com/@jutta.trevira/the-three-dimensions-of-inclusive-design-part-two-7cacd12b79f1>

Principle 3:

Design for a complex adaptive system

Principle 3: Design for a complex adaptive system

Adaptable solutions

- Recognize and align the layers, systems, processes, and values
- Aim for scalability, robustness, and flexibility
- Challenge your notion of “finished”
- Expect challenges and slow change (be the wave)

What's next at the IDRC?

Coding to Learn and Create

Project Description:

“... address the inclusion gap in coding in schools, breaking down barriers, and creating tools that enable opportunities for students to develop skills and knowledge beyond just coding.”

Coding to Learn and Create

Inclusive processes and tools:

Continual, inclusive co-design with a diverse group to drive design and development

Design for a complex adaptive system:

Self expression through coding

Self agency and autonomy over technology

Critical thinking and spirit of continual learning

Center on Inclusive Software for Learning

cisl.cast.org

Project Description:

“... [CISL] is creating a suite of innovative tools using these promising features, and more, all designed to support the diverse needs of today’s learners.”

IDRC Design Involvement:

Tool that empowers 3Rs

- React
- Reflect
- Refine

Center on Inclusive Software for Learning

cisl.cast.org

Inclusive processes and tools:

Continual, inclusive co-design with a diverse group to drive design and development

Design for a complex adaptive system:

Self expression, self agency

Learning progress as important as the outcomes

Empower rich social interactions between peers

Invert classroom dynamics - peers teaching peers

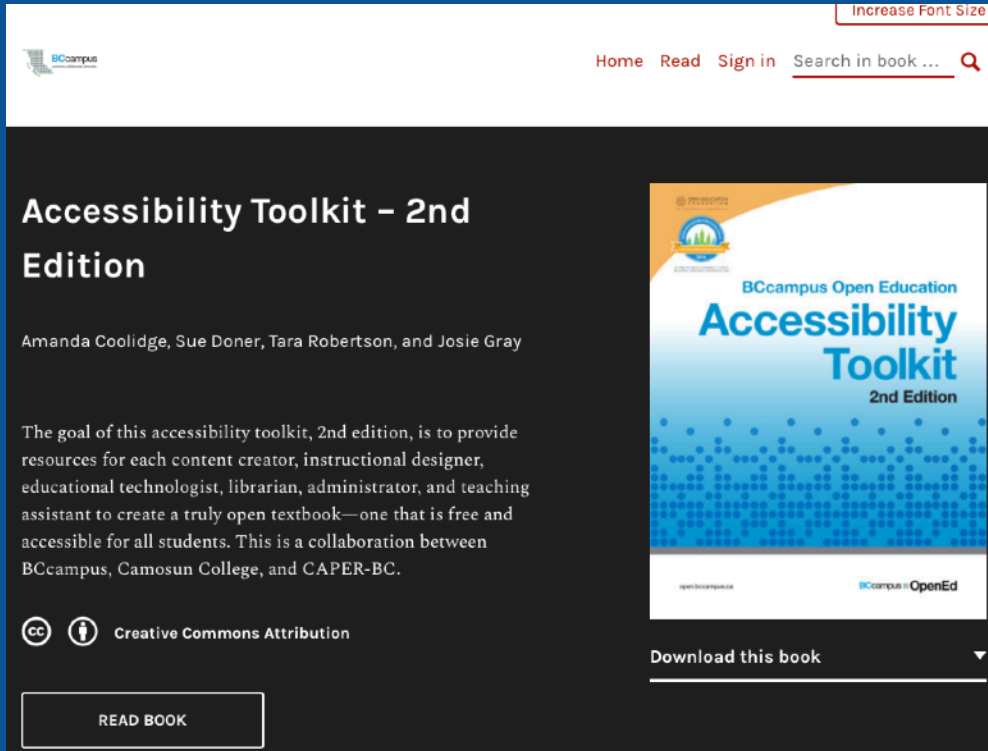
Tools & Resources

Inclusive Co-Design Resources

- guide.inclusivedesign.ca/activities/
- cities.inclusivedesign.ca/resources/
- handbook.floeproject.org/ApproachesOverview.html
 - under “Co-Creation” in the sidebar

BC Campus - Accessibility Toolkit

opentextbc.ca/accessibilitytoolkit/



The screenshot shows the top navigation bar with the BCcampus logo on the left, and links for Home, Read, and Sign in in the center. On the right, there is a search bar labeled "Search in book ..." with a magnifying glass icon and a link to "Increase Font Size".

Accessibility Toolkit – 2nd Edition

Amanda Coolidge, Sue Doner, Tara Robertson, and Josie Gray

The goal of this accessibility toolkit, 2nd edition, is to provide resources for each content creator, instructional designer, educational technologist, librarian, administrator, and teaching assistant to create a truly open textbook—one that is free and accessible for all students. This is a collaboration between BCcampus, Camosun College, and CAPER-BC.

Below the text are the Creative Commons Attribution (CC BY) license icons and the text "Creative Commons Attribution".

At the bottom of the page, there is a "Download this book" button with a dropdown arrow, and a large "READ BOOK" button.

- Best practices for different content types.
- How to use ARIA and common patterns of usage

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Pressbooks is easy-to-use book writing software that lets you create a book in all the formats you need to publish. Pressbooks delivers print-ready files for CreateSpace,

- Free and Open Source textbook publishing with subscription options.
- Import and export multiple formats including mobi, epub, PDF, docx, etc.

Diagram Center

diagramcenter.org

The screenshot shows the homepage of the Diagram Center website. At the top, the logo reads "DIAGRAM CENTER A BENETECH INITIATIVE". The navigation menu includes "Home", "About", "Our Work", "Webinars", "Blog", and "Contact Us". The main heading is "Building New Paths To Accessibility", with the subtext "Supporting different learning needs with emerging technologies and community engagement." Below this is a section titled "Our Work" featuring five icons and their corresponding labels: "Image Description", "3D Printing, Tactiles & Haptics", "Accessible Math", "Born Accessible Publishing", and "Research Information & Innovation".

DIAGRAM CENTER
A BENETECH INITIATIVE

Home About Our Work Webinars Blog Contact Us

Building New Paths To Accessibility

Supporting different learning needs with emerging technologies
and community engagement.

Our Work

Image Description

3D Printing, Tactiles & Haptics

Accessible Math

Born Accessible Publishing

Research Information & Innovation

- Tools for solving accessibility issues for images, Math, and more.
- Try the POET Image Description Training tool.
- MathML Cloud doesn't seem to work?

Amara

amara.org

The screenshot displays the Amara web interface for editing a video titled "John Travoltage PhET Simulation". The interface is divided into several sections:

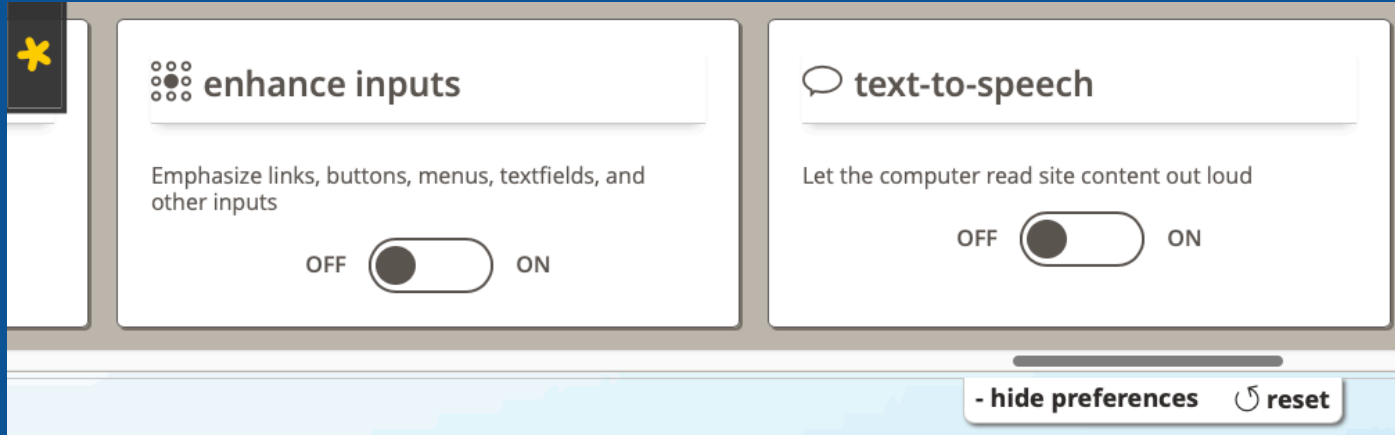
- Top Bar:** Contains the Amara logo, the video title, and buttons for "Exit", "Legacy Editor", and "Save Draft".
- Left Panel (Keyboard controls):** Lists commands for "Play / Pause" (Tab), "Skip back" (Shift + Tab), and "Insert a line break" (Shift + Enter). It also includes links for "Subtitling Guidelines" and "Playback Mode: Standard".
- Center Video Player:** Shows a video frame with a man in a black jacket pointing at a door. A subtitle is overlaid: "In 2015 we started working on a PhET sim". The video player includes a progress bar, volume control, and a "YouTube PhET" logo.
- Right Panel (Editing):** Contains a list of steps: "1. Type what you hear" (with a "Yes, start syncing" button), "2. Sync Timing", and "3. Review and complete". Below this is a "Notes" section with a table.

Notes	
Start	--
End	--
Characters	40

The subtitle editor at the bottom shows the text "In 2015 we started working on a PhET sim" and "called John Travoltage." with a "Editing English..." label and icons for undo and redo.

- Free and easy tool for generating captions and transcripts.

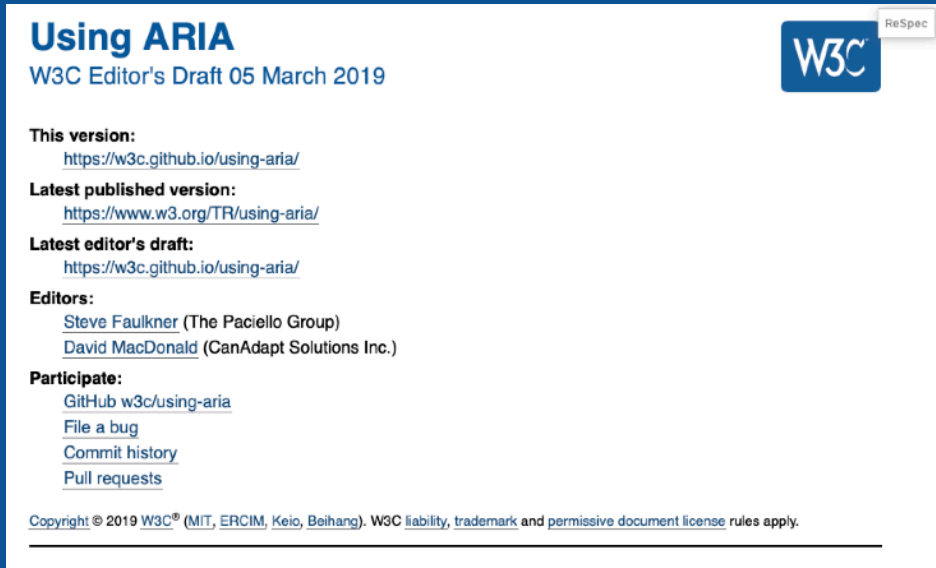
Fluid Project Preferences Framework



- Free and easy tool for generating captions and transcripts.

Using ARIA

w3c.github.io/using-aria/



The screenshot shows the top portion of the 'Using ARIA' page. It features the title 'Using ARIA' in a large blue font, followed by the subtitle 'W3C Editor's Draft 05 March 2019'. To the right is the W3C logo with a 'ReSpec' badge. Below this are several sections: 'This version:' with a link to the current draft; 'Latest published version:' with a link to the published version; 'Latest editor's draft:' with a link to the latest draft; 'Editors:' listing Steve Faulkner and David MacDonald; 'Participate:' with links for GitHub, file a bug, commit history, and pull requests. At the bottom is a copyright notice for 2019 W3C.

Using ARIA
W3C Editor's Draft 05 March 2019

This version:
<https://w3c.github.io/using-aria/>

Latest published version:
<https://www.w3.org/TR/using-aria/>

Latest editor's draft:
<https://w3c.github.io/using-aria/>

Editors:
[Steve Faulkner](#) (The Paciello Group)
[David MacDonald](#) (CanAdapt Solutions Inc.)

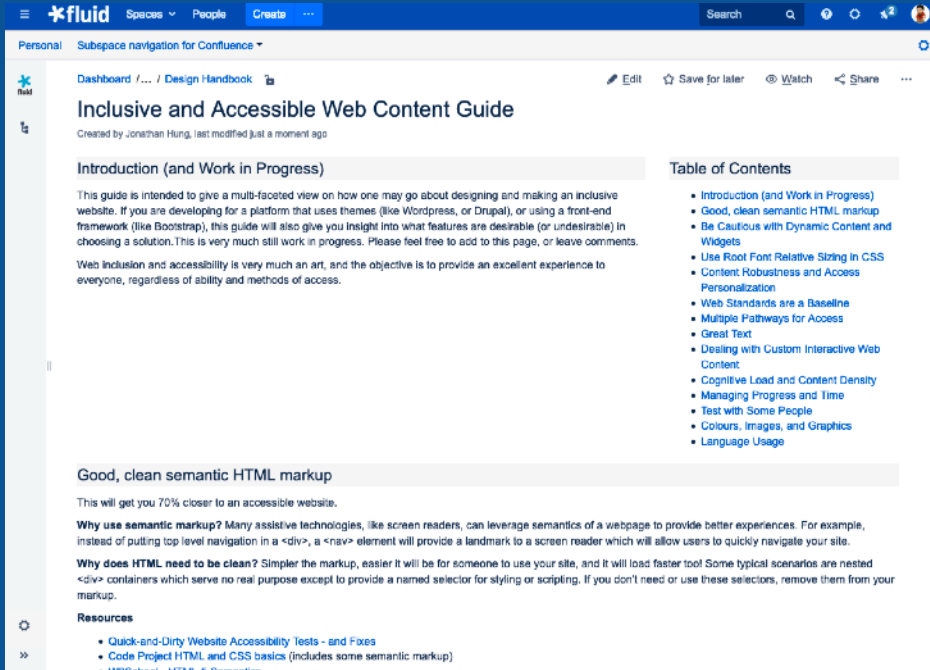
Participate:
[GitHub w3c/using-aria](#)
[File a bug](#)
[Commit history](#)
[Pull requests](#)

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- When to use ARIA and when not to.
- How to use ARIA and common patterns of usage

Inclusive and Accessible Web Content Guide

wiki.fluidproject.org/x/x4BPC



The screenshot shows a web browser displaying a wiki page. The browser's address bar shows the URL 'wiki.fluidproject.org/x/x4BPC'. The page title is 'Inclusive and Accessible Web Content Guide'. The page content includes an introduction, a table of contents, and sections on 'Good, clean semantic HTML markup' and 'Resources'. The 'Table of Contents' section lists various topics such as 'Introduction (and Work in Progress)', 'Good, clean semantic HTML markup', 'Be Cautious with Dynamic Content and Widgets', 'Use Root Font Relative Sizing in CSS', 'Content Robustness and Access Personalization', 'Web Standards are a Baseline', 'Multiple Pathways for Access', 'Great Text', 'Dealing with Custom Interactive Web Content', 'Cognitive Load and Content Density', 'Managing Progress and Time', 'Test with Some People', 'Colours, Images, and Graphics', and 'Language Usage'. The 'Resources' section lists 'Quick-and-Dirty Website Accessibility Tests - and Fixes' and 'Code Project HTML and CSS basics (includes some semantic markup)'.

- Tools
- Best practices

More to come:

- Planning for uncertainty and perpetual change
- Considerations for outsourcing your project
- etc

More about Inclusive Design

IDRC Curated Resources

- guide.inclusivedesign.ca
- handbook.floeproject.org
- wiki.fluidproject.org/display/fluid/Presentations

Other Resources

- <https://handbook.floeproject.org/TheThreeDimensionsPartOne.html>
- www.microsoft.com/design/inclusive/

Questions? Comments?

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