(Floe) Sonification

One goal of the FLOE project is to create a multimodal palette for expressing information to FLOE authoring supports. One aspect of this goal is the creation of charts and graphs sonification authoring tools. These tools will allow authors to include audio information along with the usual visual information of charts and graphs. These charts can then be embedded into educational materials or other materials, allowing the consumption of the information in multiple modes. This work also contributes to the FLOE project goal of developing innovative approaches to addressing currently unsolved accessibility challenges associated with richer learning experiences and new forms of OER. The addition of sonification to charts and graphs will provide for a richer learning experience for a broad range of learners.

With our sonification work we wish to address the presentation of many different types of charts and graphs. To begin, we decided to focus on the pie chart as a way to get started in creating and demonstrating an accessible and practical tool for authoring.

Try the latest demo here!

- note: this demo is best experienced using a Chrome web browser, as it includes the Infusion Text to Speech component that uses the Web Speech API. Text to speech support is also available in Safari, and in the latest version of Firefox (but must be turned on through a config option there)

Inspiring and interesting examples:

Sonification of charts and graphs is a highly experimental, exciting and relatively new field. Much research is being done and many interesting examples can be found here:

Specimen Box - an exploratory visualization & sonification tool built for Microsoft's Digital Crimes Unit by The Office for Creative Research.

https://www.youtube.com/watch?v=J0-GVIxbRPg

https://vimeo.com/49484255

http://sonification.de/handbook/media/chapter7/SHB-S7.5.mp3

http://brain.huji.ac.il/site/em.html

http://www.amedilab.com/Home/dragdrop

http://www.seeingwithsound.com/

https://britishmuseum.withgoogle.com/ - sonified interactive timeline of the British Museum collection

Literature Review

https://docs.google.com/document/d/1tnQyScm86Vj9rFKEogxPeP3x8A79A2dg6yLZ_ARuZtg/edit?usp=sharing

User Testing

User Testing of Sonified Pie Chart Data (Floe Chart Authoring Tool)

Early Explorations

Sonification Personae

Sonification Use Cases

Exploration and Early Sketches

Early Sound Sketches

Sonification Prototyping Tool

Design

Pie Chart

Pie Chart Authoring Tool Designs

Pie Chart Authoring Tool Demo

Pie Chart Sound Sketches

Building Blocks

Floe Sonification Framework