Translating Visual Information into Tactile Information

http://www.slideshare.net/CentralAccess/translating-visual-information-into-tactile-information-59973754

Nicole Johnson
Vernée Hemphill
Wendy Holden
Central Access

• Central Washington University
• Produces Alternative Media
  • Edited Word Documents
  • HTML
  • Audio Files
  • Braille
  • Tactile Graphics
• Student Based Workforce
Quick Notes

• We require a simplified process due to
  • Volume of material being produced at a time
  • Student technicians (turn around time of jobs, flux of work, training process)

• Evolution to improve product
  • Student employee as a consultant
  • Feedback from users
What are tactile graphics?

• Starting with an image, translating the information to be felt not seen
When are they helpful?

• When image descriptions become convoluted
When are they not helpful?

• When images can be described with text alone
Methods of Production

• Vacuum-form copy from collage/tooling or embossed plus collage
• Embossed
• Microcapsule

Microcapsule:
Reactive paper that causes ink to swell under heat
Basics

- Awareness of level/type of content
- Identify relevant information
- Strip down visual elements
What should be included, and what should be omitted?
Image from textbook:

Graphic before QC:

Improved graphic:
Technical Details

A “language” of common elements for graphics
Textures

• Comparable to “colors”

• Used to differentiate objects
  • Just because the graphic uses different colors doesn’t mean that textures are needed
Textures are helpful to distinguish different parts of a graphic.
Standardized Tools

• Template
  • Common braille letters/numbers
• Dots
• Label line
Standardized Tools

- 2-4 line point
- Commonly used dashed lines
- Specific arrows
\[ y = f(x) + c \]

\[ (x, y + c) \]

\[ y = f(x) \]

\[ (x, y) \]
White Backing Lines!

Hugely important so swelled ink will not bleed together
Combining descriptions with tactiles

Transcribers' notes are useful in graphics to explain orientation.
<table>
<thead>
<tr>
<th>Key Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Normal Speech Range</td>
</tr>
<tr>
<td>b</td>
<td>Frequency in cycles per second</td>
</tr>
<tr>
<td>c</td>
<td>Hearing Level in Decibels</td>
</tr>
<tr>
<td>d</td>
<td>Threshold of pain</td>
</tr>
<tr>
<td>e</td>
<td>Normal</td>
</tr>
<tr>
<td>f</td>
<td>Mild</td>
</tr>
<tr>
<td>g</td>
<td>Moderate</td>
</tr>
<tr>
<td>h</td>
<td>Moderately severe</td>
</tr>
<tr>
<td>i</td>
<td>Severe</td>
</tr>
<tr>
<td>j</td>
<td>Profound</td>
</tr>
<tr>
<td>k</td>
<td>Running water</td>
</tr>
<tr>
<td>l</td>
<td>Wind</td>
</tr>
<tr>
<td>m</td>
<td>Bird chirping</td>
</tr>
<tr>
<td>n</td>
<td>Voices through the telephone</td>
</tr>
<tr>
<td>o</td>
<td>Alarm clock</td>
</tr>
<tr>
<td>p</td>
<td>Whispering</td>
</tr>
<tr>
<td>q</td>
<td>Rotating fan</td>
</tr>
<tr>
<td>r</td>
<td>Crying baby</td>
</tr>
<tr>
<td>s</td>
<td>Vacuum</td>
</tr>
<tr>
<td>t</td>
<td>Dog barking</td>
</tr>
<tr>
<td>u</td>
<td>Grand piano</td>
</tr>
<tr>
<td>v</td>
<td>Cell phone ring</td>
</tr>
<tr>
<td>w</td>
<td>Semi truck</td>
</tr>
</tbody>
</table>
Using Keys

• Braille takes up a lot of space, it’s often necessary to include a text key with the graphic

• We are still in the process of adapting the BANA standard for key and graphic orientation

In-Graphic Keys

- Always located at the top of the graphic, under the title
- Labeled “Key:”
Representing information as a table

• These graph values can be transcribed into tables, and included on a key
Splitting graphics into multiple parts

Tactile senses are different than sight, an eighth of an inch is as small as fingers can distinguish.

Sometimes you can’t fit all the necessary information onto one swell sheet.
Where do you even start?
It’s helpful to have the first graphic of a series outline the overall layout of the graphic, and include corresponding page number references.
Alternative option for low vision

- Variety of font options
- Does not need to know braille
Summary

• Tactile graphics are a method for translating visual information into tactile information.

• Start by identifying relevant information and simplifying visual elements.

• Convey information using consistent elements such as textures and specific line weights and dashes.

• Consider using keys or multiple parts if there is too much information to fit on one swell sheet.

• Large print is an option for low vision.
Limitations of 2.5d tactiles when dealing with 3d images

- New 3d printing technology is an exciting option
Sample tactile graphics are available in the front with our contact information

CentralAccess@CWU.edu