

A Preliminary Literature Review of Visual Information Accessibility for Blind and Visually Impaired Individuals

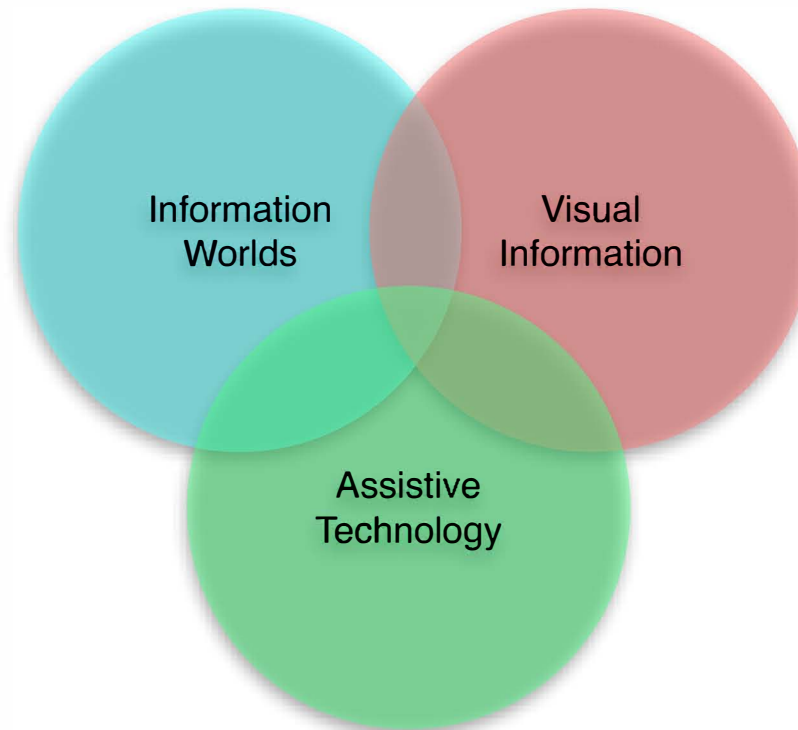
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Information Worlds

"An important element of the concept of information worlds is that they are built around shared understandings of and behavioral norms regarding information; not only is information exchanged by members of a given small world as part of their ongoing social interactions, but multiple small worlds (as components parts of the larger lifeworld) intersect with each other in terms of the ways in which they understand and use information." (Jaeger & Burnett, 2010, p. 57)

The theories of Information Worlds, Normative Behavior, and Diffusion of Innovations (Rogers, 2003) provide an apt framework for exploring the issues of information accessibility for people who are blind or visually impaired. Additionally, we may be able to explore and better understand the spread of knowledge about and adoption of assistive technology, techniques, and tools in this particular community, or Information World, through the application of these theories.

Increased awareness of the ways blind and visually impaired individuals learn about, evaluate, adopt, and assimilate assistive technology can improve our ability to get the right tools in their hands for success in education and employment endeavors.



Assistive Technology

Carl Brown (1992) gives a general overview of assistive technology to make computers accessible to people with disabilities, including vision loss, hearing loss, and orthopedic disabilities. Most of the techniques described are still the predominant methods, but have improved over time. For those who are blind or visually impaired, they are:

- audio via screen reading or text-to-speech software
- tactile method, refreshable Braille display
- a combination thereof
- enlargement (CCTV or screen enlarging programs)
- color enhancements

Visual Information

Methods of making images accessible in non-visual ways

Audio

- Described Video
- Visual assistive discourses (Piety, 2004)
- Optical character recognition (OCR) or document conversion
- Screen readers/text-to-speech
- DAISY (Digital Accessible Information System) SVG XML markup (Gardner, et al, 2009)

Tactile Maps

- Braille-like raised dot arrays
- Daisy SVG XML (Gardner, et al, 2009)

Types of Documents needing description

- Motion pictures and television shows
- Theatrical productions
- Live events
- Museum exhibits (Piety, 2004)
- PowerPoint presentations, projections, and chalkboard writing
- Mathematical, logical, physical, and chemical symbols
- Photographs
- Diagrams and graphs

"Unfortunately there is still a vast amount of literature that is distributed electronically but that cannot be read adequately with screen readers. Very little scientific literature is fully understandable because the mathematics and critical graphical information are presently not directly accessible by any non-visual means. The new Enhanced Reading project has the goal of making a number of professional physics publications available in the DAISY (Digital Accessible Information System) eXtended Markup Language (XML) format that makes all text, math, and figures fully accessible by people with print disabilities." (Gardner, Bulatov & Kelly, 2009, p. 314)

Primary References

- Brown, C. (1992). Assistive technology, computers, and persons with disabilities. *Communication of the ACM*, 35(1), 36-45.
- Chatman, E. A. (1999). A theory of life in the round. *Journal of the American Society for Information Science*, 50(3), 207-17.
- Gardner, J., Bulatov, V., & Kelly, R. (2009). Making journals accessible to the visually impaired: The future is near. *Learned Publishing*. 22 (4) (OCT): 314-9.
- Jaeger, P.T. & Burnett, G. (2010). *Information Worlds: Social Context, Technology, and Information Behavior in the Age of the Internet*. New York, NY: Routledge.
- Piety, P. J. (2004). The Language System of Audio Description: An Investigation as a Discursive Process. *Journal Of Visual Impairment & Blindness*, 98(8), 453-469.
- Complete references list available upon request via e-mail at melody.mccotter@unt.edu

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