General Accessibility Tool

Universal Design

Definition

Universal design is a worldwide movement based on the concept that all products, environments and communications should be designed to consider the needs of the widest array of users. It is also known by other names: design for all, inclusive design, lifespan design or human-centered design. Universal design is a way of thinking about design that is based on the following premises:

- Varying ability is not a special condition of the few but a common characteristic of being human, and we change physically and intellectually throughout our lives.
- If a design works well for people with disabilities, it works better for everyone.
- At any point in our lives, personal self-esteem, identity, and well-being are deeply affected by our ability to function in our physical surroundings with a sense of comfort, independence and control.
- Usability and aesthetics are mutually compatible.

Universal design asks from the outset how to make the design work beautifully and seamlessly for as many people as possible. It seeks to consider the breadth of human diversity across the lifespan to create design solutions that work for all users.

For more on Universal Design, see "What is Universal Design?" by Polly Welch, Associate Professor, University of Oregon, Eugene. This document is the first chapter in the book, Strategies for Teaching Universal Design, Welch, P. Editor, (Adaptive Environments Center and MIG Communications, 1995). It discusses what Universal design is and is not and why the term was needed at all. http://www.udeducation.org/resources/readings/welch_design.asp

The Principles of Universal Design

These seven principles may be applied to evaluate existing designs, guide the design process, and educate both designers and consumers about the characteristics of more usable products and environments.

PRINCIPLE ONE: Equitable Use

The design is useful and marketable to people with diverse abilities.

- Guidelines:
  1a. Provide the same means of use for all users: identical whenever possible; equivalent when not.
  1b. Avoid segregating or stigmatizing any users.
  1c. Provisions for privacy, security, and safety should be equally available to all users.
  1d. Make the design appealing to all users.

PRINCIPLE TWO: Flexibility in Use

The design accommodates a wide range of individual preferences and abilities.

- Guidelines:
  2a. Provide choice in methods of use.
  2b. Accommodate right- or left-handed access and use.
  2c. Facilitate the user's accuracy and precision.
  2d. Provide adaptability to the user's pace.

PRINCIPLE THREE: Simple and Intuitive Use, Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.

- Guidelines:
  3a. Eliminate unnecessary complexity.
  3b. Be consistent with user expectations and intuition.
  3c. Accommodate a wide range of literacy and language skills.
  3d. Arrange information consistent with its importance.
  3e. Provide effective prompting and feedback during and after task completion.

PRINCIPLE FOUR: Perceptible Information, The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.

- Guidelines:
  4a. Use different modes (pictorial, verbal, tactile) for redundant presentation of essential information.
  4b. Provide adequate contrast between essential information and its surroundings.
  4c. Maximize "legibility" of essential information.
  4d. Differentiate elements in ways that can be described (that is, make it easy to give instructions or directions).
  4e. Provide compatibility with a variety of techniques or devices used by people with sensory limitations.

PRINCIPLE FIVE: Tolerance for Error, The design minimizes hazards and the adverse consequences of accidental or unintended actions.

- Guidelines:
  5a. Arrange elements to minimize hazards and errors: most-used elements, most accessible; hazardous elements eliminated, isolated, or shielded.
  5b. Provide warnings of hazards and errors.
  5c. Provide fail-safe features.
  5d. Discourage unconscious action in tasks that require vigilance.

PRINCIPLE SIX: Low Physical Effort, The design can be used efficiently and comfortably and with a minimum of fatigue.

- Guidelines:
  6a. Allow user to maintain a neutral body position.
  6b. Use reasonable operating forces.
  6c. Minimize repetitive actions.
  6d. Minimize sustained physical effort.

PRINCIPLE SEVEN: Size and Space for Approach and Use Appropriate size and space are provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility.

- Guidelines:
  7a. Provide a clear line of sight to important elements for any seated or standing user.
  7b. Make reach to all components comfortable for any seated or standing user.
  7c. Accommodate variations in hand and grip size.
  7d. Provide adequate space for the use of assistive devices or personal assistance.

Please note that the Principles of Universal Design address only universally usable design, while the practice of design involves more than consideration for usability. Designers must also incorporate economic, engineering, cultural, gender, and environmental concerns in their design processes. These Principles offer designers guidance to better integrate features that meet the needs of as many users as possible.

"The Principles of Universal Design were conceived and developed by The Center for Universal Design at North Carolina State University. Use or application of the Principles in any form by an individual or organization is separate and distinct from the Principles and does not constitute or imply acceptance or endorsement by The Center for Universal Design of the use or application."

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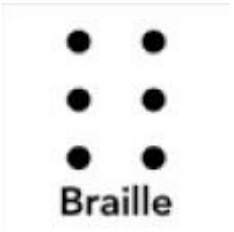
Braille and Large Print

Definition: Braille



A young Frenchman named Louis Braille first developed braille around 1820. He created braille by modifying a system of night writing, which was intended for use on board ships. He did this work as a very young man and had it complete by the time he was about 18. He and his friends at the school for the blind that he attended found that reading and writing dots was much faster than reading raised print letters that could not be written by hand at all. The development of this system by young Louis Braille is now recognized as the most important single development in making it possible for people who are blind to get a good education.

It took more than a century, however, before people accepted braille as an excellent way for the blind to read and write. Even today many people underestimate the effectiveness of braille. While tapes and records are enjoyable, braille is essential for note taking and helpful for studying such things as math, spelling, and foreign languages.

Experienced braille readers read braille at speeds comparable to print readers--200 to 400 words a minute. Such braille readers say that the only limitation of braille is that there isn't enough material available.

Braille consists of arrangements of dots that make up letters of the alphabet, numbers and punctuation marks. The basic braille symbol is called the braille cell and consists of six dots arranged in the formation of a rectangle, three dots high and two across. Other symbols consist of only some of these six dots. The six dots are commonly referred to by number, according to their position in the cell.

There are no different symbols for capital letters in braille. Capitalization is accomplished by placing a dot 6 in the cell just before the letter that is capitalized. The first ten letters of the alphabet are used to make numbers. These are preceded by a number sign, which is dots 3-4-5-6. Thus, 1 is number sign a; 2 is number sign b; 10 is number sign a-j and 193 is number sign a-i-c.

Adapted from "What is Braille and What does it mean to be Blind," National Federation of the Blind Web site. http://www.nfb.org/books/books1/ifblnd03.htm

Definition: Large Print

Large print means 18-point type. But converting documents into large-print copies requires more than choosing "enlarge" on the photocopier. If you have the technology to create print materials and you follow the instructions below, you can make your print materials accessible to people with some usable sight. Or you may choose to hire a transcription service provider to convert these documents for you.

How to Convert Print to Large-Print Documents

Bear in mind that conversion will probably triple the length of a document.

- Font is 18-point Arial with single spacing
- Text is left-justified and in upper and lower case
- Use of italics, bold, and underlining is kept to a minimum
- Hyphenation at the ends of lines is kept to a minimum
- Paper is non-glossy and heavy to prevent show-through
- Construct tables carefully to allow tracking from one column to the next
- Minimize use of parentheses ( )
- Don't crowd text onto the page, and keep the number of pages to a minimum

(From Association of the Science and Technology Centers Website, used with permission, http://www.astc.org/resource/access/pmlp.htm)

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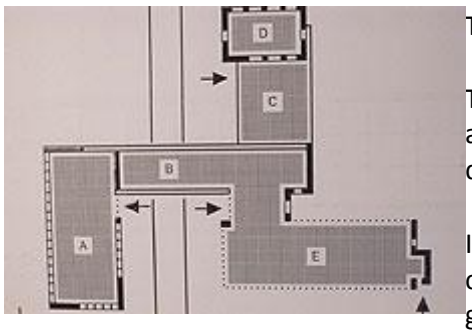
Tactile Graphics

Definition: Tactile Graphics



Tactile graphics translate images into tactile language.

They allow people access to the visual information in works of art, maps, architectural and other diagrams, and three-dimensional objects and spaces.

In the Resources section you will find organizations, companies, and institutions that research and create tactile graphics, tactile graphics equipment producers, and supplies for tactile images. There are also groups that provide support services in using and training with these tactile resources.

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Audio Described Media

Definition: Audio Described Media

Audio described media make accessible the visual images of theater, media, and museum exhibitions for people who are blind or have low vision. It is a free narration service that describes what the sighted person takes for granted—theatrical images that a person who has low vision formerly could only experience through the whispered asides from a sighted companion. In theaters, in museums, and film and video presentations, audio description is commentary and narration that guides the listener through the presentation with concise, objective descriptions of new scenes, settings, costumes, body language, and "sight gags," all slipped in between portions of dialogue or songs. It has been found to be a significant technique for making the arts more accessible for an important but underserved constituency. Audio description also can be viewed as an aesthetic advance for the visual and performing arts.

Adapted from Audio Description Associates Website, www.audiodescribe.com

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Accessible Web Materials

Definition: Audio Described Media

The Web offers many new opportunities to people with disabilities that are unavailable through any other medium. They can access information, make purchases, communicate with the world, and access entertainment that does not depend on the responsiveness of other people. But this independence is only partially a reality. Too many Web sites are not created with Web accessibility in mind. They exclude the segment of the population that in many ways stands to gain the most from the internet. **(Adapted from: Introduction to Web Accessibility by Paul Bohman. October 2003, WebAIM Web site, http://www.webaim.org/intro/)**

There are many resources available that describe the concepts and tools needed to make Web sites available to people with disabilities. See the Resources section of this site.

One tool that blind people have to use computers is called a screen reader, software that reads aloud what is on a computer screen and provides navigational cues. There are many different screen readers. A popular one is called JAWS (Job Access With Speech).

Experience how a JAWS screen reader works (1:15)

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Next Steps

Congratulations! You now understand the tools available to create access to the arts for people with visual impairments and other disabilities. You are ready to plan an accessibility program for your museum or arts organization.

Here are the steps we suggest:

- Assess the resources you already have at your disposal. You may have found that you are familiar with many of the tools discussed and already use them in your programming.
- Gather together a team of experienced advisors who are familiar with disability and accessibility as well as interested in art.
- With this Advisory Board, work to set short- and long-term goals for making your institution and programming accessible to visitors, staff and funders who are blind or visually impaired.
- Using these goals, you can then launch a pilot program and begin welcoming a new audience to your museum.

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Beyond Accessibility:

Think Universal

Your audience is larger than your think!

In learning about the tools available to create access to art, you may have found yourself thinking:

- "I would enjoy touching a model or facsimile of a work of art."
- "Props would be great to use with all my students."
- "Sound and dramatization would help many students feel more engaged in learning about art, history, and literature."

- "Verbal description would strengthen language skills for all my students."
- "Verbal description would model observation skills during all my tours."

Yes, Yes, Yes! These approaches and tools were designed for audiences with visual impairments. But they can benefit people with other disabilities AND enhance programming for **all** your audiences.

Accessibility Tools that appeal to all of our senses and create an open and flexible environment allow for a broad range of learning styles, preferences, and interests and enrich the art experience for **everyone**.

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