

ICT in SES

Software for users with special needs

Lesson N°23

Users with special needs



Include users

- Different types of disabilities – sensory, physical, mental (mental retardation), multiple disabilities
- Speech and language disorders
- Learning difficulties

Software development criteria



General criteria

- Every software product must comply to them
- Examples: ease of use, reliability, basic functionality

Educational criteria

- Quality of educational elements and training design
- Examples: content presentation, tasks, providing feedback

Specific criteria

- Related to the specific needs of the user group
- Software accessibility and specific content design requirements and tasks provided by the software

Accessibility



Accessibility

- How easily a person uses or understands content
- Provides usability of software applications to the widest range of users

Accessibility strategies

- Used by most users without any modification
- Adaptability to different users
- Standardized interface for assistive technologies

Criteria related to needs



Motor
problems



Hearing
problems



Visual
problems



Learning
problems

Motor problems



- Software must support a variety of assistive technologies
 - Alternative keyboards
 - Alternative pointing devices

Visual problems



- Compatible with screen readers and magnifiers
- Customizable functionalities and appearance
 - Font size, background and text colour
 - Sufficient contrast
 - Compatibility with OS accessibility settings
- Colour should not be the only way to present information for colour blind users

- Images and other multimedia elements must support alternative text descriptions available to screen readers
- Textual and graphic information must be accompanied by alternative audio description (where possible)

Hearing problems



- Audio information must have alternative visual presentation

Learning problems



- Keep the software as simple as possible
- Consistent and predictable
- Software content should be linear in nature
- Adhering to the standards of user interfaces

More criteria



Functionality

- Easy access to the most frequently used features
- All features are accessible via the keyboard
- Using pointing devices is optional, not mandatory
- Documentation of all accessibility features, configuration options and instructions for using them

Interface

- Simple and clear instructions, tips and results, supported by visual or audio hints
- Graphical elements with descriptive names and alternative text descriptions
- Image used in several places has the same meaning
- Text information should not be presented as an image because this makes it inaccessible to screen readers

Multimedia

- In case of time limitation for an event, its duration should be either configurable or tailored to slower users
- For audio and multimedia all information can be perceived by the deaf or hearing impaired users

By displaying visual indication of all sound signals

By provides the ability to turn on, off and adjust the volume

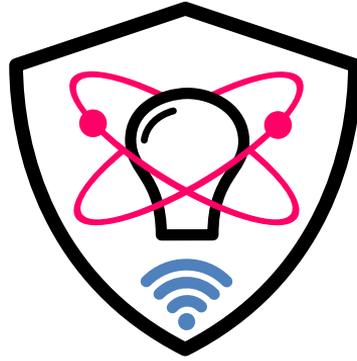
Colours

- Support for colour customization and contrast options
- Use of uniform text background and avoid of images as a background as it reduces visibility and readability of text, making it difficult for people with visual impairments and learning disabilities
- Avoid flashing elements, unless they are used to attract attention of hearing impaired users

More information



- Kavcic, A., [Software Accessibility: Recommendations and Guidelines](#), EUROCON 2005, The International Conference on "Computer as a tool", Belgrade, Serbia & Montenegro, November 21-24, 2005
- World Wide Web Consortium (W3C), [Web Accessibility Initiative \(WAI\)](#), Version: 1.3 August 2005
- [Game accessibility guidelines](#), 2012-2015
- IGDA Game Accessibility SIG, [Guidelines for game accessibility](#), 2003
- Becta (British Educational Communications and Technology Agency), [Standards and guidelines for making accessible software](#), January 2009



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The end

Comments, questions