More communication and assistive technology support

Assistive technology products

[edit] Accessible computer input

Sitting at a desk with a QWERTY keyboard and a mouse remains the dominant way of interacting with a personal computer. Some AT reduces the strain of this way of work through ergonomic accessories with height-adjustable furniture, footrests, wrist rests, and arm supports to ensure correct posture. Keyguards fits over the keyboard to help prevent unintentional keypresses.

Alternatively AT may attempt to improve the ergonomics of the devices themselves:

- Ergonomic keyboards reduce the discomfort and strain of typing.
- Chorded keyboards have a handful of keys (one per digit per hand) to type by ‘chords’ which produce different letters and keys.
- Expanded keyboards with larger, more widely-spaced keys.
- Compact and miniature keyboards.
- Dvorak Simplified Keyboard layout, in which the most common keys are located at either the left or right side of the keyboard.

Input devices may be modified to make them easier to see and understand:

- Keyboards with lowercase keys
- Keyboards with big keys.
- Large print keyboard with high contrast colors (such as white on black, black on white, and black on ivory).
- Large print adhesive keyboard stickers in high contrast colors (such as white on black, black on white, and black on yellow).
- Embossed locator dots help find the 'home' keys, F and J, on the keyboard.
- Scroll wheels on mice remove the need to locate the scrolling interface on the computer screen.

More ambitiously, and quite crucially when keyboard or mouse prove unusable, AT can also replace the keyboard and mouse with alternative devices: trackballs, joysticks, graphics tablets, touchpads, touch screens, a microphone with speech recognition software, sip-and-puff input, and switch access.

Software can also make input devices easier to use:

- Keyboard shortcuts and MouseKeys allow the user to substitute keyboarding for mouse actions. Macro recorders can greatly extend the range and sophistication of keyboard shortcuts.
- StickyKeys allows characters or commands to be typed without having to hold down a modifier key (Shift, Ctrl, Alt) while pressing a second key. Similarly, ClickLock is a Microsoft Windows features that remembers a mouse button is down so that items can be highlighted or dragged without holding the mouse button down throughout.
- Customization of mouse or mouse alternatives' responsiveness to movement, double-clicking, and so forth.
- ToggleKeys is a feature of Microsoft Windows 95 onwards. A high sound is heard when the CAPS LOCK, SCROLL LOCK, or NUM LOCK key is switched on and a low sound is heard when any of those keys are switched off.
- Customization of pointer appearance, such as size, color and shape.
- Predictive text
- Spell checkers and grammar checkers

[edit] Durable Medical Equipment (DME)

- Seating products that assist people to sit comfortably and safely (seating systems, cushions, therapeutic seats).
- Standing products to support people with disabilities in the standing position while maintaining/improving their health (standing frame, standing wheelchair, active stander).
- Walking products to aid people with disabilities who are able to walk or stand with assistance (canes, crutches, walkers, gait trainers).

- Wheeled mobility products that enable people with mobility disabilities to move freely indoors and outdoors (wheelchairs, scooters)

[edit] Learning difficulties

- Age appropriate software
- Cause and effect software[1]
- Hand-eye co-ordination skills software
- Diagnostic assessment software
- Mind mapping software
- Study skills software
- Symbol-based software[2]
- Text-to-speech
- Touch typing software

[edit] Visual impairment

Choice of appropriate hardware and software will depend on the user's level of functional vision.

[edit] Hardware

- Large monitors.
- Adjustable task lamp, using a fluorescent bulb, shines directly onto the paper and can be adjusted to suit.
- Copyholder holds printed material in near vertical position for easier reading and can adjusted to suit.
- Closed circuit television (CCTV) or video magnifiers. Printed materials and objects are placed under a camera and the magnified image is displayed onto a screen.
- Modified cassette recorder. To record a lecture, own thoughts, ideas, notes etc.
- Desktop compact cassette dictation system. To allow audio cassette playback with the aid of a foot pedal.
- Fusers produce tactile materials, for example diagrams and maps, by applying heat to special swell paper.
- Scanner. A device used in conjunction with OCR software. The printed document is scanned and converted into electronic text, which can then be displayed on screen as recognisable text.
- Standalone reading aids are integrate a scanner, optical character recognition (OCR) software and speech software in a single machine, working without a separate PC.[3]
- Refreshable Braille display. An electronic tactile device which is placed under the computer keyboard. A line of cells, that move up and down to represent a line of text on the computer screen, enables the user to read the contents of the computer screen in Braille.

- Electronic Notetaker. A portable computer with a Braille or QWERTY keyboard and synthetic speech. Some models have an integrated Braille display.
- Braille embosser. Embosses Braille output from a computer by punching dots onto paper. It connects to a computer in the same way as a text printer.
- Perkins Brailler. To manually emboss Grade 1 or 2 Braille.

[edit] Software

- Customization of graphical user interfaces to alter the colors and size of desktops, short-cut icons, menu bars and scroll bars.
- Screen magnifiers
- Screen readers
- Self-voicing applications
- Optical character recognition. Converts the printed word into text, via a scanner.
- Braille translation. Converts the printed word into Braille, which can then be embossed via a Braille embosser.

[edit] Alternative and Augmentative Communication (AAC)

- Low-tech systems. Simple paper or object based systems, i.e. do not require a battery.
- Light-tech systems. Simple voice output devices, which require a battery; although no sophisticated charging mechanism is required.
- High-tech systems. Sophisticated voice output devices, which require a battery, as well as training and ongoing support.

[edit] Deafness and hearing loss

- Audiometer
- Captioning
- Fire alarm paging system
- Loop system (portable and fixed)
- Radio aids
- Telecommunications device for the deaf
- Teletext
- Video cassette recorders that can read and record subtitles.
- Vibrating fire alarm placed under pillow when asleep.
- Door bell lighting system

[edit] Others

- Wakamaru provides companionship, reminds users to take medicine and calls for help if something is wrong.
- Call Reassurance community based program that calls seniors at home ensuring their well-being.

- Cosmobot is part of a play therapy system designed to motivate children to participate in therapy.

[edit] References

1. ^ Bates, Roger; Jones, Melanie (2003). Using Computer Software To Develop Switch Skills. *2003 [Technology and Persons with Disabilities] Conference Proceedings*. Retrieved on 2007-02-08.
2. ^ Hawes, Paul; Blenkhorn, Paul (2002). Bridging the Gap between Aspiration and Capability for Aphasic and Brain Injured People. *2002 [Technology and Persons with Disabilities] Conference Proceedings*. Retrieved on 2007-02-08.
3. ^ What is a reading aid – technology information sheet. Royal National Institute for the Blind (2006-09-29). Retrieved on 2007-02-8.