

tools-adaptive techniques

Optical Aids

The vast majority of patients with low vision can be helped to function at a higher level with the use of low vision devices. Low vision specialists recommend appropriate low vision devices and counsel patients on how better to deal with their reduced vision in general. Many government and private organizations exist to aid the visually impaired.

In an article, Augusto Bruix Bayés^[3] mentions that the main principle behind low vision is to magnify the image using various tools.

Improving Far sight: works best with static objects

- TV
- Theater
- Cinema
- Contemplating scenery
- Seeing the bus number

Improving Near sight: the person must work closer to the object

- Reading
- Writing
- Crafts

Improving sensitivity to contrast: the person must use special optical filters

Other tools:

- Book stands
- Special lights
- Grid paper
- Magnified games
- Watches, audio thermometers, special phones, etc.

Effectivity of optical aids

In a study performed by this specialist on 1,000 patients, all subjects with a visual acuity above 0.02 decimal (20/1000 feet) significantly improved their vision. From this group, 48% were very satisfied with their visual aids, 44% were satisfied, 5% little satisfied and 3% unsatisfied. Adaptation process to visual aids In the patient's first visit, the most adequate options for their particular case are studied, taking into consideration their psychological, cultural, social and work factors, and the degree of improvement experienced with the selected aids, advising the patient on which aids will yield a better quality of life. After the specific adaptation, there is a follow up to ensure the patient is correctly using and taking the best advantage of the visual aids. In some cases (approx. 4%), the initial visual aids must be changed. Once the patient is released, a report on their first visit and follow up is given to their eye doctor or the professional who made the referral. We believe that low vision, as a complementary technique to ophthalmology, has a great future, due to the progress of science, the increase of life expectancy, and the increasing need people have to access information.

Other aids

For the totally blind, there are books in braille, audio-books, machines and computer programs which transform text files into sound. low vision people can, of course, make use of these tools as well.

Computers are, precisely, fundamental tools of integration for the visually impaired person. They allow, using standard or specific programs, screen magnification and conversion of text into sound or touch (Braille line), and are useful for all levels of visual handicap. OCR scanners can, in conjunction with text-to-speech software, read the contents of books and documents aloud via computer. Vendors also build closed-circuit televisions that electronically magnify paper, and even change its contrast and color, for visually impaired users. For more information, consult.

Conclusions

An ever-increasing number of people are at risk of visual impairment as populations grow and demographic shifts move towards the predominance of older age groups. Potentially blinding eye conditions such as age-related macular degeneration (AMD), diabetic retinopathy and glaucoma are increasing as the number of people affected grows. These are non-communicable chronic eye diseases to which the principles of long-term care including issues of cost of treatment and compliance (adherence) apply. Additionally, more programmes for those with low vision will need to be made available.

http://en.wikipedia.org/wiki/Low_vision

Classroom Tools

Students with low vision often require text materials in large print and/or high contrast, which makes the text easier to read. Strategies can include magnifying text so that it's larger, to moving closer to the source of the text. Several products can assist in typical class activities. Many useful Assistive Technology tools can be found in local stores due to their Universal Design features (such as large button calculators). There are also several excellent online Resources of products designed for students with low vision.

The examples can be used by students in the classroom for different activities.

Large Print Calendar

This Large Print Calendar contains both large print and Braille labels, which can be used in a variety of ways in the classroom. (APH Photo)

Light Box

Visually impaired students can learn to use their residual vision more efficiently by training with APH's Light Box. Materials are used with it to promote basic visual skills, eye-hand coordination and simple matching tasks (APH Photo)

Reading & Writing Aids

Reading and writing activities are intricately related. A child learns to write what he has read. Here are some low-tech Assistive Technology solutions to support a child's visual ability.

Writing Pens	<ul style="list-style-type: none">▪ Felt tip marker with various size tips▪ Steady Write Pen▪ Nite Writer Pen
Paper	<ul style="list-style-type: none">▪ Bold line graph sheets▪ Thick line paper (1/2" 3/4")▪ Boldline Spiral Notebook
	<ul style="list-style-type: none">▪ Writing Guide Set▪ EZ Writing Guide/clip board▪ APHont™ computer font for computers
reading	<ul style="list-style-type: none">▪ Reading Stands▪ Variable Intensity Study Lamp▪ Typoscope Primer: Electronic Magnifier

Environmental Supports

Lighting can greatly impact a child's ability to see and participate in classroom activities. Don't forget to address lighting and page glare (see below) when setting up a learning environment for a student.

Lighting: Lamps and lighting are often the key to improved reading. However, what works is very individual. Some students find reading is easiest with very bright directional light illuminating the page. Other students with an identical eye condition, however, prefer low levels of diffused light. Students often prefer fluorescent lights. Check with the child's Teacher of the Visually Impaired (TVI) for information.

Page Glare

Common white paper often reflects a significant glare, which can make the reading process more difficult. Try covering the page with a transparent colored plastic or an acetate sheet, available at stationary stores, to tone down the brightness. Experiment to find the best color for a student.

Enlarged Print

Books

Large text publications for no, minimal or commercial cost can be found at several sites. You may be required to register; some offer several format options.

Louis (APH book database)
For registered users only

Large Print Books.com

Alternate Media.com

Huge Print.com

Select the type of book and size of font.

Reader's Digest

Amazon.com Due to recent legislation mandating that classroom materials be in accessible formats for all students, Large print and audio cassette book formats are also available here.

Video Magnifiers (CCTVs)

For students with low vision who benefit from large print, a video magnifier (sometimes referred to as a CCTV,) may provide the best access to diagrams, graphs, maps, math, forms and other print material not stored on a computer. Most are stand-alone devices with a moveable table, a camera with a zoom lens, and a monitor. Material is placed on the moveable table under the camera and the image is magnified and displayed on the monitor. There are also portable models that use hand-held cameras or cameras that can use a TV screen as the monitor. For individuals with low vision, careful consideration should be given to providing a full color model as many diagrams and maps incorporate color that impart information. On a black & white model, that information may be lost.

Look for **special features** of video magnifiers including:

- Magnification up to 60 times
- High contrast white on black or black on white
- Moveable line markers to help keep reading position
- Full color
- Selectable foreground & background colors
- Split screen capability when computer monitor is used as the monitor

<http://atto.buffalo.edu/registered/ATBasics/Populations/LowVision/tools.phb>

Magnification Software

For some students with low vision, using a larger monitor and adjusting the display using the built-in accessibility provides enough visual access to the computer screen. When that isn't enough, she may need magnification software..

Screen magnification programs (also referred to as screen enlargement utilities or large print programs) allow users to enlarge a portion of the screen. They turn the computer monitor into a **viewport** showing only a portion of an enlarged display. Users then use the mouse or keyboard to move this viewport to view different areas of the display.

Specialized Features

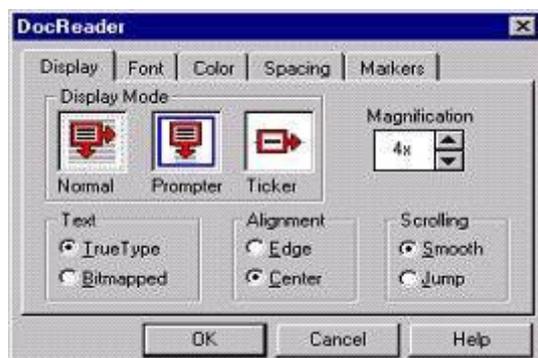
Specialized features of some magnification programs include:

- **Speech output**
The computer reads text displayed on the screen and echoes keyboard typing.
- **Cursor & mouse pointer enhancements**
Alters the size , shape and/or color of the cursor or mouse pointer.
- **Reverse display (white on black) on demand**
Changes the foreground and background colors for enhanced contrast.
- **Hands-free scrolling of text in multiple directions**
Text moves from left to right and top to bottom to make reading entire documents easier.

Many magnification programs contain a special feature called "**scrolling**". Scrolling automatically moves the text from left to right and from top to bottom at a speed chosen by the student. This makes reading information displayed on the computer screen easier.

For programs that include an audio output feature, text may be highlighted as each word is spoken, similar to the talking word processors. The advantage is that the text from an encyclopedia, a web page or from another application program can be read directly from the source.

The student may also be able to choose where text is displayed as it is read. For example, in the **ZoomText Xtra Level II** program, students can select from the following display choices when reading:



ZoomText Xtra Level II DocReader control settings

Normal Mode displays the document in its original format. Scrolling occurs vertically and horizontally.

Prompter Mode wraps lines of text within the screen margins and scrolls vertically.

Ticker Mode displays text in a single continuous line that scrolls horizontally. The unmagnified image is displayed below the magnified line.

Examples

Each of the following products have demos available for download from the Internet:

Windows

Lunar (Dolphin Computer Access)
Large print only.

MAGic (Freedom Scientific)

SuperNova (Dolphin Computer Access)
With speech.

ZoomText (Ai Squared)
Includes both large print & speech output.

Mac

inLarge (ALVA Access Group)

<http://atto.buffalo.edu/registered/ATBasics/Populations/LowVision/magnify.php>

Magnifiers

Video Magnification Systems

Electronic Reading Machines

Microscopic / Reading Eyewear

Reading Telescopes

Telescopic / Bioptic Eyewear

Handheld Telescopes

Auto Focus Eyewear

Computer & Internet Access Technology

Talking Appliance and Voice PDAs

Visual Field Enhancement

Filters, Sunglasses and Glare Control

Task Lighting and Magnification - Lamps Combinations

Reading glasses are another choice.