



**L V Prasad Eye Institute**  
L V Prasad Marg, Banjara Hills  
Hyderabad, INDIA



**World Health  
Organization**

Collaborating Centre for  
Prevention of Blindness

**Meera & L B Deshpande  
Centre for Sight Enhancement**

&

**Dr P R K Prasad Centre  
for Rehabilitation of  
Blind and Visually Impaired**

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## Creating a positive environment for students with low vision

For any student to perform to his/her optimal level, it is essential to have a positive environment and necessary skills or devices. Children with low vision are generally subject to the same rules and regulations as normally sighted students. However, students with visual impairment may have problems in their academic pursuits unless the environment is favorably tailored to meet individual requirements.

A modified environment that allows flexibility and makes full use of their potential is essential for making optimal use of the knowledge and talent of children with low vision. The main concern of educationists should be to provide a conducive environment to such students so that, despite their limitations, they can perform to the best of their abilities, improve the quality of life and become happy, contributing members of society.

Students with low vision should be counseled on how to make the maximum use of their residual vision. Their visual functioning can be optimized by providing suitable low vision devices according to their day-to-day requirements (big, bold and bright), environmental modifications (proper light, high contrast and bright colors), as well as inculcating self confidence in them.

Children with visual impairment have some very special needs in school, especially in the classroom. With an understanding of their special needs and proper knowledge of the techniques needed for dealing with them, teachers and other school staff can help these children to enjoy school and learn just like children with normal eyesight.

Here are some suggestions for teachers to enable them to provide a better environment for children with low vision:

### Environmental modifications

The major components of environmental modifications and adaptations are lighting; color and contrast; posture; position and working distance; and time and speed.



A child reading from the blackboard using a telescope

## Lighting

Some students with visual impairment prefer to work under low lighting conditions, if they cannot tolerate bright light, while others may require brighter illumination. Here are some suggestions for students who require **bright illumination**:

- The light should be uniform throughout the room.
- An adjustable lamp can be positioned to facilitate reading and writing activities.
- The child should be seated near the window where there is more light.

For students who prefers to work with **dim illumination**:

- The seating position should be away from the window.
- A cap and sunglasses must be used while in the sun, like at a playground.
- Use curtains on windows to avoid glare on the blackboard or on the student's face.

## Color and contrast

Some children with low vision have color vision problems too and may require a high contrast environment to perform to the best of their abilities. Some solutions recommended for such situations are:

- Bright contrast reading material
- Use of thick white chalk on the blackboard
- Allow students to use a black ink pen or soft lead pencil.
- Allow students to use a bold line notebook for writing.
- Provide tactile clues, patterns, and prints to color blind students for map work.

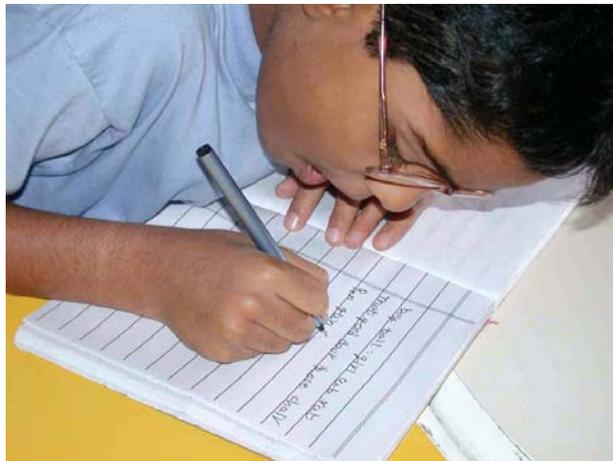
## Posture, position and working distance

- Allow students to sit or stand at one meter distance for any demonstration of visual material.
- Arrange the material or books in a logical way so that they can be located easily.
- Allow students to move the book or head for more comfortable viewing.



Using a stand magnifier to read

- Students can choose a close working distance to read, write and copy.
- Provide suitable furniture to students to enable them to make best use of low vision devices.
- Students can watch television and computer screens from up close.



Bold line notebooks help in writing

## Time and speed factors

- Adequate time must be given for students to use optical and non-optical devices.
- Make allowances for eye fatigue and scanning ability.
- Give extra time to visually impaired students to complete the examination.
- Keep in mind their different reading and writing speeds.

## Size of lettering

- Use large and bold print.
- Allow the child to read and write in a large font.
- Do not change the font style in a document.
- Remember that double spaced sentences are easier to read.

## Other considerations

- Allow the student to handle the study material before, during and after the lecture and demonstrations.
- Read aloud as much as possible while writing on the blackboard.
- Encourage the student to use prescribed low vision devices.
- Give visually impaired students an advance list of the assignment and teacher's notes.

- Take time during quiet periods (for example, while showing an educational movie) to give some extra words of explanation to these students, or assign a classmate as a commentator.

### Large print

All children with low vision may not require large print material. Standard classroom material through the third grade makes use of primary size type, which is usually large enough for low vision children. By the third or fourth grade, it may be advisable to enlarge the font.

### Optical and non-optical devices

Low vision specialists have an array of devices designed to help children with low vision to see and function better. These include magnifiers, like a spectacle magnifier, hand magnifier, pocket magnifier, and stand magnifier for near vision, as well as telescopes for distance vision. Majority of the children do not require near vision devices as they have good accommodation for reading and writing; they usually require telescopes for distance vision. Instructions about close working distance and/or approach magnification will also help them to read more easily.

Non-optical devices do not require lenses but they help improve viewing conditions through better lighting and improved contrast. Some non-optical devices are:

- Reading stand – they help maintain a suitable working distance for optical devices and for maintaining a comfortable posture.
- Overhead reading lamp – it improves contrast and provides focused illumination.
- Felt tip pen and soft lead pencil – the black ink improves the contrast effect.
- Bold line notebook – helps children write in a straight line.
- Cap – helps the child avoid glare.



### Electronic devices

Closed circuit television may help students to read charts, graphs, pictures and text. When using a CCTV, try reverse polarity (white letters on black ground) for improving contrast.

### Computer software

Computer software to magnify the complete screen is available. Children, who are unable to read normal print, can scan the material and use the magnification option according to their individual needs for reading.

### Conclusion

All these devices can make a substantial, positive impact on the educational and social success of children with low vision. The key factors for effective inclusion of children with low vision into regular schools are: a specialized eye examination, a clinical low vision examination, professional rehabilitation support and guidance for the child, parents and teachers regarding suitable devices and appropriate environmental modifications.

### Enrol now!

A three-day **Low Vision Awareness Program (LAP)** for optometrists, ophthalmologists, rehabilitation professionals – preferably institution-based – is conducted in **March** and **September**.

The three-month **Short-term Fellowship Program in Low Vision Care** for optometrists and ophthalmologists begins in **January, April, July** and **October**.

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Programs sponsored by  
Sir Ratan Tata Trust, Mumbai.

**Greeting cards based on paintings by children with visual impairment are available for sale. Please contact Vision Rehabilitation Centres, LVPEI.**

## Suggested behavioral modifications

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|--|---|
| <p><b>Problems due to loss of peripheral vision</b></p> <ul style="list-style-type: none"> <li>● Tripping</li> <li>● Appearing clumsy and bumping into things</li> <li>● Uncertainty while moving about</li> <li>● Unusual head movements</li> <li>● Inability to locate objects easily</li> <li>● Slow light and dark adaptation</li> <li>● Poor vision in dim illumination</li> </ul>                                  | <p><b>Adaptations/Modifications</b></p> <ul style="list-style-type: none"> <li>◆ Make target smaller</li> <li>◆ Teach scanning technique</li> <li>◆ Provide mobility training</li> <li>◆ Encourage the use of other senses</li> <li>◆ Position the person directly to face the target</li> <li>◆ Use a tray to keep items within view</li> <li>◆ Limit the viewing area</li> <li>◆ Decrease glare</li> </ul>  |
| <p><b>Problems due to loss of central vision</b></p> <ul style="list-style-type: none"> <li>● Unusual head position</li> <li>● Not looking directly at others</li> <li>● Appears as if not paying attention</li> <li>● Tendency to hold things up close</li> <li>● Knocking things over</li> <li>● Problems in reading</li> <li>● Avoiding tasks involving small objects</li> <li>● Poor color discrimination</li> </ul> | <p><b>Adaptations/Modifications</b></p> <ul style="list-style-type: none"> <li>◆ Bring the material up close</li> <li>◆ Enlarge the material</li> <li>◆ Encourage experimentation with placement of target</li> <li>◆ Increase illumination</li> <li>◆ Decrease glare</li> </ul>  |
| <p><b>Other problems</b></p> <ul style="list-style-type: none"> <li>● Blinking, squinting, meddling with the eye</li> <li>● Extra sensitivity to light</li> <br/> <li>● Disorganized, untidy written work</li> <li>● Difficulty in discriminating contrast</li> </ul>  | <p><b>Adaptations/Modifications</b></p> <ul style="list-style-type: none"> <li>◆ Increase contrast</li> <li>◆ Adjust lighting, provide a focused light source below eye level/provide a rheostat to adjust intensity of light</li> <li>◆ Use incandescent rather than fluorescent lighting</li> <li>◆ Define areas clearly and reduce glare, use non glare paint</li> <li>◆ Use vivid colors</li> <li>◆ Single color schemes can cause orientation problems – increase contrast. Black and white is the best contrast, yellow is the most visible color.</li> </ul> |

**References:** Mary Ann Lang and Claire Sullivan, Adapting home environments for visually impaired and blind children, Vol 3, No 1 (Spring) 1986.

## You can make a difference

Your contribution can help the Vision Rehabilitation Centres in several ways: provision of low vision devices to underprivileged children, training optometrists in detection and rehabilitation of the blind and those with incurable low vision, and conducting community programs for rehabilitation of persons with visual impairment.

Contributions to the Hyderabad Eye Institute and Hyderabad Eye Research Foundation are tax deductible. Donations above Rs 250 are exempt under Section 80G of the Income Tax Act 1961 for Hyderabad Eye Institute and under section 35(i) (ii) for Hyderabad Eye Research Foundation.

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