Low Vision: Access to Print

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Introduction

Although magnification of objects has been possible for many centuries, fear of deterioration of vision through use, and lack of expertise in the production of lightweight lenses limited the development of optical devices until the first half of the twentieth century.

Optical devices, sometimes referred to as low vision devices, consist of one or more lenses placed between the eye and the object to be viewed. Such devices are designed to maximize the visual abilities of individuals by altering the size and/or the position of the "projection" of an object on the retina. They may also affect the amount of light transmitted to the eye. Thus, tinted lenses placed on spectacle frames can be considered optical devices when prescribed for the purpose of enhancing impaired vision. Some electronic devices, such as closed-circuit television systems, are also considered optical devices. Optical devices are widely used by children with visual impairments in educational settings.

Properly prescribed optical devices are essential for maximizing a child's visual functioning. Any child who can benefit from the use of a device should receive a clinical evaluation by an ophthalmologist or optometrist who is knowledgeable in the prescription of such devices, and the agency or school providing educational services to the child may assist the child's family in obtaining prescribed devices.

Optical devices do not "cure" impaired vision; they simply allow a child to make maximum use of low vision. Optical devices may be used in conjunction with other strategies to maximize visual functioning such as environmental modification and non-optical devices. Due to the optical restrictions imposed by many devices, some children will require instruction in their use beyond that provided by the clinical low vision specialist Teachers of children with visual impairments have a responsibility to offer such instruction. They are aware of the relationships between the use of optical devices and the visual demands of school tasks, and are in a position to observe a child using a device over a period of time. In addition, teachers can observe and respond to a child's psychosocial reactions to the use of an optical device. Special education teachers and orientation and mobility instructors who received their professional training prior to the development of the body of knowledge about optical devices should update their skills through inservice education.

Referrals for the prescription of optical devices can be made on the basis of teacher observations with respect to a child's measured visual acuity, visual fields, sensitivity to contrast and illumination, and visual functioning. Children who are functioning at levels below their chronological age and children who have multiple impairments should be included in these evaluations.

One of the roles of the teacher of children with visual impairments is to "perform functional vision assessments." (See position paper: The Role and Function of the Teacher of Students with Visual Impairments.) With parental approval, the teacher may share the assessment with the low vision eye specialist along with a list of tasks which make visual demands of the child in the school setting. This will provide the eye specialist with guidelines for prescribing optical devices. It is also recommended that teachers accompany their pupils to the clinical evaluation whenever possible. In addition to learning about specific techniques for using a new device and offering information about the child's visual behavior, the teacher of children with visual impairments should make recommendations regarding the mounting system for the device. The advantages of some mounting systems (e.g., whether a lens is hand held or placed in a spectacle frame) may outweigh the advantages of others in a specific setting.

The sophistication of a device does not necessarily correspond with its usefulness. It is important to note that each optical device possesses advantages and disadvantages, and the use of one type of device may be suitable for one particular child but may not be appropriate for another. Some children will require only one device to meet their visual needs, while other children will require two or more to accomplish the same purpose.

Counseling by teachers of students with visual impairments or other professionals may be advisable to assist children in acceptance of optical devices. At certain times in a child's school career (often during adolescence), a child may become self-conscious about using optical devices. A child's desire to remain inconspicuous should be respected as long as the child begins to take responsibility for obtaining visual information. The appearance of an optical device should also be considered when a mounting system is determined. When devices are introduced at an early age and children have developed good habits of usage, they tend to be more readily accepted than when they are introduced at later ages.

Parental concerns regarding the use of optical devices should also be considered. Parents may view a device as a stigmatizing object rather than as a device which promotes independence. The specific use of a device should be outlined for parents as well as for regular classroom teachers so that all concerned with the child's education may assist and encourage efficient usage.

Children with visual impairments in all educational settings should receive a comprehensive low vision evaluation, a prescription for optical devices when appropriate, and instruction in the use of these devices.

In the early part of this century, classes for students who were partially sighted were called "sight-saving" or "sight conservation" classes. These classes operated on the assumption that ordinary use of impaired vision, or in particular, the use of impaired vision to the point of eye strain, could cause permanent and irreparable damage to the eyes. It was believed that if a child with a visual impairment could read large print (usually considered 18 point) from a near-normal reading distance rather than labor to see standard print (usually considered 12 point) at a close reading distance, then eye strain would be minimized and a child's vision would be less prone to deterioration. This is now known to be inaccurate.

Today, it is a common belief that in almost all cases, use of impaired vision does not lead to any deleterious ocular effects. Regardless of the distance at which reading materials are held, use of vision by either children with normal sight or children with visual impairments does not harm the eyes. Thus there is no medical reason to discourage children with visual impairments from either using optical devices, such as high plus spheres, and/or from bringing print as close to their eyes as necessary in order to see print clearly.

Both the use of large print at a normal or near-normal reading distance (10 to 14 inches) and the use of standard print at a close reading distance (for example, 3 to 6 inches) serve the

same purpose: both enlarge the size of the retinal "image" of the print. When light that is reflected from print enters the eye, it is focused on the retina forming a retinal image. As the size of the image increases, the image is magnified. The size of the retinal image of print increases as the actual physical size of the print increases and/or as the viewing distance between the eye and the print decreases. When the retinal image is enlarged, print usually becomes more visible to the student with low visual acuity.

Books in standard-size print are usually less expensive to use than large print books, even if additional cost is incurred for optical devices that are required for the use of standard print. A book in standard print is also more accessible and less cumbersome than an often heavy and unwieldy large print book. Furthermore, large print books are rarely available to persons with visual impairments after high school. If a child learns how to use standard print materials, he will be prepared for any type of future employment where the use of standard print is required, but the same cannot be said of the child who reads only large print materials. Some experts who have studied the use of large print compared to the use of regular print indicate there is generally no difference in such factors as level of fatigue or levels of achievement. Some certain advantages to the use of regular type with optical devices are suggested, e.g., reading speed and reading levels.

Optical devices should be viewed as individualized learning tools. In addition to helping students with visual impairments to access near vision print materials, they also provide access to distance information such as that on chalkboards and street signs. Access to all of the visual environments should be emphasized as well as the option for independence that optical devices afford.

Position

It is recommended that individuals with visual impairments resulting in low vision use standard rather than large print whenever possible and when appropriate to the task and ease of use. Large print is recommended when standard print is not within an individual’s visual range even with the use of optical devices or when specific psychological factors necessitate its use. In such cases other reading media, such as recordings and braille, should be considered. The student's potential reading speed should be used as a guideline in choosing reading media. When appropriate, the individual should be involved in the selection of the medium or media most suitable to meet his or her needs.