Research Paper Education

Visisual Impairment in Children and its Effects in Learning: The Role of Parents,Teachers, Science Educatorsand Librarians

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ABSTRACT

Visual impairment and blindness in children is not only difficult to detect and handle but also it is a health situation that has adverse effect in their education. It therefore poses a challenge to parents, teachers,science educators and librarians in all categories of children and educational need. It is based on this background that this paper seeks to identify: types, causes and signs of visual impairments. How children with visual impairment learn is discussed, educational considerations and the roles of parents, teachers science educators as well as librarians are enumerated. The paper concludes with recommendations onthe need for all stakeholders to help the children with this special health challenges and get them encouraged to learn.

KEYWORDS visual impairment, children education, library resources, special education, parents teachers and science educators.

Introduction

The trend in recent years has been for all children, including those with blindness or visual impairments, to attend their local schools. However, there are still many challenges to providing quality services to all students: lack of trained teachers, scarcity of materials, and little information about these students' needs.There is need to identify some of the obstacles and offer suggestions for making education accessible to students who are blind or visually impaired.

The visual impairment – amblyopia – is technical word often called "lazy eye". As the most common cause of vision problems in children, amblyopia is the medical term used when vision in one eye is reduced because that eye and the brain are not working together properly(Centers for Disease Control and Prevention, 2009). Vision is one of our five senses. Being able to see gives us tremendous access to learning about the world around us— people's faces and the subtleties of expression, what different things look like and how big they are, and the physical environments where we live and move, including approaching hazards.

When a child has a visual impairment, it is a cause for immediate attention. That's because so much learning typically occurs visually. When vision loss goes undetected, children are delayed in developing a wide range of skills. While they can do virtually all the activities and tasks that sighted children take for granted, children who are visually impaired often need to learn to do them in a different way or using different tools or materials(American Foundation for the Blind2011). Central to their learning will be touching, listening, smelling, tasting, moving, and using whatever vision they have. The assistance of parents, family members, friends, caregivers, and science educators can be indispensable in that process. More will be said about this in a moment.

Muhammad, Maishanu, Jabo, &Rabiu (2010) earlier identified children with irreversible blindness in a district of northern Nigeria for enrolment into an inclusive education pilot project. The major causes of childhood blindness in the study area were avoidable and the use of key informant survey in this study provided an opportunity for service delivery.

Types of Visual Impairment

Not all visual impairments are the same, al- though the umbrella term "visual impairment" may be used to describe generally the consequence of an eye condition or disorder.The eye has different parts that work together to create our ability to see. When a part of the eye doesn't work right or communicate well with the brain, vision is impaired.To understand the particular visual impairment a child has, it's helpful to understand the anatomy of the eye and the functions of its different parts. Rather than go into those details here, in this general fact sheet, we're pleased to refer you to the experts for easy-to-understand explanations and diagrams of the visual system.

Most of us are familiar with visual impairments such as near-sightedness and far-sightedness. As pointed out by NICHCY (2012, page) less familiar visual impairments include:

- strabismus, where the eyes look in different directions and do not focus simultaneously on a single point;
- congenital cataracts, where the lens of the eye is cloudy;
- retinopathy of prematurity, which may occur in premature babies when the light-sensitive retina hasn't developed sufficiently before birth;
- retinitis pigmentosa, a rare inherited disease that slowly destroys the retina;
- coloboma, where a portion of the structure of the eye is missing;
- optic nerve hypoplasia, which is caused by underdeveloped fibers in the optic nerve and which affects depth perception, sensitivity to light, and acuity of vision; and
- cortical visual impairment (CVI), which is caused by damage to the part of the brain related to vision, not to the eyes themselves.

Because there are many different causes of visual impairment, the degree of impairment a child experiences can range from mild to severe (up to, and including, blindness). The degree of impairment will depend on:

- the particular eye condition a child has;
- what aspect of the visual system is affected (e.g., ability to detect light, shape, or color; ability to see things at a distance, up close, or peripherally); and
- how much correction is possible through glasses, contacts, medicine, or surgery.

The term "blindness" does not necessarily mean that a child cannot see anything at all. A child who is considered legally blind may very well be able to see light, shapes, colors, and objects (albeit indistinctly). Having such residual vision can be a valuable asset for the child in learning, movement, and life.

Signs of a Visual Impairment

It's very important to diagnose and address visual impairment in children as soon as possible. Some vision screening may occur at birth, especially if the baby is born prematurely or there's a family history of vision problems, but baby wellness visits as early as six months should also include basic vision screening to ensure that a little one's eyes are developing and functioning as might be expected.

Zundel(2012, page) noted common signs that a child may have a visual impairment include:

- Eyes that don't move together when following an object or a face
- Crossed eyes, eyes that turn out or in, eyes that flutter from side to side or up and down, or eyes that do not seem to focus
- Eyes that bulge, dance, or bounce in rapid rhythmic movements
- Pupils that are unequal in size or that appear white instead of black
- Repeated shutting or covering of one eye
- Unusual degree of clumsiness, such as frequent bumping into things or knocking things over
- Frequent squinting, blinking, eye-rubbing, or face crunching, especially when there's no bright light present
- Sitting too close to the TV or holding toys and books too close to the face
- Avoiding tasks and activities that require good vision

If any of these symptoms are present, parents will want to have their child's eyes professionally examined. Early detection and treatment are very important to the child's development.

How Common are Visual Impairments?

Visual impairment is very common, especially as people grow older. But there are many causes of visual impairments that have nothing to do with the aging process, and children certainly can be and are affected. In the U.S., as (AFB and Lighthouse International, 2012, page) report, there are approximately:

- 490,420 children with vision difficulty (The term "vision difficulty" refers only to children who have serious difficulty seeing even when wearing glasses and those who are blind.)
- 42,000 children with a severe vision impairment (unable to see words and letters in ordinary newsprint)
- 59,341 children who are legally blind

Each year States must report to the U.S. Department of Education how many children with visual impairments received special education and related services in our schools under the Individuals with Disabilities Education Act (IDEA), the nation's special education law. Data reported in 2011 according toData Accountability Center (2011) for the school year 2010 indicate that the following numbers of children were served in the U.S. and its outlying areas:

- 3,447 children (ages 3-5) with visual impairment
- 25,670 children (ages 6-21) with visual impairment

Understanding How Children with Visual Impairment Learn

Children with visual impairments can certainly learn and do learn well, but they lack the easy access to visual learning that sighted children have. The enormous amount of learning that takes place via vision must now be achieved using other senses and methods.

Hands are a primary information-gathering tool for children with visual impairments. So are the senses of smell, touch, taste, and hearing. Until the child holds the "thing" to be learned and explores its dimensions—let us say, a stuffed animal, a dog, a salt shaker, or a CD player – the or she/he cannot grasp its details. That is why sensory learning is so powerful for children with visual impairment and why they need to have as many opportunities as possible to experience objects directly and sensorially.

Families, friends, science educators and others can support sensorial learning in many ways as AFB (2012, page) observed. Thus:

"Do you smell dinner?" appeals to the child's sense of smell.

"Listen to that bird singing outside" calls to the child's hearing. "That's a robin" gives the child a name for the bird that sings the song he or she is hearing."Isn't the bunny soft? And feel how long his ears are!" speaks to the child's sense of touch and helps the child build a picture of the "whole" from the many details.

Being able to see enables us to capture the "whole" of an object immediately. This isn't so for children with a visual impairment. They cannot see the "whole," they have to work from the details up to build an under- standing of the whole.

Individuals with Disabilities Education Act (IDEA), providesAmerica with definitions of many disabilities that can make children eligible for special education and related services in schools. Visual impairment is one such disability the law defines—as follows:

Visual impairment including blindness means an impairment in vision that, even with correction, adversely affects a child's educational performance. The term includes both partial sight and blindness.

Some of the services of IDEA include:

Early intervention – A system of services to support infants and toddlers with disabilities (before their 3rd birthday) and their families.

Special education and related services – Services available through the public school system for school-aged children, including preschoolers (ages 3-21).

Accessing early intervention (EI) – To identify the EI program in your neighborhood, consult NICHCY's State Organizations page for your state, online at: http://nichcy.org/state-organization-search- by-state

Early intervention is listed under the first section, State Agencies. The agency that's identified will be able to put you in contact with the early intervention program in your community. There, you can have your child evaluated free of charge and, if found eligible, your child can begin receiving early intervention services designed to address his or her developmental needs associated with the visual impairment.

Accessing special education and related services– If your child is between 3 and 21 years of age, we recommend that you get in touch with your local public school system. Calling the public school in your neighborhood is an excellent place to start. The school should be able to tell you the next steps to having your child evaluated free of charge. If found eligible, your child can begin receiving services specially designed to address his or her educational needs and other needs associated with the disability.

Developing a written plan of services– In both cases—in early intervention for a baby or toddler with a visual impairment and in special education for a school-aged child, parents work together with program professionals to develop a plan of services the child will receive based on his or her needs. In early intervention, that plan is called the IFSP (individualized family service plan). In special education, the plan is called the IEP (individualized education program). Parents are part of the team that develops their child's IFSP or IEP.

Adapting the Environment and Educational Considerations

Making adaptations to the environment where a child with a visual impairment lives, works, or plays makes evident sense, but it may be difficult for families, daycare providers, or school personnel to decide what kinds of adaptations are necessary to ensure the child's safety while also encouraging his or her ability to do things independently.

Children with visual impairments need to learn the same subjects and academic skills as their sighted peers, although they will probably do so in adapted ways. They must also learn an expanded set of skills that are distinctly vision-related, including learning how to:

- move about safely and independently, which is known as orientation and mobility (O&M);
- use assistive technologies designed for children with visual impairments;
- use what residual vision they have effectively and efficiently; and
- read and write in Braille, if determined appropriate by the IEP team of the child after a thorough evaluation.

These are just some of the skills that need to be discussed by the student's IEP team and included in the IEP, if the team decides that's appropriate. Each of the above skill areas—and more—can be addressed under the umbrella of special education and related services for a child with a visual impairment.

The Role of Science Teachers in Education of the Visually Impaired Children

Science teachers who have to do with visually impaired children should:

— Learn as much as you can about the student's specific visual impairment. What aspects of vision are affected, and how does that affect the student's ability to move about the classroom, see the board, or read a textbook? Parents (and the student!) can be an excellent source of this information.
— Learn about the many instructional and classroom accommodations that truly help students with visual impairments learn. We've listed a few in the resource section. Strongly support the student by making sure that needed accommodations are provided for classwork, homework, and testing. These will help the student learn successfully.
— Know about the student's educational goals as well as the services and classroom accommodations he or she is to receive.
— Consult with others (e.g., special educators, science educators, and O&M specialists) who can help you identify strategies for teaching and supporting this student, ways to adapt the curriculum.
— Find out if your state or school district has materials or resources available to help educators address the learning needs of children with visual impairments.
— Communicate with the student's parents. Regularly share information about how the student is doing at school and at home.

Role of Parents in Education of the Visually Impaired Children

(NICHCY) (2012) opines that the parents can help in the education of their visually impaired children in the following ways:

— Learn as much as you can about your child's specific visual impairment. The more you know, the more you can help yourself and your child.
— Understand that your child is receiving small bits of information at a time, not all at once through vision. Help your child explore new things with his or her senses and build up a concept of the "whole."
— Encourage curiosity and explore new things and places often with your child. Give lots of opportunity to touch and investigate objects, ask questions, and hear explanations of what some- thing is, where it comes from, and so on.
— Learn how to adapt your home, given the range and degree of your child's visual impairment. Help your son or daughter explore the house and learn to navigate it safely.
— Encourage your child's independence by letting him or her do things, rather than you doing them. Teach how to do a chore by using hands-on guidance, give lots of practice opportunities with feedback. Now, your child knows the skill, too.
— Work with the early interventionists or school staff (depending on your child's age) to build a solid individualized plan of services and supports that address your child's unique developmental and educational needs.
— Talk to other parents of children who have visual impairments similar to your child's. They can be a great source of support and insight in the challenges and joys of raising a child with vision problems. Many of the organizations we've listed in the Resources section have state or local chapters you can contact.
—Keep in touch with the professionals working with your child. Offer support. Demonstrate any assistive technology your child uses and provide any information teachers will need. Find out how you can augment your child's learning at home.

The role of Librarian in Education of Visually Impaired Children

The librarian should with the approval and support of the institution establish a functional library for the visually impaired children. Birmingham Libraries (2012) policy regarding library resources for children with visual impairment should be adopted by libraries and librarians in order to enhance their education.

Library Services – Children can borrow 8 books, including story tapes free of charge and keep them for 4 weeks. There are no charges for late items borrowed on a child's ticket. In addition children under 5 and children with disabilities do not have to pay for damage. Activities – All libraries hold activities for children such as storytimes, craft sessions, author visits or teenage reading groups.

Homework Support Sessions– The sessions are free and specially trained staff will assist children to find, understand and use information which will help with their homework and projects. Staff can explain how to use the other resources such as computers, printers and photocopiers.

Access and Equipment – Examples of equipment libraries may have to help children with visual impairment are handheld and fixed magnifiers and magnifying sheets, day-light reading lamps, computer keyboards with large letters, tracker balls, magnifying software and text reading software. Computers in the Library - Facilities include Internet, word processing, CD ROM games, and email.

Booktouch– This is an additional Bookstart pack for children 0-4 who have a visual impairment. There are 2 touchy/feely books inside and special information for parents. Ask your health visitor or local library.

Family Information Service– A range of factsheets are available including one on support for children with visual impairment.

Music Collections –CDs can be borrowed from any library

using the free reservation system and can also be reserved through the online catalogue. Central Music Library has videos and DVDs covering all types of music plus a Young Musician collection.

Clear Vision– Centre for the Child (on the ground floor of Central Library) and Sutton Coldfield Children's Library have collections of Clear Vision books. These are tactile books in dual format Braille/print for adults and children to share reading. The titles are suitable for children up to the age of 8.

RNIB – The National Library for the Blind stocks over 40,000 Braille titles and more than 3,000 Moon titles and also books in giant print and audio. This includes titles for children over 8 at Grade 2 Braille.

Translation Service–Information produced by Birmingham Library Service, including the Spotlight pack can be supplied in accessible formats, such as large print, Braille, audiotape, and community languages.

Large Print Books– Community Libraries and Centre for the Child have a range of storybooks in Large Print suitable for a variety of ages. They can be reserved free of charge using the online catalogue.

Talking Books and Book Tape/CD Packages–Community Libraries and Centre for the Child have a wide range of titles for loan. They are free for children. Audio Talking Books are stories, songs or rhymes on cassette tapes or CDs. Book Tape Packs are a story tape and book that can be borrowed together. Children can read the book and listen to the story at the same time. Libraries also have CDs to help with homework.

Large Format Books– These are extremely large copies of popular children's picture books. The books can be as large as 45cm by 37cm with print sizes as high as 1.5cm in some cases and down to 0.5cm in others. All Birmingham Libraries have collections of large format booksfor loan.

Tactile, noisy and smelly books– Birmingham Libraries offer a wide selection of tactile books designed to stimulate and engage young children. As the child explores a tactile book, a variety of different textures and even smells are used to demonstrate words and meaning.

Conclusion

Children with visual impairments typically attend school in their local communities alongside their sighted peers; however, they often encounter unique challenges that can limit their education and personal development. Instruction in compensatory skills and adaptive techniques including Braille, travel training, low vision devices, assistive technology, organization skills and alternative communication are provided by Teachers of the Visually Impaired, Science teachers, Orientation and Mobility Instructions, Rehabilitation Teachers and Technology Consultants.There is a lot to know about early intervention for infants and toddlers with disabilities and about special education and related services for school-aged children. Types, causes and signs of children visual impairments have been identified. Parents, science teachers and librarians' role in the education children with visual impairment have been discussed. It is recommended therefore that the stakeholders play the required role in order to encourage these set of learners with special needs.

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