

## **Identification and Care of Students with Low Vision in Inclusive School Setting**

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### ***Abstract***

*Low vision among students has serious effects on learning such that if it is not addressed, the student will not be able to achieve much from the teaching and learning that is taking place in the class. This paper discusses some of the causes of low vision and some of the challenges students with low vision encounter daily as they try to cope with academic activities in the inclusive school. Also discussed in the paper are the types of low vision and how students with low vision can be assessed. The authors also presented some tips that will help the teacher to identify children with low vision in his class. Some useful tips on how to take care of children with low vision in an inclusive school are also given. The paper concluded with some suggestions that when implemented will help teachers of students with low vision in inclusive school to be effective in teaching their students.*

**Keywords:** *Students with low vision, inclusive school, identification and care*

### **Introduction**

There has been a growing concern about the education of children with low vision in the inclusive settings. The desire for quality education is a right of every child so they have the right to be educated in the inclusive setting. Article 24 of the United Nations convention on the rights of persons with disabilities (2006) states among others that children with disabilities have right to inclusive education in their local schools and to both primary and secondary education. Low vision is a term used to describe eye sight from moderate vision impairment to near blindness after correction from surgery, medication, contact lenses or glasses. Someone who has low vision is deficient in one or more of the following: clear vision, depth perception, contrast sensitivity or the ability to process what their eyes are seeing. Low vision is vision lost that interferes with ability to perform daily activities including educational activities. This loss of vision is not corrected by glasses, contact

lenses, medicine or surgery.

Many of the students with low vision are educated in the inclusive classroom. Adebisi (2003) defines inclusive education as educating a child with visual impairment or any other disability in the neighborhood school instead of sending the child to a special school. In the same vein, Ozoji (2005) defines inclusive education as an education option or programme carefully designed to educate special needs learners within the re-structured mainstream or school community. Inclusive education takes place when (boys and girls) including those with low vision and other children with different disabilities go to the school in their local environment and learn in a stimulating, supportive and accessible environment in which they receive good quality education (Fanu, Bassendine, McCall, McCall and Myers, 2018). The sustainable development goal SDG (2015) signed by 193 countries Nigeria inclusive says among other things that “all children including children with disabilities have the right to inclusive and equitable quality education and .... Life-long learning opportunities” (goal 4). The main purpose of inclusive education is to accommodate all children including those with low vision in the neighborhood school. Inclusive education has a lot of impact on the life of children with special needs, for instance, special needs children increase their self- esteem and have more normalized peer interaction (Waldron, 1996), inclusive education improves academic functioning, offers them opportunity for socialisation with their peers without disabilities in general education classroom (Eni-Olorunda, 2007). Sadly, most children with low vision suffer neglect instead of enjoying these benefits due to the teacher's inability to properly identify and take care of their special needs in the inclusive school.

The role of the teacher in the identification and care of children with low vision in the inclusive classroom setting is very critical, that is why the national policy on education (2004) states that no education system may rise above the quality of the teachers who operate the system. Therefore teachers in inclusive settings should be able to identify children with low vision so that they can take care of them properly in their classes. This paper is aimed at helping teachers of students with low vision in inclusive schools to be able to identify children with low vision in their classes and plan strategies and accommodations to improve their accessibility to the curriculum so that their special learning needs can be better taken care of.

### **Causes of Low Vision**

The eyes are the most important sensory organs out of the five human senses which help us up to 80% in the judgment of our environments. While other animals like dogs and cats, depend largely on their senses of smell, humans rely more on the sense of vision. When this sense is affected, it can be very devastating. The following are some of the common causes of Low Vision according to white eye care (2018).

**Age-related Macular Degeneration:** The macula or centre of the retina deteriorates with age making the retina lose its ability of sharp focus on objects right in front of one's face. Macular degeneration is the leading cause of blindness in people over the age of 50 and cause

about half of low vision cases.

**Cataracts (opacity of the lens):** Cataracts are caused by long term exposure to the sun's ultra-violet rays, injury, genetics, diseases of the eye and age. Cataract occurs when the lens inside the eye becomes so cloudy that light can't reach the retina at the back of the eye. This leads to general loss of vision.

**Glaucoma (damage to the optic nerve):** This is a group of eye disorders that damage the optic nerve over time, causing vision loss. This damage happens gradually as a result of high internal fluid pressure in the eye as a resulting from a built up of fluid. When the eye produces too much fluid or there are issues with the drainage or flow of fluid out of the eye.

**Diabetic retinopathy:** This is a damage to the retina due to effect of uncontrolled high blood sugar. White eye care (2018) states that this condition is the cause of low vision in up to 45% of people diagnosed with diabetes. Diabetes retinopathy causes gradual damage to the retina and can lead to total blindness if not treated. The high blood sugar levels experienced by diabetic patients can cause damage to the body's blood vessels including those in the eye.

**Retinitis pigmentosa:** This is an inherited eye disease giving rise to night blindness. This destroys both night vision and peripheral vision by damaging the light sensitive cells called rods and cones in the retina.

**Traumatic brain injury:** This can occur as a result of head injuries, brain damage or stroke. This can cause blurred vision, a change to the visual field, eye mis-alignment, depth perception problems, glare sensitivity and reduced visual acuity.

### **Types of Low Vision**

**Glare light sensitivity:** This occurs when standard levels of light overwhelm a person's visual system, producing a washed-out image and/or a glare. People with extreme light sensitive may suffer pain or discomfort from relatively normal level of light.

**Night Blindness:** People with night blindness cannot see outside at night or in dimly lighted interior areas such as movie theaters or restaurants.

**Loss of Central Vision:** The loss of central vision creates a blur or blind spot, but the person's side (peripheral) vision remains intact. This makes it difficult to read, recognise faces and distinguish most details in the distance. Mobility is not hindered with side vision present.

**Loss of peripheral (vision):** The loss of peripheral vision leads to inability to see anything on one side or both sides or anything directly above and /or below eye level. Central vision remains, however making it possible to see directly ahead, read and see faces. Loss of peripheral vision is sometimes called "tunnel vision" and when severe it affects mobility.

**Blurred Vision:** Blurred vision results in poor near and distant vision even with the best possible correction.

**Reduced contrast sensitivity:** Reduced contrast sensitivity gives a feeling of generalised haze with a sensation of cloudiness.

### **Challenges Experienced by Students with Low Vision**

Some of the challenges experienced by children with low vision in the class include the following:

- i. Learners with low vision experience difficulty in writing on a straight line.
- ii. They tend to scan visual task with their head instead of their eyes.
- iii. They have difficulty tracking the pen or pencil when writing.
- iv. Lack of large print books is another challenge.

### **Assessment of Persons with Low Vision**

**History taking:** This is an important aspect of low vision assessment and it provides an opportunity to know the client well, this is done using a questionnaire to take the anecdotal record of the client, (Wilkinson and Shahid, 2018).

**Visual acuity assessment (distance):** Visual acuity testing is used to assess distant and near vision in individuals. It is also used for monitoring the progression of disease and the estimation of dioptric power of optical device necessary for determining corrective measures. Appropriate measure of visual acuity is important for determining best corrected acuity with refraction and monitoring the effect of treatment. Furthermore, visual acuity testing can verify eligibility for task such as driving, operation of machinery and to verify eligibility as legally blind (Okonkwo, Crome and Wasley, 2008). Under-estimation of ability can occur with inaccurate acuity. Visual acuity may explain quality of vision but cannot quantify degree of high contrast vision loss. Also, the testing distance in distant vision test is significant. For near acuity testing letter size recognized by the individual is important. Near acuity test determines what magnification is required by low- vision person.

**Refraction:** Refraction is the starting point for all vision rehabilitation and should be done carefully on trial frame bases. When there is visual impairment with treatment, prescription can be given, for needs such as writing, sewing, using a video magnifier, a computer or a table/ smart phone for optical device facilitation.

**Contrast sensitivity testing:** Contrast sensitivity is the measure of the eye's ability to detect differences in greyness and background, or small changes in brightness. Most of our world is in moderate or poor contrast. Contrast sensitivity test is to assess visual information function longitudinally beyond visual acuity. It further provides diagnostic/functional status of the better eye. It shows binocular potential and effects of disease in visual function and serves as a tool for education of persons with low vision and their family through explanations of concepts in understandable forms (Garesh, Selt, Srivaster and Arora, 2013). When the

contrast sensitivity function is decreased, increased illumination is required for activities of daily living as well as reading and tutoring.

**Visual field testing:** Peripheral defects in vision can be identified by visual field analysis. Corneal loss of vision may also occur. Visual field testing also helps us to know how visual field loss can be overestimated by automated visual field analyser (Stelmack, Tang, Wei, and Massof, 2012).

**Useful field of view testing:** This is a specialised form of visual field testing used to determine the process of both central and peripheral visual information and can be used to ascertain driving performance in persons with visual impairment (Wilkinson and Shahid, 2018).

### **Low Vision Intervention**

Each type of low vision challenge needs its own peculiar therapeutic approach after a thorough vision assessment by the optometrist. Low vision cannot be fully corrected; however, there exist a wide range of devices to help persons with low vision in the performance of their activities, one of these devices is tinted eye wear, this assists with light sensitivity and contrast. Vision rehabilitation maximises visual functioning which enables the persons with low vision to achieve their goals and improved quality of life. Individuals' rehabilitation plan may include prescription glasses or contact lenses, optical or electronic magnification devices, assistive technology, glare control with therapeutic filters, contrast enhancement, eccentric viewing, and visual field enhancement, non-optical options and referral for additional services with other professionals. These additional services may include a teacher of persons with visual impairment, assistive technology specialist, psychologist, social worker, occupational therapist, certified visual rehabilitation therapist, orientation and mobility therapist, activities of daily living instructor, vocational rehabilitation counselor and support groups.

The intervention option mainly used in low vision is Magnification to enhance vision in with low vision (Stelmack, Tang, Wei and Massof, 2012). These magnifications include the following:

- I. Relative distance magnification - by holding the materials close to the eye, things appear bigger, persons with visual impairment do this naturally. However they require appropriate reading connections or bifocal to work efficiently (Garesh, *et al.*, 2013).
- ii. Angular Magnification - this is done by using hand magnifier or telescope devices (Kedar, Abate and Carbelt, 2011).
- iii. Electronic Magnification - is available in handheld, desk or arm mounted electronic magnification, devices, computer software. It makes image both larger with greater contrast.
- iv. Relative size Magnification - makes the object larger, such emboldened print materials

to enhance reading for persons with visual impairment (Garesh *et al.*, 2013).

Increased lighting on task is important factor in enhancing visual functioning, study shows 90% of individuals with vision loss showed some improvement in near vision as well as distant visual acuity (Stelmack, *et al.*, 2013).

### **Identification of Children with Low Vision**

Many of the children who have low vision are placed in schools without any formal identification and assessment of their visual capabilities and so some of them are not known by the regular teachers. Timely identification of low vision will reduce the impact of the impairment on the functional level of the individual. Teachers have the responsibility of identifying children with low vision in their classes, they can make use of the following checklist suggested by Vikaspedia (2020).

- i. Watery eyes
- ii. Recurrent redness of the eyes
- iii. Squint
- iv. Frequent blinking of the eyes
- v. Often irritation
- vi. Inappropriate stumbling over objects or bump into other people
- vii. Tilting of the head or closure of one eye
- viii. Headache while doing fine work
- ix. Difficulty in counting the fingers of outstretched hand at a distance of one meter
- x. Moving the head side to side while reading
- xi. Difficulty in recognizing distant objects
- xii. Difficulty in doing other fine works requiring perfect vision
- xiii. Holding books too close or too far from the eyes
- xiv. Frequently asks other students for help when taking down notes from the blackboard
- xv. Hitting against the objects on the side.

If the answer to four of any of the above is yes, then the child should be referred to specialists for proper screening. If low vision is not detected, it can result in the student facing substantial educational disadvantage because of adverse effects on the students' academic, social and communication development. This can interfere with the students' ability to reach full potential (Bhargava, 2022). Teachers of students with low vision should note that the students have the potentials to learn to use their vision in a more efficient way. Therefore, the teacher has the responsibility of providing the necessary instruction and environmental modifications to help students maximise their visual ability, develop a positive self-image and greater independence in the classroom (paths to literacy, 2022).



## **How to take care of children with low vision in the inclusive classroom setting**

Children with low vision typically have very poor distance vision so this makes it difficult for them to see the Chalkboard. These students can read print and gain information from pictures, charts and graphs. Teachers teaching these children must be very careful in planning and presenting any lesson to them. Paths to Literacy (2022) suggested the following basic principles that will assist the teacher when teaching them.

- i. Black and white give highest contrast
- ii. Do not use dark colours together (for example , blue and green)
- iii. Avoid using white and grey with other light colours
- iv. Avoid using pasted colours next to each other
- v. Use bright coloured objects for daily life activities
- vi. Use masking tape if objects have to be highlighted (like the hangers where the students have to hang their jackets on).

Children with low vision can also benefit from magnified images or prints. Teachers should endeavor to provide their students with pictures/images/maps and enlarged prints. The teacher can also place the student at close with the object or the board or the object can be moved closer to the student. The following according to Paths to Literacy (2022) can be very helpful.

- i. Teachers should also remove useless objects in general.
- ii. Reduce the number of objects in the immediate working environment.

Study .com (2022) also suggest the following as useful tips for teachers of students with low vision

- i. Teach from a constant location
- ii. Develop the habit of always narrating relevant actions and events
- iii. Avoiding statements that require a student to see in order to apply
- iv. Keep the classroom furniture in a consistent arrangement
- v. Maintaining clear pathways among all major classroom areas
- vi. Keeping student materials in a consistent location and notifying students with low vision of any changes in the classroom layout
- vii. Informing students of the importance of keeping classroom floors clear and furniture in a consistent place to keep the classroom safe from obstructions
- viii. Consulting with teachers of students with visual impairment for specific ideas about classroom lighting, as lighting needs of children with low vision may vary depending

on the nature of their visual impairment.

- ix. Teachers should always present meaningful activities, using age appropriate materials and offering clear information through repetitive routines.

In the same vein, Rao (2010) list the following as useful tips to help teachers of students with low vision

- i. Preferential seating is often necessary for students with low vision
- ii. Let the student select a seat where he or she sees best
- iii. Seat the student as close to the board as practical
- iv. Reduce glare from windows and lights, other students with low vision may need more light and it is recommended that the child be allowed position near the light when possible
- v. Read the students functional vision evaluation to find out if the child can copy material written on the board or overhead projector
- vi. Purple “dittos” or copies should not be used with the student. Clear contrast between the print and the background will help the student be more successful
- vii. Give the student more time to complete assignment
- viii. Give the student the grade He /She earns, donation of grades to a student really hinders and not help the students learning
- ix. Help the student to get a place for books and supplies. A locker may also be good for the student.
- x. Low vision students are usually slow readers because of the visual impairment
- xi. Black print on white paper is usually best
- xii. Try not to call attention to the child's eye problem in front of the class
- xiii. Always use the students name when addressing him
- xiv. Have the student explain his/her vision problem to you
- xv. Students with low vision also need to be liked by teachers and their peers
- xvi. The rules of discipline should be the same for a low vision student as for any other in the class .

When teachers put these recommendations into use, they will be offering their students opportunities for more active interaction while also motivating them to use their vision in a more efficient way.

## **Conclusion**

Teaching children with low vision is a difficult task particularly in an inclusive school where some of the teachers have no knowledge of special education or teaching children with low vision. Many of the teachers will improve on their teaching when they are taught how to



identify this category of children in their classes. When they are able to identify them then they can be able to take care of their special learning needs.

### **Suggestions**

- i. Regular teachers should always consult with special education who are specialist in educating children with low vision.
- ii. Teachers should always consult with orientation and mobility specialist who will help students with low vision to safely navigate their environment.
- iii. Workshops should be organized for regular teachers in inclusive schools on how to identify children with low vision in their classes.
- iv. Proprietors of schools that practice inclusive education should endeavour to always sent their staff for training on how to take care of children with low vision in their classes

### **References**

- debiyi, B. A. (2003). Education of the Visually Impaired: segregation or inclusion? *The Journal of advocacy and Rehabilitation in Special Education (JARSE)* 1 (1) 39 -41.
- Bhargava, D. (2022). Vision Impairment; Definitions, Identification and Professionals. Retrieved from <https://www.trinityuniversity.edu/sites/students-vision-haring-loss-vi-definitions>.
- Eni-Olorunda, T. (2007). Inclusion: A preferred Educational Programme for Children with Intellectual Retardation in Nigeria. in E. D. Ozoji and J. M. Okuoyibo (Eds). *The practice and future of special needs education in Nigeria: A book of reading in honour of Prof. (Rev. Sr.) T. B. Abang*, 37 – 51.
- Fanu, G. L., Bassendine, M., McCall, J., McCall, S. and Myers, J. (2018). Inclusive Teaching and Learning for Children with Visual Impairments. Retrieved from <https://www.sightsavers.org/wp-content/uploads2018/09/teachers-guide-cwvi-senegal>
- Federal Republic of Nigeria (2004). *National Policy on Education*. Lagos, NERDC
- Garesh, S., Selt, S. S., Srivaster, C. and Arora, A. (2013), Impact of low vision rehabilitation on functional vision performance of children with visual impairment. *Omar J. Ophthalmol* 6(3) 170- 174
- Johnson, C. A. and Wilkinson, M. E. (2010). Vision and driving: United States. *Ophthalmol* 30, 170-176.
- Kedar, S., Abate, D. and Corbett, I. J. (2011). Visual fields in Nuero-Opthamology. *India J. Ophtualmol*, 59(2) 103-109.
- Media Centre. (2012). Visual impairment and blindness; Fact sheet 282. Retrieved from: <http://www.who.int>. Accessed on 18<sup>th</sup> April 2021

- Mohammed, I. A. and Binnawi, K. H. (2009). Causes of Low Vision and Visual outcome after using Low vision Devices In Sudanese Children. *Sudanese J Ophthalmol*. 1: 37-40
- Okonkwo, O. C., Crowe, M., Wasley, V. A., and Ball, K. (2008). Visual attention and self-regulation of driving among older adults. *Int Psycho Geriatr*., 20: 162-173.
- Ozaji, E. D. (2005). Special Needs Education and Rehabilitation for beginner Professionals. Jos. Deka publications
- Paths to literacy (2022). Classroom Adaptations for Students with Low Vision. Retrieved from <https://www.pathstoliteracy.org/classroom-adaptations-students-low-vision>
- Rao, E. (2010). Considerations for Low vision students in a classroom. Retrieved from <https://www.tabviedu/program-and-administrative-resources/3277-considerations-for-low-vision-students-in-a-classroom>.
- Stelmark, J. A., Tang, X. C., Wei, Y., and Massof, F. (2012). Low vision intervention trial group: The effective rehabilitation in cohorts derived from the veterans' affairs vision intervention trial. *Arch Ophthalmol*, 130 (9) 1162- 1168.
- Study.com. (2022). Classroom Strategies for Students with Low Vision. Retrieved from <https://study.com/academy/lesson/classroom-strategies-for-students-with-low-vision.html>.
- Sustainable Development Goals (2015). Retrieved from <https://sdgs.un.org/goals>
- United Nations General Assembly UN-GA (2006). United Nations General Assembly, session 61, Resolution 106. Convention on the rights of persons with disabilities A/RES/61/106.
- WHO/PBI, (2009). *Management of low vision in children*. Bangkok: Report of WHO consultation.
- Vikaspedia (2020). Identification and Assessment. Retrieved from <http://vikaspedia.in/education/parents-corner/guidelinesfor-parents-of-children-with-disabilities/identification-and-assessment>
- World Health Organization WHO, Geneva (2007). Global initiative for the eradication of avoidable blindness; Action plan 2006 - 2011.
- Wilkinson, M. E. and Shahid, K. S. (2018). Low vision rehabilitation: An update –research gate. University of IOWA. *Saudi Journal of Ophthalmology*, 32(2):134-138. Doi: 10.1016/j.sjopt.
- Yalo, J. A., Indoshi, F. C. and Agak, J. O. (2012). Challenges and strategies of working with learners of low vision: implications for teacher training. *Educational Research and Review*, 7(10), 238-243. Retrieved from: <http://www.academicjournals.org/ERR>. accessed on 18<sup>th</sup> April 2021.