

Full Length Research Paper

Challenges and strategies of working with learners with low vision: Implications for teacher training

John Ayieko Yalo¹, Francis Chisikwa Indoshi², John Odwar Agak³, Charles Michael Were¹

¹Department of Special Needs Education, Maseno University, Kenya

²Department of Educational Communication, Technology and Curriculum Studies, Maseno University, Kenya.

³Department of Educational Psychology, Maseno University, Kenya

Accepted 31 July, 2010

Learners with low vision can be trained to increase their visual functioning through a planned programme of visual experiences. Such a low vision training programme was introduced in Kenya in 1994. However, despite its implementation over the last fifteen years, challenges still persist among teachers who work with such learners. The purpose of this study was to document challenges that learners with low vision have on teacher performance when teaching learners with low vision in special primary schools for the visually impaired in Kenya. The study was carried out in six schools for the visually impaired. Participants in the study were 78 teachers. Survey design was used to gather data. The study established challenges faced by teachers as lack of appropriate devices for learners, lack of adequate training of teachers and lack of regular teacher auditing. Strategies suggested to address the challenges were supply of low vision devices, low vision teams based at each school be reconstituted to provide co-ordinated learning support and regular case conferencing be mounted to provide teacher support.

Key words: Low vision training, challenges, strategies.

INTRODUCTION

A low vision individual is one who is visually impaired after optical correction, but who may increase visual functioning by use of optical devices, non-optical devices, environmental modification and or techniques (Corn and Koenig, 1996). It is of critical necessity to have learners with low vision to train in low vision techniques from the earliest time possible so that they can develop good visual efficiency, Barraga (1985) posited that low vision training improves visual efficiency. Corn and Koenig (1996) suggested that early intervention in visual stimulation and subsequent training of learners with low vision should be instituted to intervene for the learners to use vision efficiently.

Low vision training prepares children to become active learners, who can access information from a variety of sources (Yalo and Indoshi, 2010). Youths and adults who have never used their low vision for functional purposes or who have had vision restored by medical procedures

are visually underdeveloped both optically and perceptually. Development of the visual system in a person with low vision is seldom, if ever, automatic and spontaneous. A process of visual stimulation and learning to look in a variety of environments is paramount to meaningful use of low vision (Barraga 1985; Corn and Koenig, 1996).

Traditionally, all students admitted to special schools for the visually impaired were expected to read and write in braille. The reason advanced for this action was that by writing and reading in Braille sight was saved. Teachers then believed that use of sight for reading caused it to deteriorate; so more emphasis was put on touch reading and those who tried to read Braille visually were forcefully blind-folded. Eye specialists (ophthalmologists) have increasingly encouraged the use of low vision because use of vision does not change pathological conditions nor will it cause vision to deteriorate. With such valuable information from ophthalmologists, educators have increasingly focused on the effective use of lowered capabilities of vision for acquiring educational concepts (Faye and Clare, 1975; Bullimore and Bailey, 1995; Zammitt et al, 1990).

*Corresponding author E-mail: findoshi@yahoo.com

Barraga (1985) observed that by repeated observation of visual materials brought very close to the eyes or by use of enlarged materials, some children develop considerable visual efficiency. If little encouragement and no planned activities to use vision at near point are put in place, children may encounter few experiences which stimulate maximum use of low vision. Therefore, their visual skills and behaviors will remain under-developed.

Learners with low vision in Kenya have to cover the same curriculum content in a period of eight years like the sighted ones. Teachers who work with such learners may experience challenges in curriculum dissemination and environmental and materials adaptation (Jose 1985). Since the introduction of low vision training in 1994, there has been no investigation of the learning situation to identify possible challenges and strategies for effective pedagogy for learners with low vision.

Purpose and objectives of the Study

The purpose of the study was to establish challenges and strategies for teachers when teaching learners with low vision to use low vision devices. Specific objectives of the study were:

- i) Establish challenges faced by teachers when teaching learners to use low vision devices.
- ii) Determine strategies necessary for effective training of learners to use low vision devices.

METHODOLOGY

Design

The study was a cross-sectional survey. A cross-sectional survey collects information from a sample that has been drawn from a predetermined population (Frankel and Wallen, 2000). The predetermined population was teachers who teach in grades seven and eight from six special schools for the visually impaired in Kenya. Survey design was used in the study because it enabled the researchers to carry out the study across a large geographic area covering the whole country of Kenya (Borg and Gall, 1989; Cohen and Manion, 1989). A questionnaire and an observation schedule were used to collect data.

Area of Study

The study was carried out in six primary schools for the visually impaired in Kenya. The schools were distributed throughout the country as follows:-

- a) Kilimani Integrated Programme – Nairobi Province.
- b) Kibos School for the Visually Impaired- Nyanza Province
- c) St. Oda School for the Visually Impaired- Nyanza Province.
- d) St. Francis School – Rift Valley Province
- e) Thika School – Central Province.
- f) Likoni School – Coast Province.

Study Population and Sample

The study population was teachers in schools for the visually impaired in Kenya. Teachers of grades seven and eight were selected to take part in the research because such teachers had had the experience of training learners with low vision beyond the habilitation phase, and their classes were using low vision devices at the level of application of the learned skills in low vision. In each school, the study focused on teachers of English (2), Mathematics (2), Geography (2), History (2), Christian Religious Education (2) and Kiswahili (1). Therefore, a total of 13 teachers were selected from each school, giving a total sample of 78 teachers from the 6 schools (ie, 13 multiplied by 6).

Questionnaire

The teachers' questionnaire was structured to have three sections. The first section solicited background information about the school, the number of learners on roll, number of learners with low vision taught through the visual modality and low vision equipment used during curriculum discourse. The second section was designed to obtain information about the expertise of teachers working with learners with low vision, and information about the availability of low vision devices used by learners. The third section of the questionnaire solicited information about challenges teachers encounter during curriculum execution as well as their suggestions on strategies appropriate for teaching learners with low vision.

Observation Schedule

The observation schedule was arranged in three sections; The first section solicited information about availability of optical low vision devices used by pupils. It was designed to find out whether the low vision devices are adequate to learners' needs. The section solicited information about availability of non-optical low vision devices. Information about environment was also captured by the observation schedule. The third section solicited information about the actual learners' use of low vision devices during curriculum discourse.

Validity and Reliability of Research Instruments

To ensure face validity of the instruments, the instruments were given to three experts on the topic of study from the Department of Special Needs Education to determine the extent to which the items measured what they were intended to measure. The expert advice feedback was used to revise the instruments. To establish reliability of the instruments, a pilot study was carried out in one of the schools for the visually impaired. Any ambiguities noted during the piloting phase were addressed before the instruments were finally used. The questionnaire and observation tools were accepted at Pearson Product Moment Correlation Coefficients of 0.78 and 0.80 respectively.

Data Analysis

Data from the questionnaire and observation schedule were tallied and converted to percentages. Descriptive statistics, that is, frequency counts and percentages were used to infer challenges and strategies for teachers working with learners with low vision.

Table 1. Challenges experienced by teachers when working with learners with low vision (n=78)

Challenges	Frequency	%
Difficulties of writing on straight lines	64	82.05
Tire quickly due to close working distance	50	64.10
Crowded diagrams in course books	49	62.82
Cannot cover curriculum content in time allotted	49	62.82
Lack of writing and reading stands	36	46.15
Scanning with low vision devices	36	46.15
Lack of controlled lighting from classrooms	34	43.58
Poorly built classrooms	32	41.02

Table 2. Strategies necessary for teachers to work effectively with learners with low vision (n=78)

Skill	Frequency	%
Understanding anatomy and physiology of the eye	11	14.2
Ability to know causes of low vision	13	16.9
Identification of refractive errors, and their correction	18	23.07
Understanding categories of low vision	10	12.82
Placement of learners with low vision within classrooms	14	18.2
Low vision training	18	23.07
Functional visual assessment	17	21.79
Optics and optical low vision devices	18	23.07
Environmental adaptations	12	15.6
Clinical/optical low vision assessment	47	67.0

RESULTS

Challenges experienced by teachers when working with learners with low vision

Teachers were asked to indicate what challenges they experienced when working with learners with low vision. The challenges identified by the teachers are listed from the most mentioned one to the least mentioned as shown in Table 1.

Writing on straight lines was the most common challenge (82.05%) that teachers observed learners to experience. Lack of large print books was another common challenge observed. Without preferred size of print for learners with low vision, clarity of print becomes a challenge to learners. Learners with low vision cannot cover curriculum content in allotted time. This was observed by 62.82% of the respondents. Lack of relevant equipment for learners to use while performing curriculum tasks tended to challenge both learners and teachers. Teachers faced challenges because they were forced to work at frustration levels, thus lacking confidence in giving the best instructions to learners with low vision. Fifty respondents (64.10%) observed that learners with low vision tire quickly due to very close working distance. It was observed that learners with low vision faced challenges of reading from crowded diagrams from text books. Scanning with low vision devices, lack of reading

and writing stands, lack of controlled lighting within classrooms and poorly built classrooms posed challenges to optimal low vision functioning.

Strategies necessary for Teachers to work effectively with learners with low vision

Teachers were asked to indicate skills necessary for working with learners with low vision. Their responses are summarized in Table 2.

Majority of respondents (67.0%) indicated that they had not learnt about clinical/optical low vision assessment. Minority of the respondents (15.6%) had not learnt about environmental adaptation for learners with low vision. Eighteen respondents (23.07%) said that they had no skills in optics and optical low vision devices. Seventeen (22.79%) of the respondents did not have skills in functional vision assessment. Eighteen (23.07%) of the respondents did not know how to train learners with low vision.

Eighteen (23.07%) did not have ideas and skills of identifying refractive errors, and did not know how they are corrected. Thirteen (16.9%) did not know about causes of low vision and eleven (14.2%) had no ideas about anatomy and physiology of the eye. From the foregoing results, it can be observed that low vision is poorly understood by teachers in the schools visited by

the researchers. Teachers needed to apply the strategies indicated in Table 2 in order to work effectively with learners with low vision.

DISCUSSION

Bachofer (2007) observes that low vision is personal, emotional and unpredictable. Low vision is poorly understood by the majority of teachers including those who have low vision learners in their classrooms, and frequently a family feels left on its own to figure out how to raise a child with low vision. Bachofer (2007) further notes that low vision services entail problem solving that is best accomplished with a team approach. As revealed by the data, it would seem that part of the critical segment of a team that works with school age low vision learners is inadequately prepared to work with such learners. The number of teachers in school for the visually impaired who work with learners with low vision is inadequately prepared to deliver meaningful service to learners with low vision. This state of affairs posed challenges to the teachers because they did not adapt the curriculum nor the environment, therefore they worked at frustration level. This finding is supported by Bachofer (2007) who noted that the members of a low vision team must understand the subtle and direct influences of various professionals' perspectives on the success of low vision students. She further notes that parents or guardians know the child best, while the doctor understands the effects of a condition on visual functioning, and educators can describe the impact of visual impairment on learning. If teachers cannot understand how visual impairments affect visual behavior, then it can be said that curriculum and environmental adaptations may not be carried out. Not because the teacher is lazy to adapt both learning environments and the curriculum content; but because he may be facing challenges in understanding how to work with learners with visual impairment.

The teachers must be in a position to help learners to incorporate the use of low vision devices into every day learning and leisure activities by selecting low vision devices that are portable and therefore readily available when learners need them (Corn and Koenig, 1996). However teachers constantly face the challenges of not understanding properties of lenses and how the lenses affect visual functioning. It is also important for the teachers to work with learners to overcome psychological obstacles to using low vision devices. It is also critical for the teachers to encourage learners to use their low vision devices throughout the day to perform various tasks in various settings so that the learners can get used to low vision devices as aids to near normal visual functioning. Encouraging learners to use devices can be realized if teachers get trained to understand subtle challenges that learners experienced when

performing visual tasks using low vision devices. It therefore implies that teachers get frustrated whenever they fail to properly guide learners to use low vision devices. Any teacher facing such challenges will always fail to communicate curriculum content adequately and therefore fail to lead learners under their care to learn new skills required for academic and social advancement.

Teachers faced challenges of training learners to use low vision devices because learners break or lose the devices frequently. This fact pose major challenges to both teachers and learners because lack of low vision devices lead to low expectations from learners. Learners have been noted to come up with flimsy excuses of not having the devices. It behooves any teacher working with learners with low vision to come up with strategies of keeping low vision devices safely. For example having low vision devices to be strung so that they can be kept hanged around learners' necks. It calls for teachers to be trained in the area of low vision to understand the complexity or simplicity of visual tasks presented to learners with low vision. For each task presented, the teacher should understand the size of the object to be discriminated and the distinctive features for differentiation. Some respondents (23.4%) had indicated that they regularly interact with learners with low vision during instruction. It was construed to be a major challenge for teachers to work with learners whom they did not know how to work with. Learners who experienced photophobia tended to shun bright light. Untrained teachers may have difficulties of advising learners to avoid areas within the classroom that have higher amounts of illumination like sitting next to the window or open door. Such Untrained teachers may not have skills of reading non-verbal cues from learners when they experienced disability glare from their environments of learning.

Jose (1985) posited that training the learner with visual impairment to use prescribed devices for near tasks involve unique set of factors that include the nature of visual impairment, the personality and motivation of the learner, students' best mode of learning and the advantages and limitations of devices in use. Untrained teachers do not have the above skills and therefore experienced challenges of working with learners with low vision. Functional vision assessment is a crucial skill for teachers because it helps them to predict and plan for appropriate intervention for learners with low vision. Teachers who do not have the skills of functional vision assessment may have major challenges of planning for age-appropriate curriculum content, and will also be unable to predict the future visual behavior of learners with low vision. Functional vision assessment is a skill to be possessed by all teachers. Most teachers were found to be inadequate in the area of low vision assessment and this posed a major challenge for them working with learners with low vision. They could not plan and

intervene appropriately. The same challenge could preclude learners with low vision from completing curriculum tasks.

Each learner can become efficient at visual functioning if provided with appropriate optical and non-optical low vision devices that are task specific. Teachers need to understand learners' idiosyncratic visual needs at hand (Corn and Koenig, 1996). For example teachers must have skills of selecting devices for near and distance tasks so that learners can be trained on how to make use of them. But from this research, it was noted that teachers may not have had any orientation course in the use of low vision devices. This made learners to lack encouragement to use any low vision devices that may be availed within the learning environment. Teachers must have a good knowledge base about learners' learning characteristics so that they can be able to know and understand how to minimize disability glare for photophobic learners or even maximize on color contrast so that visual tasks can stand out distinctly, but teachers had major challenges of understanding learner characteristics thus treated their classes as if they were made up of learners with homogeneous learning needs. If teachers had appropriate skills of working with learners with low vision, they could be flexible when working with such learners and make clear misconceptions that learners may have had and at the same time reduce visual fatigue among their learners.

Barraga (2006) observed that areas surrounding learners with low vision need to have diffused illumination. However, higher amounts of illumination are usually preferred by learners who have visual conditions such as optic atrophy and retinitis pigmentosa. The teacher should at the same time have the skills of understanding that learners with albinism and aniridia require reduced amount of illumination (Deremeik et al, 2007:Goldie et al ,1986). The foregoing is used to state that illumination for learners with low vision is highly individualized, and therefore teachers without such knowledge and understanding may face challenges of not being able to give learning support to learners with low vision. All said and done, the learning needs of learners with low vision are so much individualized. Therefore, teachers should be trained in relevant skills to be able to guide and support learners with low vision.

IMPLICATIONS

By inference, it can be said that teachers who do not understand the nature of low vision should not be charged with the responsibility of teaching learners with low vision. This is so because such teachers cannot adapt the environment to meet learning needs of such learners. Such teachers would have difficulties in identifying the right quality of illumination within environments of learning. It was observed during this

research that such teachers may not seat learners with low vision to have tasks placed within their visual sphere so that they can function visually and also control their visual environment with minimum support.

If teachers do not have background knowledge about low vision devices, they will face challenges of not encouraging and teaching learners with low vision to constantly make good use of low vision devices across environments. Teachers faced with such challenges fail to communicate curriculum content to the learners with confidence. Functional vision assessment is a skill that teachers must know and partake in, because assessment results can guide teachers in planning and predicting the visual behavior of learners. Without visual assessment skills teachers may plan for inappropriate intervention and they can end up planning for age-inappropriate activities that can frustrate both learners and teachers. Learners can fail to achieve desired skills and attitudes when teachers fail to instill correct and appropriate skills. Teachers must have good working knowledge base about learners' learning characteristics so that they can minimize disability glare for photophobic learners or even maximize on color contrast so that visual tasks can stand out distinctly from their backgrounds.

CONCLUSION

If teachers cannot understand how each visual impairment affects visual behavior, then it can be concluded that they will face challenges of not adapting both the curriculum content and learning resources which learners with low vision require. Teachers were found to face challenges of not understanding properties of lenses, and how lenses influence visual functioning. Therefore, they failed to encourage learners to use low vision devices across environments. Teachers must have the skills of low vision assessment so that they can carry out assessment which will make them predict and plan for appropriate intervention.

Low vision devices that are task specific should be provided to low vision learners by schools so that they use the aids across environments. When devices are used in both school and home environments there will be continuity of skills learned at school to the home environment. Teachers should receive appropriate training in the area of low vision functioning so that they can minimize on the challenges of curriculum and environmental adaptations. Teachers should be trained in the area of functional vision assessment in order to be able to assess, interpret, plan, and predict the learners visual behaviors.

The Ministry of Education in Kenya should organize for in-service courses to train teachers. Teachers must be trained in identifying categories of low vision so that they can know and understand how each category functions within the learning environment. Ministry of Education in

conjunction with universities' departments of special needs education should organize for regular teacher in service courses to be carried out at school level to empower teachers to successfully work with learners with low vision.

REFERENCES

- Bachofer C (2007). Low vision devices and children with visual impairments. *The educator*. XX (1):14-17.
- Barraga N (1985). Program to develop efficiency in visual functioning. Louisville: American printing house for the blind.
- Barraga N (2006). Visual impairment and learning. Austin: Library of Congress.
- Borg WR, Gall MD (1989). Educational research: an introduction. New York Longman Group Ltd.
- Bullimore MA, Bailey IN (1995). Reading and eye movement in age-related maculopathy. Madrid: ICEVI.
- Cohen L, Manion L (1989). Research Methods in Education. London: Rutledge, Chapman and Hall.
- Corn AL, Koenig AJ (1996). Perspectives on low vision. Ann L. Corn and Allan J Koenig (eds). Foundations of low vision: clinical and functional perspectives. New York: American Foundation for the Blind.
- Deremeik J, Broman AT, Friedman D, West SK, Massof R, Park W, Bandeen-Roche K, Frick K, Munoz B (2007). Low vision rehabilitation in a nursing home Population: The Seeing Study. *J. Vis. Impair. Blind.* 101(11):701-714.
- Faye E, Clare MH (1975). *Low Vision*. Springfield: Charles Thomas.
- Frankel JR, Wallen NE (2000). How to Design and evaluate research in education. New York: McGraw-Hill Inc.
- Goldie D, Gormezona S, Raznik (1986). Comprehensive low vision service for visually impaired children: A function of special education. *J. Vis. Impair. Blind.* 80 (7):844-848.
- Jose RT (1985). Understanding low vision. New York: American Foundation for the Blind.
- Yalo JA, Indoshi FC (2010). Evaluation of reading proficiency of learners with low vision while using low vision devices. *Educ.Res.* 1(5):150-155.
- Zammitt N, O'ltare A, Mason J, Elliott G (1990). Use of low vision aids by children attending a centralized multidisciplinary visual impairment service. *J. Vis. Impair. Blind.* 93(6):351-359.