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An Investigation on Reading proficiency of Learners with Low Vision when using Low Vision Devices in Kenya's Primary schools.

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Abstract
Proper visual environment which allows for maximum comfort and visual performance is essential for the low vision learner. In designing the proper visual environment for children with visual impairments, careful consideration should be given to the individual needs of each low vision learner based on the requirements of the visual task. With proper training learners with low vision can read rapidly with optical devices. The study by Sykes (quoted in Harley, 1984) indicated that visually impaired high school students were able to read as well with optical devices and standard print as with large print. Since large print is not always available, optical devices can provide a more convenient and equally effective choice for some learners with low vision. Before beginning class activities, the classroom must be prepared to maximize the amount of time the student will spend on the activity. Barraga (1983) noted that magnifying devices and prescription of optical aids have received increasing attention from clinicians and instructors as a valuable means of increasing the use of functional vision and efficiency in both near and distance visual functions. Prescriptive optical low vision devices for near and distance use have received more consideration for school-age learners with low vision. Barraga (1983) felt that the use of distance aids in the classroom may be of crucial concern than use of near prescriptions or magnifying devices because they put the learner in touch visually with his environment both in the classroom and on the playground. She further noted that such exposure prevents some of the visual experiential deprivation often related to developmental lag found in many visually impaired learners. The purpose of this study was to investigate reading proficiency of learners with low vision when using low vision devices in Kenya's primary schools. The study was carried out in five primary schools for the visually handicapped in Kenya. The study population included 90 teachers and 80 eight learners with low vision, a sample of 65 teachers and 78 learners took part in the study. Survey research design was used to collect data. Research instruments were questionnaires, observation schedule, interview schedule, a reading proficiency test and document analysis. Validity of the instruments were overcome by the researcher giving the research instruments to three experts on the topic of study who validated the contents of the instruments. Reliability was done by test re-test method. Data was analyzed by use of descriptive statistics that included frequency counts, percentages and the means. Findings of the study were that low vision learners lacked devices that can make them access curriculum content to the full. Recommendations of the study were: regular case conferencing be held among low vision team members to chart out learning needs of learners with low vision, and more contact time for the schools for the visually handicapped be created. Findings from the research could help curriculum developers at the Kenya Institute of Education to adapt and improve on low vision training curriculum. The Directorate of Quality Assurance and Standards also will glean information that will help in stocking classrooms with optical and non-optical low vision devices.

Key Words*: Reading proficiency; Low vision learners; Low vision devices.*

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Proper visual environment which allows for maximum comfort and visual performance is essential for the low vision learner. In designing the proper visual environment for children with visual impairments, careful consideration should be given to the individual needs of each low vision learner based on the requirements of the visual task. With proper training learners with low vision can read rapidly with optical devices. The study by Sykes (quoted in Harley, 1984) indicated that visually impaired high school students were able to read as well with optical devices and standard print as with large print. Since large print is not always available, optical devices can provide a more convenient and equally effective choice for some learners with low vision. Before beginning class activities, the classroom must be prepared to maximize the amount of time the student will spend on the activity. Barraga (1983) noted that magnifying devices and prescription of optical aids have received increasing attention from clinicians and instructors as a valuable means of increasing the use of

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While working with learners with low vision, Carpenter (1976) found that the self-image of students changed from that of a blind person to that of a sighed person; reading medium changed from Braille to print and students changed from listeners to readers and actions changed from dependence to independence. Since large print as an option of a low vision non-optical device is not always available, optical aids can provide a more convenient and equally effective choice for learners with low vision. Low vision devices, particularly handheld magnifiers have advantages that have been noted by Corn & Koenig (1996).

The advantages noted by Corn & Koenig include:

- The closer the device is to the eye, the large the field of view and the smaller the amount of distortion of the symbols being viewed. In other words, as the user moves the magnifiers closer to the eye while maintaining proper focal distance, a large and clearer area of the surface being viewed will be present. Conversely the further from the eye the user holds the magnifier, the smaller the field of view.
- They are cosmetically and socially acceptable, as such users may not feel uncomfortable about using them in the public e.g. restaurants.
- They are light weight and portable.
- When used appropriately the individual maintains a natural perspective in regard to the surrounding environment.
- A variety of designs are available e.g. pocket size, full-page and ergonomic designs.
- If lighting and contrast are factors important to the user, she/he may choose a device that contains built-in light source.

Another type of low vision device that may be in vogue among learners with low vision is the stand magnifier. This is a convex lens that can sit on a page to be read, and is installed in a light weight platform that secures the distance between the lens and the viewing surface. The stand magnifier is positioned on the page and over the material to be read and moved across the line of print from left to right. The clearest advantage of stand magnifiers is the fixed focal distance from the lens to the viewing surface. This fixed focal distance is particularly beneficial for those learners with poor fine-motor control, for example individuals with hand tremors, and those with poor eye-hand coordination who have difficulties positioning materials at specific focal distances, or maintaining the focal distance of hand-held magnifiers. Other advantages for using stand magnifiers include:

- They are relatively inexpensive.
- They are portable and light weight.
- They are cosmetically acceptable socially.
- They come in a variety of designs.
- They can be used with other forms of correction.
- Some models have built-in lighting for added illumination.

Statement of the Problem

Learners with low vision had been treated as if they were totally blind and were required to read and write in Braille as the totally blind learners do. Some learners were even blindfolded in order for them to read tactually. The reading of Braille tactually limited low vision learners to using a more inferior modality of learning.

In the early 1960s, Barraga experimented with severely visually handicapped children and found out that with proper training andsupport, such learners could function visually. In Kenya, 52% of learners with visual impairments in schools for the visually handicapped have low vision The proportion of learners with low vision surpass that of those who are blind, and therefore they require deliberate efforts to train them in low vision techniques. The low vision training programme was then introduced in all six primary schools for the blind and later incorporated learners with low vision in integrated programmes across Kenya.

The Ministry of Education (Kenya) initiated a programme for low vision training in 1994. From the time the programme was launched to date, there has been no study carried out to audit and/or evaluate the influence of the low vision training programme on learners' visual performance during curriculum intercourse. It has yet to be established as to how low vision devices influence learners' reading and writing ability. No inventory of low vision devices has been done to determine which ones are popular with learners and which

ones are least useful. This research established how low vision training influence learner's reading abilities, for learners who arelow vision in Kenya.

Purpose of the Study

The purpose of the study was to do an Investigation on reading proficiency of learners with low vision when using low vision devices.

Objective of the Study

The current research was based on the following objective:

i) Find out the reading proficiency of learners with low vision when using low vision devices.

Research Question

The study was guided by the following research question:

i) How well learners with low vision can read print proficiently using low vision devices?

Scope of the Study

The study involved teachers who teach children with low vision in schools for the visually handicapped and was delimited to learners with low vision who use optical and non-optical low vision devices in special schools and integrated programmes.

Assumptions of the Study

The following were the assumptions of the study:

- All learners in the study use low vision devices when performing curriculum tasks.
- All learners in the study require environmental adaptation to maximize on their vision use.
- All teachers who worked with learners with low vision were sighted.

Limitations of the Study

The researcher faced several limitations that hindered proper observation and documentation of challenges learners with low vision experienced. Some of the limitations were:

- Professionally, some teachers who were blind tended to discourage learners from using low vision devices because the teachers could neither read nor mark the learners work in print.
- The number of specialist teachers from special schools for the visually handicapped acting as respondents had limited teaching experiences of working with learners with low vision to be able to understand the learning needs and the effect of low vision devices on visual functions of the visually handicapped.
- Limited low vision devices available for learners to perform various tasks during curriculum intercourse constrained the researcher from finding out the actual visual efficiency of learners with low vision.

To overcome some of the limitations, the researcher involved teachers who had had three months of in-service training and those who had had a two year diploma special education qualification.

Conceptual Framework

The study was based on management-oriented evaluation approach as propounded by Stufflebeam's Context, Input, and Process Product (CIPP) evaluation model.

Stufflebeam et al. (2000), and Guba and Lincoln (1981) developed an evaluation framework to serve managers and administrators facing four different kinds of educational decisions named context, input, process and product. He proposes that evaluation should be done in order to establish the programme's actual position in relation to the four components. He has suggested various questions to be answered in each of the four components during an evaluation as shown in Figure 1.

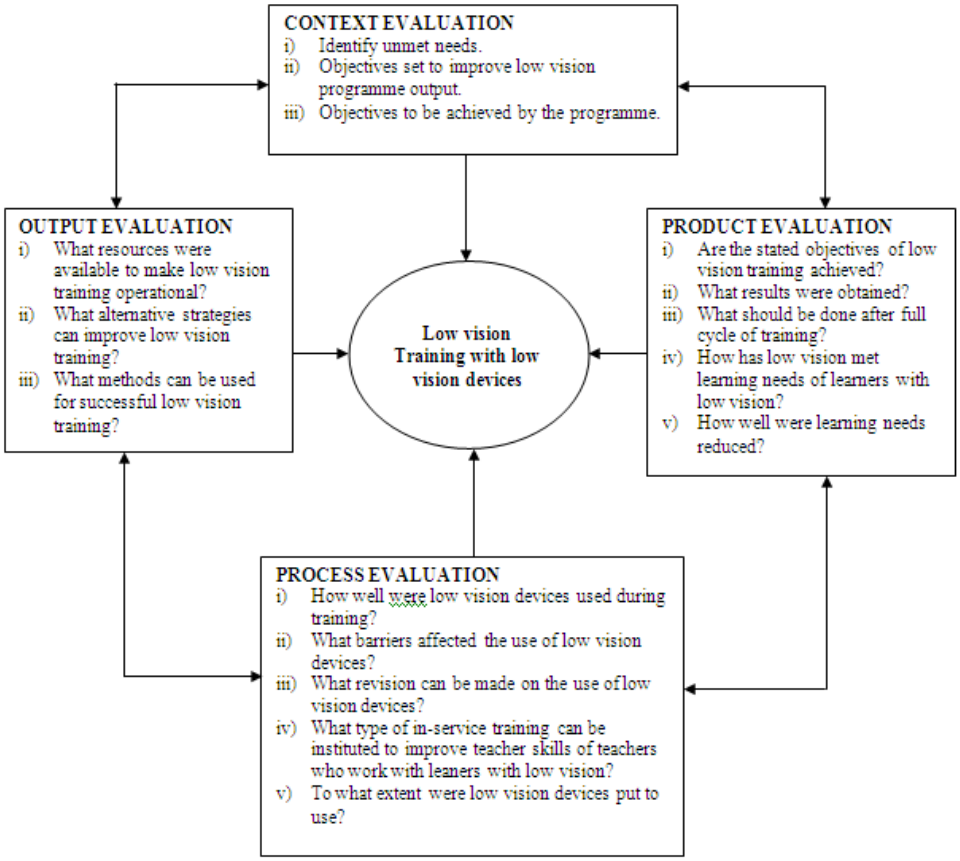

Figure 1: Context, Input, Process, Product Evaluation (C.I.P.P) of the Low Vision Training Programme

Significance of the Study

The findings from this study may contribute to the existing body of knowledge on low vision functioning and influence practice and sourcing for low vision devices and other related equipment that can be effectively used by low vision learners. It is also hoped that curriculum developers may glean information that will help in adapting the curriculum for low vision learners. The findings may dissuade policy makers and specialist teachers for the visually handicapped from treating the low vision learners as if they were blind by encouraging the learners to function visually.

I. Methodology

Research Design

This research was a cross-sectional survey. A cross-sectional survey collects information from a sample that has been drawn from a predetermined population (Fraenkel&Wallen, 2000). The predetermined population were learners with low vision in grades seven and eight from schools for the visually handicapped in Kenya. The researcher found the survey method appropriate because data collection using questionnaires and observation schedules took a shorter time as compared to interview method. Response rate was high because the researcher personally visited the schools where the questionnaires were administered and any clarity about the questions on the questionnaire forms were immediately responded to. It was also found to be appropriate because the questionnaires were administered in groups thus permitting follow-up questions, and also comparative cost of administering the questionnaire was cost effective (Fraenkel and Wallen, 2000). The main purpose of the survey was to describe characteristics of a population. In this case the researcher set out to find out reading proficiency of learners with low vision when using low vision devices.

Study Area

This study was conducted in five primary schools for the visually handicapped in Kenya. The study was conducted in special schools for the visually handicapped because learners with low vision get admission to such schools. Such schools are also resource centres for special materials for learners with visual impairments.

The schools are spread regionally as follows:

Kibos and St. Oda schools for the visually handicapped are situated in Nyanza province. Thika School for the visually handicapped is situated in Central province in Thika town. Likoni School for the blind is located

in the Coast province and St. Lucy school for the visually handicapped in Meru.

Study Population

Learners who participated in the study had low vision and were from grades 7 and 8 from schools for the visually impaired in Kenya. Schools for the visually impaired in Kenya admit both blind and low vision learners to the same school and learn alongside one another. They share education resources such as text books that may be either in Braille or print, teachers, and share same classrooms. The current research excluded learners who are blind. Saturated sampling was used to select seventy eight learners from the five schools as follows: School A = 14, School B = 13, School C = 15, School D = 17 and School E = 19. The learner participants in the study were confirmed to be with low vision from reports written by ophthalmic workers from Kikuyu and Sabatia hospitals and kept by each school on file. The researcher used mainly special schools for the learners with visual impairment because such schools were considered as centres of excellence where both teaching and learning resources were available and that such schools used specific special methods to teach learners with visual impairments.

Sample Size and Sampling Procedure

Cluster sampling was used to select classes that took part in the research In this case the unit of sampling was not the individual but rather a naturally occurring group of individuals. Cluster sampling is used when it is feasible to select groups of individuals than it is to select individuals from a defined population Therefore classes seven and eight were used as the cluster sample. Saturated samplingwas used to select all learners with low vision in grade 7 and 8 to take part in the study. Seventy eight teachers who teach classes seven and eight in five schools for the visually impaired were selected out of ninety teachers. Saturated sampling was used to select sighted teachers who taught learners in classes seven and eight, however, totally blind teachers did not take part in the study because they had very little information about learners with low vision.

Table 1: Sampling Frame

Categories	Total Number	No. selected	Percentage
Schools	6	5	83.33
Classes	12	10	83.33
Teachers	90	65	72.22
Pupils	88	78	88.63

Research Instruments

The research instruments used in the study were questionnaires, interview and observation schedules.

Questionnaire

There were two questionnaires, one for teachers and one for pupils. The teacher's questionnaire was structured to have three sections. The first section was aimed at soliciting background information about the school, the number of children on roll, the number of low vision learners taught through the visual modality and the equipment used during curriculum discourse. The second section was aimed at obtaining information about the expertise of teachers working with children with low vision. It also dealt with soliciting information about the availability of low vision devices that learners with low vision used during curriculum discourse. The final section of the questionnaire was aimed at soliciting information about follow-up, the number of teachers trained to work with learners with low vision, and the challenges such learners experienced during curriculum interaction.

A total of 20 items made up the teachers' questionnaire. The teachers' questionnaire is attached as Appendix A. The pupils' questionnaire was made up eleven items that were aimed at gathering data about attitudes of learners with low vision, availability and efficacy of low vision devices.

Interview Schedule

The interview schedule was made up of ten questions that were aimed at eliciting the teachers' expertise as relates to working with learners with low vision.

The interview schedule was also aimed at establishing the number of low vision devices available to learners in class. Specifically, the researcher sought to know the size of print, and the skills teachers acquired during the in-service training that teachers went through in order to work with learners with low vision.

Observation Schedule

The observation schedule was arranged in three distinct sections. The first section solicited information about availability of optical low vision devices. It specifically determined as to whether the devices were adequate or

not adequate to the learner's needs.
The second section solicited information about the availability of non-optical low vision devices. It solicited information about environmental modification of the learning environment. The third section solicited information on the actual learners' use of low vision devices during curriculum discourse.
Document Analysis
The following documents were scrutinized to glean information about students' visual functioning:
i) Term CAT marks
ii) End of year promotional marks
iii) End of course KCPE examination results
iv) Art work done by learners with low vision.
Reading test for proficiency
Two short paragraphs from class 7 Geography textbook were selected for learners to read

Validity of theInstruments

Validity refers to the degree to which the explanations of a phenomenon or the findings of a study match the realities of the world, or the extent to which a questionnaire actually measures what it is intended to measure (Oso, 2013). Validity of the instruments was evaluated and improved through face validity method. This method was selected because of its ease in computation, understandability, focus on agreement of relevanceandprovision of both item and scale information (Orodho, 2010). To ensure face and content validity of the research instruments, two supervisors who are experts from the department of Special Needs of Maseno University were requested to make judgment on the Instruments based on their relevance of content in the adapted questionnaires. They made amendments on format of the questionnaires and provided feedback to the researcher who made amendments on the format of the questionnaires and content in general. Their recommendations were incorporated in the final questionnaires to enable collection of data valid for analysis. However, for the qualitative data, validity was ensured by arranging the items in the interview schedule from simple to complex. The language used was also made clearer and simpler for probing for moredetails.

Reliability of theInstruments

Reliability is a measure of the consistency with which research participants understand, interpret and respond to the item in an instrument (Oso, 2013). The researcher employed a test-re-test method to determine the reliability of the instruments. Test-re-test method is a statistical technique used to estimate components of measurement error by repeating the measurement process on the same subjects, under conditions as similar as possible, and comparing the observations using a suitable technique (Orodho, 2010). The method was selected because it was the most conservative method for assessing the outcomes of two tests generated in the same way from the same content domain over time (Orodho,2010). This was the simplest way of testing the stability and reliability of an instrument. The researcher conducted an intraclass correlation between the first measurement (test) and a subsequent measurement (retest), which was conducted after two weeks. A test–retest reliability coefficient of 0.75 which was achieved led to the conclusion that the instruments were of adequate reliability, in line with recommendation of Creswell (2013) and Orodho(2009).

Data Collection Procedure

The researcher applied for research authorization permit from National Council for Science and Technology. The investigator telephoned the head teachers of schools of the visually handicapped, and informed them about the intention of carrying out research in their respective schools. Visits were made to schools for data collection. Teachers and learners were informed about the visit and intended research and were requested to cooperate. Thereafter, the researcher administered data collection instruments. The researcher was introduced to the teachers and pupils in grades seven and eight by the head teachers of respective schools. After telling the teachers about the visit to the schools, the researcher requested them to take part in the research by filling in the questionnaire forms and then return them to him. The same was done to learners in grades seven and eight. The questionnaire for learners with low vision was administered by class teachers who were required to distribute them to the learners and then instruct them to respond to the questionnaire items using their low vision devices if possible. Questionnaire for low vision learners was printed using N14 size of print. The size of print was deliberately chosen because it was assumed that the learners were able to read N12 size of print that is used to print course books at primary school level. The size of print was chosen because learners could read it with or without low vision devices (see Appendix C attached). Data was also collected by scrutinizing students during term CAT marks, end of year promotional marks, KCPE results for previous years. The investigator also securitized pupils' Art work from their exercise books. Observation schedule was used to collect data about low vision devices and equipment that support learning from individuals with low vision within the learning environments. The observation was not structured. The researcher used non-participant observation when

leaners were involved in filling the questionnaires (Cohen and Manion, 1989).

Data Analysis Procedure

The information gathered from the questionnaires and observation schedule was analyzed using descriptive statistics where frequency counts and percentages were used to evaluate the results of learners who used low vision devicethen results were reported in tables and figures.. Percentages were used to evaluate usage of low vision devices. The higher the percentage, the higher the proficiency of low vision uses. Regular and continued use of low vision devices when performing visual tasks was construed that learners had improved visual behaviours and therefore a positive evaluation of low vision devices use. The qualitative data generated from interviews and observation checklists were categorized in themes in accordance with research objectives and reported in narrative form. In essence, the qualitative data was used to reinforce the quantitativedata.

II. Data Presentation, Analysis And Discussion

Reading Proficiency for Learners with Low Vision

The researcher established the reading accuracy of learners with low vision. Presently reading tests are available in Kenya, so two texts from upper primary social studies curriculum were selected to help the researcher to have an understanding of print reading accuracy for learners with low vision. The researcher deliberately used large print text to avoid the need for low vision devices with lens-systems because most of the learners seemed not to be encouraged to use the devices and/or did not have them. Each piece of text of about eighty words was supposed to last for one minute, but due to some challenges that included vocabulary and words that seemed new, some learners accuracy of reading seemed slow and with errors. However learners from grade eight who had been in school much longer were observed to have developed proficiency of completing and reading accuracy test with minimum mistakes.

Learners were asked to read two short passages so that the researcher could find out their reading proficiency. The errors they made are presented in Table 2.

Table 2: Reading Errors Analysis

Word	How learner voiced words	Frequency	%
Fresh	Fish	3	3.84
Baringo	Bongo	5	6.41
Salty	Sali	8	10.25
Payrus	Papis	2	2.56
Varieties	Varie	3	3.84
Suitable	Sample	1	1.28
Tuber	Tabo	3	3.84
Shallow	Sholo	4	5.12
Earth	Ear	1	1.28
Some	Som	6	7.69
Others	Othens	1	1.28
Tanganyika	Turkana	5	6.41
Salt	Salty	2	2.56
Swamps	Swompes	4	5.12
Agricultural land	Cultural land	10	12.82
Season varieties	Aquatic reason	3	3.84
Text	Test	4	5.12
Tuber crops	Timber crops	7	8.97
For	Of	4	5.12
From	From	2	2.56

When learners were asked to read the passages aloud, there were several mispronunciations as seen in table 2. 10 learners (12.82%) had difficulties in reading the phrase “agricultural land”. 8 learners (10.25%) had problems of reading the word “salty”.7 learners (8.97%) had problems of reading the phrase “tuber crops”, and 6 (7.69%) could not read the word “some”. 5 learners (6.41%) were unable to read the words “Baringo” and “Tanganyika” respectively. Generally, learners had difficulties of miscalling of words and wrong pronunciations. Learners from class eight of one of the participating schools had good reading accuracy that they would have passed a class of the sighted.

Good visual functioning require regular practice of performing visual tasks. Just like Barraga (1982) observed, learners with low vision need to be helped to develop behaviours and skills that will enable them to participate with peers in age appropriate skills from the earliest time of play and recreational activities. Learners with low vision need a support base for low vision use. They may need to regularly interact with peers experiencing similar visual problems so that they can support one another.

Barraga (1992) noted that teachers should expect responses to visual tasks to be slow, and that learners with low vision should be encouraged to look and look more in order to develop faster visual functions. From

the time that was taken by learners during the reading test, it can be construed that teachers must be patient with learners with low vision in order to accomplish visual tasks. It has to be noted that the more visual tasks the low vision learner accomplishes the more efficient he/she will become.

Erin and Paul (1996) noted that teachers should expect low vision learner to use vision at all times and for all visual activities, but be ready to interpret and clarify the blurs, distortions and misconceptions which may be evident.

The slower speed some learners with low vision had can be explained by what Barraga (1992) observed that learners read slowly, often moving their heads or book instead of the eyes. As they tire they may lose their places, skip line and/or read less well. Poor environmental adaptations for learners with low vision seemed to have played a role in the slowed reading rates that were noted during the reading proficiency test.

Teachers were asked to comment about the reading proficiency of learners with low vision. Their responses were presented in Table 3.

Table 3: Reading Proficiency of Learners with Low Vision

n=65

Reading proficiency	Frequency	%
Normal	2	3.07
Average	30	46.15
Below average	25	38.46
Not easy to measure	7	10.76
No response	1	1.53

The researcher wanted to draw on teachers' experiences of working with learners with low vision about learners reading proficiency. There was almost a split decision when commenting on the reading proficiency of learners with low vision. 30 (46.15%) of the respondents thought that learners with low vision read averagely. 25 (38.46%) of the respondents said that their reading is below average; 7 respondents (10.76%) said that it was not easy to measure the reading proficiency; however2 respondents (3.07%) said that the reading speed of the learners was normal.

Reading Proficiency of Learners when using Low Vision Devices

Teachers were asked to respond 'Yes' or 'No' to the statement that low vision devices retard reading proficiency of learners with low vision.

Teachers were asked to indicate their observations about low vision devices. Their responses were presented in Table 4.

Table 4: Whether Low Vision Devices Retard Reading Proficiency of Learners with Low Vision

n=65

Response	Frequency	%
Yes	14	21.53
No	50	76.92
No response	1	1.53

Majority of the respondents 50 (76.92%) said that low vision devices do not retard the reading proficiency. A significant minority 14 (21.53%) of the respondents indicated that devices actually retard the reading proficiency. 1 respondent (1.53%) did not give any response. Jose (1985) noted that hand-held magnifiers are convex lenses that increase the size of the retinal image and bring the image into focus. He further observed that hand-held magnifiers provide maximum magnification when positioned at their focal distance in respect to the material to be recognized. However low vision devices offer restricted field of view, and the learner has to maintain proper focal distance while scanning with the head not eyes. All the said visual skills require stamina and co-ordination. It is the head movement and moving low vision devices that seem to take more time, and in some cases the learner tends to forgo the low vision devices in preference to holding the reading material eccentrically.

Teachers were asked to indicate as to whether learners with low vision needed more time to accomplish reading and writing tasks. Their responses are presented in Table5.

Table 5: Whether Learners with Low Vision need more Time to Accomplish Reading and Writing Tasks.

n=65

Response	Frequency	%
Yes	64	98.46
No	1	1.53
No response	0	0

There was almost unanimous agreement from teachers that learners with low vision need more time to accomplish reading and writing tasks. 1 respondent indicated that learners with low vision as aforesaid do not need more time to accomplish reading and writing tasks while 64 (98.46) agreed..

The results confirm the rapid development of reading accuracy among learners with low vision. However the fact that they are reading in a foreign third language may negatively impact on their pronunciation and miscall of words. Mother tongue dominance among the learners may also have interfered with reading accuracy. Wilkinson (1996) and Erin & Paul (1996) observed that reading is a birth right and a survival skill that all learners must acquire in the U.S.A. The Kenya government recognizes acquisition of the reading skill as an approach of eradication of illiteracy, poverty and ignorance among her citizenry.

Kapperman& Patricia (1996) and Zammitt et al. (1990) noted that large print is a valuable way for some people with low vision to gain access to print information but it cannot be the only option. Reliance only on large print restricts one's access to information and requires the use of a photocopy enlarger to magnify the print. It must be said that magnification can be achieved also through angular magnification and also relative size magnification. Learners with low vision can achieve magnification by being taught and encouraged to use low vision devices.

III. Summary, Conclusions And Recommendations

Summary of Findings

Regular print that is N12 was most used because 64.10% of respondents said that they normally read such print. The researcher's observation in classrooms during curriculum interaction confirmed so because course books used by learners were the same ones used by sighted learners. It would therefore seem that learners used head borne devices and regular print, however it was clear that most learners lacked low vision devices. It was also noted that there was no provision for learners to carry their low vision devices for use during school holidays.The findings above implies that there is no continuity of skills learned at school being reinforced by parents in the home. Therefore the extent of low vision device use is only limited to the school beyond which the learners are at a loss.

For learners to be able to perform visual tasks they need to be helped to develop behaviours and skills that will enable them to participate with peers in age-appropriate skills from the earliest time of play and recreational activities. It was also noted that learners with low vision need a well structural support base for low vision use.

It was found out that teachers in schools for the blind were desperately in need of training so that they can be able to support learners to use low vision to the optimum level. It was also observed that learners with low vision need many and varied visual experiences in order to improve on their visual skills.

It was noted that lack of encouragement for learners to use low vision devices and limited support from the teachers, parents, and significant others that are found within their visual environment seemed to preclude low vision functioning among learners with low vision.

The learners with low vision seemed to lack teachers with specialist training in low vision training. There were several inaccuracies in the manner learners perceived and pronounced words from the passage. It would therefore seem not correct to make learners to learn reading in a third language. It was noted that some classes had good word attack skills, scanning and tracking skills which should be encouraged through training and provision of pertinent low vision devices.

Conclusions

Reading Proficiency of Learners with Low Vision

Reading proficiency amongst most learners posed a challenge. There were many words that learners did pronounce badly, some were miscalled, and some learners had word attack problems. However a few learners in class eight had good work attack skills and did not make mistakes during the reading proficiency test. Learners with low vision should be encouraged to improve on their visual efficiency by using low vision devices when doing class work.

Recommendations

The researcher set out to investigate about reading fluency of learners with low vision. It was found out that some schools had adequate readers and as such learners with low vision had much improved visual skills. However, there were major word attack skills problem moving the text very close to the face and mother tongue dominance.

It is recommended that more library lessons be included on the timetable so that learners can have adequate opportunities for reading books of their own choice. This will help learners to use low vision devices frequently. More English language teachers be trained to motivate learners to read story books, such exposure will improve on their reading proficiency.

References

[1]. Amanda, H.L., Robert, B., Kwuang, M.T., Valarie, M.B. and Hellen, G.D. (2003).Understanding the relationships between Print size and Reading in Low Vision, *Journal of Visual Impairment and Blindness. Vol. 97*(6) pp 325-334.

[2]. Anne, L.C., &Duquette, C. (2006).Psychological Experiences of a Student with Low Vision, *Journal of Visual Impairment and Blindness. Vol. 100*(3) pp. 152-163.

[3]. Anne, L.C., Bell, J.K., Anderson, E., Bachofer, C., Jose, R.T. and Perez, A.M., (2003). Providing access to the visual Environment.*Journal of Visual Impairment and Blindness. Vol. 97*(5) pp. 261-272.

[4]. Bachofer, B. (2007). Low Vision Devices and Children with Visual Impairment.*The Educator Vol. XX*(1) pp 14-17.

[5]. Barraga, N. (1976). (1) Developmental Assessment and Evaluation through Teacher Observation, Austin: The Institute for the Deaf-Blind Studies.

[6]. Barraga, N. (1976). (2) Development of Visual Efficiency in Visual Functioning. Rationale for a comprehensive programme, *Journal of Visual Impairment and Blindness. Vol. 73*pp 121-126.

[7]. Barraga, N. (1983). Programme to Develop efficiency in visual functioning. Louisville: American Printing House for the Blind.

[8]. Barraga, N. (1992). Visual Handicaps and Learning. Belmont: Wordworth Publishing Co.

[9]. Barraga, N. (2006). Visual Impairment and Learning. Austin: American Foundation for the Blind Press.

[10]. Bishop, E.V. (1988). Making Choices in Functional Visio Evaluation: "Noodles, Needles and heystacks."*Journal of Visual Impairment and Blindness.Vol. 82* pp. 94-99.

[11]. Bishop, E.V. (1991). Pre-school Visually Impaired Children.A Demographic Study.*Journal of Visual Impairment and Blindness. Vol. 85* pp 69-74.

[12]. Bishop, E.V. (1996). Causes and Functional Implications of Visual Impairments.Foundation of Low Vision Clinical and Functional Perspectives. New York: American Foundation for the Blind Press.

[13]. Brambring, M. (2007). Divergent Development of Manual Skills in Children who are Blind or sighted. New York: American Foundation for the Blind Press.

[14]. Blankenship, E.K., & Nancy, M.T., (2008). Programme Accountability for Students who are Visually Impaired. *Journal of Visual Impairment and Blindness. Vol. 102*(2) pp. 97-102.

[15]. Borg, W.R. & Gall, M.D., (1989). Educational Research, An Introduction. New York: Longman Publishing Co.

[16]. Bullimore, M.A., & Bailey, I.N., (1995). Reading and Eye Movement in Eye-related Muculopathy, Madrid: International Council for the Education for the Visually Impaired.

[17]. Caprenter, P. (1976). Low Vision Aids.The Implication of Education. Marquis: Chicago.

[18]. Cohen, L. &Manion, L., (1989). Research Methods in Education, London: Routledge Co.

[19]. Corn, A. L. (1983).Visual Function. A Theoretical Model for Individuals with Low Vision: *Journal of Visual Impairment and Blindness. Vol. 77*pp 373-377.

[20]. Corn, A.L. (1985).Strategies for the Enhancement of Visual Function in Individuals with Visual Deficit. Rehabilitation Literature *Vol. 46*pp 8-11.

[21]. Corn, A.L. (1986).Beyond Assessment of Visual Function International Conference on Low Vision. New York: American Foundation for the Blind.

[22]. Corn, A.L. & Koenig, J.A. (1996).Foundations of Low Vision.Clinical and Functional Perspectives. New York: Library of Congress.

[23]. Claude, V. (2003).Development of a Standardized Instrument to Assess the Performance of Computer Tasks by Students with Low Vision.*Journal of Visual Impairment and Blindness. Vol. 97*pp 465-472.

[24]. Daily Nation 15th November, 2000 and 29th June, 2005. Local Brews cause death in Kenya. Nairobi: Daily Nation Co.

[25]. Dennis, W.S., & Hathaway C.L., (2005).Efficacy of Low Vision Patient Consultation.*Journal of Visual Impairment and Blindness.Vol. 99* (2) pp.385-394.

[26]. Deremeik, J., Aimee, T.B., Fieldman, D., West, S.K., Massof, R., Park, W. and Frick, K., (2007).Low Vision Rehabilitation in a Nursing Home Population.*Journal of Visual Impairment and Blindness. Vol. 101* (2) pp. 701-714.

[27]. Dobree, J.H. &Boulter, E. (1982).Blindness and Visual Handicaps. New York: Oxford University Press.

[28]. Erin, N.J. and Paul, B. (1996).Functional Vision Assessment and Instruction of Children and Youth in Academic Programmes.Foundation of Low Vision.Clinical and Functional Perspectives. New York: American Foundation for the Blind Press.

[29]. Faye, E.E., (1975). Low Vision. Springfield: Charles Thomas Publisher.

[30]. Faye, E.E. (1985). Visual Function in the Elderly.Geriatric ophthalmology. Springfield: Charles Thomas Publishers.

[31]. Ginon, B. (1992). Low Vision services around the World. *Journal of Visual Impairment and Blindness. Vol. 86* (1) pp 14-20.

[32]. Goins, J.J. (1958). Visual Perceptual Abilities and Early Reading Progress. Chicago: University of Chicago Press.

[33]. Gormezano, S., Goldie, D. &Raznik, P., (1986). Comprehensive Low Vision Services for Visually Impaired Children: A Function of Special Education. *Journal of Visual Impairment and Blindness.Vol. 88*(2) pp 884-848.

[34]. Guba, E.G. & Lincoln, Y.S. (1981). Effective Evaluation: Improving the usefulness of Evaluation Results. San Francisco: Jossey-Boss Inc.

[35]. Gunnel, L., & Lena, N. (1999).Adaptation Strategies Well-being and Activities of Daily Living among people with Low Vision.*Journal of Visual Impairment and Blindness.Vol. 93.* (7) pp 434-445.

[36]. Hanninen, K.A. (1979). Teaching the Visually Handicapped 2nd Edition. New York: Library of Congress.

[37]. Harley, R.K. (1984). Visual Impairment in the School. Springfield: Charles Thomas Publishers.

[38]. Ian, C. (2003). Understanding the Relationships between Print Size and Reading with Low Vision.*Journal of Visual Impairment and Blindness. Vol. 97*(6) pp 325-334.

[39]. Jose, R.T. (1985). Understanding Low Vision. New York: American Foundation for the Blind.

[40]. Jose, R.T. (1990). A Model for Integrating Low Vision Services into Educational Programme. International Council for the Education for the Visually Impaired.*Vol. XVII* (3) pp 157-165.

[41]. James, D. (2007). Low vision Rehabilitation in a Nursing Home population. New York: *Journal of Visual Impairment and Blindness Vol. 101*(11) pp. 701-714.

[42]. Jan-lovien, K., & Whittaker, S. (1998).Relative-size magnification versus Relative-Distance Magnification, Effects on Reading Performance of Adult with Normal and Low Vision.*Journal of Vision Impairment and Blindness. Vol. 92*(7) pp. 447-453.

[43]. Judith, B. (1992). Doing your Research Project. Buckingham: Open University Press.

[44]. Kapperman, G. and Patricia, J.K. (1996). Integration of Visual Skills for Independence Living: Foundation of Low Vision, Clinical and Functional Perspectives. New York: American Foundation for the Blind Press.

[45]. Koenig, A.J. (1996). Literacy Individuals with Low Vision. Foundation of Low Vision: Clinical and Functional Perspectives. New York: American Foundation for the Blind.

[46]. Koenig, C.A., & Ross, D.B. (1992). The Relative Effectiveness of Reading in Large Print with Low Vision Devices for students with Low Vision. *Journal of Visual Impairment and Blindness. Vol. 86 (*1) pp. 48-53.
[47]. Koenig, C.A., & Holbrook, M.C., (1991).Determining the Reading Medium for Visually Impaired Students via Diagnostic Teaching.*Journal of Visual Impairment and Blindness, Vol. 85* pp. 61-68.
[48]. Koenig, A.J., & Ross, D.B., (1991). A Procedure to Evaluate the Relative Effectiveness of Reading in Large and Regular Print.*Journal of Visual Impairment and Blindness. Vol. 84* (5) pp 198-204.
[49]. Koenig, A.J., & Holbrook, M.C., (1995). Learning Medium Assessment of Student Visual Impairment.A Resource Guide for Teachers, 2nd Edition. Austin Texas.
[50]. Lowernfeld, B. (1981). The Visually Handicapped Child in School. London: Constable and Co. Ltd.
[51]. Marshall, F.G. (1979). The Eye and Vision. London: Exhall Grange School.
[52]. Mbugua, G.W. (2006). Policy in Guidance and Counselling in Secondary Schools in Kenya.Unpublished Ph.D. Thesis.University of Birmingham.
[53]. Ministry of Education Science & Technology (2003).A Report of the Taskforce on Special Needs Education. Nairobi: Government Press.
[54]. Miller, D. (1974). The Effect of Sunglass on the Visual Mechanism. A Survey of Ophthalmology, *Review. Vol. 29* (3) pp 14-20.
[55]. Nilson, U.L, (1996). Rehabilitation of the visually handicapped with advanced macular degeneration. Madrid: International Council for the education for the visually impaired.
[56]. O'Donnel, M.L., & Livingstone, R.I. (1991).Active Exploration of the Environment by Young Children with low Vision.*Journal of Visual Impairment and Blindness. Vol. 85* (7) pp 287-290.
[57]. Obrien, R. (1971). Vision Simulation. Rockville: Montgomery County Public Schools Press.
[58]. Republic of Kenya, (1988). Presidential Working Party on Education and Manpower Training for the next Decade and Beyond. Nairobi: Government Press.
[59]. Republic of Kenya, (1994).Low Vision Curriculum 1st Draft. Nairobi: Kenya Institute of Education.
[60]. Republic of Kenya, (1999).Report of the Commission of Inquiry into the Education System of Kenya. Nairobi: Government Press.
[61]. Rosenberg, R. (1994). Light, Glare and Contrast in Low Vision Care.*Review*. Vol. 29, pp. 78-86.
[62]. Roger, B. (1987). Developing Reading 3-13, 2nd Edition. London: St. Edmunds Bury Press.
[63]. Sacks, Z.S. (1996).Psychological and Social Implications of Low Vision. Foundation of Low Vision: Clinical and Functional Perspectives. New York: American Foundation for the Blind Press.
[64]. Sacks, S.Z., &Rosenblum, P.L., (2006).Adolescents with Low Vision.*Journal of Visual Impairment and Blindness. Vol. 100*(4) pp. 212-222.
[65]. Sardegna, J. & Otis, T.P. (1991).The Encyclopedia of Blindness and Vision Impairment. New York: Library of Congress.
[66]. Scholl, G. (1986). Foundation of Education for Blind and Visually Handicapped Children and Youth: Theory and Practice. New York: American Foundation for the Blind Press.
[67]. Yalo, J.A., &Indoshi, F.C. (2010).Evaluation of Reading Proficiency of Learners with Low Vision while using Low Vision Devices. Educational Research: *Vol. 1* (5) pp. 150-154.
[68]. Zammitt, N., Mason, J., & Elliot, G. (1990).Use of Low Vision Aids by Children attending a Centralized Multidisciplinary Visual Impairment Service.*Journal of Visual Impairment and Blindness. Vol. 93* (6) pp. 351-359.
[69]. Zimmerman, G.J. (1996). Optics and Low Vision Devices. Foundation of Low Vision: Clinical and Functional Perspectives. New York: American Foundation for the Blind Press.

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