

Low Vision Learners' Attitude Based Challenges Towards Reading and Writing English Braille in Kenya's Primary Schools for the Visually Impaired

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Abstract

Learners with visual impairment (VI) depend on Braille as a medium of instruction and communication. According to a report by the Ministry of Education, only 45 (30.6%) out of 147(100%) of learners with VI enrolled in upper primary classes in Kisumu and Siaya counties could read and write English Braille grade II competently. Despite this discrepancy, there was no documented explanation for this low percentage of learners with English Braille grade II competencies, particularly in Kisumu and Siaya Counties. The purpose of this study was to establish challenges faced by learners with VI in reading and writing English Braille grade II in selected special primary schools in the two counties. Objectives of the study was to; Establish Learner based challenges in acquiring and using English Braille grade II. Descriptive survey research design was adopted. The target population was 162 learners and 2 head teachers. Saturated sampling technique was used to select 147 learners and 2 head teachers. Data was collected by use of questionnaires and interview schedules. Test re-test method was used to determine the reliability coefficient of instruments at a score of 0.75. Face and content validity of the research instruments was ascertained by experts from the department of Special Needs Education. Descriptive statistics such as frequency counts and percentages were used to analyze quantitative data. Qualitative data was transcribed, categorized into themes and sub-themes as they emerged. The findings revealed that these learners had negative attitude towards communication in English Braille Grade II. Only 26 (19.2%) out of 135 of the learners were able to read and write English Braille Grade II. This study recommended early stimulation and introduction to Braille code for learners with VI; enforcement of functional educational inclusion to accommodate learners with VI and adoption of Individualized Educational Program (IEP). These findings will be of use to the Kenya Institute of Curriculum Development (KICD), Kenya National Examination Council (KNEC), and Teacher Training Colleges for adapting the curriculum, on setting Examinations, and on how to train Teachers for Learners with visual impairment.

Keywords: low vision, attitude, reading and writing, english braille

INTRODUCTION

Numerous studies have been devoted on this subject. Danielson, (2006) with other renowned proponents (Corn and Koenig, 2002; Hong, 2004; Koenig and Holbrook, 2000;) share the view that Braille literacy is declining because of the negative attitude of the learners towards reading and writing Braille Grade II. Perhaps a critical question to explore here is what exactly generates this negative attitude in the learners. In most cases, learners feel that Braille is always slow and bulky as compared to reading and writing in print and that Braille is complex to learn. This view is credible considering that Braille exists in over 189 different contractions and is also generally too mechanical especially to write (brailing). The Braille machine itself alone is so cumbersome and weighs on average 5 kilograms, while an ordinary pen may hardly weigh over 2.5 grams. Surely, almost everything about Braille is bulky: Cumbersome Braille, too heavy, its portability; large, thick, and dull Braille paper, numerous contractions. Braille is also labor intensive, time consuming, fragile (the embossed dots) requires overly large storage space

and what compounds it all is that Braille is damn expensive in every aspect. For instance, the cheapest Braille machine in Kenya costs about\$700, less freight charges (luckily, freight is free globally for all Braille materials).

While some learners lament that Braille is slower than print and difficult to master because of its many contractions (groupings), Troughton (1992) as cited in Hong (2004) concluded in her study that low vision learners read more rapidly subcontracted Braille compared to contracted Braille and that most learners felt that reading and writing Braille grade II was tedious, because of its many rules and contractions; hence preferred to use Braille grade I which directly translates print into Braille without changing the pattern of reading and writing. This attitude therefore makes low vision learners lose interest in enjoying Braille material.

Studies show that interest towards Braille develops when an individual child reads words or sentences written in Braille grade II. However, contrasting this

view are Koenig and Holbrook (2000) and Corn and Koenig (2002) in whose studies, they recommended that Braille instruction should start with uncontracted Braille (Grade I) before proceeding to Grade II (contracted Braille) that largely depends on how well the learner has fared on in Grade I. This implies that proper Braille rules start with Braille Grade I, before proceeding to grade II which uses word-signs, group-signs and abbreviations among other contractions. Contributing to this dialogue, Craig and Harrison (2003) concluded that a child's attitude towards any subject learned at school is improved by parents at home, if they have knowledge of the same. If parents revise together with a child, he or she develops interest in the subject. This implies therefore that other than early introduction to Grade II Braille, family members' interest and knowledge in Braille accompanied by access to appropriate equipment to provide exposure to Braille reading and writing is imperative for fostering positive attitude towards Braille.

Therefore, if Braille Grade II, according to the initial study, is what would help nurture and sustain the interest of this child in Braille, then it will be interesting to establish how this learner will master advance in Braille without passing through the basic (Grade one) Braille.

A study was conducted by Koenig and Holbrook (2000) and Corn and Koenig (2002) to develop frameworks for delivering instruction in literacy to students who use Braille and those with low vision, respectively. The studies recommended that Braille instructors should be consistent in their service delivery and allocate enough time for Braille everyday for proper mastery. For beginners in learning Braille, the studies recommended that daily contact for a long time per day at least one to two hours per session, and a long duration throughout at least one school year were also seen as strategies to improve the reading and writing of Braille. This means that writing Braille is perfected through regular practice. This calls for a commitment on the part of the learner and the necessary teacher support. There are those who think that learners with visual impairment do not have to be literate in Braille, courtesy of new technology in ICT. Such sentiments make the learners develop negative attitude and consequently withdraw interest in learning Braille. This runs a risk of increasing their dependency on their sighted peers like in reading notes for them. Johnsons, (2007) propounds reasons that may lead to negative attitude towards Braille by these learners, arguing that with the advancement in the blind-friendly technology, like the introduction of speech synthesizers for instance, optical character recognition, the Embosser and other modern devices, Braille has been rendered useless and that most learners wish to use these modern devices even when

they are not available in their schools. Concerning activities of daily living, their freedoms, privacy, and independence may be curtailed. This means that their activities would end up being controlled by their sighted peers. This kind of dependency impacts negatively on their ability to read and write Braille (Spungin, 2000).

Many learners with visual impairments do not make any efforts in improving Braille literacy simply because in their home environments, hardly are any adults knowledgeable in Braille. This may be one of the factors that may motivate a learner to develop a negative attitude towards Braille (Hong, 2004). It is, therefore, vital that learners with visual impairment be placed in a conducive, accommodative learning environment like a special school for learners with VI. Parents equally need to be sensitized on the importance of a positive environment.

The emergent Braille literacy is not supported during early childhood because of many caseloads and this makes the caretakers concentrate on other rehabilitation activities, at the expense of pre-Braille activities, and this has an adverse effect especially when the learners join primary schools and the teachers assume that the learners were taught Braille when they were in pre-primary. This assumption by both pre-primary and primary school teachers mostly leads to poor mastery of Braille reading and writing among learners with visual impairment since the feeling of neglect or being ignored by their Braille teachers breeds dislike for Braille altogether. It is worse if the learner realizes that their teacher views Braille instruction as an added burden, therefore, become reluctant to teach.

The Foundation of Croatian Braille (1994) observed that negative attitude towards Braille by learners may be caused by lack of a well-structured curriculum and Braille readiness activities. This makes learners to feel that Braille is not important and, therefore, ignore it. This is in agreement with the report by Kenya Society for the Blind (2009) thus, Braille literacy among learners with visual impairments is affected by; frequent change of curriculum, inadequacy of teaching and learning aids and the high costs involved in the production of Braille books. Braille lessons in the schools for learners with visual impairment are scheduled last on the afternoon timetable, when learners are already tired; therefore learners tend to look at Braille as a subsidiary subject hence do not give it any value. This leads to the decline of Braille literacy among learners with visual impairment.

It is true that the learners with VI are severely affected by frequent changes in the curriculum, high cost of Braille textbooks, lack of teaching aids and the raw deal given to Braille on the time table. It is

worth noting also that because of the high demands that life has placed on the modern career parent, most have been left with no choice but to delegate parenting of their vulnerable children with VI and home management duties to their house helps; many of whom are too young or too inexperienced for the huge responsibilities they have been left to discharge: including seeking out what the family will eat, supervising the children's work and choosing what their bosses will wear to work the following day. One could, therefore, argue that these house helps, who are in many cases adversely underpaid, have become surrogate parents to these children. Quite so often, these house helps are illiterate or school drop-outs. Thus, it is almost impossible for parents of learners with visual impairment to get one having any basic Braille skill, leave alone finding time to learn any Braille for the sake of their children. This innocent boy or girl naturally embraces the feeling of being a lesser member of the family particularly if the sighted siblings will often enjoy assistance with their homework by their parents, and yet whenever she/he asks for the same, the parents are helpless in Braille code knowledge. Very demoralizing indeed, thus, Craig and Harrison (2003) warn that a child's attitude towards any subject learned at school is improved by parents at home, if they have knowledge of the same. From the foregoing therefore, many studies including those by Delphis (2001), Danielson (2006) and Johnson (2007) demonstrate to which extent learners' attitude affects their reading and writing of English Braille. However, other than falling short of exploring other intrinsic causations, these studies did focus on the learner based challenges with respect to their attitudes towards reading and writing English Braille grade II; in Kisumu and Siaya counties Kenya.

Statement of the Problem

Learners with visual impairment depended on Braille as a medium of instruction and communication. According to the report by the ministry of education, Kisumu and Siaya had the highest number (1232) of learners with visual Impairment(VI) in Kenya. Information from Kisumu and Siaya counties indicated that only 30.6% out of 147 learners enrolled in upper primary classes could read and write English Braille grade II competently. The low percentage could be attributed to certain challenges faced by learners with VI in reading and writing English Braille grade II in Kisumu and Siaya counties. Despite wide difference, there was no explanation for the low percentage of learners who could read and write English Braille grade II in Kisumu and Siaya counties.

It was therefore for this reason that the researcher in this study sought to establish how challenges faced by learners with VI affect them in reading and

writing English Braille grade 11 in special primary schools in Kisumu and Siaya counties.

Purpose of the Study

In consideration to the foregoing problem statement, the purpose of this study was to establish Low Vision learners attitude based challenges towards reading and writing English Braille in Kenya's primary schools for the visually impaired.

Objectives of the Study

This study was guided by the following objective:

- (i) To establish learner attitude based challenges faced by learners with visual impairment in reading and writing English grade II.

Assumptions of the Study

The study was based on the assumption that all teachers in special schools for learners with visual impairment were competent in Braille reading and writing, there was a structured program on the development of Braille reading and writing, and finally, all learners with visual impairment had a chance to undertake Braille reading and writing.

Scope of the Study

The study focused on challenges faced by learners with visual impairments in Braille reading and writing particularly in selected special primary schools for learners with VI, in Kisumu and Siaya counties. The study was carried out in two special primary schools in Kisumu and Siaya counties namely: St.OdaAluor and Kibos School for the blind. It involved a sample size of 147 learners with visual impairment and therefore relied entirely on Braille as medium of instruction and communication.

Limitation of the Study

The assumption of the study that, all teachers in VI schools were Braille competent, turned out a fallacy, but also posing minimal impact; it fairly slowed down the data collection process hence prompting an extra day to finish up the task.

Limitations arising from time and financial resources were well put under check by sourcing for a research assistant and finances upfront, plus burning mid-night oil.

Significance of the Study

The study findings could be significant to among others: Kenya Institute of Curriculum Development (KICD) would receive critical information that would help in adapting the curriculum for learners with visually impairment. The Kenya National Examination Council could get information vital in adaptation of examination questions for learners with visual impairment.

RESEARCH METHODOLOGY

Research Design

This study employed descriptive survey research design to find out challenges faced by learners with visual impairment in reading and writing English Braille grade II in special Primary Schools in Kisumu and Siaya Counties. The descriptive survey research design involves collection of data from a sample of a population with respect to one or more variables (Best & Kahn, 2006). This design was more reliable in giving desired information and answers to the research questions under study, through the purposefully designed questionnaires and interview schedules. This was premised on the fact that an ideal sample population gives information about the whole population. Survey design was also advantageous because it was simple and easy to administer; because questionnaire, “allowed collection of accurate information in a relatively shorter period of time” (Nyewebi, 2009). The use of descriptive survey design enabled the researcher to access accurate information easily, seek opinions, describe, analyze, and interpret information easily and clearly. It’s appropriately linked research concepts and questions with the study, thus making it the most ideal design and more particularly for the area of study in question.

Area of Study

This study was conducted in Kisumu and Siaya counties in the lake region. Kisumu and Siaya counties have a total of 9 special schools namely: Joyland Special, School kibos School for the Blind, Lutheran Special Sch for MH, Maseno School for the Deaf, Maseno Sch for the Deaf Blind, Maseno Mixed Special Unit, Equator-round Special school, St. Oda School for the Blind, Nyangoma School For Deaf out of which only two schools are for the visually impaired learners, one in each of the counties. The study was therefore carried out in two selected Special primary schools for the VI, Kibos School for the Blind in Kisumu County and St. Oda school for the blind in Siaya County.

Study Population

The study was carried out in two special primary schools for learners with VI in the lake region namely: Kibos School for the blind and St. OdaAluor. The target population was 2 Head teachers, 162 learners who were visually impaired.

Sample and Sampling Techniques

Saturated sampling was used to select 147 learners out of 162, (Mugenda&Mugenda, 2003).

Table 1. Population and Sample Frame

Category of Respondents	Target population	Sample selected	Percentage
Teachers	02	02	100
Learners	162	147	90.74

Instruments of Data Collection

The study used questionnaire, interview, and lesson observation schedules as the tools of data collection. These instruments were selected with regard to the information to be collected, time available and objective of the study.

The questionnaire is the best suited for the study as it can be administered to a large population of respondents in a short period of time with not extra personnel (Creswell, 2003). The use of questionnaire allowed the researcher to explore areas of questioning to the respondent to get first-hand information about the objectives of the study. Three types of the questionnaires were used for head teachers, teachers, and the learners.

Learner’s Questionnaire

For learners’ questionnaire, section A, contained question on Braille code, section B, questions on reading words written in Braille grade II, and section C, was dictation on writing using Braille grade II as shown in appendix C, section C. All learners in upper primary were tested on basic Braille grade II to ascertain their ability to read and write English

Braille grade II material, since it is the standard grade of Braille recommended for upper primary classes.

Observation Schedule

Lesson Observation Schedule, on the other hand, was used during observation in class. This allowed the researcher to see for herself the relevant details in class that makes reading and writing of Braille pose diverse challenges to learners with visual impairment, (Connel, 2003), and further reaffirms that class observation allows a researcher to see exactly what respondents actually do rather than say what they do.

Interview Schedule

Interview guide was administered to few respondents with a purpose of collecting in-depth information which is also qualitative

Validity of the Research Instruments

After pre-testing, the research instruments were presented to experts in the department of Special Education, Maseno University, who were conversant with the topic of study. The recommendations made were used to correct the observed errors before the questionnaires were administered in the field for data collection after thorough validation by the experts.

Face and content validity were used to verify the accuracy of the research instruments used in the study

Reliability of the Research Instruments

Reliability of the research tools in this study was established through test-retest. A sample population of 15 learners in the study was presented with the questionnaires. Pearson product moment correlations revealed a high positive significant relationship for the learner’s questionnaires, 0.75, at pvalue of $p \leq 0.05$ as recommended by Best and Kahn (2006).

Data Collection Procedures

Research permit was obtained from the Ministry of Education Science and Technology (M.o.E.S.T) through the school of graduate studies Maseno University. A courtesy call at the County Director of Education office, Sub- County Director of Education Officer’s Office and the head teachers’ offices in the two counties was thereafter done. Schools were then visited by the researcher to carry out classroom observation interviews and to distribute the questionnaires. For learners’ questionnaire, the researcher with the help of research assistants guided the learners to fill the questionnaire in a single sitting, during which the researcher monitored the task to ensure no consultations were done among the learners. For teachers’ questionnaire, the researcher administered the questionnaire and gave teachers two weeks to fill it after which she collected. The interview schedule was administered to the head

teachers of the two schools, while observation was carried out on different days to ensure that the collected information was adequate in content.

Data Analysis

Data was organized using descriptive statistics which included frequency counts, means, percentages, standard deviations among others. Classroom observations on the challenges faced by learners with visual impairment in reading and writing English Braille grade II was put in tallies and frequencies. Qualitative data collected from interviews were organized to themes and sub-themes as they emerged and reported. Quantitative data was collected using questionnaires and analyzed using descriptive statistics in form of frequency counts, percentages, and means. In scoring the Likert scale scores, positive statements was awarded as follows: Strongly agree (SA)- 5 points, Agree (A)-4 points, Undecided (U)- 3 points, Disagree (D)- 2 points and Strongly Disagree (SD)-1 point.

In the interpretation of the scores above three implied positive attitude, while a score of three implied a neutral attitude while that below three implied negative attitude. Pearson Product Moment Correlation was carried out to determine the relationship between performance in reading English Braille grade II and attitude, the environment, Braille code based challenges, and teacher based challenge.

RESULTS AND DISCUSSION

Learner Attitude Based Challenges

Table 2. Learner’s Attitude towards Reading and Writing English Braille Grade II

Learner’s Attitude	SD F (%)	D F (%)	U F (%)	A F (%)	SA F (%)	M
Learners hate reading and writing Braille grade II material	3(7.3)	29(70.7)	2(4.9)	4(9.8)	3(7.3)	2.3
Learners find it comfortable to read and write Braille grade II material.	9(22.0)	23(56.1)	-	6(14.6)	3(7.3)	2.3
Learners want more time allocated to learn reading and writing Braille grade II.	2(4.9)	19(46.3)	2(4.9)	12(29.3)	6(14.6)	3.0
Learners feel that reading and writing be removed from the time table.	6(14.6)	14(34.1)	4(9.8)	9(22.0)	8(19.5)	3.0
Learners in this school have peers at home who use Braille grade II	3(7.3)	11(26.8)	4(9.8)	15(36.6)	8(19.5)	3.3
Learners in the school have difficulty to use modern technology in reading and writing Braille grade II	7(17.1)	16(39.0)	3(7.3)	10(24.4)	5(12.2)	2.7
Braille reading and writing is affected by other curriculum subjects	5(12.2)	15(36.6)	1(2.4)	15(36.6)	5(12.2)	3.0
Learners in this school complain about Braille grade II	3(7.3)	21(51.2)	3(7.3)	9(22.0)	5(12.2)	3.4
Learners copy notes dictated by teachers	8(19.5)	23(56.1)	4(9.8)	6(14.6)		2.1
Overall mean						2.8

Source: Data 2014

In an art to finding out the learner attitude based challenges faced by learners with VI in reading and

writing English grade selected special primary schools, the researcher sought to establish learners’ attitude based on teachers’ perception. The specific

items included, whether learners enjoyed reading Braille, tests preferred between oral and written exams, allocation of time for Braille on the timetable, learner's belief of Braille grade II, and whether learners complained about Braille code contractions. The results are presented in table 4.2 as shown below. The results in table 3, indicate that most learners, (71%) did not enjoy reading Braille grade II material. This could be as a result of their negative attitudes towards reading Braille grade II. Also, over three-quarters (78%) of them preferred oral to written test items during examinations. It also emerged clearly from the results that slightly over half (51.2%) of the learners underscored that limited time was provided for Braille grade II on the timetable; an aspect that implied inadequate teaching of the Braille grade II. Majority of them (75.6%) denied that they copied dictated notes in Braille grade II. Over half of the sampled teachers (56.1%) conceded very limited use of Information Technology in teaching and learning of Braille grade II. However, considering an overall score of 56% on the Learner Attitude item, it is evident that majority of the learners confirmed a negative attitude towards Braille grade II code. Consequently, this deficiency continues to compromise their mastery of Braille grade II code.

An interview with the sampled head teachers revealed that attitude was a significant problem towards the acquisition of reading and writing English Braille grade II among learners with VI. The head teacher, St. OdaAluor School for the Blind observed that:

“Currently, we have realized that the main problem with the learners is their negative attitude towards Braille due to its many rules that are complicated and numerous contractions. These contractions and norms are many, so even the learners get confused on how to use or apply them. In fact, we had a bright learner who literally hated Braille and yet he was blind, and so it was difficult for him to learn. He developed a negative attitude and eventually we had to involve him in internal Guidance and Counseling and external counselors from the Counsel of Persons with Disability. At the end of his primary circle, the learner changed his attitude and scored 390 marks in the year 2010.”

From the findings, it is clear that the Braille code has many rules and contractions which are not easily understood by learners; hence they get confused on how to apprehend them. This eventually leads to a negative attitude among the same learners. This findings also imply that the learners' attitude is an important factor in learning English Braille grade II, thus when learners develop positive attitude, they are bound to perform better and this is why the cited

learner improved and performed better on change of attitude from negative to positive. When there is a change in attitude from negative to positive, the learner's ability to acquire Braille grade II skills and good performance improves and therefore they no longer find a problem in learning the many rules and Braille contractions. When the learners develop positive attitude, they willingly engage in listening reading and liking English Braille grade II. Activities in a view of mastering Braille grade II skill, therefore when tested, they are likely to excel. This confession shows that negative attitude has stood out as one of the major factors that hinder learner's ability in gaining competencies in Braille grade II. These findings are in line with those of Danielson, (2006) with other renowned proponents (Corn and Koenig, 2002; Hong, 2004; Koenig and Holbrook, 2000;) who share the view that Braille literacy is declining because of the negative attitude of the learners towards reading and writing Braille Grade II.

CONCLUSION AND RECOMMENDATIONS

Conclusions

Based on the findings of the present research, the study made the following conclusions:

Attitude is a significant factor towards learner's acquisition of English Braille grade II skills and performance. Negative attitude has negative reputation towards learner's ability to read and write English Braille grade II. As per the results, learners perform poorly due to negative attitude. Therefore learners have a negative attitude towards reading and writing English Braille Grade II in the selected special primary schools.

Recommendations

Based on the study findings, a few recommendations were made:

The study highly recommends that learners be introduced to English Braille grade II, at an early stage so as to create positive attitude towards the same.

The study further recommends that English Braille grade II instructions be given first priority in the school timetable, so as to make it as equally important and reduce the challenge of Braille code through allocating more Braille lessons on the time table.

Individualized Education Program should be made mandatory in the instruction of learners with learning difficulties in Braille Code.

Suggestion for Further Studies

i).The study established that negative attitude of learners with VI had an influence on learners' ability to read and write English Braille grade II. The study

therefore suggests further studies to be carried out on the causes of negative attitude among learners with VI towards Braille grade II.

REFERENCES

- Abilu, R. A. (2004). *tools for enhancing English Braille notation skills of teachers and service providers*. Journal of the Association of libraries for the visually impaired, 3(1), 18 - 28.
- Abledata.(2004). Fact sheet on Braille writers, printers and software. Retrieved from http://www.abledata.com/abledata_doc/Braille_Writers_printers_software.htm
- Amato, S. (2002) Standards for competence in Braille literacy skills in teacher preparation programmes: a Journal of visual impairment & Blindness 96.no.3 pg 143-153
- American Printing House for the blind (2007) *annual report* Louis Author.
- Atinmo, M. I. (2000). Availability and accessibility of library resources for the visually handicapped in Nigeria: The way forward. Journal of the association of libraries of the visually handicapped, 1 (1), 15-22.
- Basharu, D. (2000), The state of Braille literacy in Nigeria, paper represented in the international symposium on Braille in age of digitization ,Copenhagen, Denmark. Federal ministry of education,(1981)national policy on education. lagos, Nigeria; government press
- Best, J. W & Kahn, J.V (2000) single subject experimental research in education, 7th ed. prentice hall of India, N.Delhi, 165-180
- Biglow, A. (2005). Blindness in Hopkins B(Ed), *the comb ridge encyclopedia of child development* (pp.409-413).New York Comb ridge University press.
- Boets, B., Wouters, J., De Smedt, B., &Ghesquire, P. (2008). *Modeling relations between Sensory processing, speech perception, orthographic and phonological ability, and literacy achievements: Brain and language*, 106, 29-40.
- Bram, M. (2007).Divergent of development of verbal skills in children who are blind or sighted. Journal of visual impairment& Blindness, 102, 212-225.
- Daily Nation (2011, December 18). *Kenya' richest and poorest counties*. Daily Nation Nairobi, 1770, 1-4.
- Connel, T. (2003). Braille wriing for students who will graduate 2015. [Http://ww.tsbriedu/seehear/fal03/bBraille.htm](http://ww.tsbriedu/seehear/fal03/bBraille.htm)
- Cop pins, N. & Barlow, F. (2006). Reading difficulties in blind, Braille reading children. British Journal of visual impairments, 23, 1-11.
- Corn &Koenig (2002) Literacy for students with low vision; A frame work for delivering instruction: Journal of visual impairments and blindness vol.1 pp96, 305-322
- Daily Nation.(2014). *Inside the worlds first Braille Cellphone*, Daily Nation News Paper Kenya.
- Danielson & Lamb.(2006). Beginning reading/writing for Braille or print readers. A teacher guide to psycholinguistic viewpoint Melbourne: Royal Victoria Institute for the blind.
- Dodd, B. & Conn, L. (2000). *The affects of Braille orthography on blind children's Phonological*, awareness skills of children who are blind. Journal of visual impairment and blindness, 96, 38-49
- Erickson, K. A. & Hatten, D. (2007). *Literacy and Visual Impairment: Seminars in speech and language*.28 (1), 58-68.
- Gerber & Smith, B.C. (2006). *Literacy and controversy: focus group data from Canada proposed changes to Braille code*. Journal of visual impairment and Blindness, 100,459-470.
- HarrisonJ.R.,& Craig G. (2003). *Using distance education for family to improve children Braille literacy*, Journal of Visual impairment and blindness, 97(3)
- Hatlen, P. (2000). *Historical perspectives*. In M. C. Holbrook & A. J. Koenig (Eds.), Foundations of Education: History and Theory of Teaching Children and Youths with Visual Impairments. New York: American Foundation for the Blind.
- Healy (2004) *Multi-literacy pedagogy in practicing primary*, Vol.9, ALBEA.
- Hehir., T. (2002). *Eliminating Albinism in Education* "Harvard Educational Review 72.vol no1 pg 1-32
- Herberg, T. Stough, L & Clark, J. (2004). *Teaching and assessing the appropriateness subcontractedBraille*.pg123-134
- Hong S., Erin J.N. (2004). The impact of early exposure to uncontracted Braille reading on students with visual impairment, Journal of Visual impairment and Blindness, 98(6)
- Johnson, W. & Baldwin, M.(2006). Labor Market Discrimination against Men with disabilities in the year of the ADA. Southern Economic Journal, 66(3), 548

- Okoth, D., Eron, L. & Kutosi, G.W, (2000) *Distance learning special Needs education* Module Nairobi, KISE
- Kenya National Bureau of Statistics, (2009). *The 2009 Kenya Population and Housing Census*.
- Kiumbuki, M. (2014, may 23) *Technology in Brief*. Daily Nation Nairobi, 17947.MOE.
- MoE(2003); *Report on Special Needs Education: appraisal Exercise*, Nairobi, Kenya.
- Koenig & Holbrook (2000) *Assuring quality instructions in Braille literacy programme: journal of visual impairments and blindness* vol.2 pg 94, pg 650-658.
- Lex, G.L. (2009). *The educator*. Journal of Braille literacy via XX11, (22) p 16. International council for for Education of the people with visual impairment (ICEVI). India Judd Street
- Mason, J. (2000). *Shortages of personal in the low vision incidence: Area of blindness. Working and planning together. Teaching exceptional Children*, no. p 91
- Millar's. (2003). *Reading by touch*. New York: Routledge.
- Miller, C & Rash, A (2001). *Reading for everyone: Expanding Braille literacy options see/hear 6: p 22-26*.
- Miller, H. H. (2000). *The music code, in J.Doxon (ed), Braille in to the next millennium: (pp-128-151): National library services for Blind and physically handicapped individuals in North American*, Washington, DC.
- Mugenda O. M and Mugenda G.A (2003). *Research Methods Qualitative and Quantitative Approaches*. Nairobi: African Centre for Technological Studies
- Mwaura, M. & Mweru, J.(2010). *Basic English Braille*, Nairobi, Kenya Institute of Special Education.
- National Reading Panel. (2001). *Teaching children to read*. Retrieved on February 9, 2005 from [http:// www. National reading panel org/ publication summary htm](http://www.nationalreadingpanel.org/publicationsummary.htm)
- Pressley, M. (2006). *Reading instructions that works: The case for balanced teaching 3rd Ed*. New York: Guilford press.
- Riccobono, M. A. (2006). *"Significance of the Braille on the blind: A review and Analysis of Research Based Literature"* unpublished paper, John Hopkins University.
- Sadato, N. (2005). *How the blind "see" "Braille: Lessons from functional magnetic resonance imaging. The neuroscientist*, 11,577-582.
- Spungin, S. J. (2000). *Braille and Beyond: Braille literacy in a larger contest journal of visual impairment and Blindness* vol.6 page (pp) 3.90w,
- Spungin, R. (2003). *The "cannibalism is a line and well in the blindness field"* *Journal of visual impairment and blindness* 97, no 2 page 69-71.
- Stein, J . (2001). *The magnocellular theory of developmental dyslexia: Dyslexia*, 7, 12-36.
- Swenson, A, M & D. Andrea in (2006), *The Braille trail: journal of visual impairment and Blindness* New York AFB.Vol.2 p.38-41.
- Wall Emerson, R, Holbrook, & F.M. (2009) *.Acquisition of literacy skills by young children who are blind: Results from ABC Braille study. Journal of visual impairment and Blindness*, 103,610-624.
- Whitehurst, G. J. (2003). *Classroom literacy environment checklist*. New York: The National centre for learning disabilities, retrieved from [http:// www, get ready to read. Org/pdfs/ School environs scan pdf](http://www.getreadytoread.org/pdfs/Schoolenvironscan.pdf).
- Yibeltal, K. (2012). *Braille in Ethiopia, Challenges and Challenges. The Educator: Braille*, vol.1, pp 30-32, Icevi secretariat professor's colony S.R.K Vidyalaya post Coimbatore 641020 Tamil Naidu, India.
- Young, & Gill on, G. (2001). *Phonological awareness training for the Blind: Instruction manual*. Christchurch, Newzealand: Department of speech and therapy, University of Canterbury.
- Zurita, P. (2009). *Braille wonder and some myths. The Educator: Braille literacy*, vol.xxii, 1, pp 16-17. the International Council for Education of People with visual impairment no. 3 professor's colony palamalai Road, S, R, K.Vidyalaya Postcoimbatore-641020 Tamil Nadu, and India.