

CHALLENGES EXPERIENCED BY VISUALLY IMPAIRED STUDENTS IN EDUCATION

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ABSTRACT

In the present existence, the significance of education is widely recognized among the individuals belonging to various categories and backgrounds. Quality education is necessary for all the individuals to develop and advance in the knowledge driven world. Most of the current educational curriculum is oriented towards the use of eyesight, hence, individuals, who are visually impaired experience challenges when acquiring education. The challenges experienced by visually impaired can be resolved by the use of technologies, materials, devices and equipment. The availability of human assistance in making them understand the concepts and taking exams is vital. The main areas that have been taken into account in this research paper are, visual impairment and its impact on learning, adaptive teaching methods for students with visual impairments, challenges experienced by students with visual impairments, challenges experienced by teachers in working with visually impaired students, aspects of learning of visually impaired students and resolution strategies.

Keywords: Visual Impairments, Education, Teachers, Students, Teaching Methods, Learning

INTRODUCTION

Visual impairments refer to the loss of vision, even when a person makes use of corrective lenses. Visual impairments are the reduced vision caused by eye diseases, accidents or eye conditions present from birth. The students in educational institutions experience numerous challenges and problems as a result of visual impairments and these adversely effects their academic performance. Visual impairment is categorised into blind and low vision. The loss of vision imposes limitations upon students. Learners with visual impairments are the heterogeneous group with varied nature of problems and difficulties that require appropriate attention in the implementation of curriculum and instructional systems in order to perform well academically. The academic performance of the visually impaired students is in a deprived state, they experience problems in not only understanding of academic concepts, but also in the performance of assignments and in taking exams. The problems and difficulties experienced by these students calls for more teachers in special needs education, who are skilled and proficient in the implementation of their job duties(Agesa, 2014).

The teaching of Braille and other tool subjects in which the remaining senses take the place of sight are only the apparent and elementary attempts to meet the needs of the visually impaired students. Special provisions to this group of students must take into consideration all implications of perceptual restrictions, which go far beyond the adaptation of tool subjects. Visually impaired students, who are born without sight or those who have lost their

sight early in life need to build up their conception of the world by the use of their remaining senses. In doing this, they depend almost completely on tactual and auditory perception and kinaesthetic experiences. Although auditory sense provides certain evidences with regards to distance and direction, it does not transfer any existing ideas of objects. The significance of the hearing senses to a student with blindness is to assist verbal communication and aid in undertaking. Hearing therefore, is of limited value in achievement of concrete clues of an object for a blind student (Agesa, 2014).

VISUAL IMPAIRMENT AND ITS IMPACT ON LEARNING

Visual impairment can be defined legally and educationally. It can be congenital, occurring at or shortly after birth or acquired through other means later in life. Some of the congenital causes of visual impairments include conditions like retinopathy, glaucoma, cortical visual impairment, optical nerve hypoplasia etc. Visual impairment can also be acquired later in life as a result of cataract, trauma, accidents, inadequate nutrition and so forth. Before teaching students with visual impairments, it is important for the teachers to acquire information about how the loss in vision influences the teaching-learning processes. Visual information is fundamental in helping children observe and interpret what happens in the environment. It is also an important prerequisite for conceptual development in a student's learning (Mwakyjeja, 2013).

Deformity and destruction of this part of the body, brings about a reduced amount of sensory data to the learner, leading to insufficiency or delay in various skills learned through observing others. This impacts language development, reasoning skills, problem solving abilities and abstract thinking. This finally causes great impact on the individual's learning and performance, because a student cannot perceive and use visual information to interpret various learning situations taking place within the environment (Mwakyjeja, 2013). The teachers, who are working with visually impaired students need to plan the environmental conditions based upon the following factors: (Mwakyjeja, 2013).

Learning Environment –The learning environment should be created in such a manner that students should be able to adapt easily and enhance their learning. The availability of learning materials should be well-organized in order to facilitate learning. When the learning environmental conditions will not be supportive to the students, then their learning will automatically get interrupted. It should contain the technology and the assistive devices, whose utilization will be able to assist students in the acquisition of education. Therefore, there is a need for all the stakeholders in education to consider reformation of the education system to enable these students learn better.

Assessment of Learner's Needs –Assessment of the learner's needs refers to the systematic procedures of gathering and identifying the needs of the learners. Quality teaching can only take place in an effective manner, when the needs, backgrounds and prior knowledge of the learners is known. Assessment of the learning needs of the students with visual impairment, prior to the beginning of the study program is important for both the

students and the teachers. The reason being, it allows for an understanding of the student's academic abilities, approaches, strategies and learning styles.

Individualized Education Plan - Individualized Education Plan (IEP) is a plan of study taken from the general curriculum, which is structured specifically to meet the needs of these students. This plan of study consists of a list of precise goals to be met, and the strategies to be used to meet those goals. Parents and teachers are required to work in co-operation to regulate these specific goals and academic needs of the students to enable a teacher to plan and implement teaching. Team planning and implementation of IEP is vital, if one wants inclusive education for students with visual impairments to be meaningful. However, IEP does not call for individualized teaching, rather it intends to inform educators to be aware of and meet the individual needs of every student in inclusive classroom. General and special needs teachers and parents are collaborators in the preparation and implementation of IEP.

Teaching Collaboration (Co-teaching) - Teaching collaboration (Co-teaching) is an important aspect of inclusive education, because inclusive classrooms comprise of students with different learning needs. A single teacher cannot have all the skills needed to meet students' diverse needs within inclusive classrooms. Co-teaching involves two teachers teaching the same class at the same time. The regular teacher taking responsibility of the main teaching, and a special needs teacher, dealing with disability specific needs of the students. A teacher, who has specialized in visual impairments, should help students with visual impairments learn and understand. A special teacher will be assisting a general teacher in preparation of teaching materials and learning environment for these students. A co-teacher will also be responsible for teaching skills like reading and writing by using Braille, glasses, lenses etc.

Collaboration with Parents - Parents make a major contribution to the education of their children, and are prospective sources of information about the academic abilities of students with visual impairments. Parents are the ones, who know their children well, they know their interests and the things that can prove to be beneficial to them. They also know their educational needs, and can plan their future. They will provide information about social, physical and emotional development. Having obtained this information, a teacher will endeavour to structure and modify his or her teaching to make provision of support and assistance to these students. Teaching and learning methods should not only enhance academic concepts, but also bring about social, physical and emotional development.

ADAPTIVE TEACHING METHODS FOR STUDENTS WITH VISUAL IMPAIRMENTS

The adaptive teaching methods that teachers are required to utilize in order to facilitate learning among visually impaired students have been stated as follows: (Mwakyeya, 2013).

Encouraging Collaborative Learning –Encouragement of collaborative learning among students with different learning capabilities and learning needs in an inclusive classroom has proved to be effective in promoting academic achievement, positive attitude

towards the subjects and in improving social interaction among the students. When individuals are working in collaboration with each other, they are able to devise solutions to their problems and are able to improve their learning. Teamwork and collaboration also helps the students to generate awareness regarding the use of innovative techniques and methods. Individuals come to know about others perceptions and viewpoints, when they work in collaboration.

Using Questions and Answers –Verbal communication among the teachers and the students is regarded as an imperative means of facilitating learning. After providing verbal explanation of the concepts, the teachers should encourage the students to clarify the doubts that they may have. Verbal communication of giving instructions and obtaining answers from the students is also a helpful technique. The teachers should record the answers given by visually impaired students, so that they are able to assess their needs and requirements in a better way.

Sound Projection and Calling Students Names –The teachers need to be clear in their speaking and in addressing the students. The voice of the teachers should be pleasant, he or she should be interesting to listen to, should read out loud and be coherent in providing explanations, and one should avoid the use of vague phrases, such as, this, that or over here. The teachers should make use of simple presentation and communication. The best teaching method is following up on the tasks of the individuals to ensure that they are able to understand the lesson plan in a better way.

Adapting Written Texts - Teaching materials need to be adapted. For example printed text can be adapted through increasing the font size, bolding the text, increasing contrast, adding colour, adjusting spaces between characters and large writing text should be used on the blackboard or visual aids. However, the extent of these adaptations is determined solely by the rigorousness of visual defects and the needs of the students. Therefore, it is important to consult a specialist teacher on preparation of materials prior to the lesson, the reason being, different students use different materials depending on the degree of their visual impairment.

The Use of Audio, Optical and Non-Optical Devices – Verbal learning proves to be beneficial to the students with visual impairments. The incorporation of audio devices primarily assist the teaching processes, these include audio cassettes and compact discs. Optical devices such as, eye glasses, magnifiers and telescopes use lenses to increase a person's residual vision and are normally prescribed by a medical specialist. The examples of non-optical devices include, large prints, Braille and Braille writer, tape recorders, book stands, recorded and talking, books and calculators and computers. The role of both optical and non-optical devices is to improve vision and increase functionality of the students through the use of other senses. It is the role of a teacher to encourage these students to use visual devices and assistive technologies to help them with vision.

The Use of Tactile Materials – Teachers must be aware, that students with visual impairment experience deficiency in conceptual experiences and understanding due to non-appearance of visual ability. Therefore, adaptations of teaching materials becomes principal, if they have to learn all the things other students without visual impairments learn in class. To help this, these students should be taught physically using concrete experiences. Tactile

diagrams are important to understand the images and concepts, which are difficult to explain and describe in words. Therefore, they should apparently be used, when figures and designs are important to understand the concept but also, when the real objects are not available to help teaching. Tactile images or diagrams can be drawn on Braille papers, using a special mat and stylus.

Extra Time Allowance –The students with visual impairments are slow in completing their work. Therefore, extra time allowance is important for them in completing their work, to process visual information and complete their written assignments. Students with low vision take longer time to read a text as compared to students with normal vision. Also reading and writing in Braille as well as getting information from tactile sources for students with blindness is time consuming. At the same time, students with blindness need much time to integrate information coming through hearing. Normally, it is adequate to add half of the time for students with low vision, and twice as much for students with blindness. Many external examinations identify this requirement and give them allowance of up to 100% additional time for students with visual impairments.

CHALLENGES EXPERIENCED BY STUDENTS WITH VISUAL IMPAIRMENTS

Challenges that interfere with the provision of education of students with visual impairments have been stated as follows:

Language Challenges of Visually Impaired Students - There is a lack of material in the area of second language acquisition for visually impaired learners, possibly due to the well-known assumption that students with visual impairment follow the same path of learning as the sighted students. As far as there is proficiency in the acquisition of mother language, a second language will be integrated efficaciously. Students with visual impairment, especially blind, are well prepared to learn a foreign language regarding their hearing sense, which is the essential concept of learning a second language with less or no relation to vision. Language acquired through asking questions improves the verbal skills as asking about things, they cannot observe not only improves visually impaired students' language acquisition but also their complete knowledge ability. The basic essential component of learning is learning words and improving vocabulary, which adds points to the sensitivity memory that this population has (Ghafri, 2015).

Listening and Speaking Challenges - There is nearly an overall agreement among researchers that students with visual impairment do not have any serious problems associated to listening and speaking English skills. In fact, listening is the primary learning method for blind students and a strong helpful tool for visually impaired students. These students significantly rely on auditory data, so they are required to become skilful listeners to surface listening and speaking skills to analyse the incoming data including, facts, figures, structures, forms and details. Speaking is also an important skill that allows them to request the information needed and even transfer the information to others (Ghafri, 2015).

Reading and Writing Challenges –Visually impaired students must learn reading, with the primary purpose to improve their knowledge, and writing skills are enhanced to reflect ones knowledge. However, the reason being, reading and writing skills are the skills that involve the use of visual abilities to acquire them. Students with visual impairment experience many challenges in learning these skills. They read slower than their sighted peers as they usually categorize words at a letter level instead of a complete word level, which makes them pause frequently while reading. Moreover, students experience difficulties in sentence structures and organizing ideas in essays, and their writing tasks tend to be as the spoken texts (Ghafri, 2015).

Lack of Clear Policies on Inclusive Education – With regards to visually impaired students, in some cases, there are lack of formulation of policies and procedures. When the teachers and the staff members are not able to formulate proper measures and procedures that are necessary for the provision of education among the visually impaired students, this leads to numerous challenges. Inclusive education is mentioned in some of the policy documents such as, disability policy and education and training policy, but these policies do not state how inclusive education should be put into practice, scrutinized and evaluated. There is lack of teaching and learning materials that are required for the students with special needs (Mwakyjeja, 2013).

Lack of Knowledge –In visually impaired students, the knowledge regarding various concepts and areas is usually limited. Due to lack of knowledge, they experience problems and difficulties in improving their academic performance. When students are writing an assignment or are engaged in a group discussion, then it is vital that they should generate awareness and possess adequate knowledge of the topic and the areas that are discussed. Lack of adequate knowledge is one of the major challenges that these students experience in education (Mwakyjeja, 2013).

Lack of Resources and Poor Participation of Parents –The visually impaired students, who belong to deprived, marginalized and socio-economically backward sections of the society usually are not able to make provision of resources and materials for themselves, as they do not have a proper source of income. The parents, belonging to these communities are normally not educated and they do not possess the skills and abilities to enhance learning and education among their visually impaired children. When they will not be able to provide for assistive devices, technology and other materials, then the students will be unable to improve their learning and academic concepts (Mwakyjeja, 2013).

Teaching Methods –When teaching methods are not properly used and teachers lack the skills and abilities to deal with visually impaired students, then the students would experience challenges in education. In some educational institutions and within the classroom settings, the teaching methods are not put into practice in an appropriate manner. Teachers are not educated enough in sign language, use of Braille materials, preparation of hearing aids, tactile diagrams and maps and so forth. They themselves experience challenges of inclusive teaching. The inadequacy of teacher education gives rise to challenges within the course of acquisition of education by the visually impaired students (Mwakyjeja, 2013).

Labelling and Negative Attitudes –In some instances, the development of labelling and negative attitudes prove to be barriers within the course of learning and acquisition of education. Visually impaired students do experience problems in listening, speaking, reading, writing, understanding the concepts and even in communicating with others. Due to these problems, they may develop negative attitudes towards educational institutions, subjects, materials, teaching-learning methods and instructional strategies. Due to negative attitudes, they may even discontinue their education and drop out of school (Mwakyeja, 2013).

Lack of Teacher Collaboration and Rigid Curriculum –Within the job settings, it is vital for all individuals to work in collaboration. They need to exchange valuable and useful ideas and suggestions, so that one may make ones work performance efficient and are able to meet the desired objectives. When there is lack of collaboration among teachers and availability of rigid curriculum, then the visually impaired students may experience problems in understanding the concepts and may not feel comfortable within the school environment. The curriculum and the instructional systems should be formulated in accordance to the needs and requirements of the students and should be manageable (Mwakyeja, 2013).

Other Challenges –Tools and equipment used to evaluate students in inclusive classrooms are inflexible, unyielding and unadaptable. Students are not evaluated on the basis of their individual capability and specific educational needs, but on the basis of their performance in class tests and assignments. A normative kind of assessment seems to dominate in these classes. The classes, where there are large number of students also have to be included. This has been a major challenge towards inclusive education in many countries, primarily the third world countries (Mwakyeja, 2013).

CHALLENGES EXPERIENCED BY TEACHERS IN WORKING WITH VISUALLY IMPAIRED STUDENTS

The challenges experienced by teachers, when they are teaching and guiding visually impaired students have been stated as follows: (Yalo, Indoshi, Agak, & Were, 2010).

Difficulties in Writing on Straight Lines – The Braille language that is used by visually impaired students, involve writing on straight lines. The teachers, who are experienced and have practice of writing on straight lines, usually do not experience problems, but those who are novice in this area, and do not have experience, would have difficulties in writing on straight lines, as a result of which, they would not be able to provide adequate knowledge and information to the students. Therefore, it is vital for the teachers to master the skills necessary in teaching, training, instructing and guiding students with disabilities.

Tire Quickly due to Close Working Distance –The teachers, who are working with visually impaired students mainly find their work duties challenging. They are required to work diligently, conscientiously and resourcefully with the students with disabilities, so that they are able to render an effective contribution in improving their knowledge and understanding. They find their job duties demanding and as a result of which feel fatigue and exhausted. At home, teachers are required to prepare the lesson plan, so that they can make

the students understand well. In educational institutions, the students depend upon the teachers to a major extent to improve their academic skills.

Crowded Diagrams in Course books – The course books that have been used by visually impaired students, usually have images, figures and diagrams that are not clear and their explanation is also not adequately provided. When the explanation is not lucid and coherent in textbooks, then the teachers themselves experience problems and challenges in acquiring understanding of the concepts. This is apparent that when the teachers themselves, will not be able to understand the concepts better, then they will not be able to make the students understand. Therefore, it is vital that course books and textbooks for the visually impaired students as well as for the teachers working with them should be coherent and information should be understandable.

Unable to Complete the Course Curriculum in the required Time – The visually impaired students are slow in learning and understanding the concepts. It is vital that teachers should be well prepared with the information before they come to class. When the students are large in number, then teachers are required to work really hard in enabling them to enhance their learning and in completion of the course curriculum. Teachers usually experience problems in the completion of the course curriculum. They have to ensure that students have acquired thorough understanding of concepts and are not just required to complete the course curriculum and fulfil their job duties. The course curriculum can be completed within the allotted time by implementing effective teaching-learning processes and making sure students pay adequate attention and listen carefully when the teacher is teaching.

Lack of Reading and Writing Stands – In educational institutions and classrooms of visually impaired students, it is vital to provide proper teaching and instructional materials. During the initial stage, the most important aspect of learning is to ensure students are able to improve their reading and writing skills. In order to make improvements in these skills, the institutions need to make use of reading and writing stands. The materials that improve these skills among the visually impaired students should be encouraged in educational institutions, as reading, writing and solving numerical problems are stated as the basic literacy skills.

Scanning with Low Vision Devices – Scanning with low vision devices are challenging for the teachers. The lack of low vision devices lead to low expectations from the learners. The low vision devices are the technologies that are of use to visually impaired students. These students may use them to facilitate their learning and to meet the expectations of the teachers. When there are lack of devices, then teachers, who are working with learners with low vision are required to come up with the strategies of keeping the low vision devices in a safe condition.

Lack of Controlled Lighting from Classrooms – The classrooms are required to have proper equipment and technology with regards to learning of visually impaired students. The availability of proper infrastructure, heating and cooling equipment in accordance to the weather conditions, restrooms, clean drinking water, technology and other materials that are required to facilitate learning among the students are regarded as essential aspects. The most important aspect is within the classrooms, there should be availability of controlled lighting.

This would help in facilitating learning among the students. When there is lack of controlled lightning, then one would not be able to concentrate upon studies.

Poorly Built Classrooms – Within educational institutions, the learning environment should be pleasant and amiable for the students. The classrooms should be well equipped with proper furniture, seating arrangement, tables, heating and cooling equipment and teaching and learning materials. The availability of proper materials, infrastructure and facilities would help the teachers in enhancing learning among the students. On the other hand, when there is not proper availability of materials and equipment, then the teachers would experience problems and difficulties in facilitating learning. Poorly built classrooms would make the learning environment unpleasant for the students, but it is challenging to the teachers as well in rendering an effective job performance. Along with the availability of proper equipment and infrastructure within the classrooms, it is vital for the teachers to possess an amiable and a congenial nature, especially when working with students.

ASPECTS OF LEARNING OF VISUALLY IMPAIRED STUDENTS

The various aspects that have been highlighted regarding learning of visually impaired students have been stated as follows: (Metatla, n.d.).

Learning Experience–The learning experience of visually impaired students is different as compared to other students. The differences have been highlighted as compared to other sighted individuals. The areas that have been taken into account with respect to learning experience are:

Environment - The classroom environment often needs to be organized so that it accommodates the needs of visually impaired students. While these arrangements are usually stimulated by the physical and technical needs of the students, they could lead to social discontinuation and elimination from group dynamics, if not sensibly thought. Differences in sensory experiences of students with visual impairments and sighted peers was also a relevant topic in this sub-theme, and included the scarcity of sensory stimulation and the influence that this has on decreasing opportunities for incidental learning.

Dependency –The visually impaired students are usually dependent upon others for their learning. In school, these individuals comprise of teachers and at home, they are dependent upon their parents and other family members. Due to the problem of visual impairment, they need support and assistance, in the performance of various activities and especially, when they are going out of the house. The visually impaired students may perform their activities of daily living by themselves, such as, eating, bathing, dressing, toileting and transferring. But in some cases, they need assistance from family members and caregivers.

Group Work –The group work has been classified into three forms, these include, whole class, small group work and working in pairs. In the case of group work, assignments or projects are given to individuals, so that they are able to collaborate and integrate with each other. When individuals work as a group or as pairs, they are able to enhance their learning in an appropriate manner. They are able to share ideas and suggestions with each

other, so that one can augment learning and understanding. Working in groups also arouse pleasure and satisfaction within the mind-sets of the students.

Social Engagement – In this case, emphasis is put upon the fact that social engagement is important for students with visual impairments. These students should feel that they are part of the social group and should not feel isolated. It is vital to make them realize that their disability will not become a barrier within the course of implementation of their tasks and functions.

Social Barriers – There may be occurrence of social barriers within the course of effective communication and social engagement. The barriers may be lack of information and awareness, inability to understand various areas and concepts, inability to make use of technology or other devices and so forth. These social barriers are required to be overcome in order to facilitate effective social engagement. The teachers in school and parents at home can help the visually impaired students to overcome the barriers, but it is important that they should develop positive thinking, have an optimistic attitude towards life and develop interest and enthusiasm in learning and in understanding various aspects.

Games and Creative Activities – Games and creative activities are regarded as areas that are important in stimulating the mind-sets of not only sighted students, but even visually impaired students. When they get engaged in sports, games, creative activities or physical activities, they feel pleasurable. These activities contribute in the development of skills among the individuals, so that besides academic concepts, they are able to learn different concepts in order to enrich their lives.

Finding Friends in the Playground – It is important for the visually impaired students to socialize with people and not remain confined within their homes. When they go out into the parks or playgrounds with their family members or friends, they are able to create a social circle. Creating a social circle is an imperative need for these individuals, so that they do not feel secluded or despondent. In educational institutions, there are periods, when these students are made to interact with the other people and get engaged in group work, so that they are able to socialize with the fellow students and develop effective communication skills.

Orientation and Mobility - Orientation and mobility is a vital area of learning. Teachers, who have been specifically prepared to teach orientation and mobility to the visually impaired students are considered important in the delivery of services in this curriculum. Students will need to learn about themselves and the environment in which they move from basic body image to independent travel in rural areas and in towns and cities (Korir, 2015).

Artefacts, Materials and Tools–The visually impaired students are taught how to make use of artefacts, materials and tools. These not only contribute in the development of skills and abilities among the individuals, but they are also able to develop constructive thinking. Academic knowledge and development of skills and abilities among these students, not only contribute in enhancing their living conditions, but they are able to generate a source of income in order to earn their living in an efficient manner.

Cultures and Values—There is provision of inclusive education for students with visual impairments. Changes and transformations usually take place in all aspects within the lives of the individuals. The cultural traits seem to be naturally nurtured by two reoccurring factors, first the problem of reusing the materials and resources and second, by the heterogeneity of needs of students with visual impairments. Getting adapted to the learning environments and the materials is important for these students. They need to develop this determination among themselves that they have to learn and put into practice cultures, norms, values, ethics, standards and principals in the implementation of tasks and duties. These students should possess the viewpoint that they are empowered enough to accomplish their life goals and should not let their disability prove to be an impediment within the course of achievement of objectives.

Roles of Tactile Artefacts - Accessing the curriculum is an apparent role that tactile artefacts play, but there were common matters with utilizing them to access visual displays such as, maps in terms of dealing complications and intricacies. One may use tactile maps as much as one can but the problem is the other students are looking at a much richer map, if one can try to put all of that into tactile, it ends up being just a mass of lines. Tactile artefacts also play a role in supporting access to shared content by providing access to equivalent representations of teaching materials, such as tactile diagrams and maps, and through direct use of certain artefacts that leads to multisensory interaction.

RESOLUTION STRATEGIES

The resolution strategies contribute in helping the visually impaired students to enhance their academic skills. Use of Braille, magnifying glass, human reader, audio cassettes, scanning and reading software are made use of, when one has difficulties in reading the printed material. Instructor or peer narrator is available to help these students learn, when they cannot read the information written on whiteboard. Visually impaired students are usually made to sit close to the whiteboard, so that they are able to understand by listening attentively to the instructors. When the students are unable to take class notes, then lap-top computer is made use of with screen reading software. When they are unable to write the exam, then human scribe is available to provide assistance and magnifying glass is also utilized (Sahasrabudhe, & Palvia, 2013).

In science subjects, such as physics and chemistry, sighted instructor is available to carry out the procedure. In biology, mere theoretical understanding is used to understand the concepts. In understanding the concepts of geometry, enlarged diagrams, home-grown work around of using a chessboard, a woollen thread to create a raised tactile co-ordinated planes, use of spreadsheet applications and row and column structure is made use of to acquire an understanding of the co-ordinated system. Spur wheel is utilised to draw geometric figures. When the visually impaired students experience difficulties in solving mathematical problems, then they make use of math slate, Taylor frame, abacus or talking calculator. In commerce course, when they experience difficulties in solving accounting problems, then the use of spreadsheet application with the screen reader software is made use of to obtain

assistance (Sahasrabudhe, &Palvia, 2013). These resolution strategies prove to be effective and beneficial to the visually impaired students, especially when they are motivated and stimulated towards learning, possess adequate knowledge of how to make use of devices and technology and pay adequate attention when the teacher is teaching in class.

CONCLUSION

The main purpose of this research paper is to obtain information of the challenges experienced by visually impaired students in education. The academic challenges that these students experience are with regards to reading, writing, listening, speaking, lack of knowledge, information, policies, procedures, ineffective teaching methods, lack of resources and poor participation of parents, labelling and negative attitudes, and lack of teacher collaboration and rigid curriculum. These challenges can be resolved by possessing effective communication skills, paying adequate attention in class, sitting in front, close to the whiteboard, making appropriate use of technology and other assistive devices. In academic subjects, it is vital that the textbooks should contain enlarged diagrams and writing, so that students as well as the teachers are able to make use of teaching-learning methods in an appropriate manner.

The selection of the resolution strategies were determined by the number of factors, these include, extent of visual disability, knowledge of Braille, availability of material in Braille, availability of alternative formats such as tactile models, availability of human assistance reader, human scribe, affordability of the solution and perceived usefulness of the solution. In order to overcome the challenges and difficulties, it is vital that these students should be provided with proper support and assistance at home and in school, they should be aware of how to make use of technologies and assistive devices, should develop positive thinking and be motivated towards learning.

BIBLIOGRAPHY

Agesa, L. (2014). Challenges Faced by Learners with Visual Impairments in Inclusive Setting in Trans-Nzoia County. *Journal of Education and Practice*, 5(29), 185-192. Retrieved June 18, 2018 from <https://pdfs.semanticscholar.org/314d/9354dc778aa95432a21abe7bde4c40b23a17.pdf>

Ghafri, M.S. (2015). The Challenges that Visually Impaired Students at SultaqnQaboosUniversity face in Learning English. Sultan Qaboos University. Retrieved June18, 2018 from <https://worldconferences.net/proceedings/gse2015/paper%20gse15/G%20156%20THE%20CHALLENGES%20THAT%20VISUALLY-IMPAIRED%20STUDENTS%20-%20MARYAM%20SAID.pdf>

Korir, B.C. (2015). Challenges Encountered By Students with Visual Impairments and Teachers in An Integrated School Environment: A Case Of Integrated Secondary Schools In

Kericho District, Ainamoi Division, Kenya. *International Journal of Education, Learning and Development*, 3(8), 28-40. Retrieved June 17, 2018 from <http://www.eajournals.org/wp-content/uploads/Challenges-Encountered-By-Students-with-Visual-Impairments-and-Teachers-In-An-Integrated-School-Environment.pdf>

Metatla, O. (n.d.). Uncovering Challenges and Opportunities of Including Children with Visual Impairments in Mainstream Schools. University of Bristol. Retrieved June 17, 2018 from http://hci2017.bcs.org/wp-content/uploads/BHCI_2017_paper_123.pdf

Mwakyeya, B.M. (2013). Teaching Students with Visual Impairments in Inclusive Classrooms. A Case Study of One Secondary School in Tanzania. University of Oslo. Retrieved June 18, 2018 from <https://www.duo.uio.no/bitstream/handle/10852/36642/MasterxsxThesis.pdf?sequence=1>

Sahasrabudhe, S., &Palvia, P. (2013). Academic Challenges of Blind Students and Their Mitigation Strategies. *Academic Challenges of Blind Students*, 1-10. Retrieved June 18, 2018 from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.669.3320&rep=rep1&type=pdf>

Yalo, J.A., Indoshi, F.C., Agak, J.O., & Were, C.M. (2010). Challenges and Strategies of Working with Learners with Low Vision: Implications for Teacher Training. *Educational Research*, 1(7), 226-231. Retrieved June 17, 2018 from <http://www.interestjournals.org/full-articles/challenges-and-strategies-of-working-with-learners-with-low-vision-implications-for-teacher-training.pdf?view=inline>