

Original Research Article

An Appraisal of Orientation and Mobility Training on the Daily Living Skills of Persons with Deaf-Blindness in some Communities in the North West Region of Cameroon

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Abstract

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The objective of the study was to investigate the impact of Orientation and Mobility training on the Daily living skills of persons with deaf-blindness. The researcher used a quasi-experimental pre-test –post-test and a simple survey research design. The sample size of the study was 10 persons with deaf-blindness. The sampling technique used was the purposive, accidental and the snow-ball. The instruments for data collection were the structured interview and observational checklist guide. Data was presented using descriptive statistics, frequency tables and charts. Quantitative data was entered using Epidata version 3.1 (2008) and the statistical package of social sciences (SPSS) version 21.0 (2012). Analysis was done using the systematic process of thematic analysis. Crombach Alpha Reliability coefficient was used to determine if the internal consistency of the responses was satisfactory to an acceptable level. Based on this assumption, Alpha should not be less than 0.5 (Crombach 1951). The chi-square of equality and proportion was used to compare between parents responds and observation. Hypothesis was tested using the logistic regression model (LRM) Nana (2018) and the independent t-test to obtain the correlation between Orientation and Mobility skills and daily living skills of persons with deaf-blindness. The results reveals that, before intervention and training, the impact between sensory awareness as an indicator of O&M and the daily living skills of persons with deaf-blindness was not very significant (11) [t = -4.098, d.f. = 8, p-value = 0.003]. After intervention, there was a significant impact between sensory awareness as an indicator of O&M and the daily living skills of persons with deaf-blindness (11) [t = -4.098, d.f. = 8, p-value = 0.003]. It was recommended that, the Government should put inclusive special education laws in to practice and meet the needs of persons with deaf-blindness so as to enhance their daily living skills.

Keywords: Communities, Daily Living Skills, Deaf-blindness, North West Region-Cameroon, Orientation and Mobility

INTRODUCTION

Orientation and Mobility are important skills for everybody, particularly for persons with deaf-blindness. The study aimed at investigating the impact of Orientation

and Mobility Training on Daily Living Skills of Persons with Deaf-blindness in some communities in the North West Region of Cameroon. According to Susan (1998),

Orientation is the ability to know where you want to go, whereas Mobility refers to the ability to move safely, efficiently, and effectively from one place to another. According to Kernisan (2018) activities of daily Living are those Self-Care tasks that people usually learn in early childhood. According to Ndam (2015) Deaf-blindness therefore, is a physical damage to the ears and eyes that limits the person's ability to see, hear, walk, talk, learn, work, etc. These create an adverse effect on the person's ability to carry out normal day-to-day activities. Cameroon and particularly the North West Region, has poor Orientation and Mobility Programs that lead to poor mastery of daily living skills. This work was carried out in the communities, and it was discovered that the informal and non-formal sectors of education are neglected which would have helped persons with deaf-blindness to acquire Orientation and Mobility skills to use in daily living. The Orientation and Mobility concepts that will be considered in this study are; sensory awareness, spatial concepts, sighted guide, and the white cane.

Background to the Study

The education of persons with disability in Cameroon began in an informal setting, especially in the families where some parents, siblings, and caregivers of persons with disabilities, especially those with deaf-blindness applied their traditional training. These family members did their best in caring and teaching persons with visual impairments basic daily living skills, self-help skills, and even applied local means to help them manage their condition fit into the society socially and contribute to nation building (Yuh and Shey, 2008). Special education is tailor-made to fit the unique learning strength and needs of students with disabilities (of mental, physical and sensory origin) (Ndam, 2015). However, when a child has dual sensory loss (deaf-blindness), he/she will have communication, Orientation and Mobility problems that affect their daily living skills. The researchers discovered that most of the persons with deaf-blindness are found in the community. Since education does not only take place in schools but also in the community, the researchers discovered that the informal and non-formal sectors of education in our communities were silent. Persons with deaf-blindness are not involved in formal education because the materials are not available to meet their needs. This hindered them from participating in daily living chores.

Historically, the Individual with Disability Educational Act IDEA (2017) officially defined the deaf-blindness as, concomitant/simultaneous hearing and vision impairments, the combination of which causes such severe communication and other developmental and educational needs that they cannot be accommodated in special education programs solely for children with deafness or children with blindness. Keller (1880-1968) was one of

such individuals. The condition may have been from birth, or due to some deterioration later in life. The amount of loss in either vision or hearing will vary from person to person (National Dissemination Centre for Children with Deaf-blindness (NDCHCY, 2018). But some persons with deaf-blindness have some partial vision or hearing. According to the same quotation, deaf-blindness is a rare condition among young people, but more frequent among older people.

The participation and education of persons with deaf-blindness has been a failure throughout the years. Thus, with the advancement of knowledge, certain inclusive education laws have been enacted to help persons with disabilities accepted in the society. According to article 26 of the United Nations Universal Declaration of Human Right (1948), everyone has the right to education. But children with deaf-blindness in Cameroon don't have access to education because there is no school that could meet their needs. According to article 19 of the United Nations Convention of the rights of persons with disabilities (1989), there should be equal right to all persons with disabilities to live independently in the community with choices equal to others and shall take effective and appropriate measures to facilitate full enjoyment by persons with disabilities and full inclusion and participation in the community. These laws are only mentioned in theory and not put in-to practice to help PWDB. The Government has not put in place the necessary resources and institutions to cater for the needs and wellbeing of persons with deaf-blindness. Thus, they are traditionally excluded from the ordinary school system. There are no schools or institutions for persons with deaf-blindness in Cameroon that could help them learn daily life skills. Thus, among some ethnic groups, such children at birth were thrown into the evil forest or rivers for fear of isolation and traditional beliefs. Consequently, they remain in the community and continue to face difficulties coping with their daily living skills.

Conceptually, this work was supported by the concept of Orientation and Mobility, daily living skills and deaf-blindness. IDEA (2004) considered Orientation and Mobility Training as the services provided to persons with visual impairments to systematically attain Orientation to and safe movement within their vicinity in home, school, and community. Telleson (2015) noted that Orientation and Mobility (O & M) are lifelong processes that begin as early as the first few months of life.

Orientation and Mobility training actually begun in the 1950s during and after World War II when many U.S. soldiers who had been blinded in battle were sent to hospitals in Valley Forge and Dibble, then a rehabilitation program for the blind in Avon, Connecticut was created to cater for the needs of that category of people (Sauerburger, 1997). In Cameroon particularly, persons with deaf-blindness do not have access to formal education due to inadequate human and financial

materials to make them learn O and M skills in daily living.

The concept of daily living skills (ADLs) was originally proposed in the 1950s by Sidney Katz and his team at the Benjamin Rose Hospital in Cleveland. Activities of daily living (ADLs) are basic self-care tasks that people usually learn in early childhood. They include feeding, toileting, selecting proper attire, grooming, putting on clothes, bathing, walking, transferring (such as moving from bed to wheelchair) (Kernisan and Spencer-Scott, 2018). Persons with deaf-blindness required effective communication, Orientation and Mobility in order to perform the activities of daily living.

Dammeyer (2017) noted that, deaf-blindness or dual sensory loss is a combination among young people, but more frequent among older people. To him, deaf-blindness is a heterogeneous condition that varies with regards to time of onset and degree of hearing and vision impairment, as well as communication mode, and severity of co-mobility. According to this quotation, deaf-blindness often leads to barriers in O&M, access to information, social interaction, and daily living skills, which can lead to a number of health related difficulties. According to Myklebust (1964) children with deaf-blindness from a rejecting family have few opportunities to learn and to practice anything they may have learned. According to Dare and O'Donovan (2002) Deaf-blindness was also viewed as God's punishment to the individual and family, while other communities view them as people having some mystical powers attributed to them.

Contextually, Inclusive education is internationally well established, however it is highly contested and driven by a range of contextual factors entrenched in educational, political, social, economic, cultural, linguistic, health and socio-historical development that vary from one country to another (Ndame, 2012). Persons with deaf-blindness have serious challenges which may be due to poor Orientation and Mobility training. In June 1994, representatives from 92 Governments and 25 international organizations formed the World Conference on Special Needs Education, which was held in Salamanca, Spain. All parties agreed that a dynamic new statement to include all learners with special needs into regular classrooms including the deaf-blind needed to be created. This resulted in the Salamanca Statement under the auspices of the UNESCO (1994). The 1993 United Nations Standard Rules on the Equalization of Opportunities for Persons with Disabilities which urges states to ensure that education of people with disabilities including the (deaf-blind) is an integral part of the educational system.

Theoretically, Orientation and Mobility theories like Robert Havighurst's Developmental Task Theory (1972), Theory of Mind by Franc Amat, (2020), The Self-determination Theory by Kendra Cherry (2019) and three

theories of daily living skills which includes; The theory of symbolic interactionism by Charles Horton Cooley (1864-1929), The Exchange Theory of George Caspar Homan's (2019) and The Rational Choice Theory by James S. Coleman (1926-1995) will be used to explain the phenomenon under investigation.

Statement of the Problem

Persons with deaf-blindness are the same like any other person and are supposed to participate in daily life activities independently preserving and maximizing their remaining senses and with assistive devices like the white cane, sighted guide, hearing aid and other support services like Orientation and Mobility services. Jay Gense and Marilyn (2004) noted that O and M instruction provides students who are deaf-blind with a set of foundational skills to use residual visual, auditory and other sensory information to understand their environment. An Orientation and Mobility specialist provides training that is designed to develop or learn the skills and concepts that persons with deaf-blindness need to travel safely and independently through his/her environment.

But in the context of Cameroon, the researcher noticed that they are not well trained in the use of Orientation and Mobility that could help them access these devices and services. Within Cameroon contemporary society, there is little appreciation that disability is fundamentally an issue rooted in human life. The common perception held by policy makers and the public at large is that people with disability issues are viewed in terms of charity and welfare. This stands against their participation in daily life activities. She noticed that the informal sector of education in the community that would have helped them gain some of the skills used for independent living were silent. This neglect makes them have little knowledge on environmental awareness and ability to move around, living skills, are perceived as dependent, isolated, have low self-esteem, resulting in their continuous begging on the street. Because of this worry, the researcher found that an investigation on the impacts of Orientation and Mobility Training on the daily living skills for persons with deaf-blindness was essential, hence the justification for the present study.

Research Objectives

General Research Objectives

To investigate the impact of Orientation and Mobility Training on the daily living skills of persons with deaf-blindness.

Specific Research Objectives

- To investigate the impact of sensory awareness training as an indicator of Orientation and Mobility on the daily living skills of persons with deaf-blindness.
- To examine the impact of spatial concepts training as an indicator of Orientation and Mobility on the daily living skills of persons with deaf-blindness
- To find out the impact of sighted guide training as an indicator of Orientation and Mobility on the daily living skills of persons with deaf-blindness.
- To assess the impact of white cane training as an indicator of Orientation and Mobility on the daily living skills of persons with deaf-blindness.

Review of Related Literature

The concept of sensory awareness as an indicator of Orientation and Mobility

Sensory awareness includes any activity that stimulates your young child's senses: touch, smell, taste, movement, balancing, sight, and hearing. In this study, sensory awareness is a skill that helps persons with deaf-blindness to be aware of their environment by making use of the five senses. Hull and Hull (1973) persons with severe disabilities like deaf-blindness may experience frustration in trying to express themselves to other people.

The concept of spatial concepts as an indicator of Orientation and Mobility

According to Sykes & Ozoji (1992) basic concepts related to Mobility should include body awareness, body parts, laterality and directionality whereas, those related to Orientation include positional and related concepts, concept of shapes, measurement, topography, texture and temperature, as well as compass direction and cardinal points guide. Concept development is the mental representation of what something should be (Hill and Blasch 1980).

The Concept of sighted guide as an indicator of Orientation and Mobility

Sighted guide is a technique originally developed for people who are blind or deaf-blind. In this work, a sighted guide is a sighted person who helps a person with visual or deaf-blindness to move around safely and get access to day to day activities.

The concept of white cane as an indicator of Orientation and Mobility

According to deaf-blind information Australia (2020) students are taught various cane techniques to clear one's path or to locate objects along the way. According to Susan, Simmons, Maida and Marathon (2020) going where we want, when we want, gives us control and allows us to make choices.

The concept of daily living skills

The concept of Daily Living Skills (ADLs) was proposed by Sidney Katz and his team (1950) to be a person's daily self-care activities. This was done at the Benjamin Rose Hospital at Cleveland. To Kernisan (2018), activities of daily Living are those Self-Care tasks that people usually learn in early childhood. They include feeding, toileting, selecting proper attire, grooming, maintaining continence, putting on clothes, bathing, walking and transferring (such as moving from bed to wheelchair).

The Concept of Deaf-Blindness

According to Satzer and Guillaume (2016), deaf-blindness is when your child has a problem in both hearing and seeing. It is sometimes called dual sensory loss. He noted that deaf-blindness are of two types. Congenital deaf-blindness occurs from birth meanwhile acquired deaf-blindness is when the problem appears at some point in childhood.

Theoretical review

The Self-determination Theory by Kendra Cherry (2019)

He refers to self-determination as the ability of people to make choices and manage their own life. Self-determination allows people to feel that they have control over their own lives. People are motivated to take actions when they feel that what they do will have an effect on the outcome. But in the context of this work in Cameroon, PWDB lack control over the choices they make due to poor mastery of Orientation and Mobility skills. They depend on others to satisfy their desires in daily living.

The Theory of symbolic interactionism by Charles Horton Cooley (1864-1929)

It holds that the distinct human ability to relate with one another is not only through gestures but also through

significant symbols. Its first fundamental assumption or principle holds that; people act towards things but they do so on the basis of the meaning those things have on them. In the context of this work, PWDB are scared of cooking by the fireside because they are scared that the fire can harm them in one way or the other. Secondly, this meaning comes from our interactions with others. People learn how to cook in school through interaction with teachers and friends. But PWDB who are not exposed to formal education in schools and do not have skills in interacting with members of the community have remained backward.

Empirical Review

Sensory awareness and the daily living skills of persons with deaf-blindness

Sheridan Lachley (2017) carried out a study on "Quality of Life for Persons with Deaf-Blindness: Comparing the Effects of Living with and Without Support Service Providers". Methodologically the researcher used KIDSCREEN Group's (2004) pre-existing survey. Results showed that persons with deaf-blindness with SSPs consistently had higher positive responses than other group of persons with deaf-blindness without

Spatial concepts and the daily living skills of persons with deaf-blindness

Jurmang (2017) carried out a study on Using Orientation and Mobility Concepts and Skills to Enhance the Teaching of Mathematics to Learners with Visual Impairment". The research design used is the pre-test post-test experimental research design. The results of the research showed that the Orientation and Mobility programme enhances performance of learners with visual impairment in mathematics. The experimental group performed better than the control group.

Sighted guide and the daily living skills of persons with deaf-blindness

Grace, Soong, Jan, Lovie-Kitchin and Brown (2000) carried out a study to determine preferred walking speed for assessment of mobility performance: sighted guide versus non-sighted guide technique. Methodologically, the two-way analysis of variance (ANOVA) was used to analyse data. Results showed that, there is no significant difference in preferred walking speed using the sighted guide and non-sighted guide technique.

White cane and the daily living skills of persons with deaf-blindness

Sung Yeon Kim (2012) carried out a study on "Electronic Cane for Persons with Visual Impairments: Empirical Examination of its Usability and Effectiveness". Methodologically, 20 persons with visual impairments with and without prior experience using a white cane participated in a 2x2 factorial mixed-design experiment, in which they use two types of cane (white vs. electronic). Results showed that an electronic cane was more effective in avoiding obstacles than a white cane for both experienced and inexperienced users, and previous experience with a white cane was found to be beneficial for timely task completion.

Isaac Attia (2020) carried out a study on "The White Cane: Its Effectiveness, Challenges and Suggestions for Effective Use: The Case of Akropong School for the Blind". By employing the descriptive quality design, findings were drawn from 12 participants who were pupils of the Akropong school for the blind in Ghana. Results showed that persons with visual impairments have environmental challenges when using the white cane.

RESEARCH METHODOLOGY

The quasi- experimental pre-test – post-test and a simple survey research design was used for this study. The area was the North West Region of Cameroon. The population comprised of all persons with deaf-blindness in the North West Region of Cameroon. Accessible population comprised of persons with deaf-blindness in some communities in the North West Region. A sample size of 10 persons with deaf-blindness was used for this study. The sampling techniques used were the purposive, accidental and snowball. Structured interview and observational checklist guide was used for data collection. Validation of instruments was done following the face, content, construct and social validity. A pilot test was done to test the instruments. For administration, a letter from the Head of Department (HOD) was presented to explain the purpose, aim, and advantages of this study to education and to persons with deaf-blindness. The researcher constructed an action plan for experimental research design, followed by the master plan of activities, individual lesson plans for all the indicators, pre-test, training and post-test. Data were analysed using descriptive statistics, inferential statistics and thematic analysis. Ethical issues were made to ensure the effectiveness and quality of the study.

PRESENTATION OF FINDINGS

The below table 1 presents the results of the independent t-test that tested the mean difference between the

Table 1. Mean comparison of pre-test and post-test for the experimental group on sensory awareness

SENSORY AWARENESS		Levene's Test		t-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Equal variances assumed		1.216	0.302	-4.098	8	0.003	-4.600	1.122	-7.188	-2.012

Table 2. Mean comparison of scores of the experimental group on spatial concepts

SPATIAL CONCEPTS		Levene's Test		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Equal variances not assumed		32.508	0.000	-11.206	4.000	0.000	-7.600	0.678	-9.483	-5.717

Table 3. Mean comparison of scores of the experimental group on the usage of a sighted guide

SIGHTED GUIDE		Levene's Test		t-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Equal variances assumed		0.526	0.489	-5.715	8	0.000	-4.200	0.735	-5.895	-2.505

Table 4. Mean comparison of scores of the experimental group on the white cane

WHITE-CANE		Levene's Test		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Equal variances assumed		0.696	0.428	-2.132	8	0.066	-2.000	0.938	-4.163	0.163

sensory awareness of the experimental group before and after the training. The results indicated that their scores had similar variances, thus the results assuming equal variances was used; the t-test statistic indicated that there was a significant difference in their mean performance before and after the training ($t = -4.098$, $p = 0.003$). this indicated that the training had a significant impact on the daily living skills of the subjects; thus, the null hypothesis was rejected in favour of the alternative hypothesis. Therefore, it was concluded that sensory awareness training as an indicator of Orientation and Mobility has a significant impact on the daily living skills of persons with deaf-blindness.

The above table 2. presents the results of the independent t-test that tested the mean difference between the knowledge on spatial concepts of the

experimental group before and after the training. The results indicated that their scores had different variances, thus the result not assuming equal variances was used; the t-test statistic indicated that there was a significant difference in their mean performance before and after the training ($t = -11.206$, $p = 0.000$). this indicated that the training had a significant impact on the daily living skills of the subjects; thus, the null hypothesis was rejected in favour of the alternative hypothesis therefore it was concluded that the training on spatial concepts as an indicator of Orientation and Mobility has a significant impact on the daily living skills of persons with deaf blindness.

The above table 3. presents the results of the independent t-test that tested the mean difference on the usage of a sighted guide of the experimental group

before and after the training. The results indicated that the scores had the same variances, thus the result assuming equal variances was used; the t-test statistic indicated that there was a significant difference in their mean performance before and after the training ($t = -5.715$, $p = 0.000$). this indicated that the training had a significant impact on the daily living skills of the subjects; thus, the null hypothesis was rejected in favour of the alternative hypothesis therefore it was concluded that the training on the usage of a sighted guide as an indicator of Orientation and Mobility has a significant impact on the daily living skills of persons with deaf blindness.

The above table 4 presents the results of the independent t-test that tested the mean difference on the usage of a white cane of the experimental group before and after the training. The results indicated that the scores had the same variances, thus the result assuming equal variances was used; the t-test statistic indicated that there was no statistically significant difference in their mean performance before and after the training ($t = -2.132$, $p = 0.066$). This indicated that the training did not have a significant impact on the daily living skills of the subjects; thus, the null hypothesis was not rejected therefore it was concluded that the training on the usage of a white cane as an indicator of Orientation and Mobility has no significant impact on the daily living skills of persons with deaf blindness

DISCUSSION OF FINDINGS

Specific Research Question One: How does sensory awareness as an indicator of Orientation and Mobility affect the daily living skills of persons with deaf-blindness?

During the pre-test, the multiple response set presented an overall of 90% inability to use the sensory awareness, and a 10% mild ability. After the training, the multiple response set showed 44% inability to use sensory awareness and 56% mild ability. Looking at the amount of change, there was a 23% reduction in their inability to use sensory awareness and a 23% increase in their mild ability. However, no subject could master his/her sensory awareness skills very well before and after the training. Therefore, persons with deaf-blindness should be trained in sensory awareness since it will lead to a mild positive impact on their daily living skills.

Specific Research Question Two: In what way do spatial concepts as an indicator of Orientation and Mobility affect the daily living skills of persons with deaf-blindness?

The table above presents the multiple response set of the experimental group on spatial concepts. During the pre-

test, the multiple response set presented an overall of 100% inability to use spatial concepts, and 0% mild ability. After the training, the multiple response set showed 34% inability to use spatial concepts and 56% mild ability. Looking at the amount of change, there was a 66% reduction in their inability to use the spatial concepts and a 56% increase in their mild ability. However, no subject could master spatial concepts very well before and after the training. This indicates that spatial concepts training will lead to a positive change in the daily living skills of persons with deaf-blindness.

Specific Research Objective Three: To what extent do sighted guides as an indicator of Orientation and Mobility affect the daily living skills of persons with deaf-blindness?

During the pre-test, the multiple response set presented an overall of 80% inability to use the sighted guide, and a 20% mild ability. After the training, the multiple response set showed 38% inability to use sighted guide and 62% mild ability. Looking at the amount of change, there was a 42% reduction in their inability to use the sighted guide and a 42% increase in their mild ability. However, no subject could master his/her sighted guide skills very well before and after the training. Conclusion is drawn that there is a significant impact on sighted guide training and the daily living skills of persons with deaf-blindness.

Research Question Four: To what extent does white cane as an indicator of Orientation and Mobility affect the daily living skills of persons with deaf-blindness?

During the pre-test, the multiple response set presented an overall of 88% inability to use the white cane, and a 12% mild ability. After the training, the multiple response set showed 56% inability to use the cane and 44% mild ability. Looking at the amount of change, there was a 32% reduction in their inability to use the white cane and a 32% increase in their mild ability. However, no subject could use the white cane very well before and after the training.

CONCLUSION

The findings indicated that, before the intervention, their training programme had a lot of difficulties in movement within their environment as well as interaction in the said environment. As a result of the intervention, there was a significant change in most of the aspects that surrounded their movement and awareness; the aspects of sensory awareness, spatial concepts, and sighted guide improved mildly at a significant rate. However, the use of the white cane underwent improvement but it was not at a

statistically significant rate. Thus, the findings indicated that Orientation and Mobility training have an impact on the daily living skills of persons with deaf-blindness.

REFERENCES

- Abosi (1978). *Special Education and Vocational Rehabilitation*. Codat Publications, U.I.P.O. BOX 9400, Ibadan Nigeria. ISBN: 978-196-048-5 Limp
- Carolina M (1998). *Orientation and Mobility for Pre-school Children* Carmen, W., (2019). *Teaching children with visual impairments*. Teachingvisuallyimpaired.com
- Dammeyer J (2010). Interaction of Dual Sensory Loss, Cognitive Function and Communication in People who are Congenitally Deaf Blind. *J. Visual Impairment and Blindness*, 104 (11), 719-725.
- Dammeyer J (2014). Deaf blindness: Review of Literature. *Journal of Public Health*. University of Copenhagen.
- Deafblind information Australia (2020). *About Deaf-Blindness: Orientation and Mobility*.
- George Horman C (1910-1989). Contemporary theories on everyday life. [www.researchgate.net>publication](http://www.researchgate.net/publication)
- Grace PS, Jan E LK, Brain B (2000). *Clinical and experimental optometry: Preferred Walking Speed for Assessment of Mobility Performance: Sighted Guide Versus Non Sighted Guide Technique*.
- Hill E, Blasch BB (1980). *Concept Development. Foundation of Orientation and Mobility*. New York: American Foundation for the Blind.
- Hull and Hull (1973). *Special Education and Vocational Rehabilitation. Social and Vocational Implications of Speech Disorders*. Codat Publications, U.I.P.O. BOX 9400, Ibadan Nigeria. ISBN: 978-196-048-5 Limp
- Individuals with Disability Education Act (IDEA) (2013-2017). *Special Education Guide*. Retrieved on August 18, 2017 at 10.30pm from <https://wwwwww.specialeducationguide.com/disability/profile/deaf/blindness/>. All Rights Reserved.
- Isaac A (2020). The white cane. Its Effectiveness, Challenges and Suggestions for Effective Use: The Case of Akropong School for the Blind. *J. Edu. Soc. Behavioural Sci.* Doi: 10.9734/JESBS/2020/v33i330211
- James S. Coleman (1926-1995). Contemporary theories in everyday life. [www.annualreviews.org>org>doi>pdf](http://www.annualreviews.org/org/doi/pdf)
- Jay G, Marilyn G (2004). *The Importance of Orientation and Mobility Skills for Students Who are Deaf-Blind*. The National Centre on Deaf-blindness.
- Jurmang IJ (2017). Using Orientation and Mobility Concepts and Skills to Enhance the Teaching of Mathematics to Learners with Visual Impairment *J. Special Needs Education and Rehabilitation Sciences (Josers): Department of Special Education and Rehabilitation Science of Jos, Nigeria..* Volume 1, No 1.
- Kernisan L (2018). *Activities of Daily Living: What are ADLs and IADLs?* Retrieved on August 18, 2017 at 10.30pm from <https://www.caring.com/articles/activities-of-daily-living-what-are-adls-and-iadls>.
- Myklebust (1964). *Special Education and Vocational Rehabilitation*. Codat publication U.I.P.O. BOX 9400, Ibadan Nigeria. Factors Affecting the Development of Hearing-Impaired Children.
- National Dissemination Centre for Children with Disabilities (NICHCY). (2013-2018). *Special Education Guide: All Rights Reserved*. Retrieved From on August 18, 2017 at 10.30pm <https://special.educationguide.com/disabilityprofile/deafblindness>.
- Ndame T (2012). Whole School Inclusion. A case study of two secondary schools in Cameroon.
- Ndame T (2015). A – Z Mini Professional Dictionary of Special and Inclusive Education. Gospel Press Bamenda, Cameroon. 1st Edition. Ndametom@yahoo.com
- Ndame T (2015). *Individualized Educational Plan: Special and Inclusive Education*. 1st Edition, Gospel Press, Bamenda, Cameroon, Ndametom@yahoo.com
- Satzer D, Guillaume DJ (2016). Hearing Loss in Hydrocephalus: A Review, with Focus on Mechanisms. *Neurosurgical Review*, 39, 13-25
- Sauerburger D (1997). *O&M Living History—Where Did Our O&M Techniques Come From?* Retrieved August 1st, 2017, from <https://www.sauerburger.org/dona/omhistory.htm>.
- Sheridian KL (2017). Quality of Life For Persons With Deaf blindness: Comparing the Effects of Living With and Without Support Service Providers. Western Oregon University.
- Special Education Guide, (2020). *Deaf blindness*. All Rights Rights Reserve.
- Sung YK (2012). *Electronic Cane for Persons with Visual Impairment: Empirical Examination of its Usability and Effectiveness*. Human Centric Technology and Service in Smart Space. Pp71-76
- Susan S (1998). *Orientation and Mobility for Pre-school Children* <http://www.blindcntr.org/bcc/pubs.htm>
- Susan S, Simmons, Ph.D. Sharon O'Mara Maida, M.Ed., Marathon St., Los Angeles (2020). *Reaching, Crawling, Walking...Orientation and Mobility for Preschool Children*, CA 90029, Phone (213) 664-2153 or (800) 222-3566, web page <http://www.blindcntr.org/bcc/pubs.htm>
- Tellefson M, Brown C, Bowman E, Bellah E (2015). *Learning to Move, Moving to Learn. (Slide Presentation)*. In Introduction to Orientation and Mobility for Interveners– Open Hands, Open Access: Deaf-Blind Intervener Learning Modules. National Centre on Deaf-blindness.
- Tellefson M, Brown C, Bowman E, Bellah E (2015). *Understanding the Bases of Orientation and Mobility Skills. (Slide Presentation)*. In Introduction To Orientation And Mobility For Interveners– Open Hands, Open Access: Deaf-Blind Intervener Learning Modules. National Centre on Deaf-blindness.
- United Nations Universal Declaration of Human Rights (1948). [Lexmercatoria.org](http://www.lexmercatoria.org).
- Yuh E, Shey P (2008). The Education of Persons with Special Needs in Cameroon: A Historical Perspective. *Ajose (Afr. J. Spe. Edu.)* Vol 1. Design House Limbe, 1,27,31.
- Yuh E, Shey PF (2008) The Education for persons with special Needs in Cameroon: A historical perspective *Afr. J. Special Edu.* I (1) 27-31.