Journal of
Education and Practice
(JEP)

Problems and Prospects of Learners with Visual Impairment in Biology Inclusive Classrooms of the Western Highlands of Cameroon

CARI Journals

Journal of Education and Practice
ISSN 2520-467X (Online)
Vol.7, Issue No.5, pp 59 – 87, 2023
www.carijournals.org

Problems and Prospects of Learners with Visual Impairment in Biology Inclusive Classrooms of the Western Highlands of Cameroon

[1]Therese Munga Shallo Tchombe, [2]Shiynyuy Elinis Laila, [3*]Ade Cyril Mancho

[1]Professor Emeritus

[2]PhD Fellow, University of Yaounde I

[3*]PhD

https://orcid.org/0009-0001-5793-4248

Accepted: 24th Aug 2023 Received in Revised Form: 7th Sep 2023 Published: 20th Sep 2023

ABSTRACT

Purpose: This research work seeks to explore Problems and Prospects of Learners with Visual Impairment in Biology Inclusive Classrooms in some Subdivisions of the Western Highlands of Cameroon. Specifically, this study seeks to: Investigates if collaborative practices exist in a Biology inclusive classroom, examines if a tripartite relationship exist between the Biology teacher, LVI, and transcriber in a Biology inclusive classroom, examines constraints that restrict proficiency of LVI in a Biology inclusive classroom, and evaluates the prospects that LVI have in a Biology inclusive classroom.

Methodology: Relevant theories and appropriate empirical reviews utilised guided and instructed the process adopted for the conduct of the research. Primary source of data was collected using questionnaires, observation and unstructured interview on four public and private secondary schools in Bafut, Bamenda, and Dschang subdivisions through the simple convenient and purposive sampling techniques, with sample size of 21 LVI, 20 Biology teachers and 9 transcribers. Data collected was subjected to descriptive and inferential statistics using SPSS version 20 for a one sample T- test.

Findings: Findings revealed that, collaborative practices and tripartite relationship do not exist in Biology inclusive classrooms. On the other hand, findings also revealed that, constraints that restrict proficiency amongst others are: assessment\attitude problems, technology availability /affordability but, LVI still have prospects in an inclusive Biology classroom.

Unique Contribution to Theory, Policy and Practice: Based on the findings, it is recommended amongst others that, a tripartite relationship be built between the teacher, the learner with visual impairment and the transcriber in a Biology inclusive classroom.

Keywords: *Learners, Visual Impairment, Biology, Inclusive Classrooms*

Introduction

The transmission of specific knowledge, skills, and attitudes needed in a society is education. Education plays a key role in developing an individual's talent in any society, be it in Cameroon and the world over. This makes the individual to be relevant in both the public and private sectors. Tchombe (2008) holds that Children and young people of the world with their individual strengths and weaknesses, with their hopes and expectations, have the right to education. Therefore, it is the school system of a country that must be adjusted to meet the needs of all learners. The above author means children are born different in terms of ability but they all have a right to education. Education For All (EFA), is a United Nations Educational, Scientific and Cultural Organizations strategy (UNESCO) to ensure provision of equal and quality education to all children notwithstanding their socio-economic and cultural background, ethnicity or disability condition (visual, hearing, talking impairment).

The visually impaired (VI) need education which will minimize the effect of their disability and develop their powers and potentials adequately. Educating the visually impaired in secondary institutions of learning and in sciences in particular is itself a challenge. One of such challenges in teaching and learning of students with VI could be determined in order to make necessary modifications as regards its prospects. Collaboration, tripartite relationship of the teacher, students and transcriber and some constraints such as availability of teaching and learning resources need to be looked at as regards challenges and the way forward.

Inclusive education is one of the major challenges education systems face to remove social and educational inequalities and maximize active participation and access for all students of education (UNESCO 2017). According to the 2030 agenda for sustainable development, goal 4 states "Ensure inclusive, quality education for all and promote lifelong learning". In the past, most exceptional children were segregated and viewed as "in need of assistance, as objects of pity and entirely dependent on others" (Naicker in Engelbrecht, Green, Naicker, & Engelbrech, 2008). According to Skidmore (2004), these children were mostly cared for by local health authorities in special need institutions. Special need children in most parts of the world have continually faced problems of exclusion which constitute a disadvantage to their socio cognitive development.

Inclusive education is one of the major challenges education systems face to remove social and educational inequalities and maximize active participation and access for all students of education (UNESCO 2017). According to the 2030 agenda for sustainable development, goal 4 states "Ensure inclusive, quality education for all and promote lifelong learning". In the past, most exceptional children were segregated and viewed as "in need of assistance, as objects of pity and entirely dependent on others" (Naicker in Engelbrecht, Green, Naicker, & Engelbrech, 2008). According to Skidmore (2004), these children were mostly cared for by local health authorities in

special need institutions. Special need children in most parts of the. world have continually faced problems of exclusion which constitute a disadvantage to their socio cognitive development.

History holds it that, inclusive education was practiced in churches and charity groups (Nsamenang, 2004). The aim was to protect persons with disabilities from exploitation and abuse or neglect. According to Yuh and Shey (2008), inclusive education was practiced in the pre-colonial era in family settings where some parents and family members of persons with disabilities tried to teach them life skills. With the coming of missionaries in Cameroon, children with disabilities were now being looked at differently. Mission schools opened and started incorporating children with disabilities and special centres were opened by these missions to cater for the needs of these children with disabilities (Tchombe, 2008). Until 1975 when the ministry of social affairs was created in Cameroon, formal education for children with disabilities was mostly done in special institutions which were owned by private bodies or individuals (Tchombe, 2008).

In Cameroon for instance, Law No 2010/002 of 13th April 2010, relating to the protection and welfare of persons with special needs. Chapter III section 24 of the Law states that special need education shall consist in initiating persons with physical, sensory, mental and multiple disabilities to appropriate communication methods in order to enable them to have access to normal general education and later on vocational education. Per this law, certain things are to be put in place to accommodate these children so that they attend normal schools and function smoothly in the school system. But is this the case in most schools today? According to Ndurumo (1987), the term learners with Special Needs in Education is conventionally referred to as exceptional education, currently includes learners with, hearing impairments, Visual Impairments**,** Physical Impairments**,** Cerebral Palsy**,** Epilepsy**,** Mental challenges**,** Down Syndrome**,** Autism**,** Emotional and Behaviour disorders**,** Learning disabilities**,** Speech and Language disorders**,** Multiple handicaps**,** Gifted and talented**,** Deaf blind**,** Orphaned**,** Abused and children Living in the streets.

According to Etscheidt, and Barlett (1999), to accommodate these disabilities, inclusive practices are components of inclusive classrooms\schools and these practices include amongst others collaborative practices and reflective practices. ECU (2013) defines inclusive practices as an approach to teaching that recognises the diversity of students enabling all students to access subject content, fully participate in learning activities and demonstrate their knowledge and strengths at assessment.

This work addresses the visually impaired. There are about 600,000 blind people in Cameroon (Voice of America English to Africa reporter Eugene Nforngwa in Yaoundé November 01, 2009 8:35 AM). According to 2005 census report about 296689 persons are people with VI in Cameroon. (Coordinating Unit Of Associations Of Persons With Disability NWR) In general the

term visually handicapped is used to describe all degrees of visual impairment that is a continuum from severe visual impairment to total blindness.

John Dewey (1916) in his democratic education theory refers to an educational approach which ensures that all learners have equal access to learning opportunities and privileges irrespective of age, sex, colour, race and disability (LVI) and are provided with materials that will enable them cope with academic activities. What the researcher ponders in her mind is whether these processes as postulated by the theorists are true in the teaching and learning of Biology in an inclusive classroom in Cameroon schools. If so why then are learners with VI not motivated to study Biology. Could it be that there are some challenges? Education is considered as the development of the evolved capacities in the individual, which will enable one to control his/her environment and fulfil his/her possibilities to a large extent (Saxton, 2000).

Cameroon has shown theoretical interest on inclusive education by formulating policies such as mainstreaming, family, community and social rehabilitation and by showing the desire to give concrete meaning to the idea of equalising education opportunities for all children irrespective of their physical and mental conditions. Kalabula (2000) asserts that the planning, organisation and orientation of inclusive education has been married by poor funding, lack of information, negative attitudes, and selfish interests among its so called experts. According to law no.2010/002 of April 2010, on the socio–economic integration of persons with disabilities, the state shall take specific measures to guarantee them access to education and vocational training by providing pedagogic support. In this light a call for inclusive education by educational stakeholders is alarming. But is this responsibility taken up with seriousness at the implementation phase?

Smith and Ragan (2005, pg.42) as cited by Tambo (2012) focused on three main concerns in teaching and learning, the learning context, the learner and the learning task. To them teaching and learning of Biology without the situation analysis of the above concepts is like leaping in the dark. The learners are the audience that curriculum targets and so are classified according to their similarities and differences (Tambo 2012). According to learning styles, learners are classified into three main categories namely visual learners, auditory learners and kinaesthetic learners. Although learners use all of their senses to take in information, they seem to have preferences on how they learn best, hence the above classification (Gilakjani, 2012).

Learners without one of the above senses due to genetic and/or neurological factors or injury that alters brain function in a manner that affects one or more processes related to learning are said to have learning disabilities. The results of this may be visual impairment, hearing impairment, reading difficulty, speaking difficulty, spelling and reasoning difficulties, and others. Learning disabilities may coexist with other disorders such as attention, behavioural or emotional disorders, sensory impairments, or other medical conditions (Thakran, 2015; Neeraja, & Anuradha, 2014).

These learners have trouble expressing their feelings, calming themselves down, and reading nonverbal cues, which can lead to difficulty in the classroom and with their peers (Neeraja, & Anuradha, 2014).

Learners ("normal") face so many problems in the course of learning such as cognitive challenges, becoming active learner, coping with reading materials, instructional problem, language barrier, time management, (Sidhu, & Fook, 2015). According to Tchombe (2009), three groups of persons categorises learning difficulties the mentally retarded, gifted children and learning disability. Learners with learning disabilities also face lots of challenges as far as learning is concern. Some of these problems include available services in institutions, **(**Obiozor, Onu, & Ugwoegbu, 2010). Literature reveals that LVI also have their own problems that hinder them from learning smoothly. Some of them include: orientation, transportation, academics, provision of reading material in Braille, soft and audio form, taking examination through different modes and in use of information technology etc (Fatima1, Bashir, Malik, Safder, & Nayab, 2014).

In Cameroon for instance, various laws and policies to take care of teaching and learning of the disabilities for example LVI come in to direct the process on how it should be according to how it is done in other countries. Contextualizing this, the researcher thinks that the burden of this analysis should not only lie at the top but also at the bottom meaning the learner, the transcriber and the teachers should define to the state how the learning task and the learning environment should be. The attainment of learning objectives in a Biology lesson with learners with VI is based on this premise. Looking at Teaching and Learning in a Biology inclusive classroom in Cameroon the knowledge the researcher acquired brought into lamplight the fact that the Didactics of an inclusive classroom should meet the needs of the 21st century inclusive classroom.

Collaborative practices, motivation, modern teaching / learning resources, and tripartite relationship are facets that go a long way to facilitate teaching and learning in the 21st century inclusive classroom. Could the absence of, this be the reason why learners with VI in Cameroon schools complain of their status not being addressed in public examinations (memorandum submitted to the chairman of the GCE BOARD by persons with disability of the northwest region, 2015).

Statement of the Problem

Biology is life and the aim of studying it is to explain the living world in which the human being is part, in terms of scientific principles and be able to distinguish living matter from non-living matter. Every human being is born equipped with the capacity to study Biology and cope with his/her environment.

In the Cameroonian context, accepting learners with disability in general and LVI in particular in a Biology classroom is still a problem. Some secondary schools still find it difficult accommodating learners with VI due to lack of experts and material resources such as Braille materials, thereby limiting their study. LVI who have credible results in Biology in the early years of the first cycle, cannot pursue this field of interest. As such, fields of study in Biology are void of the learners with VI in all state universities. Statistically out of the 12 learners with VI in the University of Bamenda none offers a Biology related field of study (UBa, office of inclusive education, 2017). From 2015, learners with VI were exempted from writing some subjects including Biology in the GCE.

There is gap in the study of Biology between the sighted learners and learners with VI. The researcher has observed with dismay during her educational and professional career that LVI fall off in the study of Biology in particular as they ascend the educational ladder. This could be as a result of the fact that, the school climate and the implementation of educational policies do not take into consideration the needs and interests of persons with VI. Thus, this study explores the problems and prospects of LVI in Biology inclusive classrooms so as to identify pit falls and make recommendations.

Purpose of the Study

This study investigated the problems LVI faced and the prospects they have in Biology inclusive classrooms.

Specific Objectives

Specifically, this study sought to:

- Investigate if collaborative practices which exist in a Biology inclusive classroom
- Examine if the tripartite relationship which exist between the Biology teacher, LVI, and transcriber in a Biology inclusive classroom.
- Examine constraints that restrict proficiency of LVI in a Biology inclusive classroom
- Evaluate the prospects that LVI have in a Biology inclusive classroom

Main Research Question

What problems do learners with VI face and the prospects they have in Biology Inclusive Classrooms?

Specific Research Questions

- To what extent do collaborative practices exist with LVI in a Biology inclusive classroom?

- How is the tripartite relationship between the teacher, learner, and transcribe in a Biology inclusive classroom?
- What are some other constraints that restrict proficiency of LVI in a Biology inclusive classroom?
- What are the prospects that LVI have in a Biology inclusive classroom?

Research Hypotheses

H_{o1}: Collaborative practices do not exist in a Biology inclusive classroom.

H_{a1}: Collaborative practices do exist in a Biology inclusive classroom.

H_{o2}: There exist no tripartite relationship between the Biology teacher, LVI, and transcriber in a Biology inclusive classroom.

H_{a2}: There exist a tripartite relationship between the Biology teacher, LVI, and transcriber in a Biology inclusive classroom.

H_{o3}: There are no constraints that restrict proficiency of LVI in a Biology inclusive classroom.

H_{a3}: There are constraints that restrict proficiency of LVI in a Biology inclusive classroom.

H_{o4}: LVI have no prospects in a Biology inclusive classroom.

H_{a4}: LVI have prospects in a Biology inclusive classroom.

Conceptual Review

Conceptually, the study was focused on problems and prospects of LVI (IV) on one side and a Biology inclusive classroom (DV) on the other side

Tripartite Relationship between the Biology Teacher, LVI and Transcriber

Tripartite relationship is the relationship between the insurer it's insured and the defence counsel engaged by the insurer to represent the insured in a potentially covered third party claim. The defence counsel represents the interest of both the insurer and the insured. This is a three-man relationship (Amy Stewart, 2018). In this study therefore, tripartite relationship is that relationship which exist between the teacher, transcribers and the students with visual impairment. The transcriber stands to bridge the gap of the visual impairment disability between the LVI and the Biology teacher. In the teaching and learning transaction, the biology teachers do not have all the skills necessary for the diverse needs of the inclusive classroom with LVI. A special need teacher s (transcriber) role must be addressed. According to Cormen (2015) the role of the special need teacher (transcriber) for LVI is to provide support to students, teachers, and act as a liaison with the resource centre, interpret medical reports, make recommendations, participate in IEP,

recommend educational and instructional strategies. He is also responsible for teaching skills like reading and writing in Braille, labelling laboratory equipment, transcribing print material and Braille information, using glasses and lenses, designing some diagrams, No doubt Lewis and Little (2007) say that teachers are not educated enough in the use of Braille material, preparation of tactile diagrams to be able to face the challenges of teaching students with visual impairments. The simplest way for teachers to cooperate with the visually impaired learners in a biology class and the laboratory in particular is to make sure that safety issue is a priority. New Brunswick Association Community Living (2007) pointed out that, there is lack of cooperation amongst teachers who teach inclusive classrooms and this is due to scarcity of special needs teachers e.g. transcribers and lack of commitment towards inclusive teaching by most regular teachers .This means that if a transcriber (special need teacher specialized in VI) does not cooperate with the various actors in the school, they will face challenges in preparing learning environments, teaching and learning materials, dealing with the VI specific problems to improve their academic performance. In addition to the benefits for the students learning, academic and social outcomes, Gehrke and McCoy (2007) suggest that networking with general education teachers (biology teacher) will keep special education teachers motivated to stay in the workforce. He goes further to say that "A special need teacher is one who has received certificate on special training in meeting the needs of learners with VI. Certain general considerations apply to all students with disabilities entering a science course.

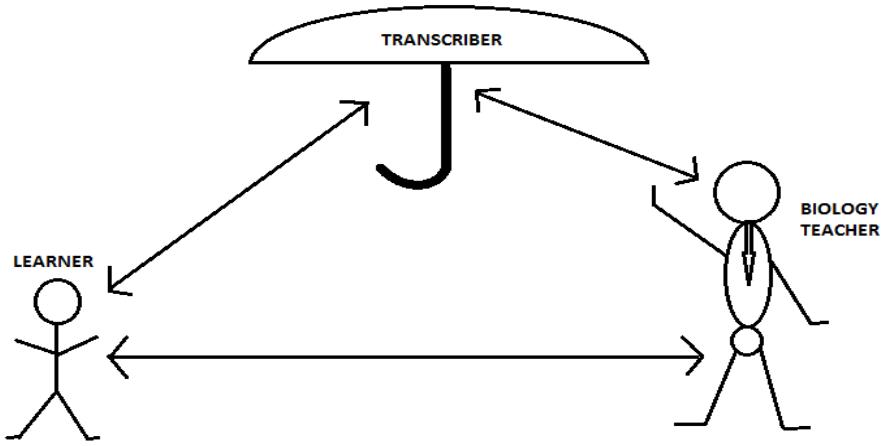

Figure 1: Tripartite diagram between the transcriber, teacher, and LVI

Source: Stewart (2018)

It is important, for example, to involve the transcriber, from the beginning. The teacher can do this by scheduling a conference with the transcriber and the student before lesson begins and by seeing

into it that the two remain in regular contact. These three man relationships which exist between the teacher, transcribers and the students with visual impairment sets pace in co- teaching and time management. “No matter the learning styles, ability, and emotional need of a learner, students’ learning is impacted by abundance of care, compassion, and expertise that stands out as exemplary practice special needs teachers possessed due to their expertise”. This therefore needs to be shared with the general teacher with the above inadequacies (Linda, 2014 as cited in Hatchell, 2009)

Learners with Visual Impairment

Visual impairment can be defined legally and educationally. In this study, educational definition is relevant because it shows directly the impacts of visual impairments on the learning process of a student. It includes both partial sight and blindness. Thus an educationally LVI (see appendix XI) is the one with very limited vision and thus relies on reading and writing by using the Braille system or by using audio tapes (Mastropieri & Scruggs, 2010). There exists limitation of actions and functions of the visual system.

Visual impairment can be congenital, occurring at or shortly after birth or acquired through other means later in life (Sacks & Silberman, 1998). Some of the congenital causes of visual impairments include conditions like glaucoma, cortical visual impairment, optical nerve hypoplasia etc. Visual impairment can also be acquired later in life as a result of cancer, cataract, trauma, accidents, nutrition etc. (Kirk *et al*., 2011). Thus with special education according to the Individual with Disability Education Act (IDEA) OF 1997; visual impairment refers to impairment in vision that even when corrected, adversely affects a child’s educational performance. About one child in the ten schools poses some decree of visual impairment; Fortunately, most of these problems can be corrected and has little or no effect on social or educational development. But for one out of a thousand children, visual impairments are so severe that they can’t be corrected. These children are visually handicapped. Here we discuss the special needs of LVI and the educational adaptations that must be made for them.

Table 1: Types of visual impairment

Classification	Level Of Vision	Level Of Disability
Normal	Normal vision	can perform tasks without special aids

Low vision	Near normal vision	performs visual task to a reduced level of speed endurance, and precision even with aids
	Moderate	Has difficulty with gross visual tasks, can't perform most detailed visual tasks
	Severe	
	Profound	
Blind	near blind	vision is unreliable-relies primarily on other senses
	Blind	Totally without sight-relies exclusively on other senses.

Source: From ''*Educating exceptional children* "Samuel & James (1986 p.166)

There are many conditions and degrees of visual problems. The most common are refractive errors, defects of muscle function, and other anomalies. Some of these are described in table below. The primary causes of blindness and visual impairments are infectious and general deceases [syphilis and dualities], accidents and injuries poisonings, tumours, and heredity. Hereditary factors remain a more frequent cause of blindness than do disease and accidents, both of which are increasingly less prevalent because of improved control measures and education. Occasionally, environmental conditions results in an unusual prevalence of children with visual handicaps.

The numbers of children who are visually impaired are strikingly less than the number of children who are mentally retarded or learning disabled. Only one out of a thousand children is visually handicapped

Table 2*: Children with VI; Common Visual Disorders and Anomalies*

Types of Disorder and Refractive Errors	Description
HYPERMYOPIA	Farsightedness; a condition in which rays of light focus behind the retina forming a blurred unclear image a convex lens before the eye increases bending of light rays and brings them into focus.
MYOPIA	Near sightedness; a condition in which rays of light focus in front of the retina when the eye is at rest and is viewing and object 20 or more feet distant, a concave lens can refocus the image on the retina.
ASTIGMATISM	A refractive error resulting from an irregularity in the curvature of the cornea or lens of the eye, causing light rays to be refracted on

	evenly at different planes so that horizontal and vertical rays are focused at 2 different points on the retina, usually correctible with lenses
STRABISMUS;	Crossed eyes caused by the lack of coordination of the extrinsic eye muscles, the two eyes do not simultaneously focus on the same object, can be constant or intermittent.
HETEROPHORIA;	Insufficient action of one or more muscles of the eye marked by a tendency for the eyes to deviate from the normal position for binocular fixation, creates difficulty in fusing the two images from the two eyes into one image, is not as apparent as strabismus and can sometimes can be overcome by extra muscular efforts.

Source: From 'Educating exceptional children "Samuel and James (1986, p.170). Meaning of Biology Inclusive Classroom

Empirical Review

Tchombe(2015), did a study on Inclusion in Educational Institutions in Africa: The Preparedness of Educators. This study reported a transnational study on inclusive education situations in some five African countries namely; Cameroon, Nigeria, Togo, Cote d'Ivoire and Kenya. The focus was on the preparedness of institutions and educators who are key implementers of inclusion the empirical enquiry came out with the following results: the gap in policy inhibits inclusive practices; educators and institutions are ill-equipped to embrace inclusion; there is limited evidence of core inclusive values and profile; the role of stakeholders is limited because of their unawareness on special education needs and disability issues; the status of research and the levels of partnerships are inadequate.

Also, Baraka Michael Mwakyeja (2013), carried out a research on Teaching Students with Visual Impairments in Inclusive Classrooms: A Case Study of One Secondary Schools in Tanzania. This study aimed at investigating the way general teachers teach students with visual impairments in inclusive classrooms and the challenges facing them. The findings revealed that general teachers have little knowledge about inclusive education and how it should be practiced not only for students with visual impairments but for all students with special needs.

Moreover, Lydia Agesa (2014) worked on Challenges Faced by Learners with Visual Impairments in Inclusive Setting in Trans-Nzoia County. This aim was to investigate the challenges faced by learners with visual impairments in inclusive setting, in Trans-Nzoia County Kenya. The study found out that most learners with visual impairments performed poorly in academics due to lack

of implementation of the visually impaired school which calls for a differentiated curriculum as per the laid down policy on Special Needs Education, which is attributed to social, economic and particularly cultural factors.

Oussama (2017), also carried out a study on Uncovering Challenges and Opportunities of Including Children with Visual Impairments in Mainstream Schools in UK. Through a thematic analysis of in-depth interviews and observations, the findings highlighted how increasing technology in classrooms makes accessibility more challenging and considered where technology could be more usefully support inclusion. Specifically, the findings showed how technology could support coordination, burst the TA bubble, enable incidental learning, cater for multisensory shared learning experiences, and support independent social engagement and mobility. These findings offer insights into areas where technological intervention can be introduced to improve the inclusion of children with VIs in mainstream schools.

Theoretical Review

This study made use of theories such as;

Social Constructivist theory by Lev Vygotsky (1978):

Social constructivism is a theory of knowledge in sociology and communication theory that examines the knowledge and understandings of the world that are developed jointly by individuals. This theory assumes that understanding, significance, and meaning are developed in coordination with other human beings. Thus in order words the theory indicates that collaborative practices must be practiced in the Biology inclusive classroom as this will facilitate scaffolding thereby lifting the LVI from the learner's potential level to a higher level of knowledge acquisition.

John Dewey s Theory of Interest and Efforts

According to Dewey (1913), Interest is a feeling or emotions that cause attention to focus on an object, event, or process. He specifically looked at the pivoted role of learner’s genuine interests and efforts in education. To Dewey students interest are an effective tool for informing curricular decisions thus school should be organized around the needs and interest of a child. Interest refers to the feeling you have when you want to know more or learn about somebody or something. In line with this it is a problem when a learners’ interest is not given the pride of place, so learners turn to succeed in Biology because they are given the opportunity to study. If they are informed that no matter their interest, they will not per suit the subject this becomes a hindrance to them studying it thereby unveiling the source of their failure. This means that knowing that no matter how they put in efforts Biology will not be a GCE subject kills the interest and efforts of these learners. This theory exposes to us that even the level at which we imposed on them to acquire the knowledge some whose ambitions are killed now have difficulties to succeed.

A blend of Universal Design for Learning and theory of social cognitive development

The Universal Design For Learning (UDL) by Rose and Meyer (2002) builds on the Russian psychologist Lev Vygotsky's theory of social cognitive development that identifies three main processes for learning: 'recognition of the information to be learned, the application of strategies to process that information, and the engagement with the learning tasks. According to Rose and Meyer (2002), Universal Design for Learning (UDL) is an educational framework, based on research in the learning sciences that guides the development of flexible learning environments which can accommodate individual learning differences (2002). The UDL approach is based on the idea that the Recognition, Strategic, and Affective neurological brain networks are essential elements to consider in designing inclusive curricula, as they create pathways to better address the diverse needs and uniqueness of each individual in his/her learning experience (Hall, Strangman & Meyer 2009).

Based on this design it is applicable in that it calls for differentiated instruction. That is, the school curriculum should be planned and discharged based on the readiness, interest, and learning profile of the different learners and not based on the thought processes of the curriculum planners. Significantly, this theory supports the view that problems LVI have may stem out from the fact that the thought processes of the learners concerned ,the transcribers and together with the Biology teacher must be addressed indicating we talk of the biology inclusive classrooms if these these three actors work together.

Research Methodology

Research Design: A descriptive survey research design was used in this study so as to be able to describe the phenomenon as it is on the ground by sampling opinions of those concerned.

Area of the Study

This study was carried out in the Western Highlands of Cameroon comprising the North West and West regions of the country. The study was carried out in three Sub Divisions found in the Western Highlands. They include: Bafut, Bamenda II (all in Mezam Division), and Dschang

Population of the Study

the target population involves, all Biology teachers, all transcribers and all learners with VI in schools that integrate learners with VI. The accessible population includes biology teachers who have taught LVI, learners with VI who have studied Biology and transcribers who have transcribed Biology respectively. The accessible population was drawn from staff, learners and transcribers of various public and private institutions of learning as shown on table 4**.** The sample population consists of 50 respondents who were; 20 Biology teachers, 9 transcribers and 21

students from form 2 to upper sixth. Gender equality was considered in selecting the sample population.

Sample and Sampling Techniques

In this study the sample is constituted of general education and lay private Biology teachers who have taught learners with visual impairment, special education teachers for learners with VI (transcribers) and the learners with visual impairment. The researcher used questionnaires. While sampling technique the method that the researcher used to identify the respondents was purposive. The purposive sampling techniques were used to get 21 learners, 20 biology and 9 trancribers in this work. Purposive sampling is a type of sampling where by the researcher uses his/her own judgement regarding the participants from whom information will be collected. In this light the secondary schools purposively chosen where those that practice inclusivity of the VI.

These were G.H.S Mabuh, G.B.H.S Bamenda, Lycee Classique, and Nortre Dame, The study area was chosen based on the availability of the study sample. The choice was based on accessibility and availability of students and the age of the school. Thus the researcher dealt with those who are more concerned.

A sample size used in this study was determined based on the expense of data collection and the need to have sufficient statistical power. Therefore, a Table for sample selection from Sekaran (2003) Tables of sample was used. The categories and size of the respondents that took part in the study are herein presented in the table below.

Table 3: Samples for the study

Categories	Number on roll	Female respondents	Male respondents	Sample	Percentage
Learners with VI	22	6	15	21	42%
Teachers	21	12	8	20	40%
Transcribers	9	3	6	9	187%
Total	62	21	29	50	100%

Data Collection Instruments

Qualitative data was obtained by direct observations and non-structured interviews with the respondents while taking down notes. Quantitative data was obtained using open and closed ended

questionnaires. Statistics of the number of questionnaires administered and return rates is detailed in table 5 for teachers, students and transcribed respectively with return rates of 100%.

Validation of Instruments

Validity is defined as how much any measuring instrument measures what it is intended to measure or it is the appropriateness of the instrument (Amin 2005). Validity was employed in two phases:

Face Validity

After constructing the questionnaires copies were distributed to some colleagues for peer review. Corrections made helped to improve on the quality of the instrument. Next, a copy was presented to the supervisor who made criticisms and corrections on structure and presentations. The questionnaire was then reworked and improved upon for a pilot test to be conducted.

Content Validity

To know if the instrument covered the whole concept of the research, Content validity was employed. To establish the validity, the instruments (Appendix I, II) were subjected to the scrutiny of experts who evaluated the relevance of each item in the instruments to the objectives. After the supervisor corrected the questionnaire, it was later given to three content specialists for review and for them to judge and ascertain the validity of each item on the questionnaire. From their judgements given, the validity of each item was then derived and consequently the content validity index (CVI) was calculated and it gave a value of CVI=0.78667.

$$CVI = \frac{\textbf{Relevant items declared valid}}{\textbf{Total number of items}}$$

Since the CVI value is greater than 0.7 (i.e. CVI =0.78667 > 0.7) it therefore means that the questionnaire is of appropriate validity.

Reliability of the Instrument

Reliability refers to the consistency by which an instrument measures what it was intended to measure. It implies “the degree to which scores on the same test by the same individuals are consistent over time (Amin 2005). A pilot-test was conducted and responses were subjected to a Cronbach’s Alpha Coefficient reliability tests. This test was used because each item was not scored dichotomously. Values were 0.89 for student questionnaire and 0.86for teacher questionnaire ,0.75 for transcribers indicated that the questionnaire was very reliable since these values were above 0.7

Administration of the Students

To be able to collect data, the researcher first obtained a research permit from the coordinator of programs for subject didactics. This enabled the researcher to get cooperation and assistance from

the school administrators, teachers and students of the schools involved in the research work. Some of these members of the schools concerned, helped in the administration and collection of the questionnaire.

The researcher went to the schools concerned, introduced herself and was then allowed to administer the instruments. She personally administered the instrument after explaining the objectives of the research in some schools.

The questionnaires that were administered was not an easy task as student's questionnaires were read one after the other for the options chosen by the students to be ticked. This was done to establish a rapport and motivate the respondents, read nonverbal cues and doubts clarified thus a 100% return rate was obtained. This was done during break time in some schools and in some in the resource centres after school. For the teachers the heads of departments assisted and they filled during departmental meetings, for those the researcher could not meet. The questionnaires administered were done with the collaboration of the administrative, teaching and support staffs of these selected schools.

Method of Data Analysis

The data collected was analysed using both descriptive and inferential statistics. Quantitatively the data was analysed to get inferential statistics using the T test through SPSS version 20.0. The data was also analysed qualitatively using thematic analysis.

Findings

Table 4: Summary statistic

LEARNER WITH VI (STUDENTS)													
	Dis		Nue		Agr		Total		Mean	SD	T	P value	Dec
	N	% Dis	N	% Nue	N	% Agr	N	% Total					
COLLABORATIVE	60	57%	3	3%	42	40%	105	100%	2.71	0.94	-1.39	0.18	INSIG
TRAPARTITE RELATIO	32	51%	11	17%	20	32%	63	100%	2.73	0.94	-1.31	0.20	INSIG

NSHIP												
CONSTRAINTS?	65	52%	12	10%	49	39%	126	100%	2.81	0.65	-1.34	0.20	INSIG
PROSPECTS	23	22%	19	18%	63	60%	105	100%	4.14	0.37	13.97	0.00	+SIG
TEACHERS												
	Dis	**Nue**	**Agr**	**Total**	**Mean**	**SD**	**T**	**P value**	**Dec**			
	N	**% Dis**	**N**	**% Nue**	**N**	**% Agr**	**N**	**% Total**				
COLLABORATIVE	25	25%	16	16%	59	59%	100	100%	3.50	1.11	2.02	0.06	INSIG
TRAPARTITE RELATIONSHIP	25	31%	13	16%	42	53%	80	100%	3.20	1.19	0.75	0.46	INSIG
SOME CONSTRAINTS	61	51%	14	12%	45	38%	120	100%	2.80	0.74	-1.22	0.24	INSIG
PROSPECTS	**58**	**48%**	**22**	**18%**	**40**	**33%**	**120**	**100%**	**4.08**	**0.33**	**14.86**	**0.00**	**+SIG**
TRANSCRIBERS												

	Dis	Nue	Agr	Total	Mean	SD	T	P value	Dec				
	N	% Dis	N	% Nue	N	% Agr	N	% Total					
COLLABORATION	11	41%	5	19%	11	41%	27	100%	2.93	1.09	-0.20	0.84	INSIG
TRAPARTITE RELATIONSHIP	17	47%	8	22%	11	31%	36	100%	2.67	0.98	-1.02	0.34	INSIG
SOME CONSTRAINTS	19	35%	7	13%	28	52%	54	100%	3.30	0.27	3.27	0.01	+SIG
PROSPECTS	22	50%	5	11%	17	39%	44	100%	4.07	0.35	9.24	0.00	+SIG

Summary Findings

- Collaborative practices do not exist in a Biology inclusive classroom.
- Tripartite relationship between biology teacher, LVI, and transcriber do not exist in a Biology inclusive classroom
- As with some constraints that exist in a biology inclusive classroom the transcribers attested to this fact that while the teacher and the LVI remained indifferent.

LVI have prospects in a biology inclusive classroom

Discussion of Findings

The first objective of this study was to investigate if collaborative practices exist in a Biology inclusive classroom. It was revealed that Collaborative practices donot exist in a Biology inclusive classroom. This is contrary to Bauwens and Hourcade (1997) whose works emphasised that collaborative practices must exist in order to provide alternative procedures which allows for greater use of other senses especially the sense of touch so that the student with visual impairment

can grasp the concepts. Social constructivism by Vygotsky's (1978) states that knowledge is first constructed in a social context and is then internalized and used by individuals (Eggan & Kauchak, 2004, cited in Amineh & Asl, 2015). Social constructivists believe that the process of sharing individual perspectives called collaborative practice results in learners constructing and understanding together. (Greeno , 1996 **&** Woolfolk 2010).

Best practice evidence for inclusive classrooms suggests that responsibilities are shared with the students' family, special and general education teachers to make decisions related to the students' curriculum, teaching and assessment adaptations (Leatherman, 2009). Billingsley (2004) found that, lack of support from colleagues and administrators is the primary reason given for lack of collaborative practices. Learning does not take place only within an individual, nor is it passively developed by external forces (McMahon, 1997, cited in Amineh & Asl, 2015). Social constructivists state that meaningful learning occurs when individuals are engaged in social activities such as interaction and collaboration.

In inclusive contexts, collaboration has emerged as a necessity from school reality itself (heterogeneous cultural, linguistic, academic, learning style, learning differences), Collaboration has also emerged from the complex situation that teachers face at school requiring synthesis of knowledge, skills, attitudes and ideas (Vlachou & Zoniou-Sideri, 2010; Morocco & Aguilar, 2002). Furthermore, through collaboration, new effective approaches and methods emerge, the development of an inclusion culture and ethos is promoted, many problems are solved, and diversity receives a positive meaning (Corbet, 200; Ainscow *et al*., 2006; Lee, 2007).

The second objective was to examine if the tripartite relationship exists between the Biology teacher, LVI, and transcriber in a Biology inclusive classroom. Findings revealed that, tripartite relationship do not exist in a Biology inclusive classroom. This is in line with New Brunswick Association for Community Living (2007) which pointed out that there is lack of cooperation amongst teachers who teach inclusive classrooms and special needs teachers, implying that, transcribers lack commitment towards inclusive teaching due to laser fair of most Biology teachers since they both think their roles are not related. This is also supported by Lydias findings. Ldyia (2013) holds that most learners with visual impairments performed poorly in academics due to lack of implementation of the differentiated curriculum which calls for more teachers in special needs education so that at least each regular school has one special need teacher. Amystewart (2018) emphasized on Tripartite relationship in which the teacher (insurer) and his student (insured) and the transcriber (defence counsel) engaged by the insurer to represent the insured in a potentially covered third party claim.

The defence counsel represents the interest of both the insurer and the insured. This is a three-man relationship which exists between the teacher, transcribers and the LVI in which the transcriber

stands to bridge the gap of the visual impairment disability between the LVI and the Biology teacher. This is in line with Lewis and Little (2007) who say that teachers are not educated enough in the use of Braille material, preparation of tactile diagrams to be able to face the challenges of teaching students with visual impairments. This simply means that, without the transcriber the teaching and learning by students and teachers will be inefficient. This is also supported by Spungin, who says that the special need teacher should be a part of an inclusive classroom.

Dalen (1982) holds that core teaching involves two teachers the regular teacher (Biology teacher) and the special need teacher (transcriber) dealing with the specific disability need of the student. Moreover, Cormen (2015) listed the role of the special need teacher (transcriber) which were, provides support to students and general teacher, acts as a laison with the resource centres and should recommend educational & instructional strategies. He is also responsible for teaching skills like reading and writing in Braille, labelling laboratory equipment, transcribing print material and Braille information, using glasses and lenses, designing some diagrams,

The third objective was to examine constraints that restrict proficiency of LVI in a Biology inclusive classroom. The findings obtained from the respondents as well as field observation showed that, **t**here are constraints that restrict proficiency of LVI in a Biology inclusive classroom. This explains why Mmbaga (2002) says that, general teachers need to access enough knowledge on inclusion and special need education in order to practice inclusive teaching for learners with VI in a professional manner and to counteract the challenges associated with teaching learners with VI in inclusive classrooms. Many teachers of the visually impaired are not able to adequately use assistive technologies or instruct their students on how to use them (Beck-Winchatz & Riccobona, 2008; Smith & Kelley, 2007). Thus they are unable to ascertain the degree to which constraints exists that can restrict proficiency in the teaching of learners with VI.

In item analysis some constrains identified were lack of time. John Caroll (1986) works revealed tha,t school learning is a function of time. Degree of learning =f (Time spent /Time needed). The most important question that carol's model raised is the appropriate time needed to learn. The model of school learning assumes that students differ in the amount of learning time they need as a result of the differences in learners. This is in line with (Mastropieri & Scruggs, 2001) who says that, there is continuous resistance as teachers worry about "the time and effort necessary for implementation of inclusiveness. Lack of assistive technologies is also a constraint and as such there is difficulty in enhancing learner's other senses.

Castellano (2004) holds that students with visual impairments do not always have their school materials at the start of a school year or the start of a lesson such as tactile diagrams, Braille textbooks just to name a few, lack of seminars, no motivation, service work space not available for transcribers are some constraints noted. In line with Johnson (2001) if the environment in which

learning occurs is not supportive to LVI their learning will automatically be interrupted. Unsupportive learning environment like, poor classroom construction, lack of didactic materials, scarcity of special needs teachers greatly contributes to the problems

The fourth objective is to evaluate the prospects that LVI have in a Biology inclusive classroom. Findings revealed that**,** LVI have prospects in a Biology inclusive classroom. It was agreed that, if teaching techniques that capture both the interest and the learning capacities of all students be emphasized in teacher training colleges, if assistive technologies be made available at affordable prices, if assessment is modified to meet the needs of the learners, if support be given to service and in service teachers to accommodate learners with VI, and if attitude of rejection is kicked out of the school campus learners with VI in addition to other existing accommodative facets and activities that are disability friendly, will have prospects in Biology inclusive classrooms. In line with this, Corn and Walls (2000) also found out that teachers of students with VI felt more comfortable with general technology than technology designed specifically for students with V.I. this could be due to the additional training required in the area of assistive technology. Therefore, one barrier to the use of multimedia presentations for students with VI is that teachers need to develop their multimedia skills further

The above finding is in congruence with Weld (1990, p.36) who asserted that Once students with disabilities know that the science classroom is free of obstacles to learning, "inhibitions disappear, and they are free to focus on scientific, rather than logistic problem solving."Beck-Winchatz and Riccobono (2008) supported that teachers, often lack knowledge of multisensory learning techniques, modifications, and accommodation. In line with this study Baraka (2013) also asserts that, no consideration set to help students with VI in terms of teaching methodologies, teaching materials, and assessment procedures and this is one of the reasons why some learners with VI are eliminated from some school systems due to the fact that teaching methods used to teach them are not conducive.

Conclusion

To conclude findings obtained from this work, has revealed that the respondents accepted that lack of collaborative practices, lack of a tripartite relationship and some constraints are the problems pledging the biology inclusive classroom. On the other hand, collaborative practices, a tripartite relationship, teaching techniques that capture both the interest and the learning capacities of students with VI, assistive/ affordability of assistive technologies, modified assessment meeting the needs of LVI and attitude that is visually impaired friendly positively influences a Biology inclusive classroom giving the learners prospects in the learning of Biology.

The implication from these analysis show that the problems that exist in a Biology inclusive classroom stem from the fact that; collaborative practices do not exist, tripartite relationship

between biology teacher, LVI, and transcriber is not strengthened some constraints still exist in a biology inclusive classroom thus contributing to problems LVI faced in a Biology inclusive classroom. Inclusive practices should possess strong awareness of how their role and behaviour affects learners VI in an inclusive classroom, which in turn can affect them negatively leading to problems (challenges) or influence them positively leading to prospects (way forward).

Recommendations

- collaborative practices such as teachers support, professional development, parental support be ensured by every educational stake holder concerned in inclusive classrooms as this will be evident in partnership, time allowance, regular inquest, follow up to ensure inclusion and not exclusion of LVI learners in Biology.
- Curriculum planners should include activities that will encourage learners with VI in the study of Biology such as they should engage in Brailing of textbooks, audio visual lessons, Braille charts with biology diagrams.
- Rehabilitation centres address the situation of learners from a different subsystem before admitting in their resource centres since French and English Braille differs.
- Alternative teaching strategies is a co-teaching model where one teacher is responsible for teaching and the other is responsible for pre-teaching and re-teaching concepts to students who need additional support. This is recommended for Biology practical lessons where learners with VI are given more teaching opportunities to grasp practical activities.
- Conferences, workshops and seminars for pre service/in service Biology teachers transcribers and administrators should be organized on how to plan, manage and motivate learners with visual impairments so as to improve in performance and in skills on how to handle learners with VI in their classrooms
- Authors should produce Braille textbooks, charts that will give an additional support to these learners. They should improve the situation of inclusive teaching, such as improving on collaborative and cooperative skills, creating a strong tripartite relationship between Biology teachers and learners.
- Based on the findings some problems learners with VI had were denial of admission in some public schools by some principals. It is therefore recommended that they should consider that these learners as well need education, thus they should admit these learners without rejection and put to use pilot centres that will help to accommodate their needs. Ignorance and negligence of the knowledge of the existing resource centres be irradiated. Where efforts made

are not fruitful the division in charge of inclusive education in the Delegation of secondary education be informed and sought help.

- Students should request for instructional materials such as Braille diagrams, talking books from their parents which can aid them in Biology. Online marketing can help. They should build a tripartite relationship needed in achievement of educational objectives. They should not be discouraged by "society spread the effect of disability" because ignorance still exists in most Cameroonian schools on knowledge about exceptional learners.
- Building from the findings, it is recommended that, the government should also allocate enough funds to inclusive schools to ensure availability of teaching and learning facilities that will help facilitate teaching students with visual impairments in inclusive schools such as providing learning resources like Braille textbooks and assistive devices at affordable prices. She should also train and recruit transcribers because of the importance they play in the education of these learners. She should give subvention to lay private with learners with VI since their doors are always open to these learners. She should put in place a regulatory mechanism to make sure that the resource centres are up to standards to equip these children with skills needed.
- Assessment should be fair that is content based and not skill based. A useful instrument to evaluate the progress of learners with VI is missing as they are exempted from public exams controlled by the board thus the GCE Board should rethink.

Limitations of the Study

This study would have been carried out in a wider scope but due to limitations in human, material and financial resources this could not be done. The political state of the country was limiting factor as some schools envisaged for this study were void of LVI as some dropped out. Another limiting factor was time. This was due to the fact that the researcher was given a time frame which needed to be respected. Also translation was needed for respondents who were proficient in French only, this took a lot of time as the translator had to be given time to do the job well. An unforeseen incident happened and the researcher was robbed of her belongings including textbooks, laptop and the manuscript, to regain information source from these documents was a serious challenge.

Suggestions for Further Studies

This study seeks to investigate those problems teachers and learners with VI faced and find out the prospects they have in the Biology inclusive classroom in Cameroon. It is evident as seen in this work that problems encountered by learners in this area definitely may be same in other areas of the country therefore this work opens the door for further research and anyone interested in carrying out work on this topic should research on: 'Collaborative practices and its effects on the

performance of LVI in Biology', 'The role of the tripartite relationship in the teaching and learning of Biology to LVI', 'Alternative Assessments that made the needs of candidates with VI in Biology', 'The use of Braille diagrams in the teaching and learning of Biology', 'Role of modern assistive technology on persons with VI in Biology', 'A survey on Biology laboratory practical lessons of learners with VI'.

Finally, due to the fact that, there are few studies conducted on this area by secondary school teachers it is recommended that, further studies should be carried out in all subject discipline especially those exempted by the G.C.E Board.

REFERENCES

Ainscow, M., Muijs, D. & West, M. (2006). Collaboration as a strategy for improving schools in challenging circumstances. *Improving schools*, 9(3): 192-202

Amin, M. (2005). *Social science research: conception methodology and analysis*. Kampala Uganda.Makerere university printery .

Arceneaux, M. C., & Murdock, J. Y. (1997). "Peer Prompting Reduces Disruptive Vocalizations of a Student with Developmental Disabilities in a General Eighth grade Classroom". *Focus on Autism and Other Developmental Disabilities,* 12(3):182-186.

Argyropoulos, V., & Nikolaraizi M. (2009*).* Developing inclusive practices through collaborative action research. *European Journal of Special Needs Education*, 24(2): 139–53

Baraka, M. (2013). *Teaching Students with Visual Impairments in Inclusive Classrooms: A case study of one secondary school in Tanzania*. Trykk: Reprosentralen: Universitetet Oslo

Barton. L. (2003). *Inclusive education and teacher education: a basis of hope or a discourse of delusion*. Retrieved from, http://disability-studies.leeds.ac.uk /files /library /Barton-inclusive-education.pdf 20/11/ 2006.

Bernard, A. (2000). *Education for All and Children who are Excluded*. Paris: UNESCO. http://unesdoc.unesco.org/images/0012/001233/123330e.pdf

Biehiler, & Snowman. (1986). *Psychology Applied to Teaching*. Boston: Houghton Mifflin company.

Biology teaching syllabus Forms 1-5, order no 264/14/MINESEC/IGE.13 August 2014

Carter, E. W., Sisco, L. G., Brown, L., Brickham, D., & Al-Khabbaz, Z. A. (2008). "Peer Interactions and Academic Engagement of Youth with Developmental Disabilities in Inclusive Middle and High School Classrooms." *American Journal on Mental Retardation,* 113(6): 479-494.

Constance, J. (2009). *Instructional Manual for Braille Transcripbtion,* uk.libuary congress.

Corbett, J. (2001). Teaching approaches which support inclusive education: a connective pedagogy. British, *Journal of Special Education*, 28(2): 55-59.

Coroll, (1963, 1989) *model of school learning: edutechwiki.unige.ch.*

D.J.Taylor,N.P.O.Green & G.W.Stout (2010). *Biological science* 1 & 2.The Edinbu Building, Cambridge CB28RU,

Dettmer, P., Thurston, L.P. & Dyck, N.J. (2005*). Consultation, Collaboration and teamwork for students with special need.* Boston: Allyn & Bacon

Dewey, J. (1966). *Democracy and Education. An introduction to philosophy of Education*. New York: free paper press

Dewey, J. (1966). *Democracy and Education.* Harvard University, New York: .Macmillan

Dictionary: *Oxford advance dictionary of current English and Cambridge Advance learners dictionary*.

Dunn, J. (1996). "Children's Relationships: Bridging the Divide Between Cognitive and Social Development". *Journal of Child Psychology and Psychiatry*, 37(5): 507-518.

Dworkin, M. S. (1972). *Dewey in Education*. New York: Delta Publishing

Engelbrencht, P., Green, L., Naicker, S. And Engelbrencht, L. (EDS) (2008). *Inclusive Education in Action in South African*. Pretoria: Van Shaik Publishers.

Fatima1, G., Bashir, R. Malik, M., Safder, M., & Nayab, D. (2014). Difficulties Faced by Students with Visual Impairment Registered in Open and Distance Learning Programs of AIOU, Islamabad, Pakistan. *Academic Research International*, 5(3): 214-222.

Fine, M. (2000). *Creating Inclusive Communities. An Inquiry into Organizational Approaches for Pursuing Diversity*. New York: NY, Academy for Education Development/National Youth Leadership Council, Service-Learning Diversity project.

Ford, J. (2013). Educating Students with Learning Disabilities in Inclusive Classrooms. *Electronic Journal for Inclusive Education, Vol. 3, No. 1*

Friend, M., & Cook, L. (2003). *Interactions: Collaboration skills for school professionals*. Boston: Allyn and Bacon. Grawitz, M. (2006). Social Sciences Methods, Volume B΄. Athens: Odysseas [in Greek].

Gilakjani, P. A. (2012). Visual, Auditory, Kinaesthetic Learning Styles and Their Impacts on English Language Teaching. *Journal of Studies in Education*, 2(1): 104-113.

Harper, C. C. (2015). The Effects of Inclusion practices on the emotional growth and academic achievement of elementary Students.

Hatchel, E. (2009). *Regular Education and Special Education Teacher Attitudes towards Inclusion.* Unpublished master's thesis: University of Wisconsin-stout.

Heward W. L. (2014). *Exceptional Children*: Pe arson Ally Bacon Prentice Hall *An introduction to philosophy of Education.* New York: free paper press

Hewett, F. M. & Forness, R. S. (1974). *Education of Exceptional Learners (Second Edition).* Boston, Massachusetts: Allyn and Bacon, Inc

Iosifides, T. (2003). *Qualitative Data Analysis in Social Sciences*. Athens: Kritiki [in Greek].

Jean, A. C., & Mcphail (2000). The role of interest in fostering sixth grade students' identities as competent learner.

Jean, C. Mcphail, Joanne M.Pierson, Julie G,Jane B,N (2OO4),*Creating Partnerships for Complex learning: The Dynamics of an interest based Apprenticeship in the Arts of Sculpture*.

Kalabula, M. D. (2000). *Inclusive Education in Africa*: A Myth or Reality. A Zambian Case Study Presented at ISEC 2000. Retrieved from org.uk/abstract/papers/kalabula1.htm on 24/02/11

Kalabula, M. D. (2000). *Inclusive Education in Africa: A Myth or Reality. A Zambian Case Study Presented at ISEC 2000*. Retrieved from, org.uk/abstract/papers /kalabula1.htm on 24/02/11.

Law No 2010/002 of 13th April 2010 *Relating to the Protection of Children with Special Needs in Normal Schools.*

Law No 2010/002 of 13th April 2010 Relating to the Protection of Children with Special Needs in Normal Schools.

Law No 3699 /2-10-2008, Special Education for persons with disabilities or Special Education Needs. Retrieved from on October 30th 2008: http://edu.klimaka. gr/arxeio/nomothesia-fek/fek-199-2008-eidikh-agwgh-kai-ekpaidevsh-klimaka.pdf [in Greek]

Law No 98/004 of 14th April 1998 to Lay Down Guidelines for Education in Cameroon.

Lee, H. (2007). *Collaboration: A must for Teachers in Inclusive Educational Settings*, Retrieved from, http://iris.peabody.vanderbilt.edu/infoBriefs_local/shure/ collaboration.pdf 16/07/2009

Lindsay, S., Proulx, M., Scott, H., & Thompson, N. (2014). "Exploring Teacher's Strategies for Including Children with Autism Spectrum Disorder in Mainstream Classrooms". *International Journal of Inclusive Education*, 18(2): 101-122. Lipsky, D. K., & Gartner, A. (1997). *Inclusion and School ReformsTransforming Americas Classroom*, Baltimore: Paul Brookes publishing Co.

Lydia, A. (2014). *Challenges Faced by Learners with Visual Impairments inclusive Setting in Trans- Nzoia County Institution:* Educational assessment and resource centre (EARC), Kwanza Sub-county P..O. Box 768, Postal Code 30200, Kitale, Kenya

Maheady, L., Harper, G. F., & Mallette, B. (1991). "Peer-Mediated Instruction: A Review of Potential Application for Special Education". *Reading, Writing, and Learning Disabilities International*, 7: 75-103.

Mason, J. (2003). *Qualitative Researching.* London: Sage.

Mastropieri, M. A., & Scruggs, T. E. (2010). *The Inclusive Classroom Strategies for Effective Differentiated Instruction*. NewJersy: Upper Saddle River

Meiger, C. J., Pijl, S. J., & Hegarty, S. (1994). *New Perspective in Special Education*. London: Routledje.

Miles S & Singal, N (2009). "The Education for All and Inclusive Education Debate: Conflict, Contradiction or Opportunity?" *International Journal of Inclusive Education*

Morocco, C.C., & Aguilar, C.M. (2002). Co-teaching for content understanding: A school wide model. *Journal of Educational and Psychological Consultation*, 13: 315-347.

Murawski, W. W., & Swanson, H. L. (2001). "A Meta-Analysis of Co-Teaching Research. Where are the Data?" *Remedial and Special Education,* 22: 258-267.

Ncube, A. C. (2014). "Social and Psychological Effects of Inclusive Classrooms: Insights from Teachers of Inclusive Classes in Selected Primary Schools in Zimbabwe".*Journal of Emerging Trends in Educational Research and Policy Studies (JETERAPS)*, 5(4): 449-556.

Neeraja, P. & Anuradha, K. (2014). Adjustment Problems faced by Children with Learning Disabilities Impact of Special Education. *Indian Journal of .Science and .Research*, 5(1): 77-81.

Nworgu. (0). *Educational research basic issues and methodology*, third edition. University trust publishing Nsukka enugu

Obiakor, F. E., Harris, M., Mutua, K., Rotatori, A., &Algozzine, B. (2012). "Making inclusion work in general education classrooms". *Education and Treatment of Children*, 35: 477-490.

Obiozor, E. W., Onu, V. C., & Ugwoegbu, I. (2010). Academic and Social Challenges facing Students with Developmental and Learning Disabilities in Higher Institutions: Implications to African Colleges and Universities. African *Journal of Teacher Education*, 1(1): 126-140.

Oussama Metatla(2017). *Uncovering Challenges and Opportunities ofIncluding Children with Visual Impairments in Mainstream Schools.*University of Bristol , UK

Pam Marek (2016) *The Basics Of Scientific Writtings APA Style* ,Kennesaw State University.

Rea, P. J., McLaughlin, V. L., & Walther-Thomas, C. (2002). "Outcomes for Students with Learning Disabilities in Inclusive and Pullout Programs" .*Exceptional Children*, 68(2): 203-222.

Richardson, R.C., Tolson, H., Huang T.Y., & Lee, Y.H. (2009). "Character Education: Lessons for Teaching Social and Emotional Competence". *Children & Schools*, 31(2): 71-78.

Robson, C. (2007). Research in the real world. Athens: Gutenberg [in Greek]

Samuel, A. K. & James, J. G. (1986). *Educating Exceptional Children,* Houghton Mifflin company Boston,pg 163 208.

Sandy Niemann (2000). *Helping Children who are blind,* Hesparian Foundation USA.

Scheeler, M. C., Congdon, M., & Stansbery, S. (2010). "Providing Immediate Feedback to Co-Teachers Through Bug-In-Ear Technology: An effective method of Peer Coaching in Inclusion Classrooms". *Teacher Education and Special Education,* 33: 83-96.

Scruggs, T. E., Mastropieri, M. A., & Marshak, L. (2012). "Peer-Mediated Instruction in Inclusive Secondary Social Studies Learning: Direct and Indirect Learning Effects". *Learning Disabilities Research & Practice*, 27: 12-20

Scruggs, T. E., Mastropieri, M. A., &Marshak, L. (2012). "Peer-Mediated Instruction in Inclusive Secondary Social Studies Learning: Direct and Indirect Learning Effects". *Learning Disabilities Research & Practice*, 27: 12-20.

Semrud-Clikeman, M. & Schafer, V. (2000). "Social and Emotional Competence in Children with ADHD and/or Learning Disabilities". *Journal of Psychotherapy in Independent Practice*, 1(4), 3-19.

Sidhu, G., & Fook, Y. C. (2015). Investigating Learning Challenges faced by Students in Higher Education. *Procedia-Social and Behavioural Sciences*, 186: 604-612.

Simonnet, G. D. & Modrick, J. (2010). Advancing Inclusive Education And 21st Century Skills Through The Arts.*The University Of Melbourne Refereed E-Journal*, 1(5):

Skidmore, D. (2004). *Inclusion: The Dynamic of School Development*. London: Open University Press.

Stanovich, P. J., Jordan, A., & Perot, J. (1998). "Relative Differences in Academic Self-Concept and Peer Acceptance Among Students in Inclusive Classrooms". *Remedial and Special Education*, 19(2): 120-126.

Tambo, L.I .(2012). *Principles and methods of teaching* .second edition; Limbe: Anucam

Tange, D. (2014). *Introduction to statistical methods and experimentation for life sciences* University of Ghana. Intelligentia Network.

Tchombe, M. S. (2008). Understanding Normality in Child Development, The Premise for Identifying Deviations, *African Journal of Special education*.

Tchombe, M. S. (2012). *Situation Analysis on the Policies, Practices and Barriersinclusive Education in Primary Education Sector in Cameroon.* ResearchGate, Sightsavers, pg 1-32.

Thakran, S. (2015). Learning Disabilities - Types and Symptoms. *International Journal of Applied Research*, 1(5): 149-152.

UNESCO (2009). *Policy Guidelines on Inclusion in Education*. Paris: France.

UNESCO, (2007). *Convention on the Rights of Persons with Disabilities*, Retrieved 14 May 2008 from http:www.mlsi.gov.cy/mlsi/dsid/dsid.nsf/9EA85834AB487A10 C2257A 7C002CEDA5/ $file/Symbasi%20OHE%20kai%20Prwtokollo.pdf

UNICEF ().*The Right of Children with Disabilities to Education:* A Rights-Based Approach to Inclusive Education. Geneva: Interdialect

Utley, C. A., Mortweet, S. L., & Greenwood, C. R. (1997). "Peer-mediated Instruction and Intervention". *Focus of Exceptional Children*, 29: 1-24.

Vlachou, A. & Zoniou-Sideri, A. (2010). School inclusion and collaborative practices of general and special education teachers. *Hellenic Journal of Psychology*, 7(2): 180-204 Zoniou-Sideri, A. and Vlachou, A. (2006). Greek teachers' belief system about disability and inclusion Education. *International journal of Inclusive Education,* 10(4-5): 379-394.

Vlachou, A., (2006). Role of special /support teacher in Greek primary schools: a counterproductive effect of "inclusion" practices. *International Journal of Inclusive Education*, 10(1): 39-58.

Watkins, A. (Editor). 2007. *Assessment in Inclusive Settings: Key Issues for Policy and Practice*. Odense, Denmark: European Agency for Development in Special Needs Education.

Waudo, E. W & Thinguri, R. W. (2014). "Theoretical Analysis of Challenges of Training and Adjudicating Special Needs Education Presentations at the Kenya Music Festivals". *Journal of Education and* Practice, 5(28):