European Journal of Education Studies
ISSN: 2501 - 1111
ISSN-L: 2501 - 1111
Available on-line at: www.oapub.org/edu

DOI: 10.46827/ejes.v9i8.4457 Volume 9 | Issue 8 | 2022

COLLEGE ADMINISTRATIVE SUPPORT IN INTEGRATION OF ADAPTIVE TECHNOLOGY FOR VISUALLY IMPAIRED STUDENT TEACHERS IN PRIMARY TEACHER TRAINING COLLEGES: THE KENYAN EXPERIENCE

Tuimur Hilda Ng'etich[i],
Tabot Benedicta Aiyobei
Lecturer,
School of Education,
University of Kabianga,
Kericho, Kenya

Abstract:
Administrative support is key in inclusive education and more so in the integration of adaptive technology for visually impaired (VI) student teachers. Integration of adaptive technology improves the quality of education, removes learning barriers and ensures that the visually impaired student teachers graduate as skilled, confident and competent primary school teachers. This study assessed the college administration's support in the integration of adaptive technology for visually impaired student teachers. The study was guided by the diffusion of innovation theory by Rogers which gives a basis for the adoption of innovations in institutions and other settings. The study adopted a descriptive survey research design. The study population included administrators and tutors in three primary teachers training colleges which admit student teachers with visual impairment in Kenya. The purposive sampling technique was used to select three deans of the curriculum while simple random sampling was used to select nine heads of departments and 93 tutors making a sample of 105 respondents. Data collection instruments were questionnaires and interview schedules. Descriptive statistics like frequencies and percentages were used to analyze the quantitative data. A qualitative procedure was applied to information from interviews where respondents' answers were presented in words and interpretations made. The findings of this study revealed that the college administration's support for the integration of adaptive technology was low. The recommendation made was that the college administration of public primary TTCs should fully support the integration of adaptive technology for VI student teachers in the primary TTCs by availing resources and training tutors on the integration of adaptive technology.

[i] Correspondence: email info@kabianga.ac.ke

Keywords: administrative support, technology integration, visually impaired students, adaptive technology devices

1. Introduction

The education goals of Sustainable Development Goals 2030 aim at providing globally competitive quality education, and among other things building and upgrading facilities that are disability sensitive and provide an inclusive environment for all. Inclusive education is about getting children into and through school by developing schools that are responsive to the actual diverse needs of children and communities. This is why the government of Kenya, as pointed out in Sessional Paper no. 1 of 2005, focuses on integrating special education programmes in all learning and training institutions to ensure that the institutions are responsive to the education of learners with special needs.

Adaptive technology devices improve access to quality education and enable the learner to address individual learning problems. They improve the quality of education and remove barriers to learning. School and classroom environmental adaptations can help student who is blind or visually impaired move safely and efficiently through their environment. A student's need for adaptations to the environment depends on the nature of their visual impairment and any additional disabilities. It is important to understand each student's visual diagnosis and the implications with regard to functional vision to make the appropriate adaptations in order to maximize the student's use of vision (Willings, 2015). Learning institutions should have a conducive learning environment that takes care of the special needs of children with disabilities in collaboration with stakeholders. Appropriate technologies, assistive devices and learning materials for persons with disabilities should be designed and developed. This is especially important when special needs education is incorporated into the regular teacher-training curriculum (RoK, 2015).

In order to increase access and improve quality, the Kenya government has integrated special education programmes in pre-service teacher training in three primary teachers training colleges, which was the focus of this study with regard to college administration support in the integration of adaptive technology for visually impaired student teachers in instruction.

A visually impaired student teacher has impairment of visual function, which cannot be improved by the use of corrective lenses to a level that would normally be acceptable for reading and therefore need adaptive technology. The student teacher may also be unable, through the physical disability, to focus or move his/her eyes to the extent that would normally be acceptable for visual reading. This situation can be addressed with adaptive technology, which improves the function ability of VI student teachers. Adaptive technology refers to any product, device, and equipment whether acquired commercially, modified or customized that is used to maintain, increase or improve the functional capabilities of individuals with disabilities. Some of the adaptive technology devices used by low vision visually impaired student teachers include; highlighters,

which make the print more visible, stand-alone and hand-held magnifiers and reading stands. They also require spectacles mounted on magnifiers, telescopes and screen readers. Exercise books should be boldly ruled and textbooks should have large prints. The totally blind student teachers obtain information through tactile and auditory media. They require Braille machines or slate and stylus, which are used when the Braille machine is not available, brailed textbooks, tactile maps and diagrams are also used. For the VI student teachers to graduate as skilled, confident and competent primary school teachers, tutors should modify and adjust materials of learning so that they can access the curriculum content adequately. This should be evident for the VI student teachers who have been admitted to selected primary TTCs in Kenya and have been placed in the same classes with the sighted student teachers. They are taught by the same tutors at the same time in the same class yet the VI student teachers use different learning materials which should be provided by the college administration in order to enhance quality teaching and learning. This calls for the need to assess the college administration's support in the integration of adaptive technology in the instruction of VI student teachers in primary teacher training colleges in Kenya. Therefore, through this study, the status of college administration support in the integration of adaptive technology in the instruction of the visually impaired would be established. There was a need to ascertain the integration of adaptive technology which would ensure that VI student teachers are adequately prepared as primary school teachers. This could be useful to Kenya Institute of Curriculum Development (KICD) since the institute conducts research and prepares instructional materials to support any syllabi including the preparation of learners' books, play materials, teachers' handbooks, manuals, charts, mass media programs and related materials, videos, audio cassettes, CDs and diskettes. The study provided information on adaptive technology devices for VI student teachers to Kenya Institute of Special Education (KISE) whose function is to design, produce and maintain educational resources and adaptive devices for persons with special needs and disabilities. The findings of the study would help primary TTC administrators identify their shortcomings and action to be taken.

2. Statement of the Problem

During instruction in the primary TTCs, teaching and learning aids are very essential for both the sighted and the visually impaired student teachers. An adapted syllabus for VI student teachers has been prepared to cater for their needs (KIE, 2005). The syllabus stresses that tutors should use appropriate resources and be competent in the development and production of quality tactile diagrams and maps for visually impaired student teachers. This will enhance the successful and effective completion of the syllabus to ensure that student teachers who are visually impaired are fully integrated into the teaching profession (KIE, 2005). The curriculum delivery required continuous monitoring e.g., evaluation to ensure that it is effectively implemented (MOEST, 2005).

Integration of adaptive technology improves the quality of education, removes learning barriers and ensures that the visually impaired student teachers graduate as skilled, confident and competent primary school teachers. Challenges and special needs of visually impaired student teachers are met through the integration of adaptive technology in instruction. Adaptive technology devices affect VI student teachers' achievement, attitudes and interaction with tutors and other student teachers. Purcell & Grant (2002) stress that adaptive technology gives students with special needs access to the curriculum. The VI student teachers are therefore able to acquire the necessary skills, confidence and competence to teach in primary schools upon completion of the Primary Teacher Education course.

Therefore, through this study, the status of college administration support in the integration of adaptive technology in the instruction of the visually impaired would be established. There was a need to ascertain the integration of adaptive technology which would ensure that VI student teachers are adequately prepared as primary school teachers.

2.1 Research Objectives

The research objective for this study was to find out the support provided by the college administration in the integration of adaptive technology for visually impaired student teachers in instruction in primary TTCs.

3. Theoretical Framework

The diffusion of innovation theory by Rogers (2003) guided the study. It gives a basis for the adoption of innovations in institutions and other settings. According to Rogers' definition of diffusion, elements in the diffusion of innovation process include a social system. Rogers (1995) proposes five variables which affect the adoption rate of any particular innovation which include perceived attributes of innovations, type of innovation decision, communication channels, nature of the social system and extent of change agents' promotion efforts.

This model helped the researcher consider the factors which affected the integration of adaptive technology devices in instruction for visually impaired (VI) student teachers. According to Rogers (2003), a social system is a set of interrelated units engaged in joint problem-solving to accomplish a common goal. The social and communication structure of a system can facilitate or impede the diffusion of innovations in the system, for example, the provision of adaptive technology devices for visually impaired student teachers and training of tutors on adaptive technology devices can enable the integration of adaptive technology in instruction. In this study, the social system is the primary teachers training colleges (TTC) where VI student teachers have been admitted alongside sighted ones.

The extent of change agents' promotion efforts is another variable which affects the adoption rate of any particular innovation according to Rogers (2003). Individuals

within organizations who work to promote a specific innovation are change agents. There exists a relationship between the rate of adoption and change agents' efforts and a greater payoff from a given amount of change agent activity occurs at certain stages in an innovation's diffusion (Rogers, 2003). In this study, the primary TTC administration was regarded as the change agent.

4. Literature Review

The college administrators are the key individuals in inclusive education and thus should have knowledge regarding adaptive technology for visually impaired VI student teachers. According to Mertz and Mertz (2003). The entire process of introducing technology in any organization including educational institutions requires leadership. Maguvhe (2014) alludes to the fact that the translation of policies into practice always comes with the need for the reallocation of resources for staff training and mass procurement of material resources. It also comes with the identification of learners who would be serviced from their least restrictive environments. The challenges will be in the area of gathering adequate financial resources for community sensitization, staff training, procurement of physical resources and ongoing staff development (Tuimur, 2015). Ngigi (2007) asserts that poor administrative procedures result in poor quality work for instance, when school equipment are delayed, teachers cannot teach well which leads to poor performance by the learners. According to Eyo, Joshua and Esuong, (2010, p. 90), school principals can thwart new programmes if they have little knowledge and conviction about them. The administration is supposed to; Provide teaching/learning resources, supervise curriculum implementation, motivate tutors and coordinate with the ministry of education. According to Agumba et al. (2009), the educational administration ensures that available human and material resources are effectively used for the achievement of stipulated educational objectives.

The management supervises the division of labour, coordinating and controlling physical resources for the effective delivery of educational services in a learning institution. The administration looks at the objectives to be achieved, strategies, effort, time and resources both human and material. There is an organization in acquiring both human and material resources, which are necessary for accomplishing educational goals.

There should be linkages between the various administrative segments in an organization so that events are harmoniously attended to immediately. Division of labour means assigning responsibility to members of an organization depending on their skill, talent and experience. This kind of assignment enables a school to achieve its stated goals. In directing and controlling, the administration must provide clear information on what is expected at each stage, obtain feedback on performance and take the appropriate action if necessary to remedy the situation. Any tutor will acknowledge the importance of the administration. As directors, administrators influence the college structure and culture, constituting the venue for any instructional initiative. Therefore, administrative support (or lack thereof) can make or break teachers' undertakings to integrate technology into

the classroom. With minimal support, even the most talented teachers will have little success in technology integration (Becker & Ravitz, 1999; Zhao et al., 2002).

It is the responsibility of the school administration, faculty, and staff to develop their own understanding of technology and learning, and create a working environment that condones these efforts (Collier, 2001; Tuimur, 2017). Money can be spent on staffing to support the general education teacher as well as materials for the adaptation of the curriculum (McCarty, 2006).

College administrators should not only advocate the use of technology but also provide support mechanisms such as professional development, time for planning and collaboration, and necessary resources (Earle, 2002; Groves, Jarnigan, & Eller, 1998). According to Morris (2002), necessary resources for the integration of technology include; adequate access to hardware and software, technical and pedagogical support, and professional development plans among others. Administrators who successfully acquire adequate access to resources have taken the first major step toward supporting technology integration, Frank (2003). Supportive leadership and administration within the school setting is an identified key factor in promoting successful training for staff and students in the use of assistive technology (Alliance for Technology Access, 2000; Overbrook School for the Blind, 2001). The resources can be purchased, borrowed, donated or made by the teacher (Agumba, 2009). With regard to this study, tutors needed to be supported by the administration through the provision of adaptive technology devices for VI student teachers and frequent training on how to integrate adaptive technology for VI students. McMaster (2013) explains that successful inclusion is a culmination of the entire school embracing the inclusion model. The culture of a school, which expresses compassion, and understanding of differences in students, and is perceived as a resource is important. The staff should ensure that the students' needs are identified and intervention and support services are given. According to Maguvhe (2014), societal resources should be used for the good of all students. The role of school principals in both implementation and publicity is significant.

According to Guto (2010), teaching facilities, financial resources, quality of teaching and learning resources have an influence on teaching. Therefore, when funding incorporates technology acquisition and ongoing training for staff working with students using assistive technology, it influences assistive technology use (Tuimur, 2017; Male, 2003; Alliance for Technology Access, 2000; Overbrook School for the Blind, 2001; Lazzaro, 2001; Casimir, 2001).

5. Research Design and Methodology

This study adopted a mixed method strategy where both quantitative and qualitative approaches are used to test different methods of inquiry for their effectiveness in achieving the intended goal. This eclectic worldview stance was derived from the work of Pierce et al., (Cherryholmes, 1992). The philosophical assumption adopted was positivist of a fixed, measurable reality external to people 'out there' in the world that

needs discovering using conventional scientific methodologies (Bassey, 1995). Positivism is based on the assumption that there are universal laws that govern social events, and therefore uncovering these laws enables the researcher to describe, predict and control social phenomena. In this study, the researcher aims at discovering the reality of the college administration support in the integration of adaptive technology for visually impaired student teachers in instruction, in primary teacher training colleges in Kenya.

This study used a quantitative approach in order to inform on the sample size of the respondents, quantify categorization of respondents and present the frequencies and percentages in order to understand the differences which may emanate in the descriptive statistics on aspects of college administration support in the integration of adaptive technology for VI student teachers in instruction in primary teachers training colleges in Kenya. Qualitative research methods were used since the assessment of the integration of adaptive technology devices for VI student teachers in instruction in primary TTC was easily explained.

The study was carried out in three primary teachers' training colleges in Kenya; where VI student teachers had been integrated. The target population consisted of deans of curriculum, heads of department and tutors in primary TTCs in Kenya with visually impaired student teachers making a total of 105. The purposive sampling technique was used to select three deans of curriculum. Purposive sampling allows a researcher to select cases that have the required information with respect to the objectives of the study and use one's judgment on the choice of respondents that will enable the research questions to be answered Newman (2011) and (Nachmias & Nachmias, 2009). Deans of curriculum supervised the implementation of educational innovations and thus had the required information on college administration support in the integration of adaptive technology for VI student teachers. Simple random sampling was used to select nine heads of departments. These were 3 out of 5 from each college and 93 tutors; that is 31 from the three primary TTCs colleges used in the study.

The instruments used for data collection in this study were questionnaires for tutors and interview schedules for deans of curriculum and heads of departments. A questionnaire was used by the researcher since it gives the respondent adequate time to give well-thought answers, (Wiersma & Jurs, 2005). The researcher developed a questionnaire which was used to get information from tutors in primary TTCs colleges on support in the integration of adaptive technology in the teaching of VI student teachers while a standardized open-ended interview schedule was used for deans of curriculum and heads of departments.

6. Results and Discussion

The study sought to find out the respondents' opinions about the college administration's support in the integration of adaptive technology for VI student teachers in primary TTC and their responses were summarized in Table 1 below.

Table 1: Tutors' responses on college administration support on integration of adaptive technology for VI student teachers in the primary TTCs

Statement	SA		A		UN		D		SD		Total	
	F	%	F	%	F	%	F	%	F	%	F	%
The college administration provides adequate ATD for VIS teachers	9	9.7	22	23.7	14	15.1	38	40.9	10	10.8	93	100
The college administration provides workshops and training for tutors on the integration of adaptive technology	7	7.5	14	15.1	13	14.0	37	39.8	22	23.7	93	100
The college administration offers technical support and maintenance of adaptive technology devices	12	12.9	33	35.5	18	19.4	22	23.7	8	8.6	93	100
The college administration provides a braillist to assist tutors on ATD use	39	41.9	42	45.2	2	2.2	8	8.6	2	2.2	93	100
The college administration recognizes that integration of adaptive technology is important for VIS teachers	32	34.4	41	44.1	8	8.6	10	10.8	2	2.2	93	100
The college administration does not motivate tutors to use ATD	14	15.1	30	32.3	20	21.5	12	12.9	17	18.3	93	100
The college administration is not keen on the use of ATD	13	14.0	27	29.0	14	15.1	24	25.8	15	16.1	93	100

It is evident in the Table that 40.9% (38), 23.7% (22) and (10.8%) of the tutors disagreed, agreed and strongly disagreed respectively that the college administration provides adequate ATD for VI student teachers while the remaining 9.7% (9) strongly agreed. Further, on whether the college administration provides workshops and training for tutors on the integration of adaptive technology, 39.8% (37) disagreed, 23.7% (22) strongly disagreed while 15.1% (14), 14.0% (13) and 7.5% (7) agreed, were undecided and strongly agreed respectively. It is also clear from the table that, 33.5% (33), 23.7% (22) and 19.4% (18) of the respondents agreed, disagreed and were undecided respectively on whether the college administration offers technical support and maintenance of adaptive technology devices. Another 12.9% (12) and 8.6% (8) strongly agreed and strongly disagreed respectively. On whether the college administration provides a braillist to assist tutors on ATD use, 45.2% (42) and 41.9% (39) agreed and strongly agreed respectively while 8.6% (98) disagreed. An equal proportion of 2.2% (8) strongly disagreed and was undecided respectively.

Results also showed that the majority 44.1% (41) and 34.4% (32) agreed and strongly agreed respectively that the college administration recognizes that integration of adaptive technology is important for VI student teachers while 10.8% (10) disagreed.

Another 8.6% (8) and 2.2% (2) were undecided and strongly disagreed respectively. It is also clear that 32.3% (30) of the respondents agreed that the college administration does not motivate the tutors to use adaptive technology, 21.5% (20) were undecided while 18.3% (17) strongly disagreed. Further, 15.1% (14) strongly agreed. The table reveals that 29.0% (27) of the respondents agreed that the college administration is not keen on the use of adaptive technology in instruction, 25.8% (24) disagreed while 16.1% (15) strongly disagreed. The remaining 15.1% (14) and 14.0% (13) were undecided and strongly agreed respectively. The findings implied that the college administration did not fully support the integration of adaptive technology devices. The head of the institution should provide the necessary teaching materials and promote staff welfare (Agumba et al., 2009). This is in tandem with previous studies that resources in general (Bunyi et al., 2013; Mwangi, 2013; Rop et al., 2013) and for special needs education (Tabot & Too, 2017), were either inadequate or lacking in the PTCs.

In the interviews with the heads of departments and deans of the curriculum with regard to college administration support in the integration of adaptive technology for VI student teachers in primary TTCs, it was revealed that the administration did not provide adequate adaptive technology devices. They also pointed out that the college rarely provided workshops and training on the integration of adaptive technology to tutors. When the heads of departments and deans of the curriculum were asked how the college administration offered technical support and maintenance of adaptive technology devices, they said that serviced and maintained Braille machines. A braillist had been employed in each of the colleges and a technician would be called occasionally. The braillist assisted tutors and VI student teachers with the integration of adaptive technology. This concurs with a study on the integration of the disabled by Korir (2015) who found that there was little commitment from the Kenya government through the ministry of education to support the program. The students with visual impairment lacked Braille papers and the school administration did not handle them as part of the school; instead, they relied on the Kenya Society for the Blind to coordinate the program. The administration did not have guidelines/policy on the implementation of the program. Few teachers had once been taken for an in-service course on special education while the rest had never been trained at all.

Training offered by colleges was sponsored by NGOs thus the training was rare and irregular. With regard to challenges facing tutors in the integration of adaptive technology in their instruction, the Deans of Curriculum and heads of department mentioned that they lacked knowledge and skills in integration. This, they said was due to a lack of training on the integration of adaptive technology. Lack of proficiency in English Braille made the tutor limited in checking if the VI students had written the correct things in Braille and relying on the brailist who could easily mislead them. They were also not able to prepare tactile diagrams since labelling would be in Braille. The adaptive technology devices like brailled textbooks for reference were inadequate. This hampered integration of adaptive technology which is in line with the theoretical framework which guided this study. Rogers (2003), in his theory of innovation, asserts

that the nature of the social system and the extent of change agents affect the adoption of innovation. The social and communication structure of a system can facilitate or impede the diffusion of innovations in the system. The college administration is the social system in this context that needed to provide adaptive technology devices, and train tutors on the integration of adaptive technology for VI student teachers for the innovation which was the integration of adaptive technology to be infused at the primary TTCs. Money can be spent on staffing to support the general education teacher as well as materials for the adaptation of the curriculum (McCarty, 2006).

The Deans of Curriculum and heads of the department made the following recommendations to the college administration in order to improve the integration of adaptive technology for VI student teachers in instruction. First, arrangements should be made to avail adaptive technology devices, this could be provided by relevant stakeholders, the ministry and the county. Tuimur (2011) asserts that instructional materials should be made available to teachers. Secondly, the Deans of Curriculum and heads of department recommended that the college administration should organize training of tutors on how to use adaptive technology devices. This would ensure that the tutors were knowledgeable and had confidence when using adaptive technology. Regular capacity building of tutors would update knowledge on a regular basis so as to keep pace with the new trends in the profession (Agumba et al., 2009).

An increase in the number of brailists assisting the VI student teachers was the deans of curriculum and heads of departments' third recommendation. One brailist was overloaded since the use of adaptive technology was applicable in all the classes with visually impaired student teachers. Teaching facilities, financial resources, quality of teaching and learning resources have an influence on technical teacher training (Guto, 2010). Therefore, adaptive technology devices should be provided by the college administration for visually impaired student teachers.

In her study on integration program in Kenya, Korir (2015) gathered from the school administrators that the purchasing of teaching and learning materials was expensive and the government did not assist financially. This made the visually impaired students miss relevant lessons as they waited for the materials to be bought and sometimes it took more than a month before it was received. Teachers were not inducted on their entry to school and noted that much of the visually impaired students' time was wasted since the teachers were not available for them during the time for extra coaching. Because of this, most of the visually impaired students had reservations amongst themselves.

The heads of departments and deans of the curriculum also recommended that specific classes for VI student teachers should be established in college. This would ensure that they were given special attention. Labs and a library for VI student teachers could also be established which ensured that adaptive technology was provided, serviced and well-kept for the visually impaired student teachers. McMaster (2013) and Lujan (2020) explain that successful inclusion is a culmination of the entire school embracing the inclusion model. The culture of a school, which expresses compassion, and

understanding of differences in students, and is perceived as a resource is important. The staff should ensure that the students' needs are identified and intervention and support services are given.

6. Conclusions

Based on the findings of this study, the following conclusions were made:

1) The adaptive technology devices for VI student teachers for integration in primary TTC were inadequate.
2) The frequency of tutor training on the integration of adaptive technology for VI student teachers in primary TTC's was low and tutors were not motivated to use adaptive technology devices.
3) The college administration provided technical and maintenance of adaptive technology devices.
4) The college administration's support for the integration of adaptive technology for VI Student teachers in the primary TTC's was insufficient.

7. Recommendations

The following recommendations were made for this study:

1) The adaptive technology devices for VI student teachers for integration in primary TTC should be availed to all tutors and college administrators such as Braille machines should be available in departmental offices in primary TTCs so that tutors can work independently in the preparation of teaching materials.
2) The MOEST should develop in-service courses to train the tutors on the use of Braille and the preparation of tactile diagrams so as to effectively teach VI Student teachers in primary TTCs since it is charged with the responsibility.
3) The college administration of public primary TTCs should fully support the integration of adaptive technology for VI Student teachers in the primary TTCs by buying resources and training tutors on the integration of adaptive technology.

Conflict of Interest Statement

The authors declare no conflicts of interest.

About the Authors

Dr. Hilda N. Tuimur teaches History Education and Education Communication Technology in the school of Education at the University of Kabianga, Kenya. She has a Doctor of Philosophy Degree in Education Communication Technology, a Master of Philosophy Degree in History Education, and a Bachelor of Education Degree, all from Moi University. She has over 20 years of experience in teacher Education having taught in Primary Teacher Training college and presently at the university. She has published on pedagogy, inclusive education, and Teacher Education. Dr. Tuimur is a member of

Education Management Society of Kenya (EMSK) and the Kenya Association of Educational Administration and Management (KAEAM).

Dr. Benedicta A. Tabot holds a PhD in curriculum studies from Moi University, Kenya (2017), a Master of Education in curriculum and instruction from University of Eastern Africa, Baraton, Kenya(2000), and a Bachelor of Education from Kenyatta University, Kenya (1988).She is currently a Lecturer of curriculum and instruction in the Department of Curriculum, Instruction and Educational Media, University of Kabianga, Kenya.She has a teaching experience at Secondary school level and teacher education. Her research interest is in teacher education curriculum with particular interest in teaching practice, inclusive education, and integration of emerging issues in the curriculum. Dr. Tabot is a member of the Kenya Association of Educational Administration and Management (KAEAM) and the Commonwealth Council for Educational Administration and Management (CCEAM), Education Management Society of Kenya (EMSK)and African Network for Internationalization of Education (ANIE).

References

Agumba, N. Kipsoi, E. Misigo, B. Simiyu, C. and Ongek, M. (2009). *Primary Teacher Education; Education.* Nairobi: Jomo Kenyatta Foundation.

Alliance for Technology Access. (2000). *Computer and web resources for people with disabilities: a guide to exploring today's assistive technology*, 3rd ed, Alameda, CA Hunter House Publishers.

Caracelli, V. and Greene, J. C. (1997). Crafting Mixed-Method Evaluation Designs. *New Directions for Evaluation.* Pages 19-32

Casimir, G. (2001). *Enhancing learning with assistive technology, In Integration and inclusion in action* edited by P. Foreman, pages 360- 388. Marrickville NSW: Harcourt.

Cohen, L. and Manion, C. (2003). *Research Methods in Education*. London: Croom Helm Ltd

Collier, C. (2001). *Staff development for technology integration in the classroom.* In J. Lebaron, & C. Collier (Eds.), *Technology in its place: Successful technology infusion in school* (pp. 61-72). San Francisco: Jossey-Bass.

Earle, R. (2002). The integration of instructional technology into public education: Promises and challenges. *ET Magazine, 42*(1), 5-13. http://www.bookstoread.com/etp/earle.pdf April 6th 2013,

Eyo M. B., Joshua A. M., Esuong A. E. (2010). Attitude of Secondary School Students Towards Guidance and Counselling Services in Cross River State. *Edo Journal of Counselling. 3(1): 87-99.*

Gilakjani, A. P., Leong, L.-M., & Ismail, H. N. (2013). Teachers' use of technology and constructivism. *International Journal of Modern Education and Computer Science, 5(4),49–63.*

Government of Kenya (1964). *Kenya Education Commission Report.* Part1.Nairobi: Government Printers.

Government of Kenya (1988). *Report of the Presidential Working Party on Education and Manpower Training for the Next Decade and Beyond.* Nairobi: Government Printers.

Guto, M. D. (2010). *Effects of learning resources management on training technical teachers at Kenya Technical Teachers College*. Unpublished Mphil Thesis, Moi University, Kenya.

KIE (2002). *Primary Education Syllabus*, Volume Two. Ministry of Education Science and Technology.

KIE (2005). *Social Studies Adapted syllabus for Primary Teacher Education*. Ministry of Education.

Korir, B, C. (2015). The Perception of Students and Teachers on the Integration Programme of Students with Visual Impairment in Secondary Schools: A Case of Ainamoi Sub County, Kericho County, Kenya. *Journal of Education and Practice.* Retrieved from https://eric.ed.gov/?id=EJ1080696

Lazzaro, Joseph J. (2001). *Adaptive technologies for learning & work environments*, 2nd ed, Chicago: American Library Association. *Learning Strategies, Supports, and Interventions.* Retrieved on 5/12/2013 from www.edu.gov.mb.ca./../4.pdf

Lujan, Shari E. (2020). *The importance of administrative support for special education teachers*. University of the Pacific, Dissertation. From https://scholarlycommons.pacific.edu/uop_etds/3669

Maguvhe, M, O. (2014). Perceptions of South African Teachers and Students in Residential Secondary Schools for the Blind on Inclusive Education. *Mediterranean Journal of Social Sciences* Retrieved on 5/12/2013 from https://www.mcser.org/journal/index.php/mjss/article/view/3915

Maheshwari V. K, and Maheshwari, S. R. (2014). *Individual difference among children in school*. Retrieved 25th July 2018 from www.vkmaheshwari.com

Male, Mary (2003). *Technology for Inclusion*, 4th ed, Boston. Allyn and Bacon

Malakwen, B. (2000). *Teacher Trainers and Trainees' attitudes towards the implementation of Social Studies curriculum in Kenya's Teachers' colleges*; *The case of Tambach Unpublished M.Phil Thesis, Moi University.*

Mataruse, K. (2002) Gender race and social class on dyscalculia. *African Journal of Special Needs Education* 7 (1) 1-12.

Mazgon, J. and Stefanc, D. (2012). Importance of the various characteristics of educational materials: different opinions, different perspectives *TOJET: The Turkish Online Journal of Educational Technology – July 2012,* volume 11 Issue 3

Mertz, E. and Mertz, K. (2003). Managing technology integration in schools: A South African perspective. *Journal of Educational Administration.*41(2):186-200

Ministry of Education Science and Technology (2001). *Teaching and Learning in* the *Primary classroom.*

MOEST (2001). Primary Teacher Education Syllabus, Vol. 2. KIE

Ministry of Education (2009). *National Primary Teacher Trainers Induction Course: College level training of tutors; May 22nd to 5th June 2009*. Nairobi: Government Printers.

Ministry of Education (2005). *Kenya Education Sector Support Programme 2005-2010.* Nairobi: Government Printers.

Morris, M. (2002, August). *How new teachers use technology in the classroom*. Paper presented at the Annual Summer Conference of the Association of Teacher Educators, Williamsburg, VA.

Mwaka, M., Nabwire, V. K. & Musamas, J. (Eds.) (2014). *Essentials of Instruction: A handbook for Teachers*. Eldoret: Moi University Press

Nachmins, F. and Nachmins, D. (1992). *Research Methods in Social Sciences*. London: Edward Arnold.

Newman, W. L. (2011). *Social Research Methods.6th Edition. Qualitative and Quantitative approaches.* Boston: Pearson Education Inc.

Ngigi N. J. (2007). The constraints to advancement of gifted and talented students in Kenyan Secondary Schools: A case of Nairobi Province, M. Phil, Moi University

Purcell, S. & Grant, D. (2004). *Assistive technology solutions for IEP teachers*, Book 2. Verona. WI: Attainment Co.

Rachel Janney & Martha Snell (2013). *Modifying Schoolwork* Maryland United States Brookes Publishers.

Rakes, G., & Casey, H. (2002). *An analysis of teacher concerns toward instructional* technology. International Journal of Educational Technology, 3(1). Retrieved April 11, 2013, from http://www.ed.uiuc.edu/ijet/v3n1/rakes/index.html

Republic of Kenya (1964). *Kenya Education Commission Report*. Nairobi: Government Printers.

Republic of Kenya (1988). *Report of the Presidential working Party on Education and Manpower Training for the next Decade and Beyond*. Nairobi: Government Printers.

Republic of Kenya (2010). *The constitution of Kenya*. Nairobi: Government Printers.

Republic of Kenya (2009). *The National Special Needs Educational Policy Framework*. Nairobi: Government Printers.

Republic of Kenya (1999) *Totally Integrated Quality Education and Training. TIQET. Report of the commission's inquiry into the Education system of Kenya.* Nairobi: Government Printers.

Republic of Kenya (2015). National policy for persons with disabilities. Nairobi: Government Printers

Rogers, E. M. (1995). *Diffusion of innovations* (4th ed.). New York: Free Press.

Rogers, E. M. (2003). Diffusion of innovations. (5th ed.). New York, Free press.

Syomwene, A. (2017). Change and management of change in curriculum. In Syomwene, A. Nyandusi, C. & Yungungu, A. (2017) (Eds). *Core Principles in Curriculum.* Eldoret: Utafiti Foundation.

Tabot, B. A. & Too, J. K. (2017). Integration of special needs education in primary teacher education curriculum and teacher trainees' skills for instructional efficacy in Kenya. *International Journal of Education and Research, Vol. 5* No. 7.

Tuimur, H. N. (2011). *An investigation into the teaching of the topic conflict and conflict resolution in Social Studies: A case of selected primary schools in Kosirai Division, Nandi North District.* Unpublished M.Phil. Thesis, Moi University

Tuimur H. N. (2017). Tutor training on the use of adaptive technology devices for visually student teachers in Primary Teacher Training Colleges in Kenya. *European Journal of Education Studies, 3(7),431-450 doi: 10.5281/zenodo.*824852

Tuimur H. N (2017). Availability and use of adaptive technology devices for visually Impaired student teachers in Primary Teacher Training Colleges in Kenya. *International Journal of Education and Research,5(5),13-26*

Tuimur, H. N. & Chemwei B. (2015). Availability and use of Instructional Materials in the Teaching of Conflict and Conflict Resolution in Primary Schools in Nandi North District, Kenya. *International journal of Education and Practice: Vol.3 no 6. June 2015.*

Tuimur, H. N., Chemwei B., Rotumoi J. (2015). Instructional Methods used by Teachers in Teaching Conflict and Conflict Resolution in Primary Schools in Nandi North District, Kenya. *International journal of contemporary applied science, vol. 2, no 4. April 2015*

Wiersma, W. Jurs, S. G. (2005). *Research Methods in Education. An Introduction.* Boston: Pearson.

Willings, C. (2015). *Unique visual needs.* Retrieved from http://teachingvisuallyimpaired.com on 20th July 2018

Willings, C. (2017). *Labeling system*. Retrieved from http://teachingvisuallyimpaired.com on 20th July 2018.

Zhao, Y., Pugh, K., Sheldon, S., & Byers, J. (2002). *Conditions for classroom technology innovations. Teachers College Record, 104*(3), 482-515.