



Mwenge Catholic University

VOL. 5, NO. 1,
FEBRUARY 2017

MWENGE JOURNAL OF ACADEMIC STUDIES

Inside this issue

- Critical Role of Higher Education in Development
- Effectiveness of Early Childhood Education (ECE) in Preparing Children for Primary Education in Moshi Municipality, Tanzania
- Evaluation of Implementation of Guidance and Counselling Services in Tabora Municipality, Tanzania
- Implementation of English Language Curriculum in Diploma Teachers' Colleges in Northern Zone Tanzania
- The Role of Languages in Imparting Truth and Trust in Communication: An Epistemological Rethink
- Bifurcation and Stability Analysis of a Tuberculosis (TB) Model with Treatment

ISSN: 1821 – 8369

Critical Role of Higher Education in Development

By Victorini Salema, PhD

ABSTRACT

This study explored the role of higher education and development. Specifically it focused on the link between Higher Education and Development, the critical role of Higher Education in Development, the limiting factors of Higher Education in contributing to development and possible ways of improving the role of Higher education in development.

This study was purely based on document analysis of empirical studies carried out globally and locally. The reviews were based on the research questions, and discussion of the findings from empirical studies were summarized and described accordingly.

The findings indicate that, teaching, research and community service are the major roles carried out by higher learning institutions in relation to development. However, teaching role dominates over research and community services roles. Majority of higher learning institutions take less role in society needs and development in general. Some of the authors call these types of institutions "ivory towers" with less impact in the society. This study recommends that higher education should be a tool for spearheading development and specifically in serving the society to address the current problems pressing the world. Higher learning institutions should invest more in research and community service if they are to be agents of development in the society.

Key words: higher education, development, role, teaching, research, community service.

INTRODUCTION

Background to the Problem

In recent years there has been drastic growth of higher education globally in response to the demands of the society, but unfortunately the more the universities the more challenges related to development. Current studies indicate that Higher education is expanding rapidly in Africa. Millions more men and women are enrolling in university; according to the *UNESCO Institute for Statistics*, the number of students enrolled in tertiary education shot up from 6.1 million in 2000 to 12.2 million in 2013. But what does this mean for economic development? (UNESCO, 2015).

With the growth of higher Education globally, we are asking ourselves : to what extent the growth of higher education is proportional to development and transformation of the

society? According to Estes (2009), World social development has arrived at a critical turning point. Economically advanced nations have made significant progress toward meeting the basic needs of their populations; however, the majority of developing countries have not. Problems of rapid population growth, failing economies, famine, environmental devastation, majority minority group conflicts, increasing militarization, among others, are pushing many developing nations toward the brink of social chaos. A simple example is Somalia, Sudan in Africa , Asia and many others, just to mention a few.

Moreover, there are many organizations and institutions which are spearheading development and relief initiatives in many developing countries such as UNESCO, World Bank, UNDP, UNICEF, WHO, CARITAS and many others. Our challenge here is, to what extent the higher education institutions are taking an active role to address these problems? If the higher education is to play its role in the modern society, then there is a need of radical revision of the higher education to address the challenges facing the sector and in that way it can better address the issues of development.

Statement of the Problem

Despite of the fact that there is sharp growth of higher education level, yet its contribution to the society is at peripheral and with less impact on development. World Conference on Higher Education (1998) in addressing the role of higher education declared that there is an unprecedented demand for and a great diversification in higher education, as well as an increased awareness of its vital importance for socio-cultural and economic development, and for building the future, for which the younger generations will need to be equipped with new skills and knowledge.

The reality is that, the society is faced with many challenges as recurrent wars and civil conflicts, chronic human rights violations, corrupt governments, deepening poverty and growing numbers of economic refugees. Population growth continues to be rapid among the world's poorest countries as does the rate of urban migration in these countries. The world's physical landscape has been seriously compromised as well; today, people everywhere are struggling against the effects of deforestation, exhausted soil and animal resources, recurrent floods and other man-made and natural disasters, including the social consequences of depleted mineral and other natural resources, diseases such as HIV/ AIDS and many others. Globalization and free market have also impacted negatively on developing countries which are not equipped with modern technology and communication. We ask ourselves how the higher education ventures to these areas to find practical solutions to some of these challenges?. It is even worse sometimes to see those who had chance for higher education are the sources of some of challenges. Higher education is expected show its impact to the society by making a difference. Higher education needs to play a bigger role which will be felt in the community and influence

development. The purpose of this study is to reflect on the role of higher learning institutions in relation to their link to development, challenges and possible measures for improvement.

Research Questions

Although it is not possible to exhaust every point related to higher education and development, this study has been narrowed into four research questions as follows:

- 1) What is the link between Higher Education and Development?
- 2) What is the critical role of Higher Education in Development?
- 3) What are the limiting factors of Higher Education in contributing to development?
- 4) What is a way forward towards improving the role of Higher education in development?

Methodology

This study was purely based on document analysis of empirical studies carried out globally and locally. The reviews were based on the established research questions, and discussion of the findings from empirical studies were summarized and described accordingly.

THE LINK BETWEEN HIGHER EDUCATION AND DEVELOPMENT

Higher Education

World Conference on Higher Education (1998) clarified that Higher Education includes all types of studies, or training at the post-secondary level, provided by universities, colleges or other educational establishments that are approved as institutions of higher education by the competent State authority. According to Gutek (2005), Institutions of higher education are Colleges and Universities, that offer programs beyond the secondary school level. Colleges and universities provide necessary training for individuals wishing to enter professional careers. They also strive to develop students' creativity, insight, and analytical skills. They may also include institutes of technology and vocational/technical training. In Tanzania it includes all universities and colleges recognized officially by Tanzania Commission for Universities (TCU) and National Council for Technical Education (NACTE).

Development

Development in human society is a many-sided process. At the level of the individual, it implies increased skill and capacity, greater freedom, creativity, self-discipline, responsibility and material well-being. However, what is indisputable is that the achievement of any of those aspects of personal development is very much tied in with

the state of the society as a whole (Rodney, 1973). According to Peet and Hartwick (2009), development means making a better life for everyone. In the present context of a highly uneven world, a better life for most people means, essentially, meeting basic needs: sufficient food to maintain good health; a safe, healthy place in which to live; affordable services available to everyone; and being treated with dignity and respect. Our main concern here is to what extent the variables mentioned above are achieved especially in the developing countries and the role played by the higher learning institutions to achieve development?.

Higher Education and Development

Higher Learning institutions established to provide Higher education had particular vision and mission to accomplish in the course of their existence in the midst of the society. The mission and vision of each particular institution varied from one another and its focus towards development varied from one place to another depending on other extraneous factors like the state policies and the society at large. In fact, Higher education should contribute to development nationally and globally and is expected to ensure that development is sustainable. Moja (2008) said that there is some recognition of the part that higher education could play in development but the strategies and discussions about development often exclude the higher education sector. Example was the notable absence of higher education participation at the World Summit on Sustainable Development hosted in South Africa in 2002. Academicians participated as individuals interested in sustainability issues but there was no formal sector representation. Again at the G8–UNESCO World Forum on Education, Research, and Innovation in Trieste-Italy, May 2007, higher education was represented by individuals, rather than organizations that would take the agenda further with their member institutions. What is disturbing is the absence, or minimal involvement, of higher education leadership in those seminars working out strategies to involve the sector. The higher education sector is often left out in discussions on the world's transformation and in setting the development agenda. In addition to that, Msola (2009) argued that it is unfortunate that the many Declarations and agreements made by the global and regional bodies such as the United Nations Millennium Declaration (2000) and its eight Millennium Development Goals and the New Partnership For African's Development report (2005); Higher Education and its potential contribution to national development are not mentioned directly. Bloom, Canning and Chan (2006) added that for several decades, donor institutions have placed great emphasis on primary and, more recently, secondary education in their development assistance to Sub-Saharan Africa, but they have neglected tertiary education as an added means to improve economic growth and mitigate poverty.

Moja (2008) thought that the reason why the sector gets left out is that there is no formal structure that focuses on sustainability issues in higher education other than individual researchers and small centers within institutions. One of the criticisms worldwide is that

Higher Education Institutions are often isolated from the communities within which they are located– the accusation of ‘ivory-towerism’ or rather as Ngara, 1995 would call them “white elephants”. Governments are often unsure how to relate to institutions and will, out of frustration, violate their academic freedom by stepping in and interfering with institutional operations for political reasons or genuine development concerns. The role of institutions worldwide receives the lowest priority, even in institutions that regard themselves as developmental institutions (Moja, 2008).

In Recent years the tone is changing and higher Learning Institutions are getting more attention. higher education worldwide has moved from the periphery to the centre of governmental agendas. Universities are now seen as crucial national assets in addressing many policy priorities, and as: sources of new knowledge and innovative thinking; providers of skilled personnel and credible credentials; contributors to innovation; attractors of international talent and business investment; agents of social justice and mobility; contributors to social and cultural vitality; and determinants of health and well-being.

One of the reasons why such education has come under pressure, is the research imperative. In many settings research and scholarship have become the enemies of good teaching rather than its necessary complement. Many universities have given research such priority that it is become an activity separated from teaching. The establishment of teaching-only and research-only posts is symbolic of the shift. Universities are certainly not exclusively, nor even primarily, research institutions (Geoffrey Boulton, 2009).

Example the meeting on “The Role of Universities in supporting UNESCO Designated Sites as Drivers for Sustainable Development at Local and Regional Levels” Which Took Place On 18-19 January 2016 In Athens Reiterated that Sustainable Development is also a core issue that Universities are expected to address by fostering research, spreading knowledge, and promoting new competencies and behavioral models in order to encourage a more globally, responsible action. Universities are places of conceptual development and application of SD principles and on their role as incubators of change and drivers of sustainability in their local/urban context (UNESCO, 2016). There was no role for higher education in the Millennium Development Goals, or MDGs, the eight ambitious United Nations’ targets for solving some of the world’s most pressing problems, due to expire at the end of 2015. In the new Sustainable Development Goals, or SDGs, education is a stand-alone goal and higher education does get a mention. This consists of 17 Sustainable Development Goals, each broken down into targets, to be met by 2030. SDG4 calls on the world to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all”. For the first time, there is specific mention of the role of universities (UN, 2015).

CRITICAL ROLE OF HIGHER EDUCATION IN DEVELOPMENT

Higher learning Institutions need to be clear in their vision and mission to ensure they fulfill their role in the society and in development. It is from this perspective; we are calling for a need of Higher learning institutions to redefine their vision and mission to meet the new demands of the community. Ngara (2000) argued that planning for higher education is necessary to be clear about the purposes and the needs of both the society and the individuals. He pointed out the aspects which cover the mission of a university as teaching, research, fostering moral values, consultancy and services. It is upon these factors we are discussing the roles of Higher Education in relation to development.

i) Teaching Role

Ketudar (2000) advocates that Higher learning institutions should create graduates in large numbers who are competent in all fields particularly in science and technology and management capabilities. The graduates however, should have general knowledge of their culture and society in the global setting. Thus the role of teaching in Higher learning institution let it be in universities or other technological or vocational training should produce Quality Workforce for development of a country. Higher education should be geared towards preparing workers with the robust skills needed to adapt to changing job requirements. Higher education should prepare a quality workforce by offering instructional programs, matching instruction to the needs of business and industry, and helping individuals learn throughout their lives.

Teaching excellence is the key to a strong and growing regional economy (Sampson, 2004). Higher education should offer quality programs and services and continually improve these programs to ensure teaching and learning excellence. These programs should cover sensitive areas such as science and technology, commerce, administration, health and other teaching profession courses. However, many universities have programs which are irrelevant not only to individuals themselves but to the society at large. Many higher learning institutions are for quantity of programs and not for the needs of the society and the labour market.

The types of academic programs offered by universities, both public and private, should be considered critical to the realization of development agendas. As teaching institutions, universities have the potential to produce the human resource that is required for achieving the global development agendas, through channeling out appropriate and quality graduates to meet the labour market needs. These graduates include engineers, health specialists, leaders, policy makers, physicians, agriculturalists, technologists and scientists (Kiani, 2011; Robert & Ajai-Ajagbe, 2013). Universities need to adapt to the changing demands of the markets through, among other aspects, developing curricula for academic programs that include the knowledge and skills required for the current economic, political, social and environmental context (Pillay, 2011).

ii) Critical Role in Research, Innovation and Publication

Ketudar (2000) argued that Higher learning Institutions should take a Proactive role in a society through research. Universities should create research to be utilized by the government and other private sectors in formulating plans and policies in various sectors such as education, economics, politics etc. This means that the higher education should take the initiative to do research relevant to the needs of a society and the society to use the knowledge to solve the problems. This will lead to advancement in development not only of the individuals but also the society as a whole.

According to Loveridge (2008) institutions of higher learning which are located in the community can be good assets for economic growth and be of great service to the business and industry in the community. Thus, Higher education can be a valuable resource to businesses and industry by identifying employee skills gaps and providing customized training, conducting organizational assessments and providing management development, providing technical assistance, and assisting in the identification of new markets for products. The big challenge with this however, is that there is little coordination or communication between the institutes and the economic actors in the community.

Ngara (2000) advanced that, what contributes significantly to the development efforts of people, is when innovations are made. Thus, Research and practical application-based technology are needed to create sustainable economic growth. Research conducted by higher education should enhance the economic development of a region in various ways: conducting economic and social research, including community audits, community forums, and leadership briefings, used to identify assets; gaps in the economic, social, and cultural infrastructure; critical skill shortages; growth opportunities; and trends in the economic climate of the region, facilitating technology transfer of basic and applied research. All these will add up to our endeavor to achieve development.

Moreover, publication for knowledge and awareness is crucial for sharing knowledge with various stakeholders of development. Academic institutions should frequently sponsor journals and other publications that contribute to intellectual life (Altbach, 2008). The big challenge facing most of the Higher learning institutions especially in developing countries is the inability to publish the research findings. There are many volumes of research findings which are well kept in shelves instead of helping the local people. Ngara (2000 p. 35) concludes this point when he said, "without publishing knowledge remains unutilized and at the best monopolized by the researcher and his or her close associates, which is an unproductive use of the human mind and of time, personnel and funds". Higher education should invest on research and publicize the knowledge for use in the society to stir up development.

iii) Critical Role of Higher Learning Institutions in Community Service

Higher education should help to create Livable communities. In communities where there is conflict, the higher learning education should strive to work for peace and harmony. The higher learning institutions could join other peace makers or initiate peacemaking groups to take active role in restoring peace. They should promote Education of moral attitude to social and political activity to bring harmony between non-government organizations (NGOs), government or municipal authorities and public organizations (Marina Albertovna Korotkova & Tatyana Grigoryevna Rimskaya, 2015).

Besides teaching and research, institutions of higher learning have an important role to play in the process of changing lives of the people in the rural areas. Universities have frequently been regarded as key institutions in the process of social change and development. The most explicit role they have been allocated is the production of highly skilled labor and research output to meet the perceived needs of economy (**Loyiso M. Luvalo**, 2014).

Higher education should stir up gatherings and entertainment to the society including sports and recreation programs that attract and retain a quality workforce. Through these gatherings, the community has the opportunity to disseminate information on awareness of what brings peace and development in the society and so on. The Higher Education should prepare the workforce which will give the best service to the society. Knowledge obtained in Higher learning institutions should be integrated to moral values and dignity. Ngara (2000) argued that Universities prepare leaders of tomorrow. Therefore universities should transmit more than knowledge to students. The big challenge we have in the societies is the type of graduates who do not have moral values in their way of life and when they get higher positions of leadership they do not demonstrate good leadership to lead people to the desired development. Instead, they work for their personal advancement through corruptions and the like. Higher education should transform people to be better and render integral service to the community.

CHALLENGES OF HIGHER EDUCATION

Knowledge has been identified as a critical asset for organizations wishing to survive in the global market place and that learning is crucial for new economic conditions as it lays the foundation for knowledge construction (Wesley, D. 2002).

Maximizing the realization of these possibilities is still problematic as evidenced for example that to date in Africa there are still a great number of people who are missing out on higher education (Maliyamkono and Mason 2006).

Financing higher learning is one of the myriad factors limiting not only admission of students from the poor families but also the institutions themselves fail to operate properly

due to limited funds. Cabrera, Nora and Asker (2000) said that studies show finance-related factors (student aid, tuition, and other costs, including living) explained about half the total variance in the student participation in higher learning education. In Tanzania for example for decades, we witness a lot of complaints from university students who missed the loans from the Higher Education Students' Loans Board (HESLB) and postpone their studies without any hope of getting loans in the next academic year.

In many countries, the budget set for higher education is too low. Most of the government higher Institutions depend on government subsidies to run their daily activities. Lack of enough funds in these institutions affects the quality of the output. There is less and less involvement in research and innovations because of lack of enough funds.

There are challenges related to Government policy on Higher Education. The Higher Education policies are not stable and they change over time depending on the Minister in place and the influence of politics in matters pertaining to education. This has destabilize the delivery of higher education in Tanzania and its influence in development.

Again, we have a challenge posed by globalization and internationalization of almost every aspect in life with the growth of science and technology. This has increased competition in the workforce labor market. The open market set most of developing countries to the peripheral due to low standards of Higher Education which does not meet the global standards, and consequently locked out in competition. This has been accelerated with the mushrooming of institutions with low standards, enrolling students at different levels in higher learning education, thus compromising quality education.

In some places, failure to coordinate academic degrees with the job market has resulted in educated unemployment (Altbach, 2008). Though the focus of education is not primarily for employment, but we need degrees which can apply in the society by providing employment opportunities or self employment.

Again there is a big problem of influx of learned people from their countries or institutions to other countries or institutions in search for greener pastures while leaving their countries in shortage of learned personnel. According to Moja (2008), there is a fierce battle among institutions to steal the best professors from each other, resulting in competition rather than cooperation. Lack of cooperation obviously has a negative impact on working together on common agendas that could include human and social development issues.

RECOMMENDATIONS

The Higher Education sector must take the lead in addressing global issues in a way that will contribute to human economic and social development. To increase their contribution to development through the production and distribution of knowledge. Universities in developing countries need to transform themselves into developmental universities. But to achieve this, other participants, such as industry and government, must also be prepared to take on new responsibilities.

Higher learning institutions should read the signs of time to cope their programs to fit both local and international demands, so that the graduates can compete with their counterparts in developed countries. The governments should put down policies which will support all talented students who are successful in their secondary education and to see ways to help those who did not qualify for universities, to get alternative opportunities like in vocational training colleges.

The government should establish strong machinery in quality assurance. There should be proper evaluation of the performance of universities both government and private to ensure that they are offering standard Higher Education. Those which do not meet standards should close until they meet the standards.

Gender equity should be considered. Higher education should not be given with bias to a certain gender. Both girls and boys should be given equal opportunity so long as they qualify for higher education. This will help to eradicate stereotyping in society that boys can do better in university than girls and the vice versa.

Moreover, the brain draining tendency should be addressed. Those who graduate from universities should feel their responsibility to assist their home countries in the process of development and assisting others to gain education. The governments should also create conducive environment for work for the graduates and try to instill in them the spirit of patriotism.

Those who have had chance for higher education should be role models and agents of development. An educated person should use the education to transform oneself and the community. Higher institutions should mould their products to be development creators through creativity and knowledge they acquire in the process of leaning.

CONCLUSION

Higher education is very essential tool for development but unfortunately it is not available to majority but minority. The minority who acquire the higher education should be liberated and show difference in the society. Mwalimu Nyerere the first president of Tanzania was keen on that when he said:

The education provided must therefore encourage the development in each citizen of three things: an enquiring mind; an ability to learn from what others do, and reject or adapt it to his own needs; and a basic confidence in his own position as a free and equal member of the society, who values others and is valued by them for what he does and not for what he obtains. (Nyerere, 1968. p.274).

Those who have the chance to acquire higher education should feel owed by the society and should contribute effectively to ensure development.

REFERENCES

- Arbo, P. & Benneworth, P. (2007). "Understanding the Regional Contribution of Higher Education Institutions: A Literature Review", *OECD Education Working Papers*, No. 9, OECD Publishing. doi:10.1787/161208155312.
- Billman, P. (2005). *The Role of Higher Education in Economic Development Higher Education*. Alliance for the Rock River Region: NIU Outreach, (815) 753-0928.
- Bloom, D., Canning, D., & Chan, K. (2006). *Higher Education and Economic Development in Africa*. Harvard University: Human Development Sector Africa Region. Comparative Perspective.
- Cabrera, A., Nora, A. and Asker, E. Economic influences on persistence reconsidered: How can finance research inform the reconceptualization of persistence models. In J.M. Braxton (ed.), *Reworking the student departure puzzle*, (1 ed.). Nashville: Vanderbilt University Press, 2000.
- Corkill, H.(2008). *Learning for work and working to learn: Challenges within a changing UK higher education system*. US-China Education Review: Volume 5, No.1 (Serial No.38). ISSN1548-661.
- Este, R. (2010). *The World Social Situation: Development Challenges at the Outset of a New Century*; Soc Indic Res 98:363–402: DOI 10.1007/s11205-009-9550-6.
- Geoffrey Boulton (2009). What are universities for?. University world news. The global window for higher education. <http://www.universityworldnews.com/article.php?story=20090326200944986>

Glenda Kruss, Simon McGrath, Il-haam Petersen, Michael Gastrow, (2015). Higher education and economic development: The importance of building technological capabilities. *International Journal of Educational Development, Volume 43, July 2015, Pages 22-31*

Gourley, B. M. (2000). University and Development: Anticipating Change. In G. Neave (Ed.), *The Universities' Responsibilities to Society: International perspective* (pp. 63-70). New York: Elsevier Science printers.

Haddad, G. (2000). University and Society: Responsibilities, Contracts, Partnership. In G. Neave (Ed.), *The Universities' Responsibilities to Society: International perspective* (pp. 29-36). New York: Elsevier Science printers.

Ketudat, S. (2000). Priorities for a Dynamic University System: Thailand: In G. Neave (Ed.), *The Universities' Responsibilities to Society: International perspective* (pp. 37-49). New York: Elsevier Science Printers.

Kiani, A. (2011). Role of university education in poverty alleviation in Pakistan. *Interdisciplinary Journal of Research and Business* 1(7) 30-38 (Online)
Available: www.idjrb.com/articlepdf/idjrb7n4.pdf

Loveridge, S. (2008). Strategies For Economic Development Partnerships With Institutions Of Higher Learning. *Journal of Planning Education and Research*. 21:331-339.

Loyiso M. Luvalo (2014). **The Role of Higher Education in Social Transformation and Rural Development**. Mediterranean Journal of Social Sciences MCSER Publishing, Rome-Italy Vol 5 No 23 November 2014.

Maliyamkono, T. L. and Mason, H. *The Promise*, TEMA Publishers Company Ltd, Dar Es Salaam, 2006

Marmolejo, F. (2006). *Fostering The Development And Implementation Of Principles for Managing Ethics In Higher Education Institutions: An International Edition*.

Marina Albertovna Korotkova & Tatyana Grigoryevna Rimskaya, (2015). *The Role of University Branches in the Formation of Common Cultural Competences of Students*. *International Education Studies*; Vol. 8, No. 5; 2015

Moja, T. (2008). *Institutional Challenges And Implications For HEIS: Transformation, Mission And Vision For The 21st Century*.

Mortenson T. (1999). *Why College? Private Correlates of Educational Attainment*. *Postsecondary Opportunity*, No. 81.

Ngara, E. (1995). *The African University and Its Mission Strategies for Improving the delivery of Higher education Institution*. Lesotho: Morija Printing Works.

Nyerere, J.K. (1968). "Education for Self-Reliance" in *Nyerere 1968 Freedom and Socialism, Uhuru na Ujamaa* Dar es Salaam: Oxford University Press.

Peet, R. & Hartwick, E. (2009). *Theories of Development: Contentions, Arguments, Alternatives*. New York : The Guilford Press.

Pillay, P. (2011). Higher education & economic development: Literature review. Centre of Higher Education Transformation (CHET). South Africa. (Online) Available: chet.org.za/.../higher-education-and-economic-development-review-literature

Rodney, W. (1973). *How Europe Underdeveloped Africa*. London: Bogle-L'Ouverture Publications and Tanzanian Publishing House.

Sutz, J. (2009). Developmental Universities: A Changing Role for Universities in the South: *Policy and Science Program Area, IDRC, Canada*. Retrieved September 19, 2011 from www.idrc.ca/roks.

UNESCO (2009). *Trends in Global Higher Education: Tracking an Academic Revolution: UNESCO 2009 World Conference on Higher Education*. Retrieved 1/10/2011. From <http://unesdoc.unesco.org/images/0018/001831/183168e.pdf>.

UNESCO (2016). The role of universities in supporting UNESCO designated sites, beacons of sustainability. http://www.unesco.org/new/en/member-states/single-view/news/the_role_of_universities_in_supporting_unesco_designated_sit/UN (2015). UN development goals – A bigger role for universities?. <http://www.universityworldnews.com/article.php?story=20151014211927167>

Vessuri, H. (2008). *The Role Of Research In Higher Education: Implications And Challenges For An Active Future Contribution To Human And Social Development*.

Wesley, D. A critical analysis on the evolution of e-learning, 2002. p 42.

World Conference On Higher Education (1998). *World Declaration On Higher Education For The Twenty-First Century: Vision And Action*. Retrieved 2/9/2011 from <http://www.unesco.org/education/educprog/wche/presentation.htm>.

Effectiveness of Early Childhood Education (ECE) in Preparing Children for Primary Education in Moshi Municipality, Tanzania

Kezia J. Mashingia and Joseph M. Malusu

ABSTRACT

Effectiveness of Early Childhood Education (ECE) in preparing children for primary education is not fully documented at Moshi Municipality in Tanzania. Thus the aim of this study was to find out whether ECE is effective in preparing children to cope with primary education in Moshi Municipality. The study focused on the content comprised in the curriculum of ECE, the strategies and resources used in teaching and learning, the quality of ECE teachers, the challenges of transition of children from ECE schools to primary education. The study used Ex-Post Facto design. The target population included ECE pupils, standard one pupils, teachers and head teachers of the sampled schools. Sampling procedures included stratified sampling for choosing government and private schools and for sampling pupils who attended ECE and those who did not. Research instruments included questionnaires, interview schedule, observation schedule and 2 teacher made tests. The research instruments were validated at Mwenge Catholic University by research experts. Reliability of the questionnaire was (0.696) and that of the teacher made tests was (0.73). Pilot testing of the instruments was administered to one pre-primary and primary school. In this study quantitative data was summarized into frequencies, percentages, figures and tables. Data were analyzed by using descriptive and inferential statistics. The hypotheses were tested by using ANOVA- test and showed that there is significant difference between pupils who attended ECE and those who did not attend ECE in terms of cognitive and social skills development. The findings revealed that the content of ECE is sufficient and similar to that of primary education and so there is continuity. Government pre-primary schools use government syllabus and use both English and Kiswahili as medium of instruction. Private schools use government and Montessori syllabuses. Major teaching and learning strategies for both pre-primary and primary schools included question and answer, storytelling, singing and dramatization. Teaching and learning resources were adequate in both pre-primary and primary schools. All ECE teachers were women and had ECE training. The challenges of the transition from ECE to standard one included English language problem, pupils meeting new teachers, new environments, many subjects and new peers. Social and economic constraints included long distances from home to schools, orphans failing to get school stationeries and large classes in government schools. The researcher concluded that ECE is effective in both cognitive and social skills development of pupils through teacher made tests administered. Pupils who attended ECE performed better in both cognitive and social skills than those who did not attend ECE. The researcher recommends the Ministry of Education and Vocational Training (MoEVT) to educate the community on the importance

of ECE and be able to support these schools with resources such as computers, video and radio.

Key words: Effectiveness, ECE, Transition, Curriculum, Content, Education, Syllabus, Preprimary.

INTRODUCTION

Background to the problem

Over the years, there has been much debate over which type of program qualifies as Care and as Early Childhood Education (ECE). Recent research provides clear evidence that strong social-emotional development underlies all later growth and learning. A well-educated and caring, high program standards and a curriculum based on a child's developmental needs are among the most important components of high quality early learning environment. (Education for All, May 2014).

Moshi Municipality has 35 government primary schools with sections of preprimary, 14 private primary schools with sections of pre-primary and 5 pre-primary schools only. In these schools there are children who attended ECE and those who did not attend ECE. Some children have high performance when they join standard one and some of them have low performance. Thus the problem was that were these schools offering effective ECE to the children? Did these schools have a balanced ECE curriculum, sufficient teaching and learning strategies and resources and trained ECE teachers? Therefore this study investigated whether ECE prepared children well in terms of the curriculum from preprimary to primary schools, teachers' qualifications, teaching strategies, teaching resources and the challenges encountered in the transition from preprimary schools to standard one.

Statement of the Problem

According to Wright (2009) stated that individuals respond differently to change. Some may be excited some take it in their stride, while others experience anxiety. During early childhood transitions, parents and even teachers can experience these emotions as do transitioning children. A child does not adapt to and cope with change in isolation. Parents, families, siblings, peers and teachers in the child's world all play an important part in facilitating the process of change with children.

Moromizato (2007) stated that throughout the process of transition, children experience the dualism of loss and gain when they stop being one thing and become something different. During this transition pupils experience challenges such as differences in the content taught in preprimary and that of primary education. For example does ECE content

have similar fitting to the next level, linking it to Standard one? Is there sequencing, continuity and integration of the topics taught to avoid overlapping when ECE pupils transit to Standard one? Another challenge is whether the teaching resources in Standard one are adequate like those of ECE pupils who learn through play and the teaching is learner centered. Another concern was whether the strategies used in teaching ECE pupils and Standard one are similar or different. ECE pupils have a lot of activities such as playing, eating and sleeping at a fixed time table or routine. Could they have the same opportunities when they join Standard one? Also ECE is not fully documented in Tanzania. Therefore this study is going to investigate the effectiveness of ECE in preparing children for primary education in Moshi Municipality,

Research Questions

1. How does the curriculum of ECE prepare children to cope with primary education in Moshi Municipality?
2. To what extent are teaching and learning strategies employed in ECE adequate to prepare children to cope with standard one primary education in Moshi Municipality?
3. To what extent are teaching and learning resources used in ECE adequate to help children cope in primary education in Moshi Municipality?
4. What is the level of training of ECE teachers?
5. What are the challenges associated with the transition of children from ECE to standard one?
6. What are the social and economic constraints affecting children when they transit from ECE schools to primary school education in Moshi Municipality?
7. What are the challenges of ECE in preparing children for primary school education in Moshi Municipality?

Research Hypotheses

1. Children who attend ECE have higher cognitive abilities than those who do not attend ECE when they join Standard one.
2. Children who attend ECE have higher social skills (such as games, sports and integration with peers) than those who do not attend when they join Standard one.

Significance of the Study

The findings of this study generated a base line for improvement efforts and development of ECE. By exploring aspects of child development and learning, one would gain insight into how to support preprimary children during this critical stage of life. The knowledge obtained can help stake holders in the Ministry of Education such as REO'S, DEO's, policy

makers, curriculum developers in instituting effective curriculum for young children in Tanzania. The study drew the attention of the Government, donors and other stakeholders on the need to emphasize on development of the preprimary school curriculum to ensure uniform teaching of ECE children. The study findings too are expected to influence other researchers to carry out research on the same problem. Again the study can be used as a reference document related to early childhood education.

Scope and Delimitations

The study was delimited in scope, study area as well as the sample. The study was conducted in Moshi Municipality of Tanzania covering six government primary schools with preprimary sections, four private primary schools with preprimary sections and two preprimary schools only. The selection of the study was due to the fact that Moshi Municipality is among the areas in Kilimanjaro region that has many preprimary schools. There is also limited information about ECE at global level (Education International, 2006) and in particular Tanzania. The researcher too focused on the content of ECE curriculum and whether it was effective in helping ECE children to cope with primary school education. Another aspect of the study was investigating strategies for teaching ECE children, training of ECE teachers and exploring challenges encountered in the process of teaching and learning. The study also investigated the effects of transition of ECE children to primary school.

Theoretical Framework

This study was based on the systems approach theory by Bertalanffy (1968). It is a theory based on the collection of elements interacting with each other to achieve a common goal such as a preprimary school with teachers, children, parents and community. The theory provides a conceptual framework whereby input, process, output and feedback affect each other. The theory is relevant to the study of ECE in that the activities involved in the teaching and learning in a preprimary school are not done single handed. They are performed in connected activities or through inter-related cooperation of elements. For instance a preprimary school receives inputs (target children) puts them in a process (learning process) and finally brings them out as output or outcome (children with changed behavior and skills of writing and literacy).

Operational Definition of Terms

Effectiveness—In this study effectiveness is measured by teacher made tests which show how ECE children can cope well when they transit to Standard one.

ECE—Early Childhood Education which is taught in institutions where education programs are conducted to young children from 3 to 6 years before entering Standard one at the age of 7.

Preprimary school – A school which conducts Early Childhood Education for pupils from 3 to 6 years.

Transition –The time when ECE children join standard one.

Review of Selected Theories

Piaget's Theory of Child Cognitive Development

Piaget, (1997) believed that learning comes from within as the child constructs his/her own knowledge. He said that, "If logic itself is created rather than being inborn, it follows that the first task of education is to form reasoning". Piaget redefined teaching from transmitting knowledge to observing and guiding children in building their own knowledge. By applying Piaget's theories to school programs such as early childhood education experiences become more hands – on and concrete as children explore through trial and error. He believed that early childhood education includes encouraging, exploration, manipulating objects and experiencing new environments.

Piaget's theory is related to the study in that it is suggesting sequencing teaching strategy according to age and maturity. Young people learn simple concrete concepts and adult people learn abstract concepts. The teacher of ECE should be trained and be able to apply the principle of teaching from concrete to abstract, simple to complex, specific to general in order to have effective learning. Piaget's theory has been very influential in curriculum programs in schools. The theory is important in evaluating curriculum and it empowers teachers as instructional managers to ensure that the learning environment is rich in physical (concrete) experiences because growth in any one stage depends upon activity (Simatwa, 2010).

Montessori Theory of Learning by Doing

Montessori education is an educational approach developed by Italian physician and educator Maria Montessori 1912 and characterized by an emphasis on independence, freedom within limits and respect of a child's natural psychological, physical and social development. Mixed age classrooms, with classrooms for children age 2½ or 3 to 6 years old by far the most common student choice of activity from within a prescribed range of options. Uninterrupted blocks of work time ideally three hours, constructivist or "discovery" model, where students learn concepts from working with materials, rather than by direct instruction. Specialized educational materials developed by Montessori and her collaborators are used in class where there is freedom of movement within the classroom. Montessori education is fundamentally a model of human development and an educational approach based on that model. The model has two basic principles. First, children and developing adults engage in psychological self-construction by means of interaction with their environments. Second, children, especially under the age of six have an innate path

of psychological development. Based on her observations, Montessori believed that children are at liberty to choose and act freely within an environment prepared according to her model would act spontaneously for optimal development.

Review of Empirical Studies

A study conducted by the Education International Early Childhood Education (EIECE) Task Force (2010) in 16 countries (Brazil, Canada, Denmark, The Gambia, Ghana, Hungary, Mexico, Nepal, New Zealand, Nigeria, Norway, Portugal, St. Lucia, St. Vincent and the Grenadines, Togo, the United States and Venezuela) revealed that, there is a wide range of positive developments and experiences in several countries, including increasing participation rates, provision of comprehensive ECE services, as well as the training and professional development of teachers. The study also revealed that early childhood education has enormous individual, social and economic benefits (EIECE Task Force, 2010). Also the findings revealed that ECE remains low in developing countries especially special needs children and there is shortage of qualified and professional teaching staff of ECE with over 90% of them being women.

Mtahabwa & Rao (2010) did a study on actual practice of preprimary lessons in two schools in Dar es Salaam (urban) and two schools in Mtwara (rural). The rating of the findings showed that classroom management was average, information delivery in class was good, teacher feedback was poor and teacher questioning was good. Overall results showed that urban preprimary schools had better facilities and better learning than rural preprimary schools. Preprimary classrooms had little space to allow movement and play. There was a less favorable teacher-pupil ratio, few instructional resources and less qualified teachers.

Mwakanema (2007) did a study on, Provision of High Quality Preprimary Education as an Economic Development Tool: The Case of Ngaraba Nursery School in Mabibo Ward in Kinondoni Municipality, Dar es Salaam. Tanzania. The findings showed that many respondents were women (59.6 %) and 64.4% of the respondents indicated that post pre primary academic performance was good. These studies did not touch on the transition from ECE to Standard one primary education especially in developing countries like Tanzania. Also much of ECE information is not clearly documented in Tanzania.

DESIGN AND METHODOLOGY

This study used Ex-Post Facto design. Kelinger (1973) defines ex-post facto research as a systematic empirical inquiry in which the scientist does not have direct control of the independent variables because their manifestations have already occurred or because they are inherently not manipulatable.

Target Population

There are 35 government primary schools with preprimary section, 14 private primary schools with sections of preprimary schools and 5 preprimary schools only in Moshi Municipality. The target population included 12 preprimary and 10 primary schools in Moshi Municipality with their respective teachers, head teachers and pupils totaling 136.

Description of Sample and Sampling Procedures

The study used stratified sampling for choosing schools in order to have both government and private schools. Also, the study used stratified sampling for choosing pupils who attended ECE and those who did not attend ECE. The sample of this study was selected from 6 government primary schools with sections of preprimary, 4 private primary schools with sections of preprimary and 2 preprimary schools only. The sample size was 12 schools with 136 participants as follows: 100 pupils, 24 teachers and 12 head teachers.

Description of Data Collection Instruments

In this study data was collected by using questionnaires, observation schedule, interview schedule and 2 teacher made tests. Pilot testing of the research instruments was administered to one primary school with pre primary section. In order to check content validity, the instruments were reviewed by lecturers in the field and research experts at Mwenge Catholic University. Reliability was tested by using test - retest method. A Spearman rank order correlation coefficient (0.696) was calculated for questionnaires. Correlation coefficient of (0.696) is the degree of relationship between any set of scores obtained from the same group of individuals (Babyegeya, 1998). The reliability for teacher made tests was calculated by Kuder Richardson formula (0.73) which is reliable (Cronbach, 1951).

Description of Data Analysis Procedures

In this study quantitative data from the interview schedule, questionnaire and observation schedule were summarized into frequencies and analyzed by using descriptive and inferential statistics by using SPSS soft ware version 20. The hypotheses were tested by using ANOVA-test because both were showing how high the abilities were (independent sample test) in comparing the performance of pupils who attended preprimary education with those who did not attend it in terms of their abilities.

SUMMARY OF THE MAJOR FINDINGS

The major findings were based on the study carried out and examined by the researcher on the effectiveness of early childhood education (ECE) in helping children cope with primary education in Moshi Municipality. The discussion of findings started with

demographic characteristics of the respondents followed by seven research questions and two hypotheses testing as follows:-

Social-demographic information of pre-primary and primary school teachers (n=22)

The pre-primary and primary school teachers' social-demographic characteristics for 10 primary and 12 pre-primary school teachers included 12 (100%) pre-primary school teachers and 10(100%) primary school teachers who were all females in gender. This portrays that female teachers mostly occupy the field of ECE as pre-primary and primary school teachers in Moshi Municipality. These findings concur to the study conducted by Educational International Early Childhood Education (EIECE) Task Force (2010) which found that over 90% of teaching staff of ECE were women.

Attendance of ECE pupils in Government and Private Schools

The researcher was interested to reveal the variation of distribution of attendance for ECE from Private and Government schools. This helped the researcher to know the number of pupils who attended ECE and those who did not attend. The findings were analyzed in figure 1

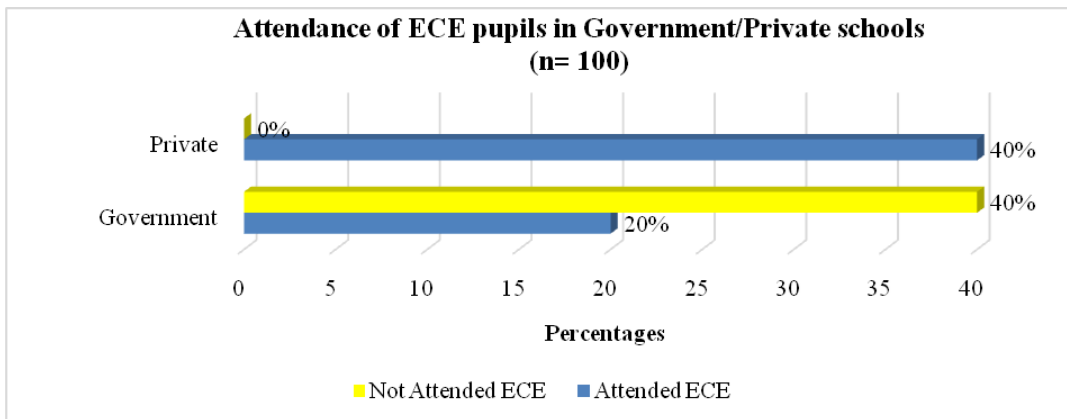


Figure 1: Attendance of ECE pupils in Government and Private Schools

Figure 1 shows that 40% of pupils from government schools did not attend ECE; all pupils from private schools attended ECE. Only 20% of government pupils attended ECE in Moshi Municipality. Responses of Pre-primary school teachers and Head teachers on syllabus used, Language used in teaching pre-primary and sufficiency of syllabus content for ECE in preparing children to join standard one showed that majority of schools (83.3%) used the government syllabus, some used Montessori syllabus and few schools used both. The responses of pre primary school teachers (100%) also showed that the content of ECE was sufficient in preparing children to cope with primary education and both English and Kiswahili were used in teaching. According to the language police of Tanzania the two

languages English and Kiswahili are considered to be official and accepted in government communication (Asheli,2010).

Responses of pre-primary and primary school teachers on the major topics taught in pre primary education (ECE) and Primary education (n=22)

The major topics which appeared in both ECE and standard one curriculum included Geetings, Number work / Maths, Addition, Science, Arts,Crafts Drawing and Body cleanliness . This means that there is continuity of topics taught in the curriculum of ECE and that of primary education and this helps pupils to perform better when they transit from ECE to standard one.

Ability of pupils from ECE who join standard one

Primary school teachers were asked to rate the ability of ECE pupils whom they receive in standard one. The responses showed that 20% said very good, 30% said good and 50% said fair. Therefore ECE curriculum is useful to pupils' education development. These findings concur with Dubois (2007) who observed that ECE increases readiness for primary school education.

Table 1: Reasons which affect pupils' ability during transition from ECE when they join standard one (n= 10)

Reasons affecting ability of pupils	Frequency (%)	
	Yes	No
Transferring from ECE to standard one affects children	7 (70)	3 (30)
Different understanding of children	3 (30)	7 (70)
Different medium of instructions English and Kiswahili	3 (30)	7 (70)
Different age groups some are young, others old	3 (30)	7 (70)
Different teachers' strategies	1 (10)	9 (90)
Changes of the environment/ new environment	1 (10)	9 (90)
New teachers	1 (10)	9 (90)
Child has completed his or her semester	2 (20)	8 (80)
Child has been taught well	1 (10)	9 (90)

The table 1 shows primary school teachers replies on the reasons affecting pupils during transition from ECE to standard one. Many primary school teachers (70%) gave the reasons that transferring pupils from ECE to standard one affects the ability of pupils in that teaching and learning becomes difficulty. On the other hand head teachers said that ECE inculcate positive attitudes towards learning although they said some pupils join standard one with low ability of studying contrary to their age. These results concur with Moromizato (2007) who stated that throughout the process of transition, children experience the dualism of loss and gain when they stop being one thing and become something different.

Responses of pre-primary and primary school teachers on teaching and learning strategies employed in ECE and Primary education (n=22)

The responses of pre-primary and primary school teachers on teaching and learning strategies employed in ECE showed that they are adequate to prepare children to cope with standard one primary education in Moshi Municipality. The findings of the study support storytelling and singing teaching and learning strategies as the best in the preprimary as it was found by Reggio(2001) who stated that the curriculum of ECE is the academic context of a child's day and encompasses everything a child learns such as song time, food and sleep.

Responses of preprimary and primary school teachers on the adequacy and availability of Resources (n=22)

The responses of pre-primary and primary school teachers on the adequacy and availability of resources indicated that the resources in ECE were adequate since their overall mean score for pre primary school was (M=2.7) and that of primary school was(M= 2.99). However the teachers suggested additional teaching and learning resources such as flannel board, computer, textbooks and radio.

Table 2: Primary school teachers' responses on the challenges of ECE pupils when they join standard one (n=10)

Challenges	Frequency (%)	
	Yes	No
Children who have not been taught in English from other schools	5 (50)	5 (50)
English lessons seem difficult at the beginning	5 (50)	5 (50)
Truant children, sick children and parents' transfers	2 (20)	8 (80)
During tests some children do not come to schools	6 (60)	4 (40)
Too many subjects	1 (10)	9 (90)
Different culture of children	3 (30)	7 (70)
Different abilities	1 (10)	9 (90)
Due to age, most pupils like playing	1 (10)	9 (90)
Language problem of English as subject	1 (10)	9 (90)
New environment	1 (10)	9 (90)
Different characters of children	6 (60)	4 (40)
Children easily forget what has been taught	1 (10)	9 (90)
Lazy children in writing	3 (30)	7 (70)
Lack of writing equipment for some children who can't afford them	1 (10)	9 (90)
Little cooperation between parents and teachers	2 (20)	8 (80)

Table 2 presents the responses of primary school teachers on the challenges associated with ECE pupils when they join standard one. These findings were in agreement with the study of Wright (2009) who argued the transition is an issue.

Social and economic constraints affecting children, when they transit from ECE and join standard one in Moshi Municipality.

The responses of head teachers and primary school teachers on the social and economic constraints affecting children from ECE to standard one were long distance from home to school (20%), political interference (20%), and many subjects (16.7%) being the major ones. These social and economic constraints are likely to be common since the same constraints were found by Mtahabwa & Rao (2010).

Responses of pre-primary school teachers on ECE's challenges (n=12).

From the findings the major challenges found were different customs of children (75%),English Language is difficult (58%), lack of in service training (58.3%), many children in a class (33.3%) and some children are slow learners (33.3%).

Hypothesis testing

Hypothesis 1

Null hypothesis (Ho): *There is no significant difference between children who attend ECE and those who do not attend ECE in terms of cognitive development.*

The researcher was interested in identifying school type, ECE attendance in relation to mean scores of cognitive skills of the teacher made test. The aim was to know the distribution of pupils' ECE attendance in terms of school type and cognitive mean score of teacher made test at the study area as indicated in table 3.

Table 3: Summary of schools type, ECE attendance and mean scores in a test of cognitive skills (general knowledge) (n=100)

Students attendance of ECE			
Type of school	ECE attendance	f (%)	Mean (\pm SD) of Cognitive skills
Government	Attended	20 (20%)	16.45 (2.038)
	Not attended	40 (40%)	13.85 (6.036)
	Total	60 (60%)	14.72 (5.192)
Private	Attended	40 (40%)	16.45 (3.046)
Overall mean score (n=100)	Attended	60 (60%)	16.45 (2.734)
	Not attended	40 (40%)	13.85 (6.036)
	Total mean	100 (100%)	15.41 (4.522)

Table 4: ANOVA Summary

General knowledge (Cognitive skills)	SS	Df	MSS	F	P-value
Between Groups	162.240	1	162.240	8.539	0.004
Within Groups	1861.950	98	18.999		
Total	2024.190	99			

Tables 3 & 4 show test's mean scores of pupils' general knowledge skills, ECE attendance and school type).

The pupils from private schools performed better 16.45 (2.734) compared to government schools 13.85 (6.036).

The decision rule of hypothesis testing at $\alpha=5\%$; the null should be rejected at P-value $<5\%$ level and it should be accepted at P-value $>5\%$ level. The results rejected null hypothesis because the P-value (0.004) was $<5\%$, this means, there is a significant difference between children attending ECE and those who do not attend ECE in terms of cognitive development.

Hypothesis 2

Null hypothesis (Ho): *There is no significant difference between children who attend ECE and those who do not attend ECE in terms of social skills (personality development and sports)*

The researcher was interested in identifying school type, ECE attendance in relation to mean scores of social skills (personality development and sports) of teacher made test.

Table 5: Summary of school type, ECE attendance and mean scores in social skills (personality development and sports)(n=100)

Type of school	Students' attendance of ECE		
	ECE attendance	f (%)	Mean (\pm SD) of social skills
Government	Attended	20 (20%)	13.15(3.100)
	Not attended	40 (40%)	10.15 (5.182)
	Total	60 (60%)	11.15(4.783)
Private	Attended	40 (40%)	15.77(3.042)

Overall mean score (n=100)	Attended	60 (60%)	14.90 (3.282)
	Not attended	40 (40%)	10.15(5.182)
	Total mean	100 (100%)	13.00 (4.74)

Table 6: ANOVA Summary

Personality development and sports(social skills)	SS	Df	MSS	F	P-value
Between Groups	541.500	1	541.500	31.541	0.000
Within Groups	1682.500	98	17.168		
Total	2224.000	99			

Tables 5 & 6 show test's mean scores of pupils' social skills, ECE attendance and school type. The pupils from private schools performed better 15.77(3.042) compared to government schools 11.15(4.783).

The decision rule of hypothesis testing at $\alpha=5\%$; the null should be rejected at P-value < 5% level and it should be accepted at P-value >5% level. The results rejected null hypothesis because the P-value (0.000) was < 5%, this means, there is a significant difference between children attending ECE and those who do not attend ECE in terms of social skills (personality development and sports).

Conclusion of the study

Based on the findings of the study, the researcher concluded that ECE is effective in both cognitive and social skills development of pupils through teacher made tests administered. Pupils who attended ECE performed better in both cognitive and social skills than those who did not attend ECE. Hence there is effectiveness of Early Childhood Education (ECE) in preparing children for primary Education in Moshi Municipality, Tanzania.

Recommendations of the study based on the findings

1. Tanzania Institute of Education(TIE) to prepare and enforce a common ECE syllabus to be used in all ECE
2. Both English and Kiswahili to continue being used in ECE and primary school education
3. Ministry of Education and Vocational Training (MoEVT) to support teaching and learning resources to both government and private pre-primary and primary schools and educate the community the importance of ECE.

-
4. To minimize challenges of transition of pupils from ECE to standard one all ECE schools to expand buildings for primary schools and even build hostels
 5. Parents, children, teachers, head teachers and other partners to make sure that there is a good link of cooperation among themselves for positive motivation of ECE system in Moshi Municipality.

REFERENCES

Asheli,N.(2010).*Advanced level English, A Practical Approach* . Second edition. Published by Good Books Publishers Ubungo Plaza Street DSM, Tanzania

Babyegeya,E.B.N.K.(1998).*Tests and Measurements*. The Open University of Tanzania.Dares Salaam.

Bertalanffy, V. (1968) *General System Theory Foundation, Development, Application*. New York, Braziller.

Cronbach L.J.(1951). *Coefficient alpha and the internal structure of tests*. Psychometrika, 16:3, 297-334.

Education For All (EFA).(2014),accessed 10.10.2014

Educational International (2006)

Education International Early Childhood Education (EIECE).*Task Force* (2010)

Kelinger,F.N., (1973).*Research Methodology*. Journal article posted at Research on line..... Australian Journal of Teacher Education.Vol 33/Issue 4, article 2
Li, S. (2006). "Development of kindergarten care and development in the People's Republic of China since the 1990s" In *Early childhood care and Education international perspectives*. E. Melhuish and K. Petrogiannis (Eds.), Rout ledge, New York.

Moromizato,R.(2007). *Buscandonuevosrumbosparamejoresoportunidades*. Lima, Peru. Fundacion Bernard- van L eer- Pontificia Universidad Catolica del Peru.

Mtahabwa, L. and Rao,N.(2010).*International Journal of Educational*

Development.2010.Vol 30 n 3, p, 227-235.
Mwakanema, L.(2007). *Provision of High Quality Pre-school Education as an Economic Development Tool: The case of Ngaraba Nursery school in Mabibo Ward in Kinondoni Municipality*. DSM, Tanzania.

Piaget, J.(1997). "Development and Learning". *Readings on the Development of Children*

Simatwa, E.M.W.(2010). *secondary school level*.

WOW.com/Montessori+ Teaching +Method (retrieved 29/11/2014).

Wright,J.(2009).*Transition in Early childhood education into-within and beyond*. Retrived November 10,2014.

Evaluation of Implementation of Guidance and Counselling Services in Tabora Municipality, Tanzania

Lidya J. Mushi and Joseph. M. Malusu

ABSTRACT

The study assesses the implementation of guidance and counselling in secondary schools in Tabora Municipality, Tanzania. The evaluation was based on the objectives of guidance and counselling as stated in the curriculum of ordinary level secondary schools. Mixed evaluation approach was used whereby cross-section survey study and case study were used as the research designs. The target population of the study included 25 government and 7 private secondary schools, 64 counsellors, 32 Heads of schools, all form three and form four students in secondary schools in Tabora Municipality. Stratified sampling technique was used to select 10 secondary schools and 200 students. A purposive sampling technique was used to select 11 counsellors and 10 Heads of schools. A total of 216 respondents participated in the study. Data were collected through questionnaires and in-depth interview guide. Findings revealed that, implementation of guidance and counselling in secondary schools was ineffectively implemented. Some of the factors which contributed to poor implementation of guidance and counselling in secondary schools were lack of professional counsellors, guidance and counselling facilities, example absence of special room, high teacher's workload, and lack of support from education stakeholders. Therefore, the study recommend that school owners should employ professional counsellors, provision of training and seminars to teachers who are counsellors, provision of adequate facilities for guidance and counselling and conducting orientations to new students.

INTRODUCTION

Background of the Study

Educational counselling is a process of providing services to pupils who need assistance in making decisions about important aspects of their education such as the choice of courses and studies, decisions regarding interests and abilities, general behaviour and choice of higher education. It implies that without guidance and counselling services in secondary schools there is high possibility of students to losing educational focus and involving themselves in unpleasant behaviours. Recognizing these vital roles played by guidance and counselling among secondary schools in Tanzania, the government introduced the guidance and counselling services in secondary schools. Although guidance and counselling is practised in Tanzanian secondary schools, its efficiency is questioned due to reported

high number of students in secondary education who are affected by various factors including early pregnancy, early marriage, early sex and abortion, drug abuse, religious factors, social economic factors and ill health. Therefore, this study evaluated the implementation of the guidance and counselling services in secondary schools in Tabora Municipality.

Guidance and Counselling Services in Tanzania context

Guidance and counselling services was established in schools to help students to face life challenges and become responsible and committed members of the community. Learners need guidance in selecting appropriate careers upon completion of their studies. They also need counselling services that help them to cope with the prevailing situations in the community and addressing various problems and challenges. Guidance and counselling skills provided in schools should help learners to develop abilities such as negotiation, assertiveness, communication, decision making, coping with peer pressure and development of attitudes such as compassion, self-esteem, tolerance and role-modeling (TIE 2013). Accordingly there shall be school counsellors who are well abreast with the current life challenges and capable of designing appropriate program to address such challenges. Issues of HIV and AIDS, gender relations, sexual and reproductive health and related problems need to be addressed strategically depending on the needs of the learners.

In addition, there should be strengthened peer education program in the school where there shall be two peer educators elected in each stream basing on gender in co-education schools. Peer educators shall be guided by school counsellors in their day-to-day activities. Relevant documents shall be consulted to support the establishment of effective guidance and counselling services in schools such as MOEVT (2014) strategic plan for HIV and AIDS and Guidelines for Implementing HIV and AIDS and Life-Skills Education Program in Schools.

Guidance and Counseling is now becoming slowly institutionalized in educational institutions. Schools, for example, to some extent have taken over the task of providing psychological support to boys and girls. The government department of Education, however, has tried to institutionalize the services within the knowledge transfer system by appointing Head Masters and Head Mistresses to supervise the guidance and counselling in their schools to ensure that the government goals are achieved as planned (TIE, 2012).

Objectives of guidance and Counselling in secondary Schools

One of the elements of secondary school curriculum is to ensure that students in secondary schools are provided with guidance and counselling services. Based on TIE (2013), to ensure smooth implementation of guidance and counselling in secondary schools, MoEVT and

Curriculum developer together identified five objectives which guide implementation of guidance and counselling in secondary schools. These objectives are:

1. To establish guidance and counselling services in secondary schools in Tanzania
2. To have school counsellors who are well informed with the current life challenges and capable of designing appropriate program to address students challenges
3. To conduct strengthened peer educational counselling programs in the school
4. To develop abilities to solve school and life challenges

The aims and objectives of secondary education were planned by the government to enable students to complete their secondary education successfully and be productive members in the society. Therefore, moral education which is appropriate to the level and age of the students should be provided to secondary school students. Objectives of guidance and counselling were planned to enable counsellors to help students in addressing their challenges such as drug abuse, HIV and AIDS, sexually transmitted infections and teenage pregnancies. Students who are free from those challenges are likely to complete the secondary education and achieve the educational objectives as stated by the government.

Purpose of the Study

The purpose of this evaluation study was to assess the implementation of guidance and counselling in secondary schools in Tabora Municipality. Specifically, the study examined the extent to which: counsellors were equipped with guidance and counselling's knowledge and skills; availability and implementation of peer educational guidance and counselling program; learners are helped to develop problem-solving skills in the schools and life challenges, and the extent to which counsellors are frequently consulting relevant documents to support establishment of effective guidance and counselling services in schools. Also the study examined the relationship between the level of implementation of guidance and counselling among private and government schools in Tabora Municipality.

Furthermore, the study also examined the attitudes and counsellors attitude towards role of guidance and counselling service in teaching and learning process. This formative evaluation provided feedback to educational stakeholders on the implementation of guidance and counselling services in secondary schools in Tanzania. Through feedback, the government and other educational stakeholders are informed with necessary measures to be taken to facilitate improvement of guidance and counselling in secondary schools.

Evaluation questions

1. To what extent are guidance and counselling services available in the secondary school in Tabora Municipality?
2. To what extent are counsellors equipped with guidance and counselling knowledge and skills?
3. To what extent are peer educational guidance and counselling program implemented in secondary schools in Tabora Municipality?
4. What are counsellors and students attitudes towards the role of guidance and counselling services in teaching and learning process?
5. What challenges are counsellors facing in implementing guidance and counselling services in secondary schools in Tabora?
6. What are the possible solutions for overcoming the challenges to guidance and counselling services in secondary schools in Tabora municipality?

Evaluation hypotheses

1. There is a significant difference between attitude mean scores of teachers with different educational qualifications towards implementation of guidance and counselling in secondary schools in Tabora Municipality.
2. There is a significant difference between mean scores of male and female students attitude towards the implementation of guidance and counselling in secondary schools in Tabora Municipality
3. There is a significant difference between mean scores of counsellors and students attitudes towards the implementation of guidance and counselling in secondary schools

Significance of the study

Students in secondary schools are not yet mature enough to live their own lives without guidance and counselling from teachers, parents and counsellors. When students lack effective guidance and counselling, it can affect their study lives in many different ways such as failing to concentrate on their studies, engaging in bad behaviours, fail to decide on future careers and many others. Therefore any effort towards finding a solution to guarantee effective guidance and counselling is significantly to be accepted by educational stakeholders such as teachers, students, government and parents.

For Government, the findings revealed that teacher counsellors lack necessary support for them to implement effective guidance and counselling service in secondary schools. Some of the support teachers lack includes sufficient resources, in-service training, seminars

and workshops. Therefore, through the finding the government is informed on the need for employing professional counsellors, training teacher counsellors and providing well equipped guidance and counselling rooms in secondary schools

For teachers, when the government and other educational stakeholders deal with challenges revealed from this study, they can benefit through in-service training, workshops and seminars which can help them to widen their guidance and counselling knowledge and skills.

Students were observed to lack awareness of guidance and counselling services provided in schools. If the government and other educational stakeholders make follow up through seminars and workshops for students, it could enable them to raise their awareness in terms of understanding importance of guidance and counselling in learning.

Review of Empirical Studies

Nkala (2007) conducted a study on Assessment of guidance and counselling Program in secondary schools. The study investigated the extent to which guidance and counselling services prepare secondary school students to achieve social, personal and academic development and make informed career decisions compatible with their individual needs and abilities. The study revealed that most of secondary schools in Mzilikazi District in Kenya had not yet complied with the Ministry of Education on the implementation of the guidance and counselling program. Lack of qualified teachers, stationery, books and relevant facilities like counsellor rooms were found to be major barriers inhibiting the implementation of guidance and counselling services. Also the findings revealed that most of the students are ignorant of the existence of such services which could be the major cause of high rates of delinquency, truancy, alcohol and drug abuse and teenage pregnancies.. Although, this study focused on how guidance and counselling services prepare secondary school students to achieve social, personal and academic development and make informed career decisions compatible with their individual needs and abilities, the study did not examine how guidance and counselling was provided in secondary schools. The current study investigated on the availability and the extent to which guidance and counselling has been provided in secondary schools.

Chireshe (2009) conducted a study in Zimbabwe on assessment of the effectiveness of school guidance and counselling services in Zimbabwen secondary schools. The findings revealed that majority of both school counsellors and students viewed the school guidance counselling service as beneficial and school counsellors as effectively playing their role. The study further revealed that the effectiveness of the Zimbabwean secondary school guidance and counselling services was negatively affected by lack of resources and training in guidance and counselling duties performed by the school counsellor. . Although the

study covered most of the aspects to be investigated in the current study, the study did not investigate on the level of knowledge of counsellors in implementing guidance and counselling in secondary schools. Also, educational provinces involved in this study were selected conveniently. This sampling technique was not an appropriate sampling under quantitative research designs

Magaki, Nyamwange, Nyamwaka and Ondima (2013) researched on the assessment of implementation levels of guidance and counselling program in Bomet county in Kenya. Ex- post facto design was used in the study. Data were collected through questionnaires and interview schedules. Study findings revealed that as the result of inadequate resources and time, lack of training on the part of the guidance and counselling teachers, poor perceptions of students towards guidance and counselling and the lack of administrative support, guidance and counselling program is not well implemented in Sotik district schools. The reviewed study assessed the implementation of guidance of counselling in secondary schools in general. The current study was guided by the objectives of guidance and counselling policy of the country to assess the implementation of guidance and counselling in secondary schools.

CIPP Model

CIPP model for evaluation is a comprehensive framework for guiding formative and summative evaluations of programs, projects, personnel, products, institutions and systems. Stufflebeam context, input, process and product (CIPP) evaluation model is recommended as a framework to systematically guide the conception, living projects and provide feedback and judgment of the project's effectiveness for continuous improvement (Stufflebeam, 2005).

The CIPP evaluation model emphasizes learning by doing to identify corrections for problematic project features. The productive application of the model can facilitate decision making and quality assurance and its retrospective use allows the faculty members to continually reframe and "sum up the project's merit, worth, probity and significance" (Stufflebeam and Shinkfield, 2007 p.329).

Context evaluation is often referred to as needs assessment. It asks "what needs to be done"? and help assess problems, and opportunities within a defined community and environmental context. The objective of context evaluation is to define the relevant context, identifying the target population and assess its needs, identify opportunities for addressing the needs, diagnose problems underlying the needs and judge whether project goals are sufficiently responsive to the assessment needs.

Input evaluation helps describe a project to address the identified needs. It asks "how should it be done?" and identifies procedures designs and educational strategies that will

most likely achieve the desired results. Consequently its main orientation is to identify and assess current system capabilities, to search out and critically examine potentially relevant approaches and to recommend alternative project strategies.

Process evaluation monitors the project implementation process. It asks “is it being done?” and provides an ongoing check on the projects implementation process. Important objectives of the process evaluation include documenting the process and providing feedback regarding the extent to which planned activities are carried out and whether adjustments revisions of the plan are necessary. An additional purpose of process evaluation is to assess the extent to which participants accept and carry out their roles.

Product evaluation identifies and assesses project outcomes. It asks “did the project succeed?” and is similar to outcome evaluation. The purpose of product evaluation is to measure, interpret, and judge the project’s outcomes by assessing their merits, worth, significance and probity. Therefore, in order to examine the availability of guidance and counselling in secondary schools, it was necessary to examine the context through which guidance and counselling was implemented. In this case, the evaluator adapted an input evaluation in order to examine the extent to which necessary inputs for guidance and counselling were available in secondary schools. Furthermore, the evaluator examined how guidance and counselling has been provided in secondary schools in Tabora Municipality. Process evaluation was therefore used to examine the provision of guidance and counselling. Usefulness of guidance and counselling in schools was also considered as one of the indicators of implementation of guidance and counselling. In this case, the evaluator examined how guidance and counselling was useful to students in relation to their learning. Therefore, product evaluation was adapted in order to determine the contribution of guidance and counselling to student learning.

The present study investigated the effectiveness of the implementation of guidance and counselling in secondary schools in Tabora Municipality. Effectiveness of the implementation of guidance and counselling was based on the extent to which guidance and counselling is available in selected secondary schools, the perceived knowledge and skills of teacher counsellors, their attitudes towards its implementation, challenges and possible solutions. Therefore, in order to examine the availability of guidance and counselling in secondary schools, it was necessary to examine the context through which guidance and counselling was implemented. Thus, the evaluator adapted the context evaluation to examine the need for guidance and counselling in secondary schools and teacher counsellors and students attitudes towards guidance and counselling. In relation to context, it was important to examine the availability of resources which ensured effective implementation of guidance and counselling. In this study, the evaluator investigated on the availability of counsellors who are skilled and knowledgeable and the presence of facilities such as well-equipped special room for guidance and counselling. In

this case, the evaluator adapted an input evaluation in order to examine the extent to which necessary inputs for guidance and counselling were available in secondary schools. Furthermore, the evaluator examined how guidance and counselling has been provided in secondary schools in Tabora Municipality. Process evaluation was therefore used to examine the provision of guidance and counselling. Usefulness of guidance and counselling in schools was also considered as one of the indicators of implementation of guidance and counselling. In this case, the evaluator examined how guidance and counselling was useful to students in relation to their learning. Therefore, product evaluation was adapted in order to determine the contribution of guidance and counselling to student learning.

Design and Methodology

In this study, mixed research approach was used whereby qualitative and quantitative approaches were applied. Under quantitative approach cross-section survey design was employed to collect data from counsellors and. Cross-sectional research design enabled the evaluator to collect data from different participants concurrently and also it enabled the evaluator to measure different variables in the population of interest at a single point of time. Under qualitative approach, case study was used whereby in-depth interview was used to collect information from heads of schools about different aspects in implementing guidance and counselling services in their schools.

Target Population

The target population of the study was 64 counsellors, 32 heads of schools, 1440 form three and four students from 32 private and government secondary schools in Tabora Municipality. Form one and form two students were not included in the study because they had short time in schools which made them not to have acquired enough experience related to guidance and Counselling Services provided in their schools.

Description of Sample and Sampling procedure

The study applied probability and non-probability sampling procedure according to the categories of the population group. Stratified random sampling technique was used to select 10 secondary schools in Tabora Municipality whereby 7 schools were government and 3 schools were private. The technique was used because schools were of different categories (Private and Government). For students, stratified sampling technique was used to select a total of 200 students. Stratified sampling was used because students were selected in terms of class level (10 students from form three and 10 students from form four) and gender (at least 5 students were girls and 5 students were boys from each class). Simple random sampling technique was used to select 11 counsellors in the sampled schools. In each school there were 2 counsellors with equal chance to participate in the study due to their responsibilities as counsellors. One of the sampled school had 3

counsellors such that the evaluator selected 2 of them to ensure proportional participation. Purposive sampling technique was used to select 5 heads of schools who participated in the in-depth interview. This implies that, a total of 216 respondents participated in the study.

Instruments

Questionnaire, interview guide and document analysis guide were used to collect the data in this study. The instruments were piloted in one secondary school in Tabora Municipality with the same characteristics of the targeted population schools. The purpose of the pilot testing was to report the consistency of the instrument, detection of typing mistakes, improper wording and clarity of the questions. After pilot test, correction of the instrument items was done to ensure clarity and proper wording of the instruments. In this case, Cronbach Alpha was used to calculate the reliability of the result. Cronbach Alpha is a measure of internal consistency that is how closely related a set of items are as a group. It is considered to be a measure of scale reliability. Reliability efficiency of 0.7 to 1.0 is considered acceptable in most social science research situation. The Cronbach's reliability coefficient for counsellors' and student's questionnaires was 0.81 and 0.717 respectively.

The evaluator provided prepared instruments to the experts of guidance and counselling to check the extent to which the instruments reflected the evaluation questions. Also the evaluator consulted the supervisor, Mwenge Catholic University counsellor, evaluation lecturer and fellow colleagues for thorough checking of wording and arrangement of the instrument. Some corrections were made before the instruments were administered to the targeted respondents.

Data collected quantitatively was analyzed through percentages, frequencies, and means. Statistical Package for Social Sciences (SPSS) was employed to analyze the quantitative data. Qualitative data from in-depth interview were transcribed, coded, and presented in narrations. Hypotheses were tested by using t-test statistics and Analysis of Variance (ANOVA).

Summary of the Findings

Availability of Guidance and Counselling Services in Secondary Schools in Tabora Municipality

In order to assess the implementation of guidance and counselling, one of the objectives was to determine the extent to which guidance and counselling services are available in secondary schools in Tabora Municipality. The availability was determined in terms of availability of counsellors per school, presence of well-equipped private room for guidance and counselling and counselling services provided in their schools. In order to respond to

this question teachers and students were provided with questionnaires and in-depth interview was conducted with Heads of schools.

Presence of Counsellors in Secondary Schools in Tabora Municipal

According to TIE (2013), all secondary schools are supposed to have counsellors who are well abreast with the current life challenges and capable of designing appropriate program to address such challenges. Therefore, presence of teacher counsellors was one of the indicators examined by the evaluator in order to ascertain the availability of guidance and counselling services in secondary schools in Tabora Municipality. Through questionnaires students were asked to indicate whether in their schools there are counsellors. Table 1 summarizes the findings.

Table 1: Responses of students on availability of counsellors (n=200)

Response	F	%
Yes	166	83
No	34	17
Total	200	100

According to Table 1, majority of respondents who were 166(83%) indicated that in their schools, there was a counsellor. On the other hand, 34 (17%) respondents said that, there was no counsellor responsible for counselling students. Majority of secondary schools in Tabora Municipality had school counsellors. This indicate that secondary schools in Tabora Municipality are aware of guidance and counselling guidelines of MoEVT (2007), Circular No. 11 of 2002 which demand the establishment of guidance and Counselling services in schools and colleges.

Presence of Special Room and Facilities for Guidance and Counselling Service

The current study apart from determining the availability of counsellors in schools, counsellors and students were required to indicate the presence of special room for conducting guidance and counselling. Their responses are summarized in Table 2.

Table 2: Responses of counsellors and students on the presence of special room for guidance and counselling (n=11, N=200)

Presence of Special room	Counsellors		Students	
	f	%	f	%
Yes	4	36.4	33	16.5
No	7	63.6	167	83.5
Total	11	100	200	100

Table 2 shows that 7(63.6%)counsellors and167(83.5%) students indicated that, there was no special room for conducting guidance and counselling in their schools. Others, 4(36.36%)counsellors and33(16.5%) students indicated that there was a special room for conducting guidance and counselling in their schools. Therefore, from the findings, majority of the counsellors had no special room for guidance and counselling.During the in-depth interview with head of schools, they had different comments concerning the presence of guidance and counselling room. While others indicated that there was no special room in their schools who concurred with majority of counsellors and students findings, other Heads of schools indicated that their counsellors either use classrooms or their offices. During in depth interview one head of school said: *"There is no guidance and counselling room in this school. Appointed teachers use their offices as guidance and counselling rooms"*.Similarly, another Head of school said: *"Sometimes my teacher uses places like under the tree because there is no room for guidance and counselling. It is a challenge"*.The similar observation was revealed by Kok (2012), that guidance and counselling took place in the game field and under the tree since the schools did not have rooms for guidance and counselling.

Availability of Specific Time for Guidance and Counselling

In relation to provision of guidance and counselling services, both counsellors and students were required to indicate whether there is specific time for guidance and counselling consultation. Specifically there were asked to indicate the presence of time table in their schools. Presence of timetable for guidance and counselling enables students to plan for their time to consult counsellors. This avoids collision with other school activities which in turn make guidance and counselling effective. Results are presented in table 3.

Table 3: Responses of counsellors and students on the presence of guidance and counselling time table (n=200, n=11)

Timetable	Counselors		Students	
	f	%	f	%
Yes	4	36.4	60	30
No	7	63.6	140	70
Total	11	100	200	100

According to Table 3, majority of counsellors 7(63.6%) and students, 140(70%) indicated that in their schools there was no time table for guidance and counselling. The remaining 4(36.6%) and 60(30%) counsellors and students respectively, indicated that there was no time table in their schools. Therefore, from the findings, majority of secondary schools in Tabora Municipality had a time table for provision of guidance and counselling services which shows that, in many secondary schools guidance and counselling is practised informally. This was also observed by one Head of school during in-depth interview who said:

Guidance and counselling in my school is not in a formal system so it is difficult to fix it in the school time table. Counsellors should find their extra time to counsel a student and that student should consult a counsellors on their own time.

This point is substantiated by Kok (2012) who observed that majority of schools have their guidance programs conducted after school hours which is also indicated in the school time table. Generally regarding the availability of guidance and counselling in secondary schools in Tabora Municipality, it was revealed that in majority of secondary schools the guidance and counselling services existed but counsellors are teachers and not counsellors by profession. Apart from the presence of unprofessional counsellors, it was also revealed that there was no special room or place and facilities for guidance and counselling consultation. It was further observed that there was no specific time for student's consultation.

The Extent to which Counsellors are Equipped with Guidance and Counselling Knowledge and Skills

How Teachers Become Counsellors

Counsellors knowledge and skills is one of the factors which determine effective implementation of guidance and counselling. The evaluator was interested in finding out

the extent to which counsellors were equipped with adequate skills and knowledge of guidance and counselling. According to findings, it was shown that counsellors were not professionals. Since counsellors were not trained, the evaluator was eager to know how they became counsellors. Table 4 summarizes the findings.

Table 4: Responses of teachers on how they become counsellors (n=11)

How teachers become counsellors	f	%
appointed by school heads	10	90.91
Voluntary	1	9.1
Total	11	100

Table 4 shows that 10 (90.91%) counsellors indicated that they became counsellors by being appointed by heads of schools while only 1(9.1%) teacher became a counsellor by volunteering. This implies that any teacher in secondary school is likely to be a counsellor although Head of school used their own criteria to appoint teachers to become counsellors. This finding concurred with the responses from head of one school who said:

Secondary school curriculum requires each school should have counsellors for students, but there is no qualified counsellor from the government yet due to the globalization students need a person to lead them. Therefore i appointed two teachers as school counsellors so that students can address their challenges.

As the result counsellors lack professional knowledge and skills necessary for implementing the services effectively.

Kok (2012) revealed that teachers were claiming that counselling was not their choice of job, they ended being counsellors after being appointed by the Ministry of Education

The Extent to which Peer Educational Guidance and Counselling Programs are implemented in Secondary Schools in Tabora Municipality

According to TIE (2013), there should be strengthened peer education program in the school where there shall be two peer educators elected in each stream basing on gender in co-education schools and that they should be guided by school counsellors in their day-to-day activities. Therefore the evaluator posed the question to determine the presence of peer counsellors in secondary schools in Tabora Municipality. Results are presented in Table 5.

Table 5: Responses of counsellors on presence of peer counselling (n=11)

Response	f	%
yes	1	9.1
no	10	90.9
Total	11	100.0

Table 5 indicates that 10 (90.91%) counsellors of the selected schools revealed that there was no peer counselling education program in their schools. On the other hand, 1(9.09%) counsellor showed that there was peer counselling education program in their school. This shows that in Tabora Municipality secondary schools there is no peer counselling education program although is indicated in the secondary school curriculum by TIE. Kiilu and Muema (2013) revealed that, peer should be trained so as to be able to give right advice because sometimes students feel free to approach their fellows rather than their teacher counsellors. This implies that peer counselling is important to secondary schools as it complement counsellors' activities. During in-depth interview with Heads of schools, they had different opinions concerning the presence of peer counselling in secondary schools. While some of them considered it impractical as teachers are not even trained, others were argued that peer counselling is just a formality. For instance, one Head of school argued: *"Teachers were not trained on guidance and counselling, therefore, it is difficult for them to conduct seminars to peer counsellors. It is better for the government to train teachers first"*. Similarly, another Head of school added:

Peer counselling is just a formality from the government, since teachers are not trained on how to implement guidance and counselling in secondary schools, rather, they use their experience and the little knowledge they acquired from teachers' college and universities. As the result guidance and counselling services in secondary schools was provided by teachers only.

Counsellors and Students Attitudes towards the Role of Guidance and Counselling Services in Teaching and Learning Process

In order to determine the effectiveness of implementation of guidance and counselling in secondary schools in Tabora Municipality, one of the aspects examined was the counsellors and students attitudes towards the implementation of guidance and counselling services. Both counsellors and students were provided with a five point likert scale consist of 13 items and requested to indicate the degree to which they either strongly agreed, agreed, undecided, disagreed or strongly disagreed with the given statements. Results of counsellor's attitudes towards implementation of guidance and counselling are summarized in Table 6.

Table 6: Responses of counsellors on their attitudes towards the role of guidance and counselling services in secondary schools (n=11)

STATEMENT	Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree		Mean score
	f	%	f	%	f	%	f	%	f	%	
Guidance and counselling has nothing to do with students learning	0	0	0	0	0	0	1	9.1	10	90.9	4.9
Guidance and counselling is important as it helps students to develop their study skills	11	100	0	0	0	0	0	0	0	0	5.0
Guidance and counselling helps students in dealing with pressure from peers	10	90.9	1	9.1	0	0	0	0	0	0	4.9
Students in my school are not aware about the importance of guidance and counselling	1	9.1	4	36.4	0	0	6	54.5	0	0	2.7
Guidance and counselling is suitable for higher learning institutions only	1	9.1	0	0	0	0	0	0	10	90.9	1.4
Teachers are enough in providing guidance and counselling in secondary schools	1	9.1	1	9.1	1	9.1	3	27.3	6	54.5	1.7
Guidance and counselling profession in secondary school is a wastage of money	0	0	0	0	2	18.2	0	0	8	72.3	1.5
Guidance and counselling service is special for stubborn students only	0	0	0	0	0	0	1	9.1	10	90.9	1.1
Guidance and counselling can help students to stop drug abuse	9	81.1	1	9.1	0	0	0	0	0	0	4.7
Guidance and counselling should be emphasized as it helps students to deal with family matters	9	81.1	2	18.2	0	0	0	0	0	0	4.8
Guidance and counselling should be part of the courses to be taught in secondary school due to its importance	0	0	0	0	0	0	1	9.1	10	90.9	4.9

Guidance and counselling is not necessary in helping students to select subject combination since they can be advised by academic teachers	0	0	0	0	1	9.1	2	18.2	7	63.6	4.0
Since sex education is taught in biology subject, guidance and counselling is not necessary in advising students about sexual behavior	1	9.1	0	0	0	0	1	9.1	9	81.1	4.6

According to Table 5.12, it was noted that 11(100%) counsellors who filled the questionnaire were strongly agreed that Guidance and counselling is important as it helps students to develop their study skills. Another 10(90.9%) counsellors were strongly agreed that guidance and counselling helps students in dealing with pressure from peer. According to Numminen and Kasurinen (2003) pressures are normal part of life and students need counselling from peers or any adults so that they are able to handle their pressure. Also, 10(90.9%) counsellors strongly disagreed that guidance and counselling is special for stubborn students only and 10 (90.9%) counsellors strongly disagreed that guidance and counselling should be part of the course to be taught in secondary schools. Meanwhile, 10(90.9%) counsellors agreed strongly that guidance and counselling has something to do with students learning. On the other hand, 9(81.1%) counsellors strongly agreed that guidance and counselling helps students to stop drug abuse. This finding is supported by UN (2004) which shows that counselling helps students to find clarity in their life, particularly if they feel they are losing control over their drug use. Furthermore, 9(81.1%) counsellors agreed strongly that guidance and counselling should be emphasized as it helps students to deal with family matters. Others, 9(81.1%) counsellors strongly agreed that guidance and counselling should be used to advice students on sex education although it is taught in biology subject. Furthermore, 8(72.3%) counsellors disagreed strongly that guidance and counselling professions in secondary school is a wastage of money. Moreover, 7(63.6%) counsellors strongly agreed that guidance and counselling is necessary in helping students to select subject combination. In relation to the importance of guidance and counselling in subject combination, Kalechi (2010) commented that career counselling becomes mandatory for every adolescent and young person who intends to succeed at school as well as at working place. On calculating the average mean score of counsellors' attitudes towards the implementation of guidance and counselling it was found to be 4 which implies that counsellors in secondary schools had a positive attitude towards the implementation of guidance and counselling in secondary schools in Tabora Municipality.

Also, students were required to indicate their attitudes towards implementation of guidance and counselling by responding to a five point likert scale consisted of 13 items.

Students were asked to indicate the degree to which they perceived the implementation of guidance and counselling by either they strongly agreed, agreed, undecided disagreed or strongly disagreed with the given statements. The results are summarized in Table 7

Table 7: Responses of students on their attitudes towards implementation of guidance and counselling in secondary schools (n=200)

STATEMENT	Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree		Mean score
	f	%	f	%	f	%	f	%	f	%	
Guidance and counselling has nothing to do with students learning	32	16	34	17	10	05	58	29	66	33	3.5
Guidance and counselling is important as it helps students to develop their study skills	119	59.5	61	30	10	05	05	2.5	05	2.5	4.4
Guidance and counselling helps students in dealing with pressure from peers	80	40	74	37	07	3.5	29	14.5	10	05	3.9
Students in our school are not aware about the importance of guidance and counselling	14	07	39	19	24	12	61	30	62	31	2.4
Guidance and counselling is suitable for higher learning institutions only	41	20.5	26	13	25	12.5	55	27.5	53	26.5	2.7
Teachers are enough in providing guidance and counselling in our secondary school	38	19	42	21	11	5.5	62	31	47	23.5	2.8
Guidance and counselling profession in our secondary school is a wastage of money	19	9.5	23	11.5	22	11	52	26	84	42	2.2
Guidance and counselling service is special for stubborn students only	19	9.5	26	13	24	12	56	28	75	37.5	2.3
Guidance and counselling can help students to stop drug abuse	79	39.5	73	36.5	10	05	17	8.5	21	10.5	3.9
Guidance and counselling should be emphasized as it helps students to deal with family matters	75	38	68	34	24	12	16	08	17	8.8	4.3

Guidance and counselling should be part of the courses to be taught in secondary school due to its importance	87	43.5	68	34	19	9.5	16	08	10	05	4.0
Guidance and counselling is not necessary in helping students to select subject combination since they can be advised by academic teachers	70	35	60	30	15	7.5	30	15	25	12.5	3.6
Since sex education is taught in biology subject, guidance and counselling is not necessary in advising students about sexual behaviour	73	36.5	61	30.5	16	08	27	13.5	23	11.5	3.7

Table 7 indicates that 180(89.5%) students either agreed strongly or agreed that guidance and counselling is important as it helps students to develop their study skills. When students were asked to indicate the extent to which guidance and counseling helps them to stop drug abuse, 155(77.5%) either agreed strongly or agreed that guidance and counseling help them to stop drug abuse. Also, 143(72%) of the students either agreed strongly or agreed that guidance and counseling should be emphasized as it helps them to deal with family matters. Similar findings by Mikaye (2012) revealed that school counselling has been introduced to assist students to overcome a number of challenges they experienced in families and at school. With respect to the item that having professional counsellors in secondary school is wastage of money, 84(42%) of students disagreed strongly with the statement. Furthermore, 78(61%) of the students disagreed strongly or disagreed that students are not aware of the importance of guidance and counselling. The evaluator also calculated the average mean score of students' attitude towards implementation of guidance and counselling in secondary schools and found to be 3.06 which implies that students were of no opinion regarding the implementation of guidance and counselling in secondary schools. It seems that guidance and counselling services in secondary schools is not clear to students. The positive attitude of counsellors towards implementation of guidance and counselling implies that they value guidance and counselling services although they face some challenges which hinder the effective implementation of guidance and counselling in secondary schools

Challenges Counsellors and Students Face in Implementing Guidance and Counselling Services in Secondary Schools in Tabora Municipality

As part of determining the extent to which guidance and counselling is implemented in Secondary schools in Tabora Municipality, counsellors and students were asked to mention if there are any challenges they encounter. Various challenges were reported from both counsellors and students as presented in Table 8.

Table 8: Responses of counsellors and students on the challenges towards implementation of guidance and counselling (n=11, n=200).

Challenges	Counselors		Students	
	f	%	f	%
Lack of support from the government	10	90.9	00	00
Students transparency problem	09	81.8	00	00
Lack of special room	07	63.6	00	00
High teacher workload	08	72.7	00	00
Lack of professional counsellors	10	90.9	112	56
Language problem	00	0	109	54.5
Counsellor-students relationship	00	0	112	56
Lack of confidentiality	00	0	156	78

Insufficient Support from the Government

It was observed by 10(90.90%) counsellors that, there was insufficient amount of support from the government to enable counsellors to provide quality service of guidance and counselling in their schools. Successful implementation of guidance and counselling programs depends on support from stakeholders (Ondima, Nyakan and Nyamwange, 2012). By recognizing the importance of guidance and counselling, the government and other educational stakeholders should assist schools by providing necessary facilities for guidance and counselling. During in-depth interview with heads of schools, they were able to highlight some of the support needed. Majority of them indicated that they need trained counsellors, facilities and counsellors' incentives. One Head of school for example, commented:

I have received nothing from the government to support guidance and counselling services in my school. Appointed teachers sometimes are not committed to that service because they take it as extra work with no payment. Since the task of counselling students is very sensitive, the government should pay those teachers who are appointed or voluntarily counsel students.

Another Head of school added: *"The government should employ permanent counsellors in secondary schools"*.

Lack of Special Room for Guidance and Counselling

Table 8 shows that, 10 (90.9%) counsellors revealed that lack of special room was one of the challenges faced by counsellors in conducting guidance and counselling. Similar findings by Owino (2013) revealed that although majority of interviewed students affirmed that their schools had specific rooms for guidance and counselling the evaluator's personal observation revealed that, out of 10 studied schools only one school met the criterion of having rooms well-furnished to give clients feelings of warmth and comfort. During indepth interview with Heads of schools, it was revealed that counsellors used staff rooms and open places during guidance and counselling sessions with students. According to UNESCO (2000), effective school guidance and counselling services have counselling rooms which are private and accessible and counsellors identify and document the resources needed to be made available. Therefore, lack of special room among other things may lead to student's insecurity during counselling session which may prevent students in attending the subsequent counselling sessions. Wango (2006) argued that students are afraid of getting in the staffroom for counselling when teachers are there because sometimes teachers may ask students where they going which make students feel harassed. This shows that special room is very important for guidance and counselling services to be effectively implemented in secondary schools.

Lack of Professional Counsellors

Most of the counsellors in the selected secondary schools were teachers who were not trained as counsellors. All counsellors in schools were appointed by heads of the schools or they became counsellors by volunteering. Table 8 shows that 10 (90.9%) counsellors indicated that lack of professional counsellors was one of the challenges of ineffective implementation of guidance and counselling in secondary school. Earlier findings in section 5.3 revealed that majority of counsellors were not professionals. Counsellors use their experience or the little knowledge they had from teacher colleges and universities. Ngumi (2003) observed that even the trained teachers have not covered guidance and counselling course during teaching training sufficiently to enable them effectively render the guidance and counselling services in schools the views is also supported by Egbochuku (2008) who found that lack of qualification of guidance and counselling personnel among counsellors has an impact on the quality of guidance and counselling.

Suggestions for improving Implementation of Guidance and Counselling Services in Secondary Schools in Tabora Municipality

Teachers and students were asked to suggest solutions they think could enable guidance and counselling services to be effective in secondary schools. The responses were as shown in table 9.

Table 9: Responses of counsellors and students on the suggestions for solving guidance and counselling challenges (n=200, n=11)

Suggestion	counsellors		students	
	f	%	f	%
Guidance and counselling to be taught as a subject	0	0	89	44.5
Using Kiswahili language	0	0	142	71
Provision of in-service training to counsellors	9	81.8	123	61.5
Special room for counselling session	7	63.6	119	59.5
Time table	0	0	107	53.5
Provision of seminars to students	00	00	99	49.5

Provision of in-service Training to Counsellors

As Table 9 show, 9(81.8%) counsellors indicated that teachers who are counsellors should be trained. On the other hand 123 (61.5%) students indicated that there was a need to train teachers who are counsellors. According to Pasley (2001), lack of training on the part of school counsellors has been found to have an effect on guidance and counselling services implementation and effectiveness in schools. Although providing training to counsellors may be one of the solutions to ensure effective provision of guidance and counselling, the ultimate solution should be to employ professional counsellors rather than using teachers who are subjected to other teaching responsibilities. Therefore, there is a need for school employers both from government and private schools to support provision of guidance and counselling services by employing professional counsellors. Presence of professional counsellors in secondary schools can reduce high work load to teachers.

Provision of Special Room for Counsellors

Provision of special room for guidance and counselling was one of the suggestions mentioned by both teachers and students for the purpose of maintaining confidentiality. From table 9, majority of participants who are 7(63.6%) teachers and 119(59.5%) students suggested that, there should be a special room for guidance and counselling services. Since counselling is confidential between a counsellor and a client, it is important to avoid leakage of the conversations unnecessarily. Using staff rooms and open space is not appropriate for guidance and counselling. In relation to availability of private room for counselling, McLeod and Machin (2007) revealed that, availability of counselling room has being identified as a key factor that contributes to the overall effectiveness of the counselling process. In other countries, for example Nigeria, the

government insisted that all counsellors should be given the standard office located in a place where privacy is possible (Mogbo, Okeke and Anyachebelu, 2011).

Test of Hypotheses

In this study, the differences between mean scores of different variables were compared to find significance of its differences by using ANOVA and independent t-test. The difference between attitude mean scores of teachers with different educational qualifications towards implementation of guidance and counselling was tested by using ANOVA with 0.05 level of significance. Independent t-test statistics was used to test for significance difference between attitude mean scores of counsellors and students towards implementation of guidance and counselling and significant difference between attitude mean scores of male and female students towards the implementation of guidance and counselling in secondary schools in Tabora Municipality

Ho1: There is no significant difference between attitude mean scores of teachers with different educational qualifications towards implementation of guidance and counselling in secondary schools in Tabora Municipality. One way ANOVA was used to test this hypothesis.

Assumptions for ANOVA

1. The participants in each group are randomly and independently sampled
2. The groups are independent
3. The population variances for groups are homogeneous
4. The population distribution of scores is normal in form
5. Dependent variables are either ratio or interval

Decision rule

Given significance Level of 0.05

If $p > 0.05$ do not reject null hypothesis (accept null hypothesis)

If $p < 0.05$ reject null hypothesis

Table 10: Difference mean scores of counsellors of difference education qualifications and their attitude

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.071	2	.036	.406	.679
Within Groups	.703	8	.088		
Total	.775	10			

Table 10 shows that the observed p value (0.679) is greater than alpha level (0.05) which implies that the null hypothesis is not rejected. Therefore there is no significant difference between attitude mean scores of counsellors with different educational qualifications towards implementation of guidance and counselling in secondary schools in Tabora Municipality. Thus, presence of teachers with different levels of education does not hinder implementation of guidance and counselling. Due to their positive attitude they can collaboratively use their expertise to enhance effective implementation of guidance and counselling. Other factors such as teacher's workload, lack of facilities and teachers working experience may contribute to inadequate guidance and counselling services in secondary schools at Tabora Municipality. This findings concurred by the study conducted by Owino and Odere (2014) who observed that inadequate facilities of guidance and counselling and workload of teachers affect teachers attitude towards practicing guidance and counselling in schools.

Ho2: There is no significant difference between mean scores of male and female student's attitude towards the implementation of guidance and counselling in secondary schools in Tabora Municipality

Independent t- test statistics was used to test this hypothesis

Assumptions for t-test

1. The subjects in each group are randomly and independently sampled
2. The groups are independent
3. The population variances for groups are homogeneous
4. The population distribution of scores is normal in form
5. Dependent variables are either ratio or interval

Decision rule

Significant level is 0. 05

If $p > 0.05$, null hypotheses is not rejected (accept null hypothesis)

If $p < 0.05$ reject null hypotheses

Table 11: difference of mean scores of student's attitude and gender

Gender	N	Means	Std. Deviation	t	Df	sig
Male	108	3.3234	.44292	-0.972		
Female	92	3.4189	.90143		198	0.332

The observed p value (0.33) is greater than Alpha level (0.05) therefore null hypothesis is accepted. Therefore there is no significant difference between mean score of male and female student's attitude towards the implementation of guidance and counselling in secondary schools in Tabora Municipality. Similar observation by Seyoum (2011) revealed that, there is no significant mean difference between male and female respondents regarding their attitudes toward the guidance and counselling services. This implies that both male and female students are ready to utilize guidance and counselling services available in their schools. The small mean score difference observed between male and female students can be due to type of school (private or government), nature of the counsellor (male or female) and student's knowledge. Wilde (2008) observed that many male are more comfortable talking about issues regarding their sexuality with other male counsellors or students.

Ho3: There is no significant difference between mean scores of counsellors and students attitude towards the implementation of guidance and counselling in secondary schools.

Table 12: difference mean score of counsellors and students attitude

Group	N	Means	Std. Deviation	t	Df	sig
Students	200	3.3673	.69235	-0.848	0.209	0.397
Counsellors	11	3.5455	.27832	.		

According to Table 12, the p value (0.397) is greater than the Alpha level (0.05) which implies that the null hypothesis is accepted such that the observed difference is not statistically significant. Therefore there is no significant difference between mean score of counsellors and students attitude towards the implementation of guidance and counselling in secondary schools in Tabora Municipality. The positive attitude of Counsellors and students towards implementation of guidance and counselling implies that they value guidance and counselling services and that when provided with basic facilities including counsellors' knowledge they can effectively implement guidance and counselling in their schools. A study by Kipnusu (2002) as cited by Auni, Jepchirchir, Odhiambo and Lyanda (2014) is in agreement with this finding since he also found out that students with positive attitude are more likely to seek guidance and counselling than those with negative attitude.

Conclusion

Based on the findings, the following can be concluded:

Guidance and counselling services in Tabora Municipality exists but it is not effectively implemented. Ineffective implementation of guidance and counselling in secondary schools has several implications to students, teachers, parents and community in general. Lack of effective guidance and counselling can make students vulnerable to misbehaviours such as but not limited to drug abuse, early pregnancies, truancy, theft and early marriage. Also students may lack opportunities to be advised on the issues related to their academic prospects.

Peer counselling does not exist in secondary schools in Tabora Municipality. This make the provision of guidance and counselling to be even more difficult to counsellors. Through peer counselling it is easy for students to help each other towards the challenges they face. Therefore through peer counselling, this can reduce number of sessions of counsellors.

Moreover, both counsellors and students are ready to engage in implementation of guidance and counselling in secondary schools in Tabora Municipality. Presence of readiness among counsellors and students towards the implementation of guidance and counselling indicate that in the presence of conducive environment, guidance and counselling can be smoothly implemented in secondary school in Tabora Municipality.

Recommendations

Based on the findings, the evaluator recommends that the government through MoEVT should employ professional counsellors in all government secondary schools and for private secondary schools the owner of the schools should also employ the professional counsellors to their schools. In current situation most of the counsellors are teachers who lack necessary knowledge and skills of guidance and counselling. They are also overloaded with other teaching responsibilities which render the services of guidance and counselling they provide to be ineffective. However, in the current situation where most of counsellors are teachers, the government should provide training/seminar to teachers which focus on necessary guidance and counselling knowledge and skills. Furthermore, the government should ensure that all the necessary facilities for proper provision of guidance and counselling are available in secondary schools

For school administration, the evaluator recommends that, for new students there should guidance and counselling orientation to develop their awareness and importance of guidance and counselling. Furthermore, teaching workload for teachers who are counsellors should be reduced so that they may get enough time to conduct counselling sessions and there should be specific time table for students consultation.

REFERENCES

- Auni, T. R., Jepchirchir, R. S., Odhiambo, R. and Lyanda, J. N. (2014). Determinants of Guidance and Counseling Programme in Addressing Students Social Adjustment in Secondary Schools in Siaya District, *International Journal of Humanities and Social Science Vol. 4 No. 4*. Kenya
- Chireshe, E. and Regis, F. (2009). *An assessment of the effectiveness of school guidance and counselling services*. Zimbabwe
- Egbochuku, E.O. and Lyamo, E.O.S. (2000). Teachers and students perception of Guidance and Counselling Services in Nigerian Sec Schools, *Journal of Nigerian Educational Research Association 14;50-56*
- Kalechi, I. K. (2011). *The Role of Guidance and Counselling in career Development of Adolescents and Young adults with Special needs*. University of Ibadan. Ibadan.
- Kasurinen, H. and Numminen, U. (2003). *Evaluation of Educational Guidance and Counselling*. Finland, National Board of Education
- Kiilu, R. and Muema, E. (2013). Factors Influence Students Access to guidance and Counseling Services in Secondary Schools in Central Division Machakos. *Journal of Education and Practice, Vol4, No. 6*. Kenyatta University
- Kok, J. K. (2012). The Role of the School Counsellors in the Singapore Secondary school System, *British Journal of Guidance and Counselling, 10(2)*, 1080/03069885. 2013
- MoEVT (2013). Curriculum for Ordinary Level Secondary School, Dar essalam.
- Mogbo, I.N. Okeke, D. I. M. and Anyachebelu, F. E. (2011). Implementation of guidance and counselling services in Nigerian Schools. Awka , Nigeria.
- Ngumi, O. N. (2003). *Assessment of the Level of Training and Resource Need of Secondary school Counsellors*, Nakuru Municipality: Egerton University
- Nkala, P.P. (2007). *An assessment of Guidance and Counselling Program in Secondary Schools*. Bulawayo
- Numminen, U. and Karsurinen, H. (2003). *Evaluation of Educational Guidance and Counselling*. National Board of Education. Finland

Ondima, C., Nyamwange, B. and Nyakan, o. (2012). *Assessment of Challenges Facing Secondary Schools Guidance and Counselling Teachers in Nyamira District*. Journal of Education and Practice vol.3. p.16

Owino and Odere (2014) *Constrain Affecting Attitude of Teachers Towards Practicing Guidance and Counselling in Primary Schools*. *European Journal of Research and Reflection in Educational Sciences* Vol. 2 No. 3, 2014 ISSN 2056-5852

Owino, E.A. (2013). *Exploration of Nature of Guidance and Counselling services in Secondary Schools*. Kenya, Moi University

Seyoum, Y. (2011). *Revitalizing Quality using Guidance Counseling in Ethiopian Higher Education Institutions: Exploring Students' Views and Attitudes at Haramaya University* *International Journal of Instruction* July 2011 Vol.4, No.2

Stufflebeam, D. L (2005) *CIPP Model (Context, Input, Process and Product)*. USA, Sage Publication.

Stufflebeam, D.L. (2003). *The CIPP Model for evaluation*. Oregon. NerruPranutam

TIE (2012). *Curriculum for Ordinary Level Secondary School Education*. MOEC, Dar-es- salaam

UN (2004). *School-based education for drug abuse prevention*. Vienna, Global Youth Network

UNESCO (2000). *Module of Guidance and Counselling*. Makerere University Institute of Adult and Continuing Education, State Calaba: Cross River university http://www.utwente.nl/cw/theorieenoverzicht/Theory%20clusters/Communication%20Processes/System_Theory/ on 25th November, 2014.

Wango, G. M. (2006). *Policy and Practice in Guidance and Counselling in Secondary Schools in Kenya*. University of Brmingham.

Implementation of English Language Curriculum in Diploma Teachers' Colleges in Northern Zone Tanzania

Joyce Fidelis Mchilo and Joseph Malusu (Associate professor)
Mwenge catholic university

Abstract

There is a problem of poor mastery of English language in Tanzania secondary schools. As a result the quality of education in Tanzania is claimed to be low because both teachers and students have low mastery of the language which is also a medium of instruction. This study investigated the implementation of English language curriculum in Diploma Teachers' Colleges to determine how it was connected to the existing problem. Graduates of diploma course who study English language are posted in secondary schools to teach English language among other subjects. Investigating how the English Language curriculum is implemented in this course intended to explore the causes and provide possible solutions for the problem. . The study was conducted in two Public Diploma Teachers' Colleges which offer English language course. Both qualitative and quantitative approaches were employed. The sample of the study comprised 142 respondents. Data obtained from qualitative approach were coded, analyzed and reported in description using participants' excerpts. In quantitative approach, descriptive-cross-sectional survey design was used. The information under this approach were analyzed through percentage, mean and frequency. Five research questions were formulated to guide the study by exploring the following: - the extent to which the English language curriculum was effectively implemented, the extent to which the available resources sufficed the need for the English language curriculum implementation, the attitude of students towards English language, the challenges that hindered the implementation of English language curriculum, and stakeholders' suggestions to improve the implementation of the curriculum. The findings showed that, in general, the curriculum of English language in Diploma Teachers' Colleges was not effectively implemented. Scarcity of resources, inadequate English language tutors' competence, improper evaluation procedures, and poor students' English language background were identified as reasons connected to the problem of ineffective implementation of English language curriculum. Three research hypotheses were tested and the results showed that a) There is no significant difference between mean of English language achievement scores of students of different age groups b) there is no significant difference between mean of English language achievement scores of girls and boys and c) there is no significant relationship between students' attitude towards English language and of English language achievement. The two null hypotheses tested by using ANOVA were not rejected while one null hypothesis tested by using t- test was rejected. Since it has been revealed that English language curriculum in Diploma Teachers' College is not well implemented, it is

recommended that the language policy has to be strengthened in schools and colleges, and efforts to secure adequate human and physical resources for implementation of the curriculum have to be done in order to address the problem.

CHAPTER ONE

1.0 Background to the Problem

The teaching of English language in Diploma Teachers' Colleges is an important aspect as far as curriculum implementation and quality teacher education in general is concerned. However, English language is just one of the subjects of specialization that teacher trainees in teacher education diploma course opt for their studies; in this context it is given a special attention. Its importance is underscored by the fact that English language is a medium of instruction not only in diploma course, but also in secondary education where the teacher trainees are posted to teach after completion of their studies.

It is stated by United Republic of Tanzania (URT) in the *Education and Training Policy* that with exception of language subjects namely Kiswahili, French and Arabic, English is a medium of instruction of all subjects in teachers' colleges, higher learning institutions and secondary schools (URT, 1995). Education and training policy is a government document that provides guidelines for provision of education in the country. In this sense English language is given a special position in relation to education provision in Tanzania in general and in a particular focus on Diploma Teachers' Colleges according to the interest of this study.

According to Prah (2003) language is a vehicle through which knowledge, skills and attitudes are created, accumulated and transmitted. It is a medium of instruction that determines the effectiveness of implementing the curriculum of a particular education course. He added that in educational institution setting such as teachers' college, the core function is the implementation of the curriculum. By its nature, effective implementation of the curriculum depends on language. Kadeghe (2003) observed that language plays a crucial role in learning. Based on this observation, therefore if the teachers and learners are not familiar with the language of instruction, then learning will not take place accordingly as communication will be impossible (Malekela, 2003). Jidamva (2012) states that mastery in language of instruction makes the lessons become live as both the teachers and students are free to interact. It was also pointed out by Vuzo (2010), that classroom dialogue through understandable language has a significant role to play in learning. In addition, the language that teachers use clearly affects and constrains the language that the pupils use (McDonough, 1982).

As mentioned early, the language of instruction for secondary schools, teachers' colleges and higher learning institutions in Tanzania is English. Unfortunately, the majority of

Tanzanian students learn English as the second or third language. Apart from English, they learn ethnic languages and Kiswahili. This situation is a bit challenging because a foreign language which is not familiar to the majority of students is used as a medium of instruction. Malekela (2003) asserts that Kiswahili is the second language to most of Tanzanians; very few Tanzanians who have been through formal schooling have learned English language.

The expectation of the curriculum developers is to teach English language in schools. After completion of secondary education or higher level of education, the students should be able to communicate and use English language for different purposes either in oral or in written form. Unfortunately, this expectation is not realized (Brock-Utne, Desai, & Qorro, 2003). Yet in colleges and universities, there are indicators of failure to use English language in classrooms and other situations. Malekela (2003) points out that, in English language classrooms, there is code-switching into Kiswahili to facilitate the teaching and learning of English language. Students tend to be comfortable when they discuss in Kiswahili during meetings compared to when they use English.

He also stressed that students in university or college level have the difficulty in expressing themselves or writing a simple letter in English language.

The teachers in Tanzania schools, for many years now, are blamed for poor English language teaching. Malekela (2003) commented that, in Tanzania, the English language teachers themselves are far from proficient in the language. They do not master the English language properly. Vuzo (2010) disclosed that students sometimes claim to note teachers' mistakes when teaching English language, but they fear to tell them because they can be punished. Moreover, Puja (2003) declared that the problem of low mastery of English language is severe among the majority of the secondary school students and their teachers.

The Ministry of Education and Vocational Training (2009) outlined the objectives of the English language academic syllabus in Diploma Teachers' Colleges as to enable student teachers to use English language in a variety of social contexts and apply intermediate and advanced reading, writing and speaking skills of the English language. In English language pedagogy, among its objectives include enabling student teachers to use theories and principles of teaching foreign or second language, plan and teach all language skills and use appropriate methods, assessment tools and materials in language teaching and learning. Going across these objectives in the English Language curriculum one realizes that the teacher trainees are expected to use English language in society and teach it properly in schools. The mastery of English Language as a medium of instruction in Tanzania teacher and secondary education context is therefore a crucial aspect in curriculum implementation. At the moment there is a public outcry for low quality of education in Tanzania. Among other reasons identified as causes is the use of English as a medium of instruction (Jidamva, 2012). To explore the causes of poor mastery of English language which is also a medium of instruction in secondary schools, the researcher investigated the implementation of English language curriculum in diploma teachers' colleges.

1.1 Statement of the Problem

Low mastery of English language among teachers in secondary schools is a problem which causes communication difficulties and limit classroom interaction. As a result, according to Kawambwa (2013) the students find themselves unable to communicate in English language and experience difficulty to cope with their academic subjects. The problem of low mastery of English language among teachers in secondary schools can be traced from English language curriculum that is used to prepare these teachers among other reasons.

Several studies related to English language curriculum have been conducted in Tanzania and other countries in the world. For example, Vuzo (2010) conducted a study on the factors influencing classroom interaction in Tanzania secondary schools. The study was under the topic 'Exclusion through Language: A Reflection on Classroom Discourse in Tanzania Secondary Schools'. The study was conducted in two government secondary schools in Tanzania located in Dares salaam. Teachers and students were involved in study. The findings showed that, code switching and code mixing to Kiswahili is practiced in secondary schools, in order to facilitate dialogue in teaching and learning. Students' participation was low in English language. On contrary the situation was different when Kiswahili was used. Also Asli (2007) conducted a study to investigate how English language curriculum of the sixth, seventh and eighth grades of public primary schools in Turkey was implemented by teachers and how it was experienced by students. The general results showed that there were differences in implementation process in relation to the facilities of schools and classrooms, teacher and student characteristics, and perceptions. The curriculum goals were attained at a moderate level and there were some problems. The main problems encountered in the implementation process resulted from the lack of materials and resources, the course-book, the learners, the classroom environment and the curriculum. These problems influenced the major area of English language curriculum implementation.

Abu (2013) researched on the challenges of implementing English language curriculum in rural primary schools of Bangladesh. The study indicated that most of the rural schools students are poor in English language due to lack of skilled teachers, proper teacher training, using proper teaching methods and materials, physical facilities. As result, the study concluded that, English language curriculum at primary schools in Bangladesh was unsuccessfully implemented.

Another study by Mutai (2010) assessed the extent to which teaching techniques affect the performance of students in Eldoret Municipality in Kenya. Some of the results from this study were the following: most of the teachers utilized non participatory teaching methods; teachers did not plan properly and allocate reasonable time for oral activities. These shortcomings led to poor performance in English language subject. The last and recent study which reflects the Tanzanian context was conducted by Jidamva (2012), the study focused on how to improve quality of education in secondary schools in Tanzania. The

findings showed that there was a problem of using English language in teaching because of teachers' low mastery of the language. As a result Kiswahili was found to be frequently used in classes instead of English. Inadequate resources and poor morale of the teachers to teach are among the causes of poor performance in schools particularly in English language. Other results of this study showed that there is significant relationship between teacher's quality and students' performance. Teachers' competency is identified to be a significant factor for learning not only English language but also other subjects.

The studies cited have focused on primary and secondary Education. No study has been conducted on Teacher Education curriculum which produces teachers for either primary or secondary Education. The current study therefore focused on implementation of Teacher Education curriculum, specifically, the English language curriculum in Diploma teachers' colleges in Northern zone of Tanzania which prepares teachers for secondary education. How effective in the implementation of the English language curriculum in Diploma teachers' colleges in Northern zone, Tanzania in preparing teachers for secondary education?

1.2 Research Questions

The following research questions guided the study:

1. To what extent has the English language curriculum been effectively implemented in Diploma Teachers' Colleges in Northern Zone Tanzania?
2. To what extent do the available resources suffice the need for the English language curriculum implementation in Diploma Teachers' Colleges in Northern Zone Tanzania?
3. What is the attitude of students and tutors in diploma teachers' college in Northern zone Tanzania towards English language?
4. What challenges hinder the implementation of English language curriculum implementation in Diploma Teachers' Colleges in Northern Zone Tanzania?
5. What suggestions can be made by the stakeholders to improve the curriculum implementation in Diploma Teachers' Colleges in Northern zone Tanzania?

1.3 Research Hypotheses

The following research hypotheses were tested:

1. There is a difference between mean of English language achievement scores of students of different age groups.
2. There is a difference between mean of English language achievement scores of girls and boys.

-
3. There is a relationship between students' attitude towards English language and of English language achievement.

1.4 Significance of the Study

This study aimed at determining the effectiveness of English language curriculum implementation in Diploma Teachers Colleges. The beneficiaries of the study include English language tutors, inspectors of schools, curriculum planners, student teachers, students in different school levels and the educational community at large.

The English language tutors could use the information from the findings to establish teaching strategies to enable the teacher trainees to improve the level of mastering English language and therefore teach properly. Curriculum planners may use the findings of the study in making curriculum review, as the study came out with strengths and weaknesses related to the implementation of the curriculum. The English language school inspectors as quality controllers of teaching could benefit from the study by using the findings to identify areas that need to be improved. The government and other educational stakeholders could use the information to improve the quality of the English language curriculum.

1.5 Theoretical Framework

This study was guided by the systems theory as proposed by Laszlo and Krippner (1993), Bertalanffy (1968) and Cooks, Hunsaker and Coffey (1997).

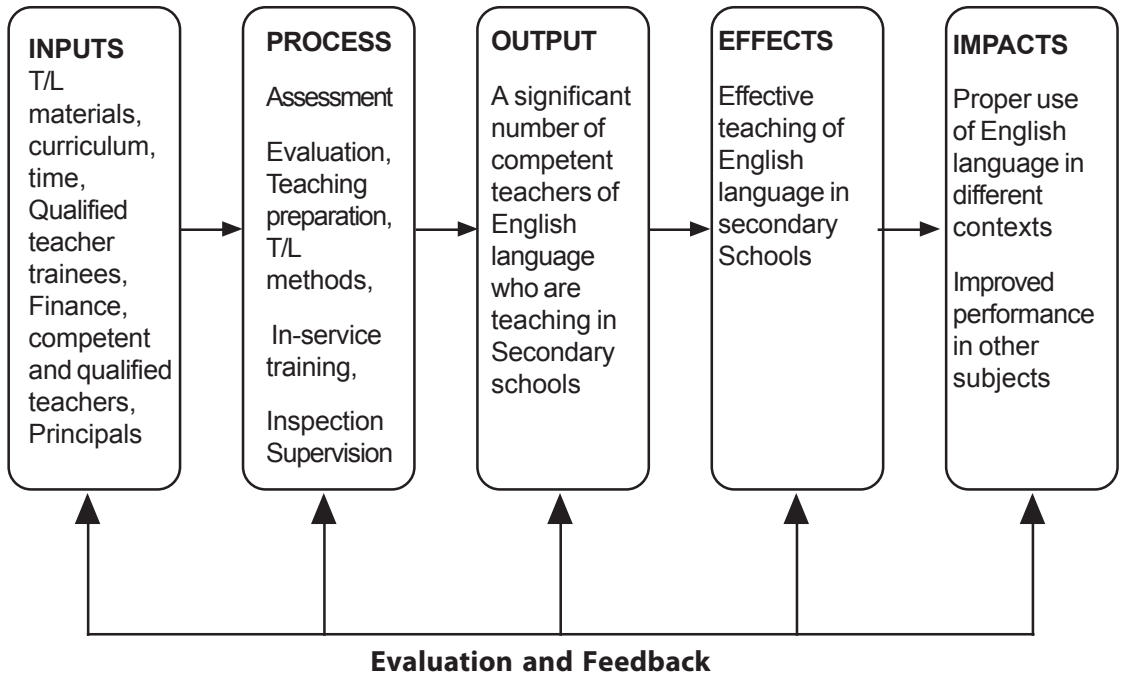
The theory insists that for the system to work properly, each element that is input, process, output or product has to function properly. Each element contributes to the whole. In the contribution of these elements there can be open or closed system. A closed system does not interact with its environment. It does not take information and therefore is likely to vanish. An open system receives information which it uses to interact dynamically with its environment. Openness increases its likelihood and prospers.

Systems theory approach was relevant to the study because, it guided the researcher to assess whether the system of English language curriculum implementation in Teachers' Colleges works as a whole; and what is its effect to schools and the entire society. For the aim of assessing the college system in implementing English language curriculum, five elements which are inputs- process- output-effect- impact was discussed to show how each element depends each other and the effects of the interdependent in the system. The theory also guided the researcher to assess whether in teachers colleges there are open or closed system of communication, in implementation of English language curriculum in Diploma Teachers' Colleges

Conceptual Framework

Figure 1.2 Conceptual Framework for implementation of English language

Curriculum in teachers' Colleges



(Modified from Ogula 2010 & Cooks, Hunsaker and Coffey, 1997)

According to this figure, the inputs, process, product, effect and impact element determines each other. If in the system of implementation there will be one element which is not functioning well; it will limit other elements to function as well, then the results will be poor. But if each element functions well, the end results will be of good quality. Evaluation and feedback is necessary to be provided to each element so as to maintain the effective implementation of English language curriculum

1.7 Operationalization of Terms

Effectiveness: Refers to fair or sufficient level of implementation of English language curriculum in Diploma Teachers' Colleges.

Achievement: It means student's attainment or success in English language examination.

Diploma English language curriculum: Is a program of study which states the knowledge, skills, attitudes and values that a student studying English language at diploma level ought to master.

Northern zone-Tanzania: This is geographical zone of Tanzania which is located in north. It consists of four regions: Tanga, Kilimanjaro, Arusha and Manyara.

Diploma Teachers' Colleges: These are educational institutions that train teachers who qualify to teach in ordinary level of secondary education. A student who joins these colleges must be a graduate of advanced level of secondary education and passed at least at a grade of at least one principal and one subsidiary in his subject of specialization in Advanced Certificate of Secondary Education Examination (ACSEE).

English language teacher trainees: Students who join colleges to be trained for teaching English language in schools.

Performance: Capability of using English language in different contexts including in examination.

Inspectors: Experts from school inspectorate department who are entrusted to control the quality of training through supervising and monitoring the implementation of the curriculum, and for the context of this study English language curriculum in Diploma Teachers' Colleges.

CHAPTER TWO

2.0 REVIEW OF LITERATURE

In this Chapter different theories related to the study are presented and discussed. Empirical studies conducted to investigate similar problems are also presented and discussed. The selected studies expose the problem of teaching and learning English language as reflected in different countries including Tanzania. The researcher discusses different theories in relation to English language curriculum implementation in Diploma Teachers' Colleges.

2.1 Context, Input, Process, and Product Model

CIPP is an acronym for Context, Input, Process, and Product. CIPP as a model has been proposed by Daniel Stufflebeam in 1968. Stufflebeam suggested a cyclical approach whereby feedback is continuously provided to the decision makers and evaluation report used for decision making. In addition, CIPP model focuses on providing the foundation for deriving and validating particular evaluative criteria through an interactive relationship between evaluator and client (Tan, Lee & Hall, 2010). The model was founded on a constructivist approach that requires evaluators to operate on a foundation of trust, showing respect to all stakeholders regardless of power, gender and cultural background. Kailembo (2000) argues that, both parents and the community at large have an important role to play in the provision of education.

The CIPP model states that the one who should respond to the feedback are those decision makers. This idea is useful to the study since it assisted the researcher to assess how well the decision makers are informed about the problems facing the implementation of English language curriculum and what measures are taken by them to improve the situation.

Also the theory emphasizes the interaction between the decision makers, evaluators together with students in implementing the curriculum as a means of achieving curriculum goals and objectives. The idea assisted to assess the relationship between the administration and the tutors of English language and students, tutors and students in English language class which can either facilitate the teaching and learning process or can hinder the process. As Fakeye (2010) commented that there is significant relationship between teachers' classroom behavior and students' achievements in English language. Proper training of students which is influenced by the tutors' behavior will provide them with required skills, knowledge and attitudes to teach in schools. Poor training can lead to poor teaching and communication in English language.

Ogula (2002) and Tan, Lee and Hall (2010) stated that *context evaluation* is done to assess the setting or environment within which the program or educational activity is taking place.

Context evaluation helps decision makers to assess needs, problems, assets and opportunities, while defining goals, actions and planning decisions. CIPP model was useful for investigating the environment in which the English language in diploma teachers colleges is taught. Defining the environmental characteristics in which the program is conducted, enabled the researcher to diagnose barriers for the program within the diploma teachers' colleges. Context evaluation needs the curriculum planner to assess the situation and the needs of the students, before introducing the curriculum to be implemented.

Another element which was indicated by Ogula (2002) is input evaluation. This helps decision makers to plan for their feasibility and cost effectiveness for achieving planning objectives. Inputs evaluation is done for the purpose of providing information that will determine how to utilize resources to achieve project objectives.

This concept in diploma teachers' colleges is useful to assess whether the Ministry of Education and Vocational Training ensures the availability of resources such as time, text books, syllabus, English language laboratory rooms and classrooms in relation to their utilization; in diploma teachers colleges so as to meet the English language curriculum objectives. Tilya (2010) argued that teacher's supporting materials are essential to ensure effective implementation of the curriculum.

The other is *Process evaluation*. In this stage of evaluation decision makers assess action and implementation of plans. In diploma teachers' colleges this can be done through

inspecting schools, and the principals to monitor the teaching process as it is done by the tutors. If there are some weaknesses, the college administration can conduct in-service training so as to enable the teachers to teach in appropriate techniques. The students also can be given regular exercise and test on English language so as they can be evaluated English language progress. Mosha (2000) commented on it that, regular students' assessment provides useful information that can be used to judge progress made.

Product evaluation is done for the purpose of measuring and interpreting the attainments of the objectives not only at the end of the project cycle but as often as necessary during the program term. In this study, the researcher investigated the output produced in the teachers' colleges in relation to their ability of using English language.

In the background to the problem, it has been stated that, most of the students in colleges, schools and university level are not able to communicate in English language neither in writing nor in speaking. In this context, the question to ask is what are the sources of this plight? Is there a problem in the inputs or in the process? Or is there any problem with evaluation procedure? What was the relevance of this model?

CIPP model was useful in this study since it was used to examine how the elements of inputs, process, and outputs are evaluated in examining English language curriculum implementation in Diploma Teachers College. In addition, the model was adopted to assess if the feedback given was used to improve the implementation of the curriculum.

2.1.1 The limitations of the Model

One of the limitations of the CIPP model is that, it insists giving feedback to the decision makers only. Other stakeholders can be given the evaluation information, but they cannot make some decisions until they get directions from those who are responsible in decision making. The decision makers therefore have to work together with other educational stakeholders to get good product from teachers' colleges. The decision makers are like a system influencer who works with people and other resources to carry out tasks and achieve objectives (Cooks, Hunsaker and Coffey, 1997).

2.2 The Behaviorism Theory

The behaviorism theory of learning as introduced by Skinner is another theory that can relate with the theories that have been discussed earlier. Skinner believes that the learning process can take place when there is stimulus-response-reinforcement. The behavioral change depends on the influence of the environment. That is, the behavior of an individual is usually controlled. For Skinner, the behavior followed by a reinforcing stimulus results in an increased probability to re occur in the future, and the behavior that no longer followed by reinforcing stimulus results in a decreased probability of that behavior to re occur in the future. Skinner believed that if the reinforcer is removed, and then given again, it is

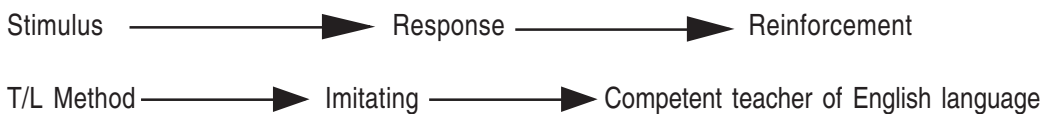
likely for the behavior to re occur much more quickly than it was before (Mushi, 2000).

The theory is useful to this study because it assisted to assess the influence of the college environment in learning English language. The teacher trainees can learn English language well if the environment motivates them to do so. In relation to systems theory, the theory could focus on the availability of English language competent teachers, enough teaching and learning materials, good and enough classrooms and language laboratory as inputs. Kailembo (2000) argued that learning environment has to allow teachers and students to engage teaching and learning English language friendly. Assessing these justified the assumptions of whether the problem of incompetent use of English language in schools is caused by poor learning environment and shortage of resources.

The theory insists that a learner can learn properly if there is stimulus-response-reinforcement and that, the reinforced behavior tends to re occur in the future. The supervisors and inspectors have to work properly to assist the teachers with teaching problem so as to acquire knowledge and skills in content and pedagogy to teach English language properly. Assisting them will motivate them to the extent that the teaching behavior can be built in them.

Teaching the students using appropriate teaching methods will help them imitate and learn how English language is taught and their performance can be good. These will make them like English language and have a positive attitude towards it.

Figure 1.1 The Impact of Good Teaching techniques to Teacher Trainees



(Source: Researcher’s Personal Formulation)

If the teaching methods are not well utilized in the classrooms, it is likely to produce teachers who are not able to teach and use English language. Mosha (2000) commented that poor selection of teaching strategies may lead to ineffective and vice versa

The theory was useful to assess the qualifications of the students who join teachers’ colleges to learn English language and what measures are taken by the college tutor to improve the students’ quality. The ages of the students who join Diploma Teachers Colleges do differ. There are aged and adolescents students who sometimes lose concentration in learning English language. To assist them, the tutors of English language have to control the behavior by giving them more exercise, create activities inside and outside classroom which will make them practice English language.

2.2.1 The shortcomings of the theory

The theory has got limitations because it does not insist the learners to make deliberate efforts to learn English language for the purpose of teaching and using it. The theory directs the students to believe in conducive environment and teachers' ideas, techniques and methods to learn. It does not encourage the students to be active learners. This situation can lead the student teachers to be limited in construction of ideas which later can create difficult situation in communicating by using English language.

2.3 Empirical Studies

Different scholars dealt with the problem of using English language in teaching and learning. Asli (2007) conducted a study aimed to investigate how English language curriculum of the sixth, seventh and eighth grades of public primary schools in Turkey was implemented by teachers and how it was experienced by students. The major areas of investigation were the teachers' and students' perceptions of the curriculum goals and content, instructional strategies, evaluation and assessment procedures, learner attitudes and the problems encountered during the curriculum implementation. The results revealed that the implementation process of the English language curriculum showed differences in relation to the facilities of schools and classrooms, teacher and student characteristics and perceptions. Majority of the curriculum goals were attained at a moderate level and there were some problems with the selection and ordering of curriculum content. Various types of teacher-centered and learner-centered instructional strategies were implemented depending on the language skill to be taught and learned, and the students had positive attitudes towards most of these instructional strategies. The main problems encountered in the implementation process resulted from the lack of materials and resources, the course-books the learners, the classroom environment and the curriculum. These problems influenced the major area of English language curriculum implementation.

Since the study has been conducted in Turkey public primary schools, the researcher did the study in diploma teachers' colleges in Tanzania. Also apart from the elements which have been assessed by Asli (2007), this study dealt with the supervision and inspection of English language curriculum in diploma teachers' colleges to see how the college principals and the inspectors are supervising and controlling the teaching of English language.

Abu (2013) researched on the challenges of implementing English language curriculum at rural primary schools of Bangladesh. The study indicated that most of the rural schools students are poor in English language due to lack of skilled teachers, proper teacher training, using proper teaching methods and materials, physical facilities and so on. As result English language curriculum implementation at primary schools in Bangladesh is becoming unsuccessful.

Since the study was done at rural primary schools of Bangladesh, this study assessed the challenges for implementing English language curriculum in diploma teachers' colleges in Tanzania to see if the implementation of English language curriculum faced the same challenges in different countries and at different levels.

Wang (2006) investigated the factors affecting teachers' implementation of English as a foreign language (EFL) curriculum in China. The data revealed that six external and internal factors were significant predictors of teachers' curriculum implementation. Among them, resource support, communicative language teaching, and teaching experience positively predicted these teachers' curriculum implementation; grammar-translation method, English proficiency, and professional development needs, on the other hand, negatively predicted their curriculum implementation. The implications of this study point to the complex nature of curriculum implementation, and the multifaceted roles that teachers must play for successful implementation to occur within this EFL context in China.

The findings revealed a discrepancy between policy makers and administrators, and between policy makers' intentions and teachers' curriculum implementation. Policy makers designed abstract policies to offer local universities and teachers' some flexibility and autonomy when they put those policies into practice. However the administrators as intermediary individuals between policy makers and implementers apparently interpreted the open-endedness of the curriculum policies differently than the policy makers had intended. Instead of using the methods which could help the students gain proficiency, they placed their emphasis on students' good scores on the national English language tests. The findings also showed that the policy makers also failed to support the teachers in understanding the policies by not providing necessary resources to help them implement the policy fully. The researcher investigated about the factors that affecting teachers' implementation of English as a foreign language in China; the study was done about teacher training in tertiary level.

Vuzo (2010) conducted a study on the factors influencing classroom interaction in Tanzania secondary schools. The study was under the topic 'Exclusion through Language: A Reflection on Classroom Discourse in Tanzania Secondary Schools'. The study was conducted in two government secondary schools in Tanzania located in Dares salaam. Teachers and students were involved in study. The findings showed that, code switching and code mixing to Kiswahili is practiced in secondary schools, in order to facilitate dialogue in teaching and learning. Students' participation was low in English language.

On contrary the situation was different when Kiswahili was used. The researcher however did not show how quantitative data was analyzed. Moreover the researcher did not explain well on the methods of collecting data. She just mentioned interview, observation, and document analysis which in reality do not show exactly the type of data to be collected, neither qualitative nor quantitative. The situation therefore can create a gap for other

researchers by suspecting that there is a possibility that the data collected were not satisfactory to tackle the problem. The researcher observed Geography classes and concluded that there was a problem of English language to teachers and students in Tanzania secondary schools. This could be verified if teachers of English language were observed, as they are key players in facilitating teaching and learning of English language.

Thus, the researcher in this study focused on filling a gap by assessing how the English language curriculum is implemented in Diploma Teachers' Colleges where both students and tutors of English Language participating by filling in the questionnaires. In addition the researcher observed the process of teaching and learning in the English language classes.

Fakeye (2006) conducted a study on the extent to which teacher's classroom behavior and teaching experience would predict student's achievement in English language among public senior secondary students in Ibadan Metropolis. The results showed that teacher's classroom behavior has significant relationship to students' achievements in English language. Also there is significance relationship between the teachers' teaching experience and the student's performance. The researcher employed a descriptive research design of survey type to provide answers to four questions. The participants were 1000 Students and English language teachers from 20 schools were involved 11 Students and 11 English language teachers from each school were randomly selected from each school. The researcher however did not show about other samples, so as to make 1000 participants.

The researcher suggested to use frequencies, count simple percentages and multiple regression and that the questions will be answered at 0.05 level of significance .But in finding the significance level of relationship the researcher used t-test, F-test, $P < 0.05$. The results showed that teacher's classroom behavior has significant relative contribution to students' achievements in English language. Also there is a significant relationship between the teaching experience of the teachers and the student's performance.

What the researcher has done is contrary to what was suggested to be done in making analysis of data. If the researcher decided to use F-test and T- test, the researcher should have employed confirmatory survey design instead of using descriptive survey design. In the study it is shown that there are multiple regressions to be employed but in giving the results, there is no any area which shows that the multiple regressions were used. The researcher attempts to use Cronbach alpha to determine the reliability of the questionnaire. Since the researcher employed quantitative approach, it could be better if test re test in achievement test was employed, and K-21 or K-20 to determine reliability of the questionnaires. The current study was done through descriptive survey design and phenomenology, the Cronbach alpha method was used to determine the reliability of the questionnaire only on the part which measures the students' attitude towards English language and T test and F test were used as well for testing hypotheses to verify some of

the theories discussed in the study.

Since the previous study was conducted in Ibadan Metapolis to see how teacher's classroom behavior and teaching experience would predict student's achievement in English language among public senior secondary students in Ibadan Metapolis, the current study was conducted to see if the tutors' qualification has any impact in teaching English language, the effects of teaching methods used by the tutors of English language on students by assessing the implementation of English language in diploma teachers' colleges in Northern zone, Tanzania.

Ogiegbaen and Lyamu (2006) conducted a study on the factors responsible for poor quality of teaching of English as a second language in public secondary schools in Nigeria. The population samples included the senior secondary school students in public schools in six geographical zones of Nigeria. The participants were drawn from senior secondary schools through stratified random sampling technique. Five schools were selected from each zone thus making a total of 30 schools from which 3000 students were selected. The researcher used survey design whereby observation schedule and questionnaires based on likert-type rating scale was applied. Data were analyzed through means and standard deviation. The researcher had three questions to be answered. The questions included frequency of the use of instructional media, frequency of the use of instructional techniques and the school learning environment. The findings showed that secondary school students in Nigeria do not learn English language in a conducive environment to effectively the teaching and learning of English language therefore became a problem as was the case in Tanzania. The research design, data collection instruments, the main research questions and the research findings that Poor environment of learning and teaching English language in Nigeria, influenced the current researcher to concentrate on assessing how often the particular teaching technique was used by the tutors of English language, in diploma teachers' colleges in Northern zone, Tanzania. However, the sample and some data collection instruments were different. The environment included the tutors, parents, classrooms, and all other activities which could make the students learn English language.

Another study by Mutai (2010) assessed the extent to which teaching techniques affect the English language performance of students in Eldoret Municipality in Kenya. Some of the results from this study were the following: Most of the teachers utilized non participatory methods; teachers do not plan properly and allocate reasonable time for oral activities. These shortcomings led to poor performance in English language subject. The study showed that there was a problem in English language teaching and learning in relation to teaching methods and poor preparation of lesson plan. Since the researcher focused on the situation of Eldoret municipality, it was not possible to use these findings in Tanzanian context especially in teachers colleges because the sample and level of education are different.

Jidamva (2012) conducted a study on how to improve quality of education in secondary schools in Tanzania. The findings showed that there was a problem of using English language in teaching, because of teachers' low mastery of the language. As a result Kiswahili was found to be frequently used in classes instead of English. Inadequate resources were cited among the causes of poor performance of English in schools. The current study focused on how the teacher trainees are prepared.

Most of the studies presented here dealt with curriculum implementation in secondary and primary schools. Only one study dealt with English language teacher education in China which is a foreign country.

Since the studies were critiqued in terms of level of Education, subjects, sample of the participants, methodology, data collection instruments, country wise and findings in relation to the English language curriculum implementation, this study therefore investigated the implementation of English language curriculum in Diploma Teachers' Colleges in Tanzania looking at all the aspects to see the causes of poor use of English language in Tanzania secondary schools and in the society in general in respect to the training teachers for the same.

CHAPTER THREE

Research Methodology

3.1 Research Design

This study was conducted through mixed paradigms, where both qualitative and quantitative approaches were employed. Qualitative approach was used to collect in-depth information from the participants, through interviewing college tutors of English language and principals in Diploma Teachers' Colleges. Also indeed phenomenology design was used by the researcher to observe the teaching process in the English language classes. In brief, the design was very useful in exploring new ideas related to the experiences of English language curriculum implementation.

In quantitative approach descriptive-cross-sectional survey design was employed. The application of this design was used to collect the information from students who are studying English language. The information from this design was useful in making generalization of the findings. The design also was used in testing the hypotheses.

3.2 Description of sample and Sampling Procedures

The sample of this study comprised 142 students, 7 tutors and 2 principals. Two sampling procedures were used to select the participants of the study.

Simple random sampling technique was used to select the participants from students' category. It was employed to get the real number of the students to participate in the study. Probability sampling was useful because it was not easy to involve all students in the study, but using this sampling approach, equal chance for each student to participate in was provided. The researcher used quarter of the population for the students. Male students were 59 and female students were 39. These students were selected from College A. The students were selected from different subject combinations. College B 22 male students, and 21 female students were selected. The students also were selected from different combinations.

Purposive sampling was useful for involving tutors and principals in the study. The study was conducted in two public Diploma Teachers' Colleges offering English language course in Northern Tanzania.

3.3 Data Collection Instruments

The study was done by using the following instruments: The in-depth interview guide, Observation guide, and document analysis guide for qualitative data. For quantitative data, questionnaire was used.

3.3.1 The in-depth interview guide

The in-depth interview guide included different questions that needed in-depth information. In-depth interview guide was used to collect data from the principals, and tutors of English language. The expected data from this instrument were availability of resources, principals and tutors' in-service training, methods used in English language teaching, the types of exams done in teachers colleges, the supervision and inspection in curriculum implementation and how professional documents are prepared and assessed. The other information was about different teaching methods used by the tutors of English language, challenges for English language curriculum implementation and suggestions of how to improve the situation.

3.3.2 Observation guide

Observation guide was used to collect data from real situation or in natural settings. This instrument was used during classroom observation when the English language tutors were teaching. By using this tool the researcher collected data related to appropriateness of teaching and learning strategies and procedures. Also observation guide was used to assess whether in Diploma Teachers Colleges there were different activities which were done outside the classroom to facilitate English language learning. Activities such as parade announcements, staff meetings, students meetings, magazine, notice board announcement and debate clubs were assessed to see the language which was used.

3.3.3 Document analysis guide

Document analysis guide was useful for assessing whether the professional documents were planned appropriately to enable the students to learn and achieve the goals of teaching English language in Diploma Teachers' Colleges. In this study, document analysis guide was used to assess the lesson plans, schemes of work in relation to the English language syllabus.

3.3.4 Questionnaires

A questionnaire was used to collect information from students of English language. Data which was collected through this instrument were the students' background, the availability of resources, teaching methods used by the tutors, the evaluation procedures used in Diploma Teachers Colleges, Students' attitude towards English language, challenges that the students were facing in learning English language and the suggestions to overcome the challenges. The questionnaire included both closed ended questions, which required the students to indicate appropriate response; and open ended questions which required the students to give brief explanation.

3.4 Piloting of Research Instruments

Pilot study was done at a different Teacher's College in Morogoro. The college had the same characteristics with the targeted population since it is a public college and offers English language to Diploma students using the same curriculum. Piloting was useful for making adjustments to the research instruments. The intention of the piloting was to test if the instruments developed were appropriate to produce expected results. It was learnt during the analysis of the findings of the pilot study that some of the questions were not clear and confused the respondents. Therefore, before conducting the study; the instruments namely the questionnaire and interview guide were reviewed to ensure clarity of the intended information.

3.5 Validity of the Instruments

Literature review was conducted before composing questions to ensure that the set questions could produce the required data. The researcher gave the research instruments to other research experts in the field of curriculum to read and raise any necessary observation. The use of different research tools (triangulation) such as in-depth interview guide, questionnaires, observation guide and document analysis guide were also meant to ensure validity of the instruments since the researcher made comparison of the answers on what were measured. Piloting study was done at one of the teachers' college in Morogoro as a part of validation. The findings obtained through interview were sent to the respondents to cross check if they were interpreted and written accordingly.

3.6 Reliability of Research Instrument Results

The researcher used the Cronbach Alpha method to determine the reliability of the instruments. Cronbach Alpha method helped the researcher to measure the reliability of the instrument after administering the questionnaires once. The reliability of a questionnaire was done in the students' questionnaire in question number 9, which was about the students' attitude towards English language and the numbers of items were 10. The reliability of the test was estimated under the value of 0.6. After calculation, the reliability was 0.800, which was high, according to Best and Kahn (1993).

3.7 Description of Data Analysis Procedures

Both qualitative and quantitative data analysis techniques were employed. The quantitative data were presented in tables, indicating frequencies and percentages. Statistical Package for Social Sciences (SPSS) version 20 was employed for coding and analyzing data, where frequencies and percentages were obtained. The hypotheses tests were conducted using ANOVA and t-test at 0.05 the level of significance.

Qualitative data obtained through in-depth interview guide, were coded and presented through description, narration and quotation. Data which were recorded from interviews were transcribed before reporting. Data from document analysis guide and observation guide were narrated depending on what was investigated by the researcher. Discussion and interpretation of the findings was done after presenting the data.

CHAPTER FOUR

4.1 RESEARCH RESULTS

The study was guided by five research questions and three hypotheses. The first research question aimed to explore to what extent has the English language curriculum been effectively implemented in diploma teachers college in Northern zone Tanzania. The results show the following observations, tutors use variety of teaching techniques such as group discussion, question and answers, role play and gallery walk. Among them group discussion was found to be mostly used. Also it has been found that other techniques such as simulation, dramatization and language games were not used. However Jones and Wheel (1993) commented that when simulation, dramatization, language games and songs techniques are used, they maximize the impacts on students' language development, especially learning English language in a communicative way. Also it was observed that some of the tutors were not preparing their lesson. The results also show that there are certain topics in English language Diploma curriculum which are identified as difficult to teach and learn. The other issues that were shown by the results were insufficient in-service training and ineffective inspection. Furthermore, the results showed evaluation

programs that are used to assess students' English language progress in Diploma Teachers' College. However, some of the programs are effectively used.

The second guiding research question focused on assessing if the available resources in diploma teachers' colleges in northern zone Tanzania sufficed the need for English language curriculum implementation. The findings showed that the available resources did not suffice the needs. The findings informed further that there are shortage of resources such as text books, syllabus, visual and audio aids, English language laboratory rooms and computers.

The third research question aimed to investigate students' and tutors' attitudes towards learning and teaching English language. The findings showed that the students' and tutors' attitude towards English language was positive. The students attitude which was calculated through likert scale showed that the mean of strong agree responses and agree was 56.6, while the mean of strong disagree and disagree was 14.9. This indicated that the attitude was positive since the scale given was 35+ positive attitude, and below 35 meant negative attitude.

The fourth question intended to explore the challenge that tutors and students encounter in the implementation of English language curriculum in Northern zone Tanzania. The responses indicated that the implementation of English language curriculum in Diploma Teachers' Colleges faced several challenges. The identified challenges were shortage of English language resources, inadequate tutors' competency as Meena (2009) commented that poor training is the factor for teachers not being effective in teaching. Other challenges include society's negative attitude towards English language, lack of English language tutors' and school inspectors in-service training, poor language policy, and poor system of planning, implementing and evaluating the program. Other challenges outlined were to be; poor students' English language background and timetable interference.

The last research question was focused on collecting suggestions that could contribute to address the challenges and improve the implementations of English language curriculum in diploma teachers' colleges in Northern zone Tanzania. Many suggestions were given. The suggestions included tutors and school inspectors' in-service training, the need for formulation of policies which inspire students to use English language throughout. Indeed Utne and Holmarsdottir (2003) commented that higher education needs to take a decision and to act very soon in connection with the language problem, especially in language policy. Also Kung'alo (2000) commented that English language program such as inter-school academic discussions and debate to exchange knowledge is one of important technique to make students practice English language. Other strategies suggested were, tutors to attend classes regularly, time for learning English language to be increased, motivation to students who perform better in English language, improve supervision and monitoring of English language tutors and ensure that they attend the class regularly and teach effectively.

4.2 Tests of Hypotheses

Under this element the study investigated the relationship between variables. The significant relationship between the means was tested through ANOVA at 0.05 level of significance and difference between variables was tested using t-test at 1.96 level of significance. Three null hypotheses were tested.

Ho1: There is no significant difference between mean scores of students of different age groups.

Ho2: There is no significant difference between mean of English language achievement scores between girls and boys.

Ho3: there is no significant relationship between students' attitude towards English language and achievement scores of English language

Table 1: The difference between mean scores of students of different age groups.

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	5.770	4	1.442	1.543	.193
Within Groups	127.166	136	.935		
Total	132.936	140			

The table shows that p value (0.193) < 0.05. Therefore the null hypothesis was not rejected. Hence, there is no significant difference between mean scores of students of different age group and performance in English language. This means that students' performance in English language cannot be determined by age. Other factors such as nature of schools they attended in primary and secondary schools, availability of resources and competent and qualified teachers that the students meet with can determine the performance in English language.

Table 2: The difference between mean of English language achievement scores between girls and boys.

	Sum of Squares	Df	Mean Square	F	Sig.
Between Group	0.247	4	0.62	0.231	0.921
Within Groups	36.039	135	0.267		
Total	36.286	139			

The Table 2 indicates that P value (0.921) $>$ 0.05, thus a null hypothesis was not rejected. This meant that there is no significant difference between mean scores of girls and boys performance in English language. Gender is not determinant factor for English language performance in diploma teachers' colleges.

Hypothesis 3 aimed at testing if there is any significant relationship between students' attitudes towards English language and of English language achievement. T- Test was used to test .Since the observed $p=0.468$ was less than the critical value 1.96 ($0.468 < 1.96$) the null hypothesis was rejected. Hence there is significant relationship between students' attitudes towards English language and of English language achievement. The findings showed that students of English language have positive attitude towards English language. It has been explained that the performance of students in English language was poor. This contradiction can mean that attitude is not only the factor which contributes to students' achievement. Other factors which can contribute to students' achievement in English language can be nature of the school the students attended when they were in primary and secondary schools, resources and the teachers who were teaching.

4.3 Conclusions

From the findings it can be concluded that English language Curriculum in Diploma Teachers' Colleges in Northern Tanzania is not effectively implemented. The main reason behind ineffective implementation of the curriculum is connected to the shortage of resources, inadequate tutors' academic and pedagogical competency and students' poor background.

The resources for implementing English language curriculum do not suffice the needs as the findings revealed that there was severe shortage of resources. It has been observed that students and teachers attitude towards English language was moderately positive; however their performance in English language was poor. Some of the reasons behind were the shortage of resources and lack of pedagogical skills to some of tutors of English language. The study found that English language curriculum implementation is challenging one due to various factors such as poor teaching methods used by the tutors, poor background of the students in English language, lack of in-service training to tutors and inspectors and lack of clear policies that enforce the use of English language in schools. It has been suggested that in order to make English language curriculum well implemented, there was a need for all responsible persons in education to make sure that they pay attention on how the language should be learnt, taught, and evaluated. Clear language policy is also important for better curriculum implementation.

4.4 Recommendations

Based on the findings and conclusion, the implementation of English language curriculum in Diploma Teachers' Colleges can be done effectively if the Ministry of Education and Vocational Training, the tutors of English language, students of English language and all other educational stakeholders play their part to facilitate teaching and learning of English language.

The findings outlined that in Diploma Teachers' Colleges there are shortage of teaching and learning English language resources, some of the tutors of English language are not competent to teach English language, students' background in English language is poor, in-service training is not provided to tutors and school inspectors regularly and evaluation of the students' progress in Diploma Teachers' Colleges is not done effectively. The government has to deliberately allocate enough funds to facilitate the procurement of those resources, recruit competent and qualified tutors, and provide in-service training regularly to tutors of English language and school inspectors. In collaboration with the Tanzania Institute of Education, National Examinations Council, the Ministry of Education and Vocational Training has to redesign proper ways of evaluating students' progress in English language, especially by using oral examination, and teaching practice.

The findings also revealed that tutors of English language are not preparing their lessons before entering class. It is recommended that for effective implementation of English language curriculum in Diploma Teachers' Colleges; the tutors have to make thorough preparation of their lessons before they teach. Principals have to enforce this through effective monitoring and supervision.

Generally the implementation of English language curriculum in Diploma Teachers' Colleges can be improved if the research findings obtained from this will be taken into consideration by all educational stakeholders with regard to their positions.

4.5 Recommendation for further studies

According to the findings of this study another suggested area for further research is to investigate the effects of using English language as a medium of instruction on the performance of secondary school students.

Another recommended area of research is to study the effective use of evaluation tools to assess students learning progress. It has been explained that many evaluation tools are not used accordingly as the result the evaluation of students learning progress is not well determined.

Since the tutors of English language are trained in universities, there is a need for other researchers, to conduct the study on university teacher education in English language to examine how tutors are trained. The study may provide information on why some of the graduate tutors are not capable of teaching certain subject matter and pedagogical topics.

REFERENCES

Abu, S.M .N. (2013). *Challenges of Implementing English Curriculum at Rural Primary Schools of Bangladesh*. Bangladesh: Dhaka University press.

Asli, Y. E (2007). *A study of English Language Curriculum Implementation in sixth, Seventh and Eighth Grades of Public Primary Schools*. Turkey: Department of Science.

Bertalanffy, L.V. (1968). en.wikipedia.org/wiki/systemtheory

Best, J & Kahn, J (1993). *Research in Education*. London and New York: Ropledded.

Brock-Utne, B. Desai Z, & Qorro, M. (2003) *Language of Instruction in Tanzania and South Africa*: Dar es Salaam. E & D Ltd

Cooks, C. W., Husker, P. L., & Coffey, R. (1997). *Management and Organizational Behavior*. United state of America: McGraw-Hill companies, Inc.

Fakeye, O. D. (2010). *The Effects of Teacher's Classroom Behavior and Teaching Experience in Predicting Student's Performance Among Secondary Students in Ibadan, Metapoli*. www.idos.org/hssj/ssjz (2)07/7.

Jidamva, G. (2012). *Understanding and Improving Quality of Secondary School Education in Tanzania: Conceptions of teacher education*. Vasa: Abo Akademi University Press.

Kadeghe, M. (2003). *Defense of Continued Use of English as the Language of Instruction in Secondary and Tertiary Education in Tanzania*. In B. B. Utne, Desai & M. Qorro (Eds). *Language of Instruction in Tanzania and South Africa*. Dar es Salaam; E & D LTD

Kailembo, J. (2000). *The Quality of Education in Tanzania*: In Galabawa J.C.J, Senkoro F.E.M.K, & Lwaitama A. F. L (Eds). Dar es salaam: University of Dar es salaam.

Kalugula, C. (2001). Have teachers Stopped Teaching? In Practices and possibilities in Teacher Education in Tanzania. In G. Holund, N. Mtana & E. Mhando (Eds). Ecoprint Ltd: Dar es salaam

Kawambwa, S. (2013). Shukuru Kawambwa: the minister of Education and Vocational training, 25 August 2013, when opening the English language teaching program)

Laszlo, A & Kripper, S. (1993) en.wikipedia.org/wiki/systemtheory

Malekela, G. (2003). *English as a Medium of Instruction in Post-primary Education in Tanzania. Is it a fair policy to the learner?* In Utne B.B, Z. Desai & M. Qorro (Eds). in *Language of instruction in Tanzania and south Africa*. Dar es Salaam: E & D Ltd.

McDonough, J.E. & McDonough, S.N. (1982). *Teaching English as a Foreign Language and Mother Tongue*. In Barrie Wade (Ed). *Some parallels in language perspective*. London: Heinemann education books ltd

Meena, E.W. (2009) *Curriculum Innovation in Teacher Education: Exploring conceptions among Tanzanian Teacher educators*. Vasa: Abo Akademi University Press..

Mosha, H. (2000). *The Quality of Education in Tanzania*. In Galabawa J.C.J, Senkoro F.E.M.K, &Lwaitama A. F. L (Eds).Dar es salaam: University of Dar es salaam.

Mutai, A. C. (2010). *An Assessment of Teaching Strategies Employed by English Language Teachers in Eldoret Municipality in Kenya*. Jeferaps.scholarlinkresearch.org/ar

Ogiegbaen, S.N. &Lyamu, S.E. (2006). *Factors Responsible For Quality of Teaching of English as Second Language in Public Secondary Schools in Nigeria*. www.powerfulwords.co.uk

Ogula, P.A. (2002). *Monitoring and Evaluation of Education Projects and Programme*. Nairobi: New kemit publishers.

Ogula, P. A. (2010). *Monitoring and Evaluation of Education Project and Programmes*. Nairobi: New Kermit publishers.

Prah, K.K. (2003). *Going Native Language of Instruction for Education Development and African Emancipation*. In Utne B.B, Z. Desai &M.Qorro (Eds) *Language of instruction in Tanzania and South Africa*. Dar Es Salaam: E & D limited.

Puja, G.K. (2003). *Kiswahili and Higher Education in Tanzania; Reflection Based on Sociological Study from Three Tanzanian University campuses* in Utne B.B,2 Desai&M.Qorro(eds) *Language of instruction in Tanzania and south Africa*. Dar es Salaam: E & D limited.

Rajabu, P. (2000). *The Quality of Education in Tanzania*: In Galabawa J.C.J, Senkoro, F.E.M.K, &Lwaitama A. F. L (Eds).Dar es salaam: University of Dar es salaam.

Tan, S. Lee, N. & Hall,,D(2010)<http://www.swinburner.edu.au|spl||learningspacesproject|>

Tilya (2000) *Curriculum and Quality*. In J.C.Galabawa, F. E. M. K.Senkoro and A. F Lwaitama (Eds) *Practice and Possibilities in teacher education in Africa:Perspectives from Tanzania*. Dar es Salaam: MoEC.

URT (1995).*Educational Training Policy*. Dar es Salaam: Ministry of education and culture.

Utne. B. B&Holmardottir. A. B (2003) Language Policies and Practices –Some Priliminary results From A Research Project in Tanzania and South Africa; In Utne B.B, Z. Desai &M.Qorro (Eds) *Language of instruction in Tanzania and South Africa*. Dar Es Salaam: E & D limited

Vuzo, M. (2010). *Exclusion Through languages; A Reflection on Classroom Discourse in Tanzania Secondary Schools. Paper in education development* .*Journal of the school of education university of Dar es salaam* .Vol no 29(2010)14-3

Wang, H. (2006) *An Implementation Study of the English as a Foreign Language Curriculum Policies in Chinese tertiary context*. Canada: Queens' University.

The Role of Languages in Imparting Truth and Trust in Communication: An Epistemological Rethink

Rev. Dr. Aidan G. Msafiri (PhD)
Climate Change Ambassador of Tanzania

INTRODUCTION

1.1 TERMINOLOGY

1.1.1 Language

The Oxford English dictionaries aptly defines language as the “method of human communication, either spoken or written, consisting of the use of words in a structured and conventional way”.¹

Briefly, language connotes a profound system of human communication (through words, sounds, gestures, grammar, etc.)

1.1.2 Truth

The term truth invokes both the “quality of faithfulness, fidelity, loyalty, sincerity and voracity...”.² The adjective “truth” comes from the word “true”. From linguistic and semantic perspectives, the truth of a sentence simply implies its agreement or equivalence with reality.

1.1.3 Trust

Basically trust refers to human reliance on and confidence in the truth worth, reliability of a person, sentence, thing, etc.

Briefly, trust refers to multiple adjectives such as mutual belief or reliability, confidence, reliance, credence, honesty, suety, certitude, faith, expectation and conviction.

1.1.4 Epistemology

Epistemology comes from the Greek *epistēmē*, which means “knowledge”, and *logos*, which means “logical discourse”. It is the branch of philosophy concerned with the theory of knowledge.

Epistemology studies the nature of knowledge, the rationality of belief, and justification. Much of the debate in epistemology centers on four areas: (1) the philosophical analysis of the nature of knowledge and how it relates to such concepts as truth, belief, and

justification, (2) various problems of skepticism, (3) the sources and scope of knowledge and justified belief, and (4) the criteria for knowledge and justification.

The term 'Epistemology' was first used by Scottish philosopher James Frederick Ferrier in 1854. However, according to Brett Warren, King James VI of Scotland had previously personified this philosophical concept as the character Epistemon in 1591.³

1.2 JUSTIFICATION/RATIONALE

Humans cannot abandon growing concerns of languages today of communicating with one another through language, symbols, gestures, etc. The entire human life is a continuum of communication from with the parents, siblings, educationalists, religious leaders, politicians, etc., engage in.

Today, however, the entire matrix, anatomy and content of language is increasingly being challenged and destroyed particularly by a systematic disappearance of fundamental values of truth and trust of consequently giving way to linguistic communication without much truth and trust. Hence, this gives rise to a new era or epoch of communication propaganda, bluffing and "cooked truths", untrustworthiness and communication's dictionary and schizophrenia. True and fair communication thus becomes a *conditio sine qua non* for any fair human communication and dialogue, through languages as a key panacea.

1.3 THOUGHT-- PROVOKING QUESTIONS

What are the key values that spearhead credible human communication? Is language a means or an end in the human quest to communicate reality? What is fair communication? What are the risks of scholars today in putting more emphasis on the bluffing and "political correctness" or profit in the use of both written and oral language? What are the strengths and weaknesses of globalization and glocalization of languages today? Is language a value-free phenomenon? What destroys trust in both written and oral language? Are languages dynamic or static? What are the short-- , medium-- and long-- term effects of the current tertiary education propaganda, advertisements, policy mutations. discrepancies, and government's utopian promising language to graduates? What are the effects of the well-formulated language on curriculum vitae (CVs) of graduates as far as their true competence and performance of work is concerned? Do we agree that we have entered into the epoch of perfect human and disaster communication as far as the values of credibility, trust and accountability are concerned?

1.4 METHODOLOGY

The author adopts both the qualitative and quantitative approaches to research further the **ACTION Methodology**.

-
- A = Analysis (Qualitative and Quantitative)
 - C = Convince (All key stake (wilders))
 - T = Transform (Mindsets, Ideologies, Status Quo ante, Policies, Hearts, Laws, etc.)
 - I = Initiate (Best Practices)
 - O = Observe (What is happening how? why?)
 - N = Network (Multi-- stake holder engagement)

(Copyright: By Aidan G. Msafiri)

1.5 STRUCTURE OF THE PAPER

This paper entails two key parts. In Part One, an attempt is made to impact the anthropology of language as a credible resource and capital for human communication. Part Two of this paper focuses on multiple factors behind the present-- day language and communication's disasters globally.

PART ONE

1.1 THE ROLE OF LANGUAGES AS CREDIBLE RESOURCES FOR TRUE HUMAN COMMUNICATION

1.2 Languages as "Conveyors" of Truth, Trust and Fairness Communication

First, languages as processes of verbal, nonverbal, symbiotic human communication, convey knowledge, content, traits, inspirations emblems, behaviors, attitudes, social systems, etc. Further, paradigms, words, ideas, opinions, views, and impressions, etc., are also conveyed.

Manfred Prisching (2013:28) affirms that the human person is an "animal symbolicum"⁴ (An animal with symbolic language(s).) Fundamentally, the credibility, trustworthiness as well as effectiveness of the spoken (oral) or written or symbolic language depends on the degree of its truthfulness.

Second, both the history of philosophy and philosophy of education (epistemology) underscore the validity and concurrency of knowledge and reality. This is extremely important especially in the human quest to distinguish between truth and falsehood, validity and invalidity. How would university students react if they would realise that the lecturer is lying to them?

In this context, Aidan G. Msafiri (2012:83) considers trust as a new global communication's resource. Everyone, including politicians, academicians, religious leaders, communications engineers, managers, gurus, scientists, teachers, formators, lecturers, role models, etc., know that their credibility is reciprocated by the level of trust that they instill. Hence, the centrality of "trustonomy"⁵ in languages and communication's processes comes into the fold.

What are the epistemological and educational consequences of using English as a medium of instruction whereby some (many) students do not understand it? What are the impacts of a lying syndrome to a presidential candidate, who denies that he did not grope women? Disasters!

1.3 Languages as "Vehicles" of Sharing Qualitative Educational and Cultural Values

First, from an anthropological as well as technical perspective, humans cannot abandon communicating orally, symbolically and literally. Pau; Watzlawick et al (1994) underscore the unavoidability of inter-- human communication. This is a crucial and highly complicated dynamic process, particularly in distinguishing truth from falsehood, inspirations from embarrassments, reality from non-- reality, etc.

Second, languages impart pragmatic as well as idealistic goals and values from one generation to another. This process is only possible through various forms of linguistic communication. Among other goals these include "the preservation of cultural, social and spiritual excellence... the development of ideal humanity and ideal society, the organization and reorganization of experience as adaptation to life and its environment..."⁶

1.4 Language(s) as a Creative Symbolic and Adequate Encounter

First, it has been claimed that creativity in the use of languages is far much broader than the creativity associated with music, art, poetry, etc., that is, the "power of symbols", language(s) is a creative system of communication that uses symbolism(s), and consequently languages employment in a plethora of communication tools, ranging from the written to the spoken (oral) word, numbers, body language, analogies, equations, pictures, voice tones, sounds (music), inflections, etc. Besides these there are also non-- traditional symbols used as communication tools such as astrology, mathematics and physics.⁷

Second, analogical languages can be used as powerful "vehicles" of expressing various (constructive and destructive) characters, models and attitudes of human beings, institutions, societies, etc.

Example I

(a) The Timid Mouse

Language Model and Analogy

Thomas the mouse over hears poachers plotting to kill a pride of lions. The poachers' loyal dog then hears the mouse promise to stop them. The dog being loyal to his masters will not let some mouse ruin their plans. It's a race against time to move the lions before the poachers arrive, but who will the lions believe? Will they believe a confident loyal dog or a timid mouse that can be eaten in a single bite. Will Thomas make it there in time? What can Thomas say to get a pride of lions to leave their home? Will the lions eat Thomas for his trouble? Will Thomas be able to keep his promise?⁸ Now you appreciate the dilemma that size and courage can bring about; being small and timid makes you lose your credibility, even when what you are conveying – the message – is true and valid. People are conditioned (Read "predisposed") to prejudge those who appear to be worthy of the validity of the message, for example, it is much easier to trust a teacher or a banker or a priest than to trust a street urchin or a beggar. What if, just for the sake of argument, God comes upon a beggar – the dirtiest one – and give him the errand of telling the local Bishop to gather his congregation because God will be stopping by at 3 pm. The beggar goes to deliver the message; expectedly, he is not believed! Would you believe him? I know I would because I don't judge people on the basis of their appearance; appearance predisposes people to being judged. Someone with a Bachelor's or Masters degree, wearing a t-- shirt and jeans, will not get the job at an interview, while the other, with a suit and tie, will. We convey – silently – who/what we are by the type of clothing we wear; they say, corporate types go to work in corporate clothing, which make them look successful, because they are dressed for the part. Call it "The Act of Looking Successful". But are they really that successful? That is for them to know and for you to find out. Back to our story: God comes to pay a visit at 3 pm, as He said, and there is no one there. He asks the boy wandering by the Church to go and find the Bishop, telling him: "Tell the Bishop it is 3 pm and I sent my messenger but he ignored him. Five more minutes I leave and I will send him to HELL!" The Bishop receives this message and realizes he had been wrong, he rushes to God in tears, shaking like a fig-- tree, arriving just as God is about to leave, and begs him to stay, apologizing for his mistake. Here, the Bishop, like Thomas the timid mouse, was predispose to judge and prejudged; he judged that the beggar could not have been sent by God because he was dirt and unkempt. Thomas the timid mouse prejudged himself as being unable to deliver the message to the lions, because they would have seen him as puny, and in his timidness and/



or lack of self confidence, unbelievable. Are we not cautioned against judging others, on whatever grounds, or even judging ourselves?

(b) The Stupid Ostrich

Language Model and Analogy

It is categorically undeniably, openly, blatantly, plainly, clearly, blatantly, obviously, unimaginably, effectively, practically, literally candidly dramatic and so melodramatically astonishing, let alone confoundingly dumfounding, astoundingly so stupid to bury your head in the sand – like the stupid ostrich – while the rest of your body is wide openly exposed to the hazards of the environments of the desert (See image), thinking that your problems are no more. That is just plain stupid! If I had my way, I would have you feathered and tarred and paraded naked in public, thereafter, I would have you put in a tub of boiling water of 5 seconds, JUST FOR THINKING of doing something so stupid!



(c) The Pseudo Chameleon

Language Model and Analogy



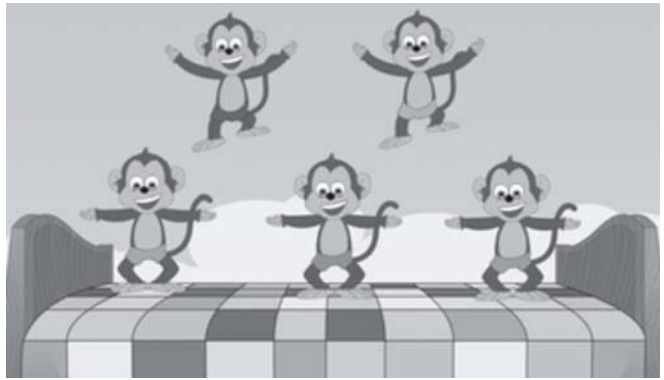
As the sun came out on a cloudy winter's day, this little guy must have decided it was easier to reflect the surplus heat by changing color rather than creep around the huge Barringtonia leaves to find shade.⁹ It is a LOT HARDER to change color to reflect heat – unless you are born that way, because light colors have the same properties as mirrors – and maintain it than to remain under the natural shade of trees and leaves, which is the natural habitat for many animal and insect and other microscopic biodiversity. It defeats the purpose – even if you can change

your skin color – to change it so as to reflect heat, because it would be wasted energy, that you could have used it on more practical and fruitful actions. If you have certain abilities, it doesn't mean that you should use them to try and impress someone, your society, etc. Use them when it is important and useful; for example, if you are in danger and you have the ability to change your color to provide camouflage, which is what the real chameleon does, use that ability, because it will save your life from your natural and unnatural enemies.

(d) The Jumping Monkeys

Language Model and Analogy

This is one of the most common children's nursery rhymes (*Five Little Jumping Monkeys*), which is read as following:



Five little monkeys jumping
on the bed,
One fell off and bumped his
head.

Mama called the Doctor and the Doctor said,
"No more monkeys jumping on the bed!"

Four little monkeys jumping on the bed,
One fell off and bumped her head.
Papa called the Doctor and the Doctor said,
"No more monkeys jumping on the bed!"

Three little monkeys jumping on the bed, One fell off and bumped his head.
Mama called the Doctor and the Doctor said,
"No more monkeys jumping on the bed!"

Two little monkeys jumping on the bed,
One fell off and bumped her head.
Papa called the Doctor and the Doctor said,
"No more monkeys jumping on the bed!"

One little monkey jumping on the bed,
He fell off and bumped his head.
Mama called the Doctor and the Doctor said,
"Put those monkeys straight to bed!"¹⁰

What is the moral of the story? Take a look at those "Five Little Monkeys" as you five worst habits. We all have our habits; the really bad ones. While this song sings about monkeys that keep on jumping on the bed, and they fall off, knocking their heads, we don't see the monkeys as those bad habits of ours that we refuse to keep in control, we let them loose to do what they please, and when they fall off the bed – the world – it is us who must suffer from those "bumps" in the head! Do you get it? So how many bad habits do you have? Just think of five – not ten – that you have; list them down, and analyze them to see just how many times they have hurt you, because you refused to keep them in check. Lying can be one... manipulation... scamming... Now! We wont judge you. Nobody is perfect.



(e) The Stubborn Donkey

Language Model and Analogy

Once upon a time there was a donkey. He was very stubborn. Every day when Donkey's master came for him to work, Donkey would always have to be coaxed to be still and get his harness put on, and forced to let his master take control. A sly fox took notice of Donkey's stubbornness and thought how he could use this to his advantage.

One evening, when Fox was feeling very lazy and oh so hungry, said to Donkey "Go and hunt a rabbit or two for me to eat and I will reward you greatly." Donkey wasn't very intelligent but he knew that he couldn't hunt food for a fox. Donkey's teeth were only for chewing grass. He replied, "No way, I can't do that." But Fox said, "If you don't, I'll call you a "scared cat and mock donkeys for being afraid." Donkey didn't want to be called names and certainly didn't want all donkeys to be mocked because of him, so he trotted off to find the rabbit burrows.

By this time, night had struck and it was pitch black. On Donkey's way to the rabbit burrows, Owl saw him and said, "Where are you going Donkey? Shouldn't you be in bed?" Donkey told Owl his story. Owl gasped. "You should never go to the rabbit burrows, or anywhere at night..." – But Donkey interrupted him and told him about Fox mocking him if he didn't, then said, "I must go." He cantered off as fast as a horse.

But when Donkey arrived at the rabbit burrows, there was nothing to fear. He sniggered at ~~the thought that such a wise creature like Owl would think that here would be dangerous!~~ When his back was turned on the forest, a pack of hungry wolves walked out. They eyed up

Donkey and bounded towards him. Donkey's ears pricked up at the sound of their paws. He turned around and saw the pack of wolves careering at him; he let out a hee-- haw! He ran away towards home.

As Donkey was running, he knew the wolves were gaining on him. Donkey started increasing his speed. There was a fork in the path. A tree root sticking out of the ground loomed closer and closer to him. Donkey didn't see it because he was too busy running for his life. Then Donkey tripped.

Donkey waited, but didn't see any wolves. He slowly got up, but his leg hurt badly. He limped to get away and ambled all the way home. When he arrived, he remembered that **he would be mocked by Fox**. Then he thought: *"living with a bad name is better than not living at all"*. Owl came and told Donkey he had diverted the wolves to save him. Donkey was grateful.

Owl said, "If you had listened to me and not been so stubborn you wouldn't have that bad limp you've got."

Donkey was silent. The moral of this story is "Being stubborn causes harm". Author: Elizabeth Stuart¹¹

1.5 The Soprential (Wisdom) Trajectory of the Written and Oral Word

Wisdom literature and wisdom traditions have been key components among human societies from time immemorial.

Among others, the following wise sayings and anecdotes are worthy of paraphrasing. Note how they immensely loaded with unfathomable wisdom!

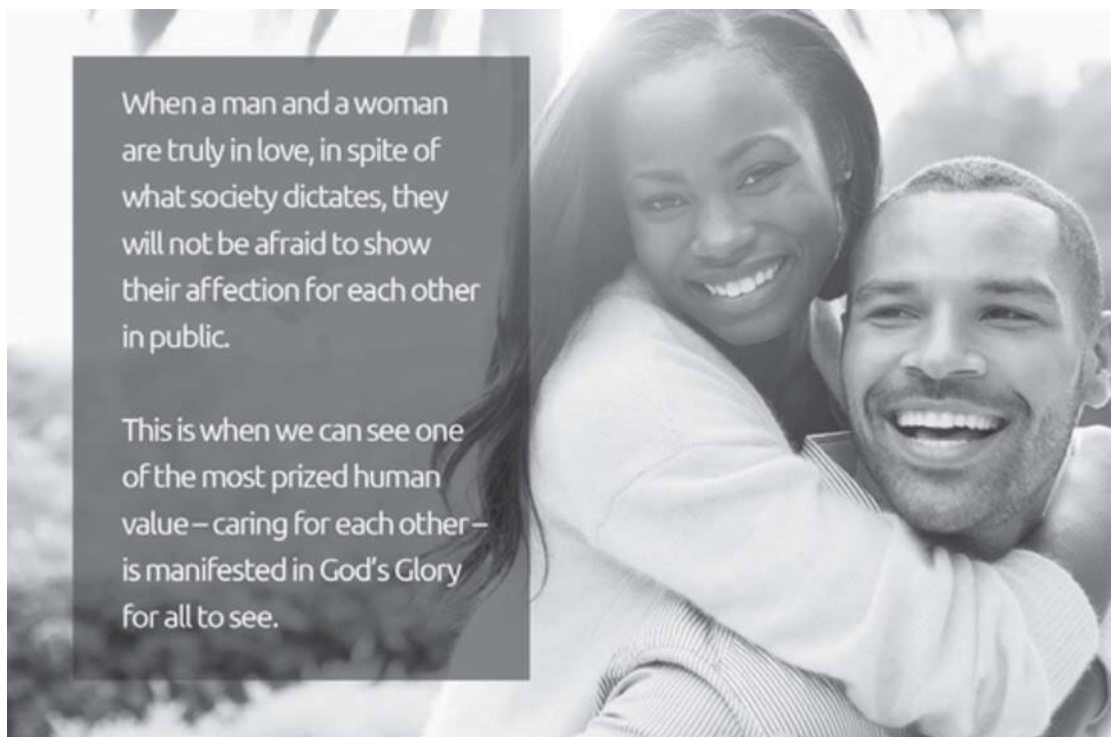
- (a) "The bad teacher's words fall on his pupils like rain, the good teacher's, as gentle dew." (Talmud Fb)
- (b) "Education is a double-- edged sword. It may be turned to dangerous use if it is not properly handled." (Wu Ting-- Fang)
- (c) "Truth is incontrovertible, malice may attack it and ignorance may deride it, but in the end there it is." (Sir Winston Churchill)
- (d) "Education costs money, but so does ignorance." (Sir Claude Moses)
- (e) "Good teachers are costly but bad teachers cost more." (Bob Talbert)
- (f) "Logic will get you from A to B. Imagination will take you everywhere." (Albert Einstein)
- (g) "When human communication will be overrun by technology, society will be made up of idiots." (Albert Einstein)

-
- (h) "Try not to become a man of success but rather a man of value." (Albert Einstein)
 - (i) "If you think you are too small to be effective, you have never been in bed with a mosquito!" (Betty Reese)
 - (j) "The important work of moving the world forward does not wait to be done by perfect persons." (George Elliot)
 - (k) "Genius is one percent inspiration and ninety-- nine perspiration!" (Thomas Edison)

NB: The list goes on and one. There are wonderful wise sayings in Kiswahili as well.

1.6 Languages as "Agents of a Civilizing and Humanizing Revolution"

First, Saju Chacklackal (2013:60-- 61) attests that right from the very beginning languages initiated a multifaceted process of holistic formation, culminating into a civilized and humanized personality.¹²



He further attests that its dynamic innovation particularly inculcates in the internalization and appropriation of the fundamental human values, norms, attitudes, goals, etc.

Second, from a sociological viewpoint, human transformation whether conducted through formal or informal education, takes place in the ambient of and through language and its multiple forms and landscapes. It is language’s “mould of the minds” by way of imparting

the core values that have been accepted and acknowledged by the society at large and in a long period of time.

History is witness to the fact that any a violent conflict has been initiated by subversive processes, whereby education has been instrumental.¹³ In this context, today this can be used as the best panacea and “toolkit” for de-- radicalization of young people including university students and graduates, locally and globally.

1.7 Language(s) as a Uniting/Binding Power

First, from a Tanzanian perspective in particular, the Late Mwalimu Julius Nyerere’s emphasis to use Kiswahili as a national language cannot be exaggerated. In 1962, immediately after independence, the Founding Father of Tanzania, Julius Nyerere, declared Kiswahili to be the national language amidst more than 130 ethnic/tribal language diversities.

Kiswahili has built a deep sense of national cohesion and humans among the 130 ethnic groups in the country. Unlike Rwanda and Kenya, Tanzania has been spared of severe ethnic and tribal conflicts. It (Kiswahili) has given way to a very strong culture and philosophy of brotherhood and sisterhood (“undugu”) more in Tanzania than in any of the East African nations. This is also echoed in the day-- to-- day expressions of Tanzania’s culture, music, news, etc.

Second, from the educational viewpoint, the enrolment of students particularly in higher education specializing in Kiswahili in particular has generally been on the rise. Most of these students enroll in the language-- related courses, particularly, such as Kiswahili.

In the East African Community’s endeavor to embark on a more vibrant and sustainable East African Confederation, four key conditions need to be fulfilled. Indeed, 85% of these conditions in my hypothesis are language dependent and related, which are:

- a) First, Tanzanians need to learn and speak English perfectly
- b) Kenyans need to be courteous, especially in their language(s)
- c) Ugandans need to learn and speak Kiswahili fluently
- d) The Rwandese and Burundians need not only to speak Kiswahili, but also, must learn to respect their ethnic diversities!!!

Let us now try to unpack critical critiques on languages in general, but from a Tanzanian perspective in particular.

Higher Education

Table 8.1a: Enrollment in Government and Non-Government Universities and University Colleges for Degree Courses by Institution, Programme of Award and Sex, 2015/16

Name of Institutions	Bachelor			Post Graduate Diploma			Masters			Doctorate			TOTAL		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
AJUCO	926	324	1250	0	0	0	0	0	0	0	0	0	926	324	1250
AKU	33	6	39	0	0	0	34	27	61	0	0	0	67	33	100
ALSUMAIT	630	1139	1769	0	0	0	0	0	0	0	0	0	630	1139	1769
AMUCTA	1254	421	1675	9	4	13	36	18	54	0	0	0	1299	443	1742
ARU	2399	1389	3788	0	0	0	203	81	284	28	8	36	2630	1478	4108
CARUMUCO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CUHAS	914	658	1572	0	0	0	72	41	113	6	6	12	992	705	1697
DUCE	2615	1266	3881	13	30	43	0	0	0	0	0	0	2628	1296	3924
ETU	241	104	345	0	0	0	72	41	113	6	6	12	319	151	470
HKMU	0	0	0	0	0	0	24	19	43	0	0	0	24	19	43
IMTU	645	381	1026	4	1	5	0	0	0	0	0	0	649	382	1031
JKUAT	17	9	26	8	11	19	0	0	0	0	0	0	25	20	45
JOKUCO	512	152	664	0	0	0	0	0	0	0	0	0	512	152	664
JUCO	1645	1069	2714	0	0	0	140	88	228	0	0	0	1785	1157	2942
KCMUCo	917	585	1502	0	0	0	104	55	159	12	12	24	1033	652	1685
KIU	782	520	1302	5	3	8	58	21	79	0	0	0	845	544	1389
MARUCO	251	82	333	0	0	0	0	0	0	0	0	0	251	82	333
MMU	398	285	683	0	0	0	61	37	98	0	0	0	459	322	781
MoCU	1119	814	1933	31	13	44	122	62	184	0	0	0	1272	889	2161
MU	3898	3673	7571	0	0	0	1564	1301	2865	36	11	47	5496	4965	10461
MU Mbeya	908	847	1755	0	0	0	89	48	135	0	0	0	997	893	1890
MUCE	2740	881	3621	4	7	11	0	0	0	0	0	0	2744	888	3632
MUHAS	1474	644	2118	0	0	0	423	254	677	17	10	27	1914	908	2822
MUM	1249	965	2214	0	0	0	0	0	0	0	0	0	1249	965	2214
MUST	1960	258	2218	0	0	0	0	0	0	0	0	0	1960	258	2218
MWECAU	2399	870	3269	13	6	19	37	34	71	7	3	10	2456	913	3369
NMAIST	0	0	0	0	0	0	91	33	124	94	31	125	185	64	249
OUT	5811	3315	9126	220	111	331	858	385	1243	0	0	0	6889	3811	10700
RUCU	2274	1132	3406	0	0	0	168	85	253	0	0	0	2442	1217	3659
SAUT	3925	2280	6205	6	3	9	211	144	355	19	6	25	4161	2433	6594
SEKOMU	780	473	1253	0	0	0	0	0	0	0	0	0	780	473	1253
SFUCHAS	574	227	801	0	0	0	0	0	0	0	0	0	574	227	801
SJCAST			0			0			0			0	0	0	0
SJCET	640	143	783	0	0	0	0	0	0	0	0	0	640	143	783
SJCHS	307	173	480	0	0	0	0	0	0	0	0	0	307	173	480
SJCIT			0			0			0			0	0	0	0
SJCMF	35	14	49	0	0	0	0	0	0	0	0	0	35	14	49
SJUIT-Arusha			0			0			0			0	0	0	0
SJUT	1815	1188	3003	0	0	0	65	46	111	0	0	0	1880	1234	3114
SMMUCo	863	529	1392	10	11	21	5	5	10			0	878	545	1423
STEMUCo	858	323	1181	0	0	0	58	32	90	0	0	0	916	355	1271
SUA	4954	2017	6971	21	22	43	314	159	473	169	44	213	5458	2242	7700
SUZA	1071	749	1820	0	0	0	0	0	0	0	0	0	1071	749	1820
TEKU	4111	2433	6544	23	8	31	81	36	117	0	0	0	4215	2477	6692
TUDARCO	694	867	1561	0	0	0	34	58	92	0	0	0	728	925	1653
TUMA	1702	1039	2741	16	13	29	57	65	122	5	1	6	1780	1118	2898
UAUT	42	9	51	0	0	0	0	0	0	0	0	0	42	9	51
UDOM	13716	5422	19138	30	39	69	532	204	736	117	37	154	14395	5702	20097
UDSM	15576	7519	23095	20	20	40	363	590	953	55	121	176	16014	8250	24264
UoA	1049	685	1734	35	30	65	47	13	60	0	0	0	1131	728	1859
UoB	429	211	640	0	0	0	14	2	16	0	0	0	443	213	656
UoI	1509	1055	2564	19	9	28	99	90	189	0	0	0	1627	1154	2781
ZU	1529	1719	3248	0	0	0	0	0	0	0	0	0	1529	1719	3248
Grand Total	94190	50864	145054	487	341	828	6036	4072	10108	571	296	867	101284	55573	156857
% of Female		35.1			41.2			40.3			34.1			35.4	

Note: The participation of female students in Degree Courses in Government and Non-Government Universities and University Colleges is 35.4% in 2015/16

PART TWO

2.1 LANGUAGE RE-- EVALUATED: SOME CRITICAL CRITIQUES

2.2 Poor Writing Skills in Multilingualism in Tanzania

First, Vuzo (2002:72) observes that most “of the students do not understand ... we have to develop classroom management strategies like code-- switching and translations... students fail, not because they are dull but because they have a barrier in their use and understanding of the English language...”¹⁴

Second, methodically, a comparative skills testing study representative of three samples from South Africa, Mainland Tanzania and Zanzibar, show the “rich vocabulary that children have when they express themselves in their native language or in written Kiswahili and the limited vocabulary they have when they express themselves in English... We have shown the trouble African children have even after having had English as the language of instruction, for almost six years as is the case in Form VI, in the examples from Mainland Tanzania. Being forced to study through a language they command to such a limited extent must slow down their learning process considerably. If we are serious about the intellectual development of African learners, then we need to give greater currency to African languages”¹⁵

2.3 The Spread of Destructive Language Slogans

There is an ever-growing new global language paradigm surmounting to a destructive global culture.

EXAMPLES

OLD LANGUAGE	NEW LANGUAGE
1) Population Control	1) Sexual and Reproductive Rights
2) Objective needs	2) Individual rights to choose
3) Hierarchy	3) Equality
4) Spouse	4) Partner
5) Director	5) Facilitator
6) Parents	6) Reproducers
7) Truth	7) Right to Error

(Source: Marguerite A. Peeters: *Institute for Intercultural Dialogue Dynamics*, 2007)

Other such destructive powerful slogans inter alia include:

- a) "Children by choice, not by chance." – Marie Stopes Tanzania
- b) "Celebrating sexual diversity." – Human Life International Tanzania
- c) "Safe abortion."

2.4 Dangers (Risks) of the Disappearance of Some Languages

First, Walter Truett Anderson (2004:98) claims, "several hundred languages are now on the linguistic equivalent of the endangered species list, spoken only by a handful of elderly people... One linguist predicted in the late 1990s that at least half of the world's approximately 6,500 languages will become extinct over the course of the Twenty First Century"¹⁶

Second, there are clear indicators today that lean towards the so-- called linguistic globalization, homogenization and hybridization. From a Tanzanian perspective, there is a growing trend towards:

- ◆ "Kiswanglish"
- ◆ "Kiswanglish nativeish", etc.

Globally, there are some trends towards "Spanglish", "Franlaish", "Deunglish", "Korenglish", etc. etc.

Third, quoting Manfred Prisching, Aidan G. Msafiri (2012:114) argues that the banking education model considers "the learner as a passive recipient of encyclopedic knowledge. Knowledge (of course through the language means) can simply be funneled into the receiver's mind... Education is an end in itself, not an end on itself, not a means towards a dignified goal..."¹⁷

2.5 Linguistic Propaganda and Confusions in Higher Education and Policies

The commodification and commercialization locally and globally have given rise to very confusing advert-- based and profit-- oriented literature, particularly on the social media and ICT landscapes. Common examples are "Every student is a potential Bill Gates" and "When you are a young man/lady of 25 years and you have not become a star, stop trying!" Unfortunately, such Utopian "sweat and sugar world" languages are based on "Fortuna" (Chance) and IQ, ignoring hard work!

Briefly, the most neo-- liberal and competitive and market-- oriented education slogans, statements and models are not realistic. Worse, they put far greater attention mostly on profit recognition productivity as the only key values and less and less on the multiple humane value-- based sensibilities and dimensions.

2.6 Policy Gaps, Discrepancies and Weaknesses

First, according to the 2014 Tanzania's Education and Training Policy (Section 3.2.16) there are remarkable weaknesses particularly on the correctness and quality of both the Kiswahili and English media of instruction. This is clearly epitomized in the following:

*"Lugha za Kiswahili, Kiingereza na lugha nyingine za kigeni na lugha za alama zinafundishwa kama masomo katika ngazi mbalimbali za elimu na mafunzo katika ngazi mbali mbali za elimu na mafunzo/ Pamoja na juhudi za kufundisha lugha hizo, bado kuna udhaifu wa kumudu lugha sanifu katika mawasiliano. Sehemu kubwa ya udhaifu huo inatokana na miundombinu na mbinu duni za kufundishia na matumizi madogo ya lugha sanifu katika mazingira ya kawaida."*¹⁸

Second, like any other languages, Kiswahili is a very fast-- growing language. Almost every month, new words, expressions, sayings, etc. are being created. This is particularly evidenced in social media posing potential risks or dangers of ambiguities, misinterpretations, misunderstandings, abuses, misuses, etc. Eventually, these could lead to virtues and semantic developments, views as well as extreme subjectivism, complex confusions as far as these languages are concerned.

In this context the following analogy is worthy of paraphrasing:

"Once upon a time a King gathered some blind men about an elephant and asked them to tell him what an elephant was like. The first man felt a tusk and said an elephant was one giant carrot. Another happened to touch an ear and said it was like a big fan. Another touched the trunk and said it was like a pestle. Still another happened to feel its legs and said it was like a mortar, and another, who grasped its tail said it was like a rope. None of them was able to tell the King about the elephant's head." (Cfr. The Teachings of Buddha. P. 148)

Likewise, new concepts, words, expressions, sayings in Kiswahili could bring about certain linguistic and semantic ambiguities.

2.7 Confusing Criteria and Language(s) for the Form VI Examination's Grading System

First, from a recent Tanzania national policy perspective, there has been a growing confusion particularly as far as the old and new Form VI examinations' grading systems are concerned. Again, this year (2016) has been ameliorated by the Minister of Education and Vocational Training, Prof. Joyce Ndalichako. Key concerns and questions are; what short-- and long-- term impact do such changes have on students' performance and the future of Tanzania? Are they catastrophic or beneficial?

Here is a table that summarizes the differences in the grading systems as is now being imposed.

OLD GRADING		NEW GRADING		COMMENTS
POINTS	DIVISION	POINTS	DIVISION	
7 -- 17	I	7 -- 17	I	Excellent Performance
18 -- 21	II	18 -- 24	II	Very Good
22 -- 25	III	25 -- 31	III	Good
26 -- 33	IV	32 -- 47	IV	Poor
34 -- 35	0	48 -- 49	0	Very Poor

(Source: Tanzania Human Rights Report, 2013, p. 132)

Second, pedagogically it methodically is true, therefore clear that the Tanzanian system of examination is "lacking in clear curriculum although the country has specific institutions for National Examinations... It has reached a stage where students are tested in their understanding by multiple choice questions..."¹⁹

All these skills and competences have become of age. These are not value free both in terms of their method and content. At this level few but very pertinent observations and affirmations need special underpinning in particular.

In order to be effective, formative and sustainable, languages, symbols, etc., used in communication must be linked with fundamental values of truthfulness and trust, that is, promoting the human values of altruism and reciprocity, inclusivity and accountability.

Thirds, both the method and content of languages should not be seen as ends in themselves, but as means towards higher dignified goals and "telos".

Last but not least, many languages are to be considered as "wonderful mosaic; experiential, scientific, value-- based, mentoring, character building, inclusive, communitarian and human. Epistemologically, as the saying goes, "words create", so also, languages and symbols. Proper use of languages as is crucial for fair and true and trustworthy human communication, politically, socially, economically, religiously, technologically, academically and educationally.

Consequently we cannot engage truth without truth engaging and transforming us, individually and collectively.

ENDNOTES

1. <http://en.oxforddictionaries.com/language>
2. Cfr. <https://en.wikipedia.org/wiki/Truth>
3. <https://en.wikipedia.org/wiki/Epistemology>
4. Manfred Prisching "FAIRNESS Als Ri-- SSOURCE: (Goaz: Leykam Buchvendarsges, 2013) p.28
5. Aidan G. Msafiri – Globalization of Concern II (Geneva, Globethics.net Focus No. 8, 2012) p. 83
6. Christoph Stueckelberger, Jesse N. K. Mugambi (Eds) RESPONSIBLE LEADERSHIP (Geneva: Globethics.net 2009) p. 98
7. Cfr. <http://www.factmyth.com> under language and the use of symbolisms
8. <https://www.facebook.com/pages/Thomas-- - Timid-- Mouse-- and-- His-- Promise/696102637136281>
9. <https://www.ispotnature.org/node/520869?nav=related>
10. <http://bussongs.com/songs/5-- little-- monkeys-- jumping-- on-- the-- bed.php>
11. <http://www.youngnz.org.nz/adding-- value/assets/the-- stubborn-- donkey>
12. Saju Chacklackal, Igniting Minds To Transform The Society (Bangalore Dharmaram Publications, 2013) pp. 60-- 61
13. Saju – ibid. – p. 62
14. Brigit Brock – Utne and Zubeida Desai (Eds) "Language of Instruction in Tanzania and South Africa – Highlight from a Project" (Rotterdam Sense Publishers, 2010) p. 72
15. Ibid – Brigit Brock – Utme et al. – p. 29
16. Walter Truett. All Connected Now. (Cambridge, Westview Press, 2004) p. 98
17. Aidan G. Msafiri. Globalization of Concern II, p. 114
18. Jamhuri ya Muungano wa Tanzania, Wizara ya Elimu na Mafunzo ya Ufundi. Sera ya ELimu na Mafunzo. (3-- 2-- 6) ya Mwaka 2015
19. Tanzania Human Rights Report, 2013, Dar es Salaam, p. 133

REFERENCES

- CFR. <http://en.oxforddictionaries.com/language> Cfr. <https://en.wikipedia.org/wiki/Truth>
- Cfr. <https://en.wikipedia.org/wiki/Epistemology>
- Manfred Prisching "FAIRNESS Als Ri-- SSOURCE: (Goaz: Leykam Buchvendarsges, 2013) p.28
- Aidan G. Msafiri – Globalization of Concern II (Geneva, Globethics.net Focus No. 8, 2012) p. 83
- Christoph Stueckelberger, Jesse N. K. Mugambi (Eds) RESPONSIBLE LEADERSHIP (Geneva: Globethics.net 2009) p. 98
- Cfr. <http://www.factmyth.com> under language and the use of symbolisms
- <https://www.facebook.com/pages/Thomas-- - Timid-- Mouse-- and-- His-- Promise/696102637136281>
- <http://bussongs.com/songs/5-- little-- monkeys-- jumping-- on-- the-- bed.php>
- Saju Chacklackal, Igniting Minds To Transform The Society (Bangalore Dharmaram Publications, 2013) pp. 60-- 61
- Saju – ibid. – p. 62
- Brigit Brock – Utne and Zubeida Desai (Eds) "Language of Instruction in Tanzania and South Africa – Highlight from a Project" (Rotterdam Sense Publishers, 2010) p. 72
- Ibid – Brigit Brock – Utme et al. – p. 29
- Walter Truett. All Connected Now. (Cambridge, Westview Press, 2004) p. 98
- Aidan G. Msafiri. Globalization of Concern II, p. 114
- Jamhuri ya Muungano wa Tanzania, Wizara ya Elimu na Mafunzo ya Ufundi. Sera ya ELimu na Mafunzo. (3-- 2-- 6) ya Mwaka 2015
- Tanzania Human Rights Report, 2013, Dar es Salaam, p. 133

Bifurcation and Stability Analysis of a Tuberculosis (TB) Model with Treatment

Lalash Lengiteng^{*1}, Theresia Mkenda^{*2}, Masanja Robert^{*3}

Abstract

Tuberculosis or TB (short for Tubercles bacillus) is an air borne and highly infectious disease caused by infection with the bacteria mycobacterium tuberculosis [7]. In this paper, we formulated a mathematical model with treatment as a control strategy in limiting the disease. The basic reproduction number is computed in order to measure the relative impact of each impeded parameter for effective disease control. The sensitivity analysis was done to investigate the key parameters that would govern the successful tuberculosis control in Tanzania. From the basic reproduction number, \mathfrak{R}_0 , TB can effectively be controlled or even be eradicated if effort is made to ensure that both the latently infected and actively infected individuals are treated. Numerical simulations show that at the current level of control strategies, TB dynamics can be completely eliminated from the population when priority is made in treatment of infectious individuals as well as controlling the occurrence of new infections.

Keywords: Tuberculosis, basic reproduction number, backward bifurcation, Treatment

1.0 Introduction

Tuberculosis (TB) is an air borne disease produced by Mycobacterium Tuberculosis [7, 11]. The infections can be acquired by an individual when he/she inhales the TB bacteria which are released into the air by infectious individuals through coughing, sneezing, spitting or talking. The infections of TB occur into two states which are: Latent TB, that is when an individual shows no symptoms and remain uninfected, and active TB when an individual develop the dynamic symptoms and he/she is infectious to other individuals [1, 13]. A person with active TB will not recover unless treated/cured with drugs, but even then he/she can die from the disease. There are two forms of TB which have become long life threatening; that is Miliary TB-where bacteria affect lungs and spread to bloodstreams and TB meningitis-which affects the spiral cord and or the brain by TB bacteria. It is estimated that an untreated person with active TB can spread the germs to about 10 to 15 people every year [14,15,17]. Progression toward active TB may accelerate with re-exposure to TB bacilli through contact with active TB infected people (Styblo, 1991; Smith, Moss et al., 1994).

According to [15,18] a health care setting needs an infections control program designed to ensure prompt detection of airborne precaution and treatment of persons who have been

suspected or confirmed to have TB disease. Mathematical model has been used in the formulation of TB control strategies and establishing goals for intervention program. Most of these models are of the SEIR in which the host population is categorized by infections status as susceptible, exposed, infectious and recovered. In this paper, we shall use the SEIT model which classifies the population by infections status as susceptible, exposed, infectious and treated.[19] Looked at the effects of exogenous re-infections on the dynamics of TB. They found that the incorporation of exogenous re-infections into a model for the transmission dynamics of TB allows for the increase of the number of individuals that are at risk of becoming infectious. The treated individuals in their model are assumed to move back to the exposed class instead of susceptible class which means they are still infected but not infectious, however they did not considered the rate of fast progression from susceptible class to infectious class after the initial effective contact.

In this paper the model by [19] is modified by assuming the treated individuals will recover to exposed/latent, while other do not recover completely and they can still undergo fast progression to active TB. The model was analysed to determine the existence and stability of equilibrium point. The model analysis is divided into three subsections, that is, model formulation, model analysis and model simulation.

2.0 Model Formulation

Basically a TB model with no interventions, with compartment classes which are susceptible, exposed/Latent $E(t)$, infected $I(t)$, and treated $T(t)$ (*SEIT*) model [19] is formulated. In this model susceptible individuals are assumed to be recruited at constant rate Λ either by immigration or per capita birth rate. Susceptible individuals are assumed to acquire infections through contact rate β and the transmission will occur at the rate βSI , which is the force of infection given by βSI . We assume that per capita natural mortality rate model by the factor μ is constant in all compartment. In this model progression to active TB is due to exogenous re-infection and exogenous reactivation modelled by the factor λ where λ is the combination of exogenous and reactivation rate. We assume that latently infected individuals have inactive TB mycobacterium in their bodies, so they are not infectious. Only the proportion of λ will move from E to I due to re-infection and exogenous reactivation. When treatment τ is given to infectious individuals, a proportion τI move back to latent class after recovery where μ may die naturally or TB induced death rate δ .

2.1 Model Assumptions

The model formulation is arrived under the following assumptions:

- i. The population is homogeneous (it has a constant interaction)
- ii. If an individual is infected he/she will become infectious and can develop active TB disease if not treated
- iii. Once an individual recovers after treatment he/she will be exposed
- iv. People in the population have equal death rate
- v. Individuals are born into the susceptible class.
- vi. Infected individuals spread the disease to susceptible, and remain in the infected class before moving into the latent class when treated.
- vii. We assume that all recruits, that is, newborns and immigrants, are neither immune nor infected.

The above description of model formulation and the assumptions lead to the compartmental diagram in Figure 1. The full description of variables and parameters used to formulate the model are in Table 1 and Table 2 respectively.

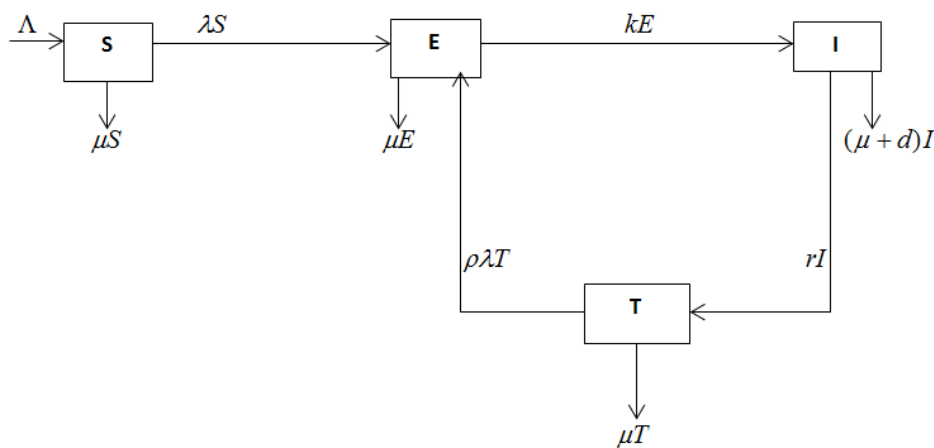


Figure 1: **A Compartmental diagram showing the dynamics of TB with treatment.**

Table 1: Variables used in the model

Variables	Description
$S(t)$	Susceptible individuals at time t.
	Exposed individuals at time t.
	Infectious individuals at time t.
	Treated individuals at time t.
	Total Population at time t.

Table 2: Description of Parameters of the model

Parameters	Descriptions
	Constant recruitment rate
	Average number of the susceptible individuals per contact per unit time
	Recovery rate
	Per capita contact rate
	Per capita natural death rate
	Rate of reactivation
	Per capita treatment rate
	The proportion of the susceptible individual which acquires infections and undergoes fast progression to TB infectious.
	Non-TB induced death rate

2.2 Equations of the Model

Based on the assumptions made and relationship that exists between variables and parameters shown in Figure 1 the system of six ordinary differential equations that describes the dynamics of tuberculosis in presence of treatment on is given by:

$$\frac{dE}{dt} = \lambda S + \rho \lambda T - (k + \mu)E, \quad (1)$$

$$\frac{dI}{dt} = kE - (\mu + \alpha + r)I,$$

$$\frac{dT}{dt} = rI - \mu T - \rho\lambda T,$$

where, $\lambda = \frac{c\beta I}{N}$, and $N = S + E + I + T$.

3.0 Model Analysis

We analyze model (1) in order to get some insight on dynamics of TB disease transmission.

3.1 Existence and Local Stability of DFE

Let E_0 be a DFE point of model (1). We set the right hand side equal to zero for each equation in (1) and assume that in absence of disease attack, $E = I = T = 0$ to solve the steady state solution. The disease free equilibrium point is therefore given by:

$E_0 = \left(\frac{\Lambda}{\mu}, 0, 0, 0 \right)$. Before we prove for local stability of DFE we define and determine the effective reproduction number, \mathfrak{R}_e of model (1).

Definition 1. The effective reproduction number, \mathfrak{R}_e is defined as the measure of average number of infections caused by a single infectious individual introduced in a community in which intervention strategies (in our case is treatment) are administered [Diekman et al.,

$$E_0 = (S^*, E_0^*, I^*, T^*)$$

The effective reproduction number \mathfrak{R}_e is computed by using the next generation operator method [22] and found to be:

$$\mathfrak{R}_e = \frac{ck\beta}{(k + \mu)(\mu + \alpha + r)} \quad (2)$$

3.1.1 Local Stability of Disease-free equilibrium, DFE

Theorem 1. The disease free equilibrium of model (1), given the effective reproduction number, is locally asymptotically stable if $\mathfrak{R}_e < 1$ and unstable if $\mathfrak{R}_e > 1$.

Proof: We now proof theorem 1 to identify the local stability of DFE $E_0 = \left(\frac{\Lambda}{\mu}, 0, 0, 0 \right)$. Thus, we linearize system (1) by computing its Jacobian matrix $J(E_0)$. The Jacobian matrix is computed using the next generation approach in [5, 9, 13, 22] at DFE (E_0) . We re-define system (1) as,

$$\begin{cases} F_1(S, E, I, T) = \Lambda - \lambda S - \mu S, \\ F_2(S, E, I, T) = \lambda S + \rho \lambda T - (k + \mu)E, \\ F_3(S, E, I, T) = kE - (\mu + \alpha + r)I, \\ F_4(S, E, I, T) = rI - \mu T - \rho \lambda T. \end{cases} \quad (2a)$$

Hence, at the steady states the Jacobian of F_1, F_2, F_3 , and F_4 is given by:

$$J(E_0) = \begin{bmatrix} \frac{\partial F_1}{\partial S}(E_0) & \frac{\partial F_1}{\partial E}(E_0) & \frac{\partial F_1}{\partial I}(E_0) & \frac{\partial F_1}{\partial T}(E_0) \\ \frac{\partial F_2}{\partial S}(E_0) & \frac{\partial F_2}{\partial E}(E_0) & \frac{\partial F_2}{\partial I}(E_0) & \frac{\partial F_2}{\partial T}(E_0) \\ \frac{\partial F_3}{\partial S}(E_0) & \frac{\partial F_3}{\partial E}(E_0) & \frac{\partial F_3}{\partial I}(E_0) & \frac{\partial F_3}{\partial T}(E_0) \\ \frac{\partial F_4}{\partial S}(E_0) & \frac{\partial F_4}{\partial E}(E_0) & \frac{\partial F_4}{\partial I}(E_0) & \frac{\partial F_4}{\partial T}(E_0) \end{bmatrix}$$

This gives,

$$J(E_0) = \begin{bmatrix} -\mu & 0 & c\beta & 0 \\ 0 & -(\mu + \alpha) & c\beta & 0 \\ 0 & k & -(\mu + \alpha) & 0 \\ 0 & 0 & r & -\mu \end{bmatrix}$$

Trace and determinant of matrix $J(E_0)$ denoted by $Tr(J(E_0))$ and $\det(J(E_0))$ are respectively given by:

$$Tr(J(E_0)) = -(4\mu + 2k) < 0.$$

and

$$\det(J(E_0)) = [2\mu^2 k + \mu k^2 - (\mu^3 + kc\mu\beta)] > 0.$$

We find that $Tr(J(E_0))$ is strictly negative and $\det(J(E_0))$ is strictly positive if and only if $(\mu^2 + kc\beta) < (k(2\mu + k))$. We therefore conclude that DFE is locally asymptotically stable.

3.1.2 Global Stability of Disease-Free Equilibrium Point (DFE).

In subsection we analyzed the global stability of disease free equilibrium point of model (1) by using the approach in [5, 27]. The model (1) can be written in the following format:

$$\begin{cases} \frac{dX_{\sigma}}{dt} = A(X_{\sigma} - X_{DFE}) + A_1 X_j \\ \frac{dX_j}{dt} = A_2 X_j \end{cases} \quad (2b)$$

Where X_{ω} and X_j are vectors of non-transmitting and transmitting compartments respectively. X_{DFE} is a vector at disease free equilibrium point E_0 of the same length as X_{ω} . From model (1) we define:

$$X_{\omega} = (S, T)^{TS}, X_j = (E, I)^{TS}, X_{DFE} = \left(\frac{\Lambda}{\mu}, 0 \right)^{TS}, \text{ and } X_{\omega} - X_j = \begin{pmatrix} S - \frac{\Lambda}{\mu} \\ T \end{pmatrix}.$$

For global stability of DFE we need to show that the matrix A has real negative eigenvalues and A_2 is a Metzler matrix (i.e the off-diagonal elements of A_2 are non-negative denoted by $A_2(x_{ij}) \geq 0, \forall i \neq j$). Using the system of model (1), the first and second equations of (2b) can be written respectively in expanded form as:

$$\begin{pmatrix} \Lambda - \lambda S - \mu S \\ rI - \mu T - \rho \lambda T \end{pmatrix} = A \begin{pmatrix} S - \frac{\Lambda}{\mu} \\ T \end{pmatrix} + A \begin{pmatrix} E \\ I \end{pmatrix}, \text{ and } \begin{pmatrix} \lambda S + \rho \lambda T - (k + \mu)E \\ kE - (\mu + \alpha + r)I \end{pmatrix} = A_2 \begin{pmatrix} E \\ I \end{pmatrix}.$$

For compatibility, matrices A, A_2 and A_3 should be of order 2×2 . By using non-transmitting elements from Jacobian matrix of system (1) and equation (2b) we find that:

$$A_1 = \begin{pmatrix} 0 & c\beta \\ 0 & r \end{pmatrix}, \text{ and } A_2 = \begin{pmatrix} -(\mu + k) & \rho c\beta \\ k & -(\mu + \alpha + r) \end{pmatrix}.$$

We find that A is upper triangular matrix with eigenvalues along the main diagonal. $E_1 = \begin{pmatrix} S^* \\ T^* \\ E^* \\ I^* \end{pmatrix}$ Therefore eigenvalues of A (i.e $-\mu$ and r) are real and negative. Also, A_2 is a Metzler matrix since its off-diagonal elements are non-negative. That is Therefore DFE for system (1) is globally asymptotically stable and this established the theorem below:

Theorem 2: *The disease free equilibrium point is globally asymptotically stable if and unstable otherwise.*

3.2 The Existence of Endemic Equilibrium Point of Model with Treatment

Let E_1 be an endemic equilibrium point of model (1). The conditions of existence of endemic equilibrium point are obtained by setting the right hand side of each equation in (1) equal to zero and model (1) in terms of force of infection. An endemic equilibrium in terms of force of infection is given by:

$$\begin{cases} S^* = \frac{N\Lambda}{c\beta I^*}, \\ T^* = \frac{rN}{\mu N + \rho c\beta I^*}, \\ E^* = \frac{c\beta \Lambda I^*}{(\mu + k)(c\beta I^* + \mu N)} + \frac{\rho c\beta r I^*}{(\mu + k)(\mu N + \rho c\beta I^*)}. \end{cases} \quad (3)$$

If we substitute (3) above into the force of infection, the endemic equilibrium satisfy the equation $I^* f(I^*) = I^* (AI^{*2} + BI^* + C) = 0$ (4)

where:

$$\begin{cases} A = (\mu + \alpha + r)(\mu + k)c^2\beta^2\rho, \\ B = (1 + \rho)(\mu + \alpha + r)(\mu + k)c\beta\mu - (\Lambda + r)kc^2\beta^2, \\ C = (\mu + \alpha + r)(\mu + k)\mu^2N^2 - kc\beta\rho r\mu N. \end{cases} \quad (5)$$

Further manipulation and simplification we end up with,

$$C = \frac{(\mu + k)(\mu + \alpha)[(\mu + \alpha + r)(\mu + k) - (\Lambda + \rho)kc\beta\mu N](1 - R_e)}{(\mu + k)(\mu + \alpha) - cr\beta}. \quad (6)$$

3.3 Local Stability of Endemic Equilibrium Point.

Using standard linearization of the model around the endemic equilibrium is not laborious and not tractable mathematically. Here, the centre manifold theory as described in theory 2 will be used to establish the local asymptotic stability of endemic equilibrium. To apply this method, the following simplification and change of variables are made first. Let $S = x_1, E = x_2, I = x_3,$ and $T = x_4,$ so that

Further, by using vector notation $X = (x_1 + x_2 + x_3 + x_4)^T$, the model (1) can be written in the form,

$$\frac{dX}{dt} = (f_1, f_2, f_3, f_4)^T.$$

This result to,

$$\begin{cases} \frac{dx_1}{dt} = f_1 = \Lambda - \frac{c\beta x_1 x_3}{x_1 + x_2 + x_3 + x_4} - \mu x_1, \\ \frac{dx_2}{dt} = f_2 = \frac{c\beta x_1 x_2}{x_1 + x_2 + x_3 + x_4} + \frac{c\beta x_3 x_4}{x_1 + x_2 + x_3 + x_4} - (\mu + k)x_2, \\ \frac{dx_3}{dt} = f_3 = kx_2 - (\mu + \alpha + r)x_3, \\ \frac{dx_4}{dt} = f_4 = rx_3 - \mu x_4 - \frac{\rho c\beta x_3 x_4}{x_1 + x_2 + x_3 + x_4}. \end{cases} \quad (7)$$

where,

$$N = x_1 + x_2 + x_3 + x_4.$$

Therefore, the Jacobian matrix of (7) at DFE (E_0) is given by,

$$J(E_0) = \begin{bmatrix} -\mu & 0 & c\beta^* & 0 \\ 0 & -(\mu+k) & c\beta^* & 0 \\ 0 & k & -(\mu+\alpha) & 0 \\ 0 & 0 & r & -\mu \end{bmatrix}. \quad (8)$$

In particular case when the basic reproduction number $\mathfrak{R}_e = 1$, we choose our bifurcation parameter be β and consider our bifurcation to take place at $\beta = \beta^*$. Solving β from (2) when we find that:

$$\beta = \beta^* = \frac{(\mu+k)(\mu+\alpha+r)}{ck}. \quad (9)$$

The Jacobian of transformed system (7) at $\beta = \beta^*$ has simple zero eigenvalues that allows us to study the dynamics of the system (1) using centre manifold theory (2). The Jacobian of (7) denoted by J at bifurcation parameter has right eigenvector that corresponds with zero eigenvalue given by $\omega = (w_1, w_2, w_3, w_4)^T$.

whereby,

$$\omega = \begin{cases} w_1 = -\frac{(\mu+k)^2(\mu+\alpha+r)^2}{\mu k^2}, \\ w_2 = \frac{(\mu+k)(\mu+\alpha+r)}{k}, \\ w_3 = \frac{\mu+k}{r(\mu+k)}, \\ w_4 = \frac{\mu}{(\mu+k)^2}, \end{cases} \quad (10)$$

$v_2 = \frac{(\mu+k)(\mu+\alpha+r)}{(\mu+k)(\mu+\alpha+r) + (\mu+k)^2}$,
 $v_3 = \frac{\mu+k}{(\mu+k)(\mu+\alpha+r) + (\mu+k)^2}$,
 $v_4 = 0$. Similarly, we calculate the left eigenvalues by $v = (v_1, v_2, v_3, v_4)$ and satisfying $\omega \cdot v = 1$, we get

$$(11)$$

We compute the value of a and b that will govern totally local dynamics of system (1) and determine where it exhibits forward or backward bifurcation by employing theorem 2 of [7] and as restarted in theorem 2.

Theorem 2. (Castilo-Chavez et al., 2004). Consider the general system of differential equations (1) with a parameter β , such that $\frac{dx}{dt} = f(x, \beta): \mathbb{R}^n \times \mathbb{R}$ and $f \in C^2(\mathbb{R}^n \times \mathbb{R})$ where 0 is an equilibrium point of the system (i.e. $f(0, \beta) = 0$ for all β) and

1. A is Jacobian (linearization) matrix of the system around the equilibrium 0 with β evaluated at 0,
2. Zero is a simple eigenvalue of A and other eigenvalues of A have negative real parts;
3. Matrix A has a right eigenvector w and a left eigenvector Ψ corresponds to zero eigenvalue.

Let w_k be the k^{th} component of w and

$$a = \sum_{k,i,j=1}^n \Psi_k w_i w_j \frac{\partial^2 f_k}{\partial x_i \partial x_j}(0,0), \quad b = \sum_{k,j=1}^n \Psi_k w_j \frac{\partial^2 f_k}{\partial x_i \partial \beta}(0,0) \text{ then}$$

The local dynamics of the system around the equilibrium point 0 is totally determined by the sign of a and b . In particular, if $a > 0$ and $b > 0$ then a backward bifurcation occur at $\beta = 0$. Signs of a and b play the vital role in describing the local dynamics of model (1) around equilibrium point 0 as follows:

- a) $a > 0, b > 0$ when $\beta < 0$ with $x = 0$ is locally asymptotically stable and there exists a positive unstable equilibrium, when $0 < \beta < 1, x = 0$ is unstable and there exists a negative and locally asymptotically stable equilibrium.
- b) $a < 0, b > 0$ when $\beta < 0$ with $x = 0$ is unstable, when $\beta > 0$ is asymptotically stable and there exists a positive unstable equilibrium.
- c) $a > 0, b < 0$ when $\beta < 0$ with $x = 0$ is unstable and there exists a locally asymptotically stable negative equilibrium, when $\beta > 0$ is stable and a positive unstable equilibrium appears.
- d) $a < 0, b < 0$ when $\beta < 0$ with $x = 0$ is stable, when $\beta > 0$ changes from negative to positive, changes its stability from stable to unstable. Correspondingly, negative unstable equilibrium becomes positive and locally asymptotically stable.

Computation of a and b

We compute the value of a and b that will govern the local dynamics of the system (1) and determine the conditions for existence of backward bifurcation following the signs of a and b by employing theorem 2 of Castillo-Chavez and Song [7]. Since the components of left eigenvector Ψ for (and 4) we compute the values of a and b for only The only non-zero second order derivatives of (7) at DFE when are:

$$\frac{\partial^2 f_2}{\partial x_2 \partial x_3} = \frac{\partial^2 f_2}{\partial x_3 \partial x_4} = \frac{c\beta\mu}{\Lambda} (1 - \rho).$$

By using,

$$a = \sum_{k,i,j=1}^n \Psi_k w_i w_j \frac{\partial^2 f_k}{\partial x_i \partial x_j} (0,0),$$

we compute a as follows:

On the other hand, the value of b is computed by using the formula, $b = \sum_{k,j=1}^n \Psi_k w_i \frac{\partial^2 f_k}{\partial x_i \partial \beta} (0,0)$.

The associated non-zero second order partial derivatives of (7) at DFE when $\beta = \beta^*$ and $k = 1,4$ are:

$$\frac{\partial^2 f_2}{\partial x_3 \partial \beta^*} = c(1 + \rho).$$

The value of b is therefore given by:

$$b = \frac{ck(\mu + k)(1 + \rho)}{(\mu + k)(\mu + \alpha + r)(\mu + k)^2} > 0.$$

Theorem 3. The EB model with treatment undergo a backward bifurcation which occurs at $\beta_e = \frac{(\mu + k)(\mu + \alpha + r)(\mu + \mu k)}{(\mu + k)(\mu + \alpha + r) + (\mu + k)\mu k}$. If $\beta^* < 0$, this implies that there exists unstable negative endemic equilibrium point and when $\beta_e > 0$, it implies that there exists stable positive endemic equilibrium point. Therefore the endemic equilibrium point is locally asymptotically stable for \mathfrak{R}_e nearly close to one.

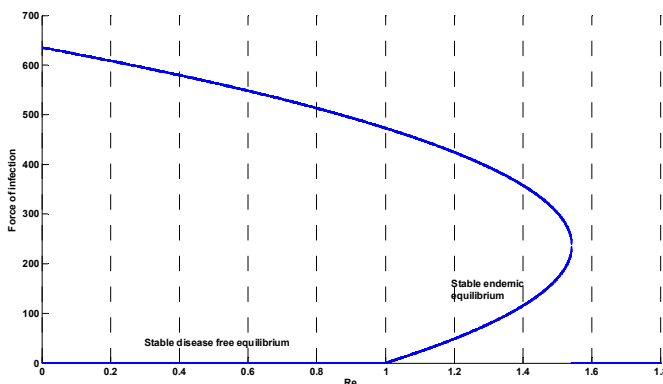


Figure 2: Bifurcation diagram showing backward bifurcation with estimated parameters and $\mu = 0.5$, $\alpha = 0.4$, $\rho = 0.45$ for numerical simulation.

Figure 2 shows that backward bifurcation of system (1) that occurs at threshold parameter due to presence of mono-equilibria and re-exposure of treated individual. In the neighborhood of 1 that is when $\mathfrak{R}_e < 1$ the stable DFE (E_0) coexists with endemic equilibria. The largest endemic equilibrium with large number of infectives exists. This suggests that even with maximum reducing the threshold parameter to less than unity does not eradicate TB disease from the community. This means that backward bifurcation is not a recommendable satisfactory feature of TB infection.

3.4 Numerical Sensitivity Analysis of Effective Reproduction Number, \mathfrak{R}_e .

In this subsection numerical sensitivity analysis of effective reproduction number is done using the parameters in Table 4. The values of the parameters are from the existing literature together with estimated ones. The sensitivity analysis is done purposely to identify the relative impact of each parameter involved in effective reproduction number to the transmission of TB infections. This is important as it helps to determine which parameters have high impact on \mathfrak{R}_e so as to be considered in the formulation of new intervention strategies [27, 29]. The approach in [27] is used to calculate the sensitivity indices of to the parameters existing in it so as to determine how best the human TB prevalence and incidence will be reduced.

Definition 1: The normalized forward sensitivity index is the ratio of relative change of variable to the relative change in parameter. The normalized forward sensitivity index of a variable that depends on a parameter is defined as

$$Y_n^m = \frac{\partial m}{\partial n} \times \frac{n}{\mathfrak{R}_e}. \quad 11.1$$

From the explicit effective reproduction number \mathfrak{R}_e in [2], it follows that the normalized forward sensitivity indices of with respect to involved in is given by:

$$Y_{n_i}^{\mathfrak{R}_e} = \frac{\partial \mathfrak{R}_e}{\partial n_i} \times \frac{n_i}{\mathfrak{R}_e}. \quad 11.2$$

For instance, the sensitivity indices of \mathfrak{R}_e with respect to β and c are given respectively by:

$$\text{and } Y_c^{\mathfrak{R}_e} = \frac{\partial \mathfrak{R}_e}{\partial c} \times \frac{c}{\mathfrak{R}_e} = +1.0000000000$$

By using the same approach the indices $Y_r^{\mathfrak{R}_e}$, $Y_k^{\mathfrak{R}_e}$, $Y_\mu^{\mathfrak{R}_e}$, and $Y_\alpha^{\mathfrak{R}_e}$ were obtained and tabulated below while ordered from highest sensitive to least sensitive parameters as shown in Table 3.

Table 3: Sensitivity Indices of each impeded Parameter for \mathfrak{R}_e .

Parameter	Sensitivity index
μ	-1.61071079800
	+1.00000000000
	+1.00000000000
	+0.9053729734
r	-4.00000000000
	-0.3005828470

3.4.1 Interpretation of Sensitivity Indices

From Table 3 the results show that, the parameters μ and k have positive indices. This means that each of these parameters has great effect on the effective reproduction number. This means increase in one of this parameter while keeping the other constant increase the effective reproduction number as well. For instance, $Y_k^{\mathfrak{R}_e} = +0.9053729734$, show that increasing the proportion of latently infected population proportion, k that is progressing to active TB class by 20%, increases the value of \mathfrak{R}_e by 18.10745947% and hence increase the endemicity of the disease. On the other hand, reducing the proportion k by 20% decrease the value of \mathfrak{R}_e by 18.10745947% and hence lowering the disease endemic. Furthermore, the parameters r, α , and β have negative indices. This means increasing (decrease) one of these parameters while keeping the rest constant decrease (increase) the value of effective reproduction number, \mathfrak{R}_e and hence decrease (increases) the endemicity of TB.

For example for $Y_r^{\mathfrak{R}_e} = \frac{\partial \mathfrak{R}_e}{\partial r} \times \frac{r}{\mathfrak{R}_e} = -0.40000000000$, when treatment increases by 50% decrease the value of \mathfrak{R}_e for approximately 20% and hence reduce the endemicity of the disease. Observing careful the magnitude of the sensitivity indices in Table 3 above, we found that is more positive sensitive to parameters and while it is negative sensitive to parameters and following the results above in Table 3 the most sensitive and moderate parameters should be careful estimated in order to identified the parameters that should be considered during the formulation of control strategies [27, 30].

4.0 Numerical Simulations and Discussions

In this subsection numerical simulation of model (1) is carried out in order to illustrate the qualitative results by using available parameters values from existing literature together with estimated ones. The stated parameters values appeared in Table 4 will be used during simulation process.

Table 4: Parameters values used for simulation of model (1).

Symbol	Values	Source
β	0.365	[18, 19]
	2	[9]
	2	[9, 10]
	0.8	[28]
	0.361	[19, 25]
	0.04	[2, 25]
	0.2041	Estimated
	0.3	[7, 8]

4.1 Numerical Simulation of Model (1) with Control

In this subsection we investigate the general dynamics behavior of model (1) with treatment to understand its dynamics features.

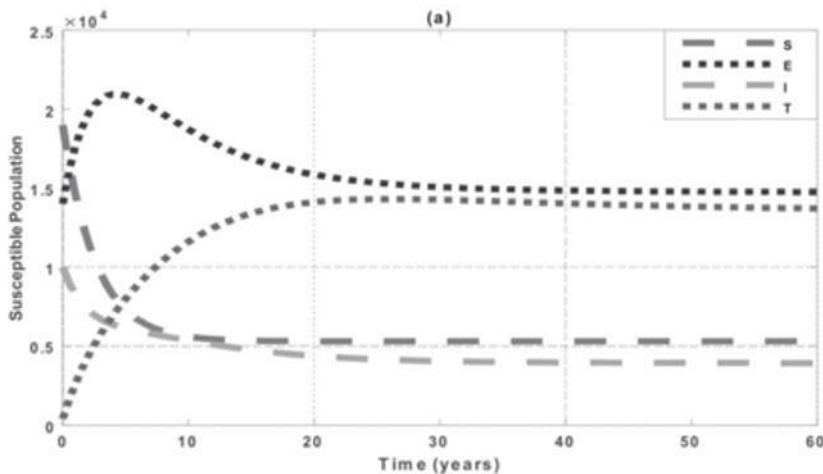


Figure 3: Shows the dynamics of susceptible, latently infected, severely infected and treated population proportions in presence of treatment and TB infection with increase in time.

Figure 3 shows the dynamics behaviour of susceptible, latently infected, severely infected and treated classes with $\mathfrak{R}_e = 1.6428$. The plot is produced by using MATLAB by using $\beta = 0.425$, $\alpha = 0.6$, $\rho = 0.35$ as estimated parameters values and their definitions are given in Table 2.

Starting with initial values $S(0) = 1.9$ and $T(0) = 0.1$. In presence of treatment and TB, susceptible population initially decline and increase to its carrying capacity as time increases as shown in Figure 3. Latently infected population proportion increase initially and start to stabilize as time increases. However, the severely infected (active TB infected individuals) population proportion decrease gradually to their lower endemic levels. These results shows that even with treatment the disease will not die since the effective reproduction number $\mathfrak{R}_e = 1.6428 > 1$. This partner the theorem of local stability of endemic equilibrium.

4.2. The dynamics behaviour of Model (1) when treatment increases as time increase

In this subsection we simulate model (1) with different levels of treatment to observe the behavior of the dynamics and the effect of treatment so far in the eradication of TB disease out of the population.

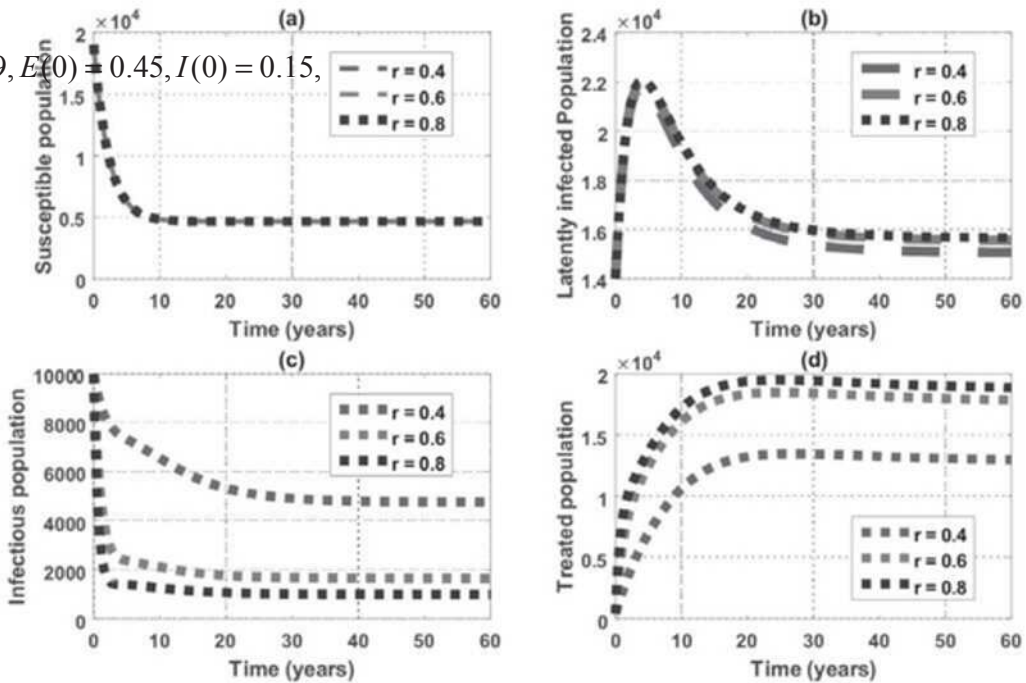


Figure 4: Shows the dynamics behaviour of all populations in model (1) for various values of treatment with increasing time while other parameters are fixed and their defined in Table 3.

Figure 4 shows the behaviour of the populations at different levels of treatments $r = 0.4, 0.6,$ and 0.8 with increasing time. The result in Figure 4(c) shows that infectious population proportion decrease to its lower level as treatment increase with time. On the other hands in Figure 4(b) the latently infected population proportion increase slight with time which shows that treatment does not really revert all actively infected TB population proportion to latently infected since some individuals die due to the disease and a small fraction reverts back to latently infected and can experience the second episode of the disease. However, the increase in treatment does not have impact on susceptible population proportion since the treated actively infected individuals does not recover completely from the disease but just their immunity stabilize to stop the bacteria activity from destroying the body.

The results showcritically that even when the treatment is administered to its maximum the dynamics of TB infection does not clear out of the community. These results propose the theorem of locally stability of endemic equilibrium discussed early.

4.3 The effect of transmission rate on the dynamics and treatment of TB infection

In this subsection we study the variation of population proportions of model (1) with different transmission rate values in order to identify how its important in helping the policy makers to consider the significant impact of transmission rate due to exposure of individuals to TB bacilli bacteria so as to plan for effective control measures.

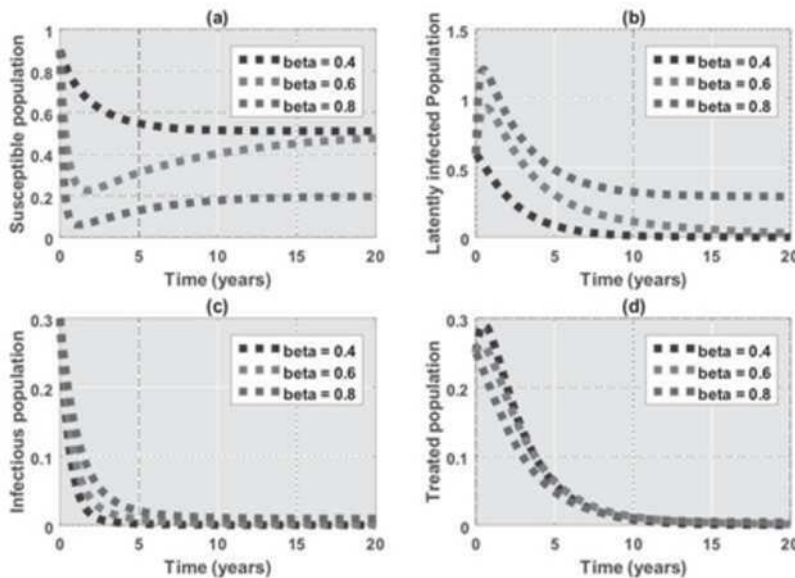


Figure 5: Numerical simulation of model (1) with interventions and TB with different rate of transmission (β) using the parameters values in Table 3.

Figure 5 shows the dynamics behaviour of all populations in our model (1). Many studies did not clearly concentrate on the important of transmission rate in the significant study for controlling the TB disease. We will analyze the results in Figure 5 to see the significant impact of transmission rate on the dynamics and treatment of TB infections. Figure 5(a) shows the gradual decline of the susceptible population proportion due to increase in transmission rate. On the other hand, Figure 5(b) shows spontaneously increase of latently infected individuals at initial time. This is due to the increase in new TB case due to new exposure. Figure 5(c) shows the increase of infectious population proportion due to increase of latently infected individuals which results to majority progression to active TB individuals. Figure 5(d) show the increase in transmission rate with treatment strategy. These results suggest that treatment is not a sufficient desirable control strategy of the disease if there are no other preventive measures to avoid new exposure to the disease.

4.4 The effect of treatment on the TB prevalence and incidence per 100000 populations

In this subsection the numerical simulation of model (1) is done in order to investigate the effect of treatment in controlling the disease prevalence and incidence using the population 100000. The results of the simulation are shown below on Figure 5.

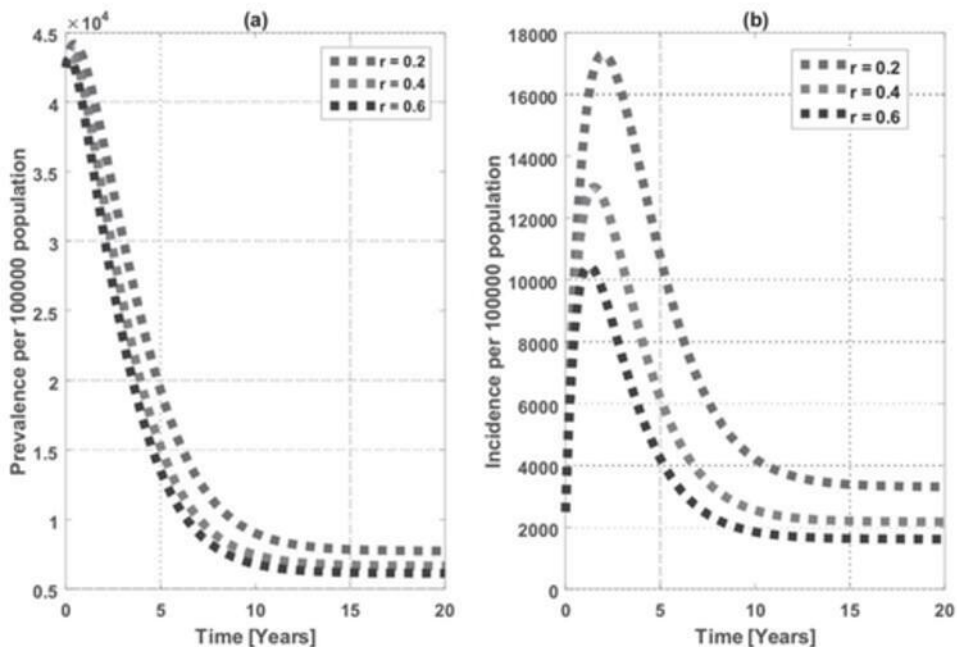


Figure 6: TB prevalence and incidence at different levels of treatment where (a) is the graph showing TB prevalence as treatment varies and (b) shows TB incidence when treatment level is varies.

The results in Figure 6 show the effect of treatment in reducing the prevalence and incidence respectively. Figure 6(a) shows that when the level of treatment increases the TB disease prevalence decreases. Figure 6(b) shows that the increase in treatment lowers the disease incidence to its lower capacity. However, Figure 6 shows that treatment has no significant impact in eradicating the disease out of the community. With this results, there is a need to design or invent other supportive control measures to make sure that the TB prevalence and incidence will be reduced to the capacity of eradicating the TB disease out of the community.

4.5 The effect of transmission rate and treatment on effective reproduction number,

In this subsection we simulated system (1) at different levels of transmission rate (β) and treatment rate to investigate the significant effect of the parameters and on effective reproduction number. The results are shown in Figure 7.

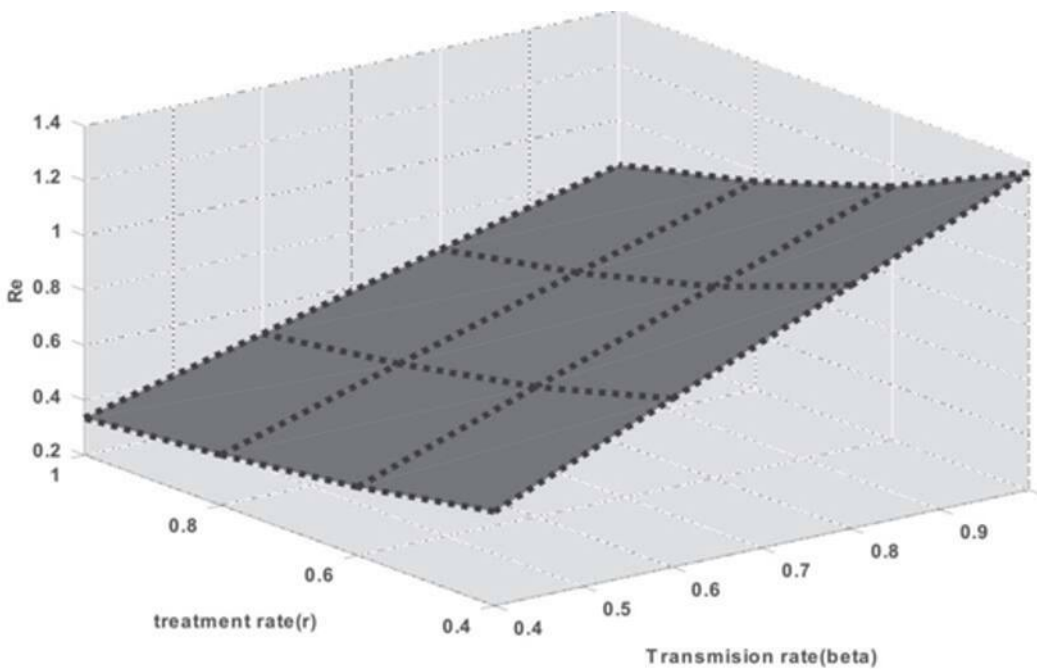


Figure 7: The graph showing the effect of both transmission and treatment rates on the effective reproduction numbers.

The results in Figure 7 above show the effect of transmission rate and treatment on the effective reproduction number. In absence of treatment, the increase of transmission rate results to the increase in effective reproduction number to the higher level. This means

that when there is no treatment the TB infection is high in the community. On the other hand, when the transmission rate is fixed and treatment administered at different levels there is a gradual decline in the effective reproduction number to lower level which means that treatment is a potential control strategy when integrated properly to infectious population proportions. However, the results shows that even when the treatment is provided to its maximum the disease will not die 100% out of the community. We suggest that as treatment is administered throughout the community there must be establishment of new interventions program to make sure that there is effective eradication of TB disease.

4.6 Phase Portraits of the Dynamical Behavior of our Model at DFE.

In this subsection we plot phase portrait to illustrate the behavior of our model (1) at disease free equilibrium point (DFE). The results are produced using MATLAB for susceptible class versus exposed (latently infected), infectious, and treated classes using the parameters in Table 3 with variation of initial conditions. Figure 8(a) and (b) shows that both exposed and infectious population proportions decrease as susceptible population proportion increase and stabilize at disease free equilibrium point. On the other hand, the results on Figure 8(c) show that the treated population proportion increase for some time as susceptible increase and start to decrease after some time and stabilize at disease free equilibrium point.

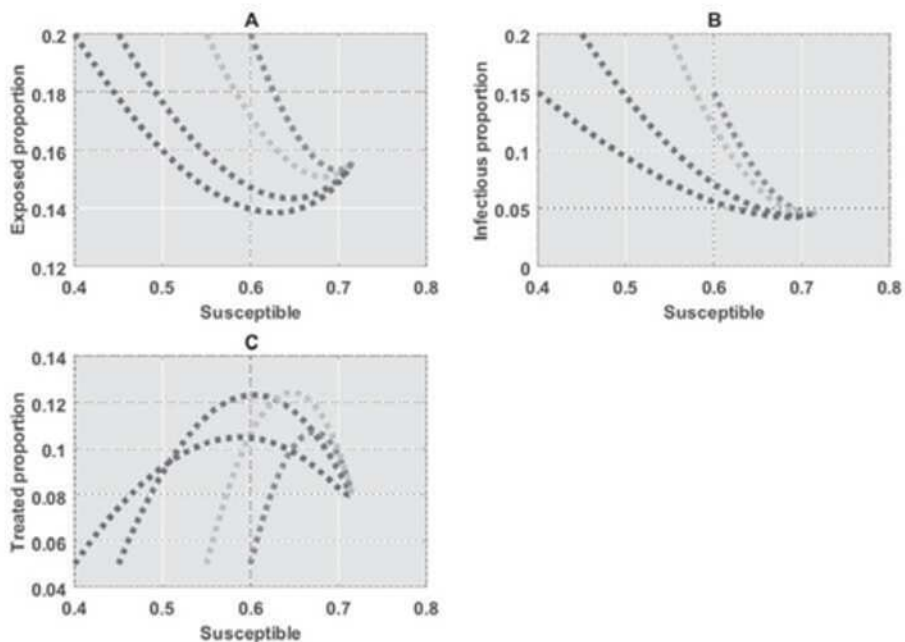


Figure 8: Shows the phase portraits for dynamics of susceptible population proportion and (a) exposed (latently infected) (b) infectious and (c) treated population proportions showing the disease free equilibrium point at different initial values as time increases.

5.0 Conclusion

In this paper, a continuous time deterministic TB model is formulated with the aim of assessing the effect of treatment on the transmission of TB infections. It has been proved that the disease free equilibrium is locally asymptotically stable when $\mathcal{R}_e < 1$ and unstable otherwise while the endemic equilibrium point is locally and globally stable if $\mathcal{R}_e > 1$. The backward bifurcation analysis is done and found to occur at $\mathcal{R}_e = 1$. Numerical simulation shows that, TB incidence and prevalence can be reduced through treatment to their lower levels. Further numerical analysis show that treatment reduces only the TB infections in the community to lower levels but not eradicating the disease completely. We recommend that treatment is no longer a sufficient strategy to control TB infections. There is a need for new interventions program to stabilize the effect of treatment in the control of this deadly disease.

REFERENCE

- [1] B. R. Bloom, Tuberculosis: Pathogenesis, Protection and Control, Washington, D.C., ASM Press (1994).
- [2] S. M. Blower, A. R. Mclean, T. C. Porco, P. M. Amall, M. A. Sanchez, and R. Moss, The intrinsic transmission dynamics of tuberculosis epidemics, *Nature Medicine*, 1 (1995), 815-821.
- [3] B. Buonomo, and D. Lacitignola, On the backward bifurcation of a vaccination model with nonlinear incidence, *Nonlinear Analysis: Modelling and Control*, 16(1) (2011), 30–46.
- [4] J. Carr, Applications of Center Manifold Theory, Springer-Verlag, New York, (1981).
- [5] C. Castillo-Chavez, Z. Feng, and W. Huang, Mathematical Approaches for Emerging and Re-emerging Infectious Diseases, An Introduction. Springer Verlag, (2002).
- [6] C. Castillo-Chavez, and B. Song, Dynamical models of tuberculosis and their applications, *Mathematical Biosciences and Engineering*, 1 (2004), 361-404.
- [7] T. Cohen, M. Murray, On modeling epidemics of multidrug-resistant M. tuberculosis of heterogeneous fitness, *Nature Medicine* 10 (2004), 1117-1121.
- [8] T. Cohen, C. Colijn, B. Finklea, and M. Megan, Exogenous Re-infection and the Dynamics of Tuberculosis Epidemics: Local Effects in a Network Model of Transmission, *J. R. Soc. Interface* 4 (2007), 523-531.
- [9] Z. Feng, C. Castillo-Chavez, and A. F. Capurro, A model for tuberculosis with exogenous reinfection, *Theor. Popul. Biol.* 57 (2000), 235–247.

-
- [10] A. B. Gumel, and S. M. Moghadas, A qualitative study of a vaccination model with non-linear incidence, *App. Math. Comput.* 143 (2003), 409–419.
- [11] H. W. Hethcote, The mathematics of infectious diseases, *SIAM Review* 42 (2000), 599-653.
- [12] S. Kim, S. Choe, J. Kim, S. Nam, Y. Shin, and S. Lee, What Does a Mathematical Model Tell About the Impact of Reinfection in Korean Tuberculosis infection?, *Osong Public Health Res Perspect.* 5(1) (2014), 40-45.
- [13] A. Korobeinikov, Lyapunov functions and global properties for SEIR and SEIS epidemic models, *Mathematical Medicine and Biology.* 21(2004): 75–83.
- [14] J. P. LaSalle, The stability of dynamical systems. CBMS-NSF in Regional Conference Series in Applied Mathematics. No. 25. SIAM, Philadelphia. (1976).
- [15] C. C. McCluskey, Lyapunov functions for tuberculosis models with fast and slow progression, *Mathematical Biosciences and Engineering*, 3(4) (2006), 603–614.
- [16] B. Miller, Preventive therapy for tuberculosis, *Med. Clin. North Am.* 77 (1993), 1263-1275. 23 / 23 The Role of Re-Infection
- [17] Z. Mukandavire, W. Garira and J.M. Tchuente, Modelling effects of public health education campaigns on HIV/AIDS transmission dynamics, *Appl. Math. Model.* 33(2009), 2084-2095.
- [18] D. Okuonghae, and A. Korobeinikov, Dynamics of Tuberculosis: The Effect of Direct Observation Therapy Strategy (DOTS) in Nigeria, *Mathematical Modeling of Natural Phenomena*, 2 (2007), 101-113.
- [19] D. Okuonghae, and V. Aihie, Case detection and Direct Observation Therapy Strategy (DOTS) in Nigeria: its effect on TB dynamics, *Journal of Biological Systems*, 16 (2008), 1–31.
- [20] P. Rodrigues, Modeling tuberculosis: a compromise between biological realism and mathematical tractability, Unpublished PhD thesis. University of Lisbon, (2009).
- [21] A. Ssematimba, J. Y. T. Mugisha, and L. S. Luboobi, Mathematical Models for the Dynamics of Tuberculosis in Density-dependent Populations: The Case of Internally Displaced Peoples' Camps (IDPCs) in Uganda, *Journal of Mathematics and Statistics*, 1 (2005), 217-224.
- [22] P. van den Driessche, and J. Watmough, Reproduction numbers and sub-threshold endemic equilibria for compartmental models of disease transmission, *Math. Biosci.* 180 (2002), 29–48.
- [23] World Health Organization (WHO), Global Tuberculosis Report (2012), 2010/2011 Tuberculosis Global Facts.

-
- [24] World Health Organization (WHO), Global Tuberculosis Report (2013), 2011/2012 Tuberculosis Global Facts.
- [25] B. Buonomo, and D. Lacitignola, On the backward bifurcation of a vaccination model with nonlinear incidence, *Nonlinear Analysis: Modelling and Control*, 16(1) (2011), 30–46.
- [26] Bacaër N., Ouifki R., Pretorius C., and Wood R., Modeling the joint epidemics of TB and HIV in a South African township, *Journal of Mathematical Biology* 57 (2008), 557–593.
- [27] Cohen T., Lipsitch M., Walensky R.P., and Murray M., Beneficial and perverse effects Of isoniazid preventive therapy for latent tuberculosis infection in HIV-tuberculosis co-infected populations, *Proceedings of the National Academy of Sciences, USA* 103 (2006), 7042–7047.
- [28] Dye C. and Williams B.G., Criteria for the control of drug-resistant tuberculosis, *Proceedings of the National Academy of Sciences, USA* 97 (2000), 8180–8185.
- [29] H. S. Rodrigues, M. T. T. Monteiro, D. F. M. Torres, Sensitivity Analysis in Dengue Epidemiological Model, *Conference Papers in Mathematics*, 2013(2013), Article ID 721406, 7 pages.
- [30] Mlay, G. M., Luboobi, L. S., Kuznetsov, D., Shahada, F., the Role of Re-Infection in Modeling the Dynamics of One-Strain Tuberculosis Involving Vaccination and Treatment, *Asian Journal of Mathematics and Applications*, 2014 (2014).
- [31] L.Lalash, K. Damian, Y. Nkansah-Gyekye, 'Modeling the effect of stress and stigma on the transmission and control of TB infection', *American Scientific research journal for Technology, Engineering and Sciences*, Vol.24, Number 1:26-56, July 2016.