Redefining Non-formal adult education in the context of education for sustainable development and climate change.

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Abstract

The thesis of this paper is based on the argument that the need to redefine non-formal adult education in the context of education for sustainable development (ESD) and climate change has become more urgent than ever before. The subject of ESD and climate change has not only attracted the attention of many scientists and academicians, it has also triggered debateon ESD and non-formal education worldwide. Climate change and education for sustainable development have become important contemporary issues which require adequate sustainable solutions. This is a qualitative study conducted in Zambia with a view to exploring how non-formal adult education could be redefined in the context of ESD and climate change. Through this studyit was established that non-formal adult education should be redefined as a transformational learning tool for sustainable development in the 21st century. The study established that the attainment of sustainable development is more of a moral issue than a scientific method. Therefore, the focus of non-formal adult education should be on facilitating change in values, attitudes and acquisition of skills and knowledge beneficial to individuals and to the larger society within the framework of ESD and climate change.

Key words: education, non-formal education, climate change, and sustainable development.

1. Introduction

Non-formal education has often times been regarded as a second class type of education. However, there is a renewed thinking within the field of education that formal education alone cannot respond to all the needs of society and in particular the challenges of modern development. The demand for modern development is that all development processes should be designed within the framework of sustainable development. The need to redefine non-formal education in this context cannot come at a better time than this. Therefore, this study provides a perspective on how non-formal education can be redefined in the context of Education for Sustainable Development (ESD) in view of climate change.

1.1   Conceptual issues

There are four key concepts in this study namely *education*, *non-formal adult education*, *sustainable development and climate change*. They are defined in the context of this study.

1.1.1   Education

Education in this study has been defined as a life-long process by which people learn new ways of thoughts and action (Kibera&Kimokoti, 2007).Additionally, Taneja (2008) explains that education involves the acquisition of knowledge, skills, experience, the development of habits, and attitudeswhich help someone to lead a full and worthwhile life. This means that education and society are dialectically related to each other. In this regard, non-formal adult education depends on the socio-economic conditions of society.

1.1.2   Non-formal adult education

Education as a process is provided in three distinct types- formal, non-formal and informal learning. All these types of education fall in the bracket of life-long learning. The interest of this paper is on non-formal educationin which adults are the main beneficiaries. Hence, the concept non-formal adult education. Adults are individuals regarded as adults by their society. Non-formal education is any organized and sustained educational activities carried outside the formal education system (UNESCO, 2006). It can be provided within and outside government educational institutions. It covers a wide range of issues such as basic and functional literacy.

In this paper non-formal adult education is understood to be a type of education undertaken and provided to adults and youths outside the formal education system. Its focus is facilitating the acquisition of knowledge and skills needed for immediate use essentially for personal and societal improvement (Yasunaga, 2014,andNgaka, Openjuru& Mazur, 2012).

1.1.3   Sustainable development

In this paper, sustainable development is based on the Brundtland's definition that any development activity, project or programme should be undertaken with a high mark of responsibility and caution in meeting the needs of the present generation by not compromising the ability of the future generation to meet their our needs (UNEP, 2006). It is development that takes care of the environment which will in turn sustain future generations.

1.1.4   Climate change

Climate change is understood as changes in the climate due to natural process that alter the atmospheric composition (Nhamo and Shava, 2015). Climate change education is critical to non-formal education if sustainable development has to be achieved.

1.2   Background

Climate change is a general term that refers to changes in many climatic factors which are temperature and precipitation,around the world. These changes are principally caused by progressive build-up and extensive spread of greenhouse gases across countries, regions or continents because of earth's rational movement (Sarkar, 2011).UNEP (2011) acknowledges that the challenge of global climate change is partly due to natural and human actions or inactions. In Africa the current environmental problems and challenges include, deforestation, desertification, pressure of the growing population, emerging shortage of water due to mainly drought, plunder of fish resources, and poorly controlled urban development.

The major impact of climate change is evidenced by a gradual rise in surface temperature referred to as global warming. This involves the melting of ice-bergs, concomitant rise in sea levels, continuous build-up of greenhouse gases, depletion of the ozone concentration layers, catastrophic natural disasters such as floods, loss of vegetation, plant, and animal lives (Sarkar, 2011). If nothing meaningful is not done about this situation, it is projected that by 2025 two-thirds of the world population, much of it in the developing world, may be subjected to moderate to high water stress, negative crop yields in the tropics, alteration of ecological productivity and biodiversity, and increased risks of extinction of some vulnerable species. Fortunately there is and continues to be a global agreement that something has to be done to address this situation. This is necessary since environmental issues and problems affect all sectors of society.UNESCO/UNEP (2011) acknowledges that the challenges posed by climate change can be mitigated by the use of education. It is believed that education can help individuals to make informed decisions on how to adapt their lives and livelihoods to the effects of climate change and reduce risk vulnerability (Ketlhoilwe&Kurusa, 2015).

In view of this, Education for Sustainable Development (ESD) has been recognised as aneffective tool for the realisation of development which could bear fruit beneficial to the present and future generations.Longhurst (2014) explains that education for sustainable development is the process of equipping learners with the knowledge and understanding, skills and attributes needed to work and live in the way that safeguard environmental, social and economic wellbeing, both in the present and for future generations. Within this context, two typologies of education formal and non-formal education have been playing a critical role in driving the agenda for sustainable development.

However, emphasis has been put on formal education in comparison to non-formal education. Issues of education on the care and protection of the environment have been a concern of formal schools, primary and secondary, where selected elements of the content on environmental education are infused into science, mathematics, geography and civic education (Yasunaga, 2014, and Indabawa&Mpofu, 2006).

It has been observed that formal education on climate change and environmental education has limited its impact to schooling system which exclude a lot of people. Reference is made to million youths and adults who have no access to formal education. Yet what we see from

research is that there is a strong link between the poor who have no access to education and environmental problems (Indabawa&Mpofu, 2006).It is undoubtedly at this stage that,if adult education is ignored in the quest for attaining sustainable development at whatever level and context, the dream and efforts will be a mere wish for many countries. It is in this vein that non-formal adult education in its widest corollary is considered to be ingrained in the life-long education process and significant in education for sustainable development.

In the late 1980s, the interest in non-formal education began to diminish when the international community increased its focus on schooling as a dominant form of learning. For a long time, formal education has been regarded as an avenue that provides real learning particularly for the knowledge and skills required for all development related issues (Yasunaga, 2014, and Ngaka, Openjuru& Mazur, 2012. The over concentration on formal education has led to non-formal education being undervalued as not real learning.

Yasunaga (2014), however,explains that there has been renewed thinking about the potential of non-formal education. It has become a policy focus of the international community, due to the reasons that; a) non-formal education can be adapted for specific learning needs of individuals and populations in different contexts; b) non-formal education constitutes an integral part of life-long learning; c) non-formal education is innovative in nature which helps to develop human capabilities, improve social cohesion and create responsible future citizens; d) it also enables individuals to enhance their expectations.

In Zambia, a number of adult education practices included, literacy work, village improvement, training in literacy trades, crafts and other works which were organised in a non-formal education context (Mumba, 2003; Carmody, 2004). Currently non-formal education in Zambia like many other countries in Africa is viewed as an alternative to formal education. Banda (2009) observes that formal education system has created a pyramid structure which is not compatible with the goal of providing education to all as it throws away many people out of the education system on the basis of failing to reach a cut of point. This has led to an increase in the number of school drop outs who have later taken up non-formal education. It is this group of youths and adults who find themselves in the "unskilled" and "unemployed" bracket in the economy, who in order to survive, engagein unsustainable economic activities such as charcoal burning and illegal quarrying.

1.3   Statement of the Problem

In Zambia, adult education has continued to be side linedand yet most development programmes on sustainability target adults and youths.In terms of provision, non-formal adult education is currently provided on a small scale as a mere alternative to formal education. Banda (2009) explains that most of the non-formal education programmes provided by various government ministries particularly Ministry of Education are slanted towards schooling with a clear objective of providing an opportunity for individuals who missed out on schooling to get back into the formal education mainstream. This is because non-formal education lacks a clear definition and role in the current Zambian education system. It has narrowly been defined as an alternative to formal education thereby undermining its potential to respond to other independent educational needs of society which may not require certification.

The current formal education system in Zambia is too theoretical and does not seem to impart meaningfulchange in the participants in terms of values ideal forsustainable development and climate change. As it is, little attention is given to non-formal education with an agenda for sustainable development and climate change.Recent studies have shown that formal education alone cannot respond to the challenges of modern society.It requires the use of other educational tools such asnon-formal education(see: Yasunaga, 2014, Ngaka, Openjuru and Mazur, 2012, Hoppers, 2006, UNESCO, 2006, and Rogers, 2004).

Therefore, it was the interest of this study to explore ways in which non-formal education could be redefined in the context of education for sustainable development and climate change in Zambia.

1.4   Rationale of the study

Education for sustainable development has been both an emerging and cross cutting issue. It is a topic of discussion and concern globally. Most development agendas in the 21st Century cannot do without giving attention to sustainable development (Mckeown, 2002). However, in Zambia, education for sustainable development has been receiving little attention both in education practiceand research. While this study acknowledges the efforts made by the University of Zambia and other stakeholders in providing education and training on sustainable development, more needs to be done. This is because sustainable development is an issue which requires the efforts of everyone. Considering the potential of non-formal education and its relevance to sustainable development in Zambia, there was an overwhelming need for a study on how non-formal education could be redefined in the context of education for sustainable development and climate change.

1.5 Research questions

The research questions were as follows:
   a.   to what extent has education for sustainable development been integrated in the
          education system in Zambia?
   b..   why has non-formal education continued to be viewed as an alternative to
          formaleducation?
   c.   how can non-formal education be redefined in the context of education for
          sustainable development?

1.6 Theoretical framework

This study was informed by two theories: the conceptual analysis theory of sustainable development by Yosef Jabareenand the transformative learning theory of adult learning by Jack Mezirow.

   a.   Conceptual analysis theory of sustainable development

Sustainable development is understood as development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Longhurst, 2014). In 2005, three pillars of sustainable development were affirmed during the United

Nations World Summit- *economic*, *social* and *environment* (UN, 2005).There is an increasing recognition for the consideration of these factors based on their interconnectedness, overlapping and interdependency. The nature of ESD is that it is multidisciplinary. It encourages different disciplines to enter into debate, make connections, share knowledge and work together in emergent areas.

It is on this basis that the conceptual analysis theory of sustainable development was adopted in this study. This theory is based on seven distinct concepts which comprise the theoretical understanding of sustainable development (Jabareen, 2008). Each concept represents distinctive meanings and aspects of the theoretical foundations of sustainable development. Below is a diagrammatic presentation of the conceptual analysis theory.
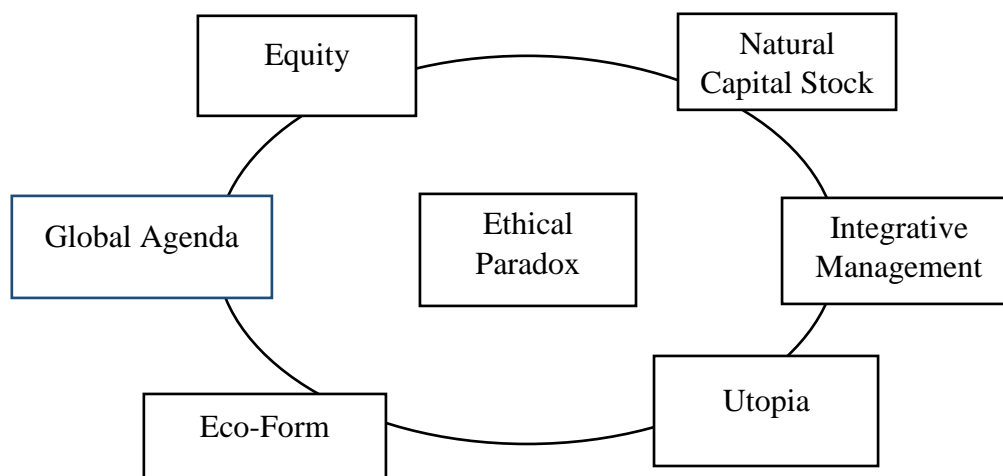

Fig 1. Conceptual analysis theory of sustainable development.

The elements of theConceptual Analysis theory include: natural capital stock, equity, eco-form, integrative management, global agenda, utopia and ethical paradox. The other six elements can be understood as the constitutive elements of the ethical paradox for the reason that the ethical paradox is currently the bedrock for the epistemological definition of sustainable development.

For purposes of clarity, the [1]*natural capital stock* refers to the natural material assets of development. These include all natural assets grouped into three categories:non-renewable, renewable, and the capacity of natural systems to absorb the emissions and pollutants.[2]*Equity* represents the social aspect of sustainable development. It is argued that equity is very important in the sense that the unjust society is unlikely to be sustainable in environment or economic terms in the long run. [3]*Eco-form* represents the ecologically desired form and design of the human habitat such as urban spaces, building and houses. The concept of [4]*integrative management* is concerned with the integration of social development, economic growth and environmental protection. The [5]*global agenda* deals with the international discourse that should be reconstructed in the context of sustainable development. The [6]*Utopia* represents visions for the human habitats based on sustainable development. This is the envisioning of a perfect society in which justice prevails, the people are perfectly content without abuses and shortages.

The ethical paradox remains the core of this theory. It is on this ethical paradox that the definition of sustainable development has been generated.It is based on a dual perspective of sustainable development. On one hand 'sustainability' is conceived as a principle of a process or state that can be maintained indefinitely. On the other hand, development is seen as environmental modification, which requires deep intervention in nature and exhausts natural resources.

The term sustainability originally belonged to the field of ecology and referred to an ecosystem's potential for surviving over time, with no alteration. When the idea of development was introduced, the thinking changed from the lens of the environment to society and capital economy (Jebareen, 2008).Consequently sustainable development tolerates diverse interpretations and practices that range between 'light ecology' which allows intensive interventions and 'deep ecology' which allows minor interventions in nature.The paradox between sustainability and development are explained in terms of ethics. It is concerned with specifying human conduct regarding good and evil (Jebareen, 2008). Concern is directed at a shared vision of values to provide an ethical foundation for the emerging world community.

The study adopted Conceptual analysis theory of sustainable development because of its emphasis on the understanding of human conduct towards the attainment of sustainable development. It also provided an appropriate explanation and clear conceptualisation of sustainable development particularly on the issue of values. It is very clear from this theory that both sustainability and development are anchored on ethics which are fundamental to human actions towards sustainable development. In other words, sustainable development should begin with morals before scientific methods are employed. In this case caring for the environment is a moral issue and not just a responsibility or an obligation as it has been conceived by other people. Linked to this theory is the transformative learning theory.

    b. Transformational learning theory is defined as learning that induces more far-reaching change in the learner than other kinds of learning, especially learning experiences which shape the learner and produce a significant impact, or paradigm shift, which affects the learner's subsequent experiences (Clark, 1993). Transformational learning is about making sense of our experiences; it is a meaning making activity. In normal learning we attributed an old meaning to a new experience, but in transformational learning, the old experience is reinterpreted from a new set of expectations (Merriam and Ntseane, 2008). Central to this theory is the process of making meaning from our experiences through reflection-*critical reflection* and *critical self-reflection*. This process is referred to as perspective transformation to reflect change within the core or central meaning structures through which we make sense of the day to day experiences (Dirkx, 1998). The understanding is that perspectives are madeup of sets of beliefs, values and assumptions that we have acquired through our life experiences.

The application of this theory to this study is based on the justification that non-formal education is transformational by nature. It operates on the basis of the needs of the learners with a view to bringing change in the lives of the learners. This change begins with attitude, values, beliefs and ultimately the overall human conduct. However, such a goal may not be

attained by the current state of non-formal education. It may require the redefinition of non-formal education in the context of education for sustainable development.

2. Literature review

2.1   Non-formal adult education in Zambia

Previously there was a belief that more investment in formal education would lead to development. This view looked at education from an economic point of view and advanced the argument that educational programmes geared to economic incentive under-pinned the greatest return to the individual as well as the modernizing national development (Mumba, 2003). Despite, the heavy investment in formal education at the time, the formal education system could not match up with the demand for education due to the growing population. It was observed that the formal education system was failing to meet the needs of the poor. Hence the need for another form of education namely non-formal education became real.

The current conception of non-formal adult education in Zambia is that it is an alternative source of education. Those who drop out of the formal education system are encouraged to explore this option. Implicit in this thinking is that non-formal adult education gives out-of-school youths and adults access to structured learning, through which they reinforce their self-esteem and help them find ways to contribute to their communities. In some cases non-formal adult education programmes have helped out-of-school youths and adults to improve their academic skills and re-enter in the formal education system (UNESCO, 2006).

In Zambia, non-formal adult education is also regarded as part of life-long learning, provided by different government ministries and NGOs (Banda, 2009). Non-formal adult education programmes are many and include, climate change education, environmental education, literacy education and numeracy, skills training, cultural activities such as music, dance, sports practices and or specific subjects. Muchanga and Nakazwe (2015) identify among others the University of Zambia, Chipembele Wildlife Education Trust, Wildlife and Environmental Conservation Society, Chongololo club and others involved in the provision of non-formal education on climate change in Zambia. Further, the Ministry of Education, Science, Vocational and Early Education provide skills training to out-of- school youths and adults.The training is provided in Trades Training Institutes situated across the country. Non-formal adult education programmes in the Ministry of Education are currently being coordinated under the Directorate of Open and Distance Education (DODE) (MOE, 2012). The Ministry of Community Development, Mother and Child Health provides essential skills training to youths and adults in vocational rehabilitation skills, and persons with disabilities (MCDMCH, 2013).

The argument for redefining non-formal adult education in the context of education for sustainable development is based on the premise that it is *flexible*, *less costly,effective*, *transformational* and *versatile*compared to formaleducationin addressing a number of emerging issues such as climate change. The flexibility of non-formal adult education can be looked at in terms of the time, content, venue, and the clientele. With regard to time, non-formal adult education programmes can be conducted at the time convenient to the learners. In terms of content, it can be based on the real needs of the learners determined by the learners or in collaboration with the providers. In certain cases the venue can be at the

convenience of the learners and based on the content to be learned. Non-formal adult education caters for the needs of all learners in society.

Non-formal adult education is less costly compared to formal education in terms of the duration and both material and human resources. For instance, non-formal adult education programmes have a shorter duration in that they take the form of a class, seminar or workshop. Often times, resource personnel could be volunteers who may be paid very little.The learning content and material can easily be organized from within the community with the active participation of the learners themselves. Due to these advantages education for sustainable development and climate change programmes can be implemented and achieved.

When properly provided, non-formal adult education can be transformational. The transformational aspect of non-formal adult education is based on two issues. These are the focus on the immediate needs of the learners and the immediate application of the knowledge acquired. The common issues associated with non-formal adult education have been poverty and illiteracy.Within this focus it is concerned with transforming individuals and communities in terms of how they perceive themselves and their environments. In other words, participants are empowered with knowledge, skills, values and attitudes to change their environment.

The versatility of non-formal adult education can be explained by the fact that it is not limited to a particular context, content, or subject. Non-formal adult education can handle a variety of issues demanding immediate solutions to society such as issues on climate change and environmental management.Further, it can be provided as a programme or project addressing a specific issue of concern to a group of people, community or society.

2.2   Adult education

The term adult education has provided definitional challenges for practitioners and scholars within and outside the discipline. First of all, it has been very difficult to arrive at a universal definition due to the fact that the term 'adult' has been used in a variety of ways.Different parameters have been used to define an adult in different contexts and countries. However, in the interest of this paper, adult education has been defined on the basis of target group and nature of the education programme.UNESCO (1976) cited by Nafukho, Amutabi and Otunga (2005) provides a comprehensive and commonly used definition of adult education when they state that:

> The concept adult education refers to the entire body of organisededucational processes, whatever the content, level, and method, whetherformal or otherwise, whether they prolong or replace initial education inschools, colleges, and universities, as well as in apprenticeship, wherebypersons regarded as adult by the society to which they belong develop theirabilities, enrich their knowledge, improve their technical or professionalqualifications, or turn them in a new direction and bring about changes in their attitudes and behaviour in the two-fold perspective of full personal development and participation in balanced and independent social, economic and cultural development (p.6).

Issues of climate change and development affect everyone in society. However, there is no doubt that most development related programmes are targeted at adults who are believed to be in a position to immediately utilise the knowledge they acquire. In the context of climate change education adult education would imply an educational process whose aim is to prepare people for effective and efficient living in their respective environments. The focus on adult education is based on the fact that by nature adults are the very actors in the development process. They are often times focussed because they are sure of what they want. Their involvement in a learning programme is often times associated with the need to satisfy their immediate needs, implying that the knowledge acquired is applied almost immediately. Therefore, based on these attributes, it remains critical to provide education on climate change to adults.

2.3 Education for sustainable development in Zambia

There is a dearth of information on education for sustainable development in Zambia. Phiri (2011) observes that there has been absence of information on attempts made to implement Education for Sustainable development in Zambia. The near effort made was a workshop held in 2006 to come up with guidelines on how Zambia was going to participate in the UN Decade on Education for Sustainable Development (UN, 2005). However, the workshop come up with a number of challenges which included; non-inclusion of ESD in many national policies, lack of partnership and collaboration among many institutions and organizations, weak implementation strategy in cases where some policies had an element of SD and also inadequate research on Education for Sustainable Development.

Despite the foregoing challenges, the relevance of ESD to Zambia cannot be over emphasized. Zambia is part of the global community concerned with unsustainabledevelopment practices. These range from insufficient use of energy, lack and absence of water conservation to increased pollution. The realisation of the impact of these practices on development as a whole, has in part necessitated the push for Education for Sustainable Development. Although very little is been done at the national level, the University of Zambia has developed educational programmes at both Undergraduate and Postgraduate levels in Environmental Education as a way of integrating ESD in the Zambian Education System (See: Muchanga and Nakazwe, 2015, and Phiri, 2011). With regard to Secondary School Education, a lot remains to be done, despite the integration of ESD elements in Geography and Science subjects.

2.4 Climate Change education in Zambia

The changes in many climatic factors such as temperature and precipitation are generally referred to as climate change.These changes have raised international concern on the need to mitigate the adverse effects of climate change to protect the environment. Sarkar (2011) acknowledges that the major impact of global climate change is manifested in gradual rise in global surface temperature. The increase in temperature will also continue to negatively impact on water. Sarkar (2011) projects that by 2025 as much as two-thirds of the World population, much of it in the developing world, may be subjected to moderate to high water stress. The impact of high temperatures on crop yields is also estimated to be negative.

The emerging issue of Climate change in Zambia is addressed through the National Climate Change Response Strategy as well as the National adaptation Programme for Action (Muchanga&Nakazwe, 2015). This is a Section that is currently housed in the Ministry of Finance and National Planning. While the presence of these policy documents is appreciated,the support and meaningful integration of climate change education remains unclear in both non-formal and formal education programmes.

The reality on the ground is that there is inadequate information on climate change education in Zambia both in research and practice. Currently, there are piece-meal community awareness programmes through non-formal education which have taken the form of community drama, literacy education and community adult education programmes and climate change activities engaged in by different clubs, associations, institutions and organizations. The media both print and electronic is also used to sensitize the public on issues of climate change. However, the use of non-formal in climate change education remains with a stigma of a second class education. As such many people tend to hold formal education in high esteem as opposed to non-formal education.

3. Materials and Methods

This study was contextualised within the constructivism research paradigm. This paradigm is interested in the understanding and rebuilding of facts (Elizondo, Alberto, Zavala, Alvarado, Suazo& Veronica. 2013).Therefore, this paradigm was adopted because we wanted to investigatefacts associated with how non-formal education could be redefined in the context of ESD.Within the framework of this paradigm, a case study research design was used to collect in-depth information on the subject understudy. Chilisaand Preece (2005) explain that a case study is a detailed study of a single detailed phenomenon or unit of analysis with the aim of making a holistic description of those particular phenomenon. The target group for this study were officers in charge of non-formal education in the Zambian government ministries (*Education, Science, Vocational and Early Education; Community Development, Mother and Child Health; Transport, Works, Supply and Communication; Health; Youth and Sport; and Agriculture and Livestock*) and 64 participants in non-formal education from two districts of Zambia namely Lusaka and Mkushi.

Purposive sampling was used to select the non-formal education officers, six government ministries and the two districts. A simple random sampling was employed to sample the participants who were involved in non-formal education. Six officers representing their respective ministries were selected on the basis of their ministries' active involvement in the provision of the non-formal education programmes. The study required respondents to provide their personal experiences in non-formal education regarding environmental protection and how non formal education could be redefined in the context of education for sustainable development and climate change. The data collection methods used include observations, focus group discussions and in-depth interviews. This was a qualitative study and the data collected was analysed qualitatively using themes as they emerged from the findings.

4. Key results and discussion

The findings of the study revealed a number of themes on how non-formal education could be redefined in the context of education for sustainable development and climate change. The key issues that emerged out of this study are: state of Non-formal education and ESD in Zambia, importance of redefining non-formal education in the light of ESD, issues to consider in redefining non-formal education, and the redefined non-formal education in the context of ESD.

4.1 The State of Non-formal Education and Education for Sustainable Development in Zambia

A number of studies have been conducted on non-formal education provided as an alternative to formal education in Zambia (see: Banda, 2009, Carmody, 2004 & Mumba, 2003). The findings of this study show that non-formal education has largely continued to be provided as an alternative to formal education with the focus on skills training, and literacy for youths and adults. For the Ministries of Education, and Community Development, their non-formal education programmes are aimed at providing an opportunity for those who missed out on formal education to get back to school (MCDSS, 2003). To this effect, the literacy and numeracy programmes provided are aimed at teaching youths and adults how to read and write and apply simple arithmetic. Once this stage is completed the learners are moved to the second level where they are prepared to sit for an appropriate examination.

It was also observed that the non-formal education was considered as a second class education system for the poor. The respondents indicated that formal education remained on demand for the reason that the labour market needed individuals with paper qualification from a formal institution. Further, the negation of non-formal education was evidenced by the absence of a clear policy on non-formal education in Zambia and lack of funding for non-formal education related programmes for farmers, youth and adults.

Similarly education for sustainable development does not seem to have a clear national framework and integration in non-formal education programmes. The study established that piece-meal environmental education programmes are organised by various government ministries and departments and non-governmental organizations to sensitise the public on issues of the environment. One sector that seems to have embraced a great deal of education for sustainable development through non-formal education programmes in Zambia is the agriculture sector. Currently a number of sustainable agricultural methods are beingused particularly by small scale farmers. It was also found that there was little integration of education for sustainable development in non-formal education programmes provided by other ministries. However, due to concentration on formal education, a number of aspects of education for sustainable development were being integrated into it. In addition, subjects such as civic education, environmental education and sciencewere targeted for the integration.

4.2 Importance of redefining non-formal education in the light of ESD

The study established that formal education has continued to be theoretical and pays little or no attention to practical education. The officer in-charge of non-formal education at the Ministry of Education Science, Vocational and Early Education indicated that a number of graduates from formal education in Zambia, complete their studies with a grounded theoretical understanding of the content, but fail to apply the same knowledge to various

aspects of their lives and worse still to safeguard their environments from degradation practices.

In this view, this study established that non-formal education remains key to the attainment of education for sustainable development in the sense that it is flexible to integrate various emerging issues in society such as climate change. It is also based on addressing the real needs of society as opposed to prescribed and construed needs. Its practical and pragmatic nature allows for easy participation of every member of the community which may result in collective action and change. Considering the relevance of education for sustainable development in today's development landscapes, the study established that these findings were consistent with several other studies (Ngaka, Openjuru, & Mazur, 2012).

Further, the study established that the realisation by the international community that formal education cannot respond to the challenges of the modern global environment has given an impetus for non-formal education to be used as a vehicle for education for sustainable development. Yasunaga (2014) and UNESCO (2006) observe that in many emergency situations formal education has no capacity to respond to the education needs of society. As such non-formal education provides an opportunity for skill and knowledge acquisition for possible immediate use in society. Further non-formal education can be adapted for multiple learning for specific individuals and communities;it provides an integral part of life-long learning. The innovative approach of non-formal education gives it an advantage over formal education to respond to various needs of society.

4.3 Issues to consider in redefining non-formal education

The study established two main issues to be considered in the redefinition of non-formal education; the goal and target group.

i.   Goal

In Zambia non-formal education has continued to be considered as an alternative to formal education due to the perception that it has less economic returns compared to formal education. Further, globally real education is equated to formal education as evidenced by formal certification (Banda, 2009, UNESCO, 2006 &Yasunaga, 2014). However, this study established that it is no-longer necessary to consider non-formal education as alternative to formal education. It was clear in this study that non-formal education has been playing a complementary role to formal education.

The study found that the goal for non-formal education should be education for sustainable development. Its focus should be clearly spelt out in the national policy on education in Zambia. Living in an environment like Zambia which is prone to diseases such as malaria and cholera emanating from lack of care for the environment, require all aspects of non-formal education to place sustainability at the centre. One respondent explained that the message of sustainability has higher chances of permeating society through non-formal education based due to its ability to accommodate the masses compared to formal education.

ii.   Target group

The target group for non-formal education in the context of education for sustainable development was found to be adults and the youth. In this regard adult education was placed at the apex of education for sustainable development for the simple reasons that when we consider one key characteristic of adult learning (Indabawa&Mpofu, 2006). They need knowledge for immediate use compared to children who may either use it immediately or bank it for the future. The issue of climate change,therefore, is the issue for today that requires the solution immediately.

4.4 The redefined non-formal education in the context of ESD.

It was found that the redefined non-formal education would probably be independent from formal education. Its core focus will be sustainable development regardless of the target group or context. In other words every educational endeavour which is non-formal in nature should be grounded in sustainability embracing social, economic and environmental aspects of sustainable development.

5. Conclusion

The main aim of this study was to investigate how non-formal education could be redefined in the context of education for sustainable development and climate change. Based on the findings, the study concluded that the goal of non-formal education should be redefined in the context of sustainable development. Non-formal education will continue to be an attractive, efficient and effective tool for addressing various educational, political and socio-economic issues confronted by humanity for many years to come. Further, its target group should include adults and the youth. Therefore, the redefined non-formal education in the context of ESD should be non-formal education for sustainable development.

6. Recommendations

The following are the recommendations of the study:

a. There is need for all stakeholders involved in environmental education in Zambia to be integrated in developing a policy on non-formal education for sustainable development.
b. There is need to deliberately engage trained adult educators in non-formal education programmes for adults and youth.
c. There is need for the Zambian government and other environmental organizations to provide mass education on the importance of non-formal education for sustainable development.
d. There is need for a study on the best practices in non-formal education for sustainable development.

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