THE ROLE OF DIALOGUE EDUCATION IN ENSURING ENVIRONMENTAL SUSTAINABILITY IN PETAUKE DISTRICT, ZAMBIA

by

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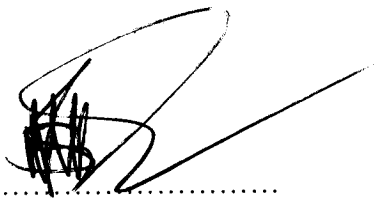
AUTHOR'S DECLARATION

I, Stephen Banda, do hereby solemnly declare that this dissertation represents my own original work. Where reference has been made to other people's views and analyses, full acknowledgements are given. This work has not previously been submitted in whole or in part for award of any degree at the University of Zambia or any other educational institution.



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CERTIFICATE OF APPROVAL

This dissertation for Stephen Banda is approved as fulfilling part of the requirements for the award of the degree of Master of Education in Adult Education by the University of Zambia.

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DEDICATION

To my late father, Wedson Zulu, and mother, Faidesi Zulu; my wife, Lizzie Mulambo-Banda, my sisters Joyce and Margaret, my brothers Raphael, Special, Chipanje and beloved son, Wezi Banda, whose support and love in my education and work will forever inspire me.

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ACRONYMS AND ABBREVIATIONS

CBO	Community Based Organization
EEPA	Environmental Education and Public Awareness
EFA	Education for All
EPA	Environmental Protection Agency
ESP	Environmental Support Programme
FAO	Food and Agriculture Organization of the United Nations
MDGs	Millennium Development Goals
MoE	Ministry of Education
MZCHC	Make Zambia Clean and Health Campaign
NGO	Non-Governmental Organization
OECD	Organization for Economic Co-operation and Development
PACODEV	Participatory Community Development non-governmental organization
PFC	Petauke Forests Community non-governmental organization
PPA	People's Protected Area
SPSS	Statistical Package for Social Sciences
TEK	Traditional Environmental Knowledge
TDAU	Technology Development Advisory Unit of the University of Zambia
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNZA	University of Zambia

Abstract

The background to this study had its genesis from the fact that little was known about how illiterate and semi-literate adults learnt about environmental sustainability in rural Zambia. In recent years, there has been a great need for education for all (EFA), not only youths or those that attend formal education. Further, in 2000, the United Nations set eight Millennium Development Goals (MDGs), which is an agenda for improving the human condition by 2015. To achieve MDGs, a country will need political, socio-economic and environmental sustainability.

The seventh MDG deals with the environmental sustainability. Among those, target nine aims to reverse loss of environmental natural resources. It was in line with this goal and the great need for education for all that this study was designed to investigate the role of dialogue education in ensuring environmental sustainability among the illiterates in rural Petauke district, Zambia. The study addressed itself to three major questions. These were: (a) How do illiterate and semi-literate adults in "Kakwewa-Lusowe watershed" community and "Showground" compound community in Petauke district learn about environmental sustainability? (b) What are the levels of awareness of environmental sustainability among illiterate and semi-literate adults in "Kakwewa-Lusowe watershed" community and "Showground" compound community in Petauke district; and (c) Is there room for additional environmental sustainability approaches to be proposed in "Kakwewa-Lusowe watershed" community and "Showground" compound community in Petauke district?

The study design was a case study. It was supported by triangulation of more qualitative than quantitative data. It, therefore, involved both qualitative and quantitative methods to collect data. The sample comprised 58 respondents.

Qualitative method used semi-structured interviews, FGDs and physical field observations. Quantitative methodology relied on the use of questionnaires administered to local leaders and randomly selected residents of the "Showground" compound and "Kakwewa-Lusowe watershed" communities in Petauke. Quantitative data collected was analyzed using simple frequency distribution tables and percentages while qualitative data from interviews and physical field observations was analyzed qualitatively by coding and grouping similar themes using constant comparative techniques. Tables produced using Statistical Package for Social Sciences (SPSS) were used in the presentation of data after analysis.

The main findings of the study were that it is evident that illiterates and semi-literate adults in the study areas learnt about environmental sustainability mainly through informal and non-formal education. This included interactive dialoguing, sharing traditional environmental knowledge, use of the mass media and demonstrations organized by government extension workers and non-governmental organizations like PFC.

The study, however, revealed that although illiterate adults learnt about environmental sustainability the levels of awareness were somewhat low in Petauke to effectively contribute to achieving the MDGs on ensuring environmental sustainability by 2015.

The study further discovered that although people had low levels of environmental sustainability, they had hope that there was room for additional approaches to curb environmental degradation in Petauke district. The approaches mentioned included upholding traditional environmental knowledge which could be more effectively shared through active participation of community members through dialogue followed by action. Community activities mentioned included intensive tree-planting, preventing cutting down trees indiscriminatingly, adoption of conservation and an organic farming system, and adoption of use of alternative cleaner renewable energy sources. The study was mainly guided by hierarchy of needs theory, critical theory and transformational learning theory.

The main conclusion of the study was that dialogue education can effectively help Petauke community dominated by illiterate people to improve environmental sustainability and bring development if utilized by adult educators and other community development agents. Dialogue education will add value to the process of education for all.

In light of the findings, the study therefore recommends that adult educators, educationists in general, and policy-makers consider adopting the use of dialogue education to help achieve education for all in our country as this would incorporate even the illiterate adults in remote rural areas. The study further suggests future research to document valuable traditional environmental knowledge that still exists in our rural communities where the majority of the Zambian population lives.

CHAPTER ONE

INTRODUCTION TO THE STUDY

1.0 Background Information

With environmental degradation threatening international peace, food security and above all economic development, ensuring environmental sustainability is one of the major prerequisites for development. Everything we do has an environmental impact. These impacts can be classified as either resource consumption or pollution but are very interrelated; we need to be mindful of what we do in our day-to-day life to reduce negative effects of global warming of the planet Earth. Ensuring environmental sustainability is one of the MDGs promised by 147 heads of state and endorsed by a total of 189 nations in September 2000. These goals are to be achieved by 2015 by all nations of the world, including Zambia.

Many studies have shown that our natural environment is "fragile and endangered" and the earth's resources are limited (Passmore, 1974; Silver and DeFries, 1991; Johnson, 1992; Revkin, 1989; Croll and Parkin, 1992; Mohamed Salih, 2001; Adams, 2003; and Namafe, 2006). The effects of environmental misuse can be felt by all of us; but usually, it is the poorest who are struck most. The poor, especially those in rural areas, depend on biodiversity for food, fuel, shelter, medicines and livelihood. Biodiversity also provides the critical "ecosystem services" on which economic development depends; those may include air and water purification, soil conservation, disease control, and reduced vulnerability to natural disasters such as floods and droughts. As such, common sense would seem to suggest that we must all learn, in one way or the other, to manage these natural resources responsibly, and share them more equitably.

It is not possible to talk about environmental sustainability without talking about community because available research (Mohamed Salih, 2001; Adams, 2003; and Namafe, 2006) shows that the community has as much effect on the environment as the environment can affect the community. Over the past few decades, natural and social scientists' understanding of the complexities of the earth system has evolved to the point

where they now recognize that the components of the system – the atmosphere, oceans, land, and associated living beings including humans – are inextricably intertwined. A change in one part of the earth system has repercussions for other parts – often in ways that are neither obvious nor immediately apparent (Silver and DeFries, 1991; Follen and Clover, 1997: 504; and Namafe, 2006). The environment means a lot to human life and humanity, hence the need for it to be preserved and improved for future generations. One effective way to do this is through adult education. Knowledge in environmental sustainability is critical in any society; and the field of adult education is probably most suited to facilitate such knowledge for the survival and development of present and future generations as it offers lifelong education through a combination of formal, non-formal and informal education in communities.

Adult education is a broad field that encompasses varied philosophies and areas of interest. It focuses specifically on the lifelong education of adults. Literacy and adult education will need to focus more than ever before on which kinds and what levels of literacy are required for each society, as well as for specific groups within that society. Adult learning is among the most basic human activity that is lifelong (Lindeman, 1956; Cropley, 1980: 3; Livneh, 1988; Smith, 1996; Fischer, 2000; Nafukho *et. al.*, 2005). One critical but somewhat neglected field of adult education is environmental adult education. Environmental adult education refers to efforts in teaching environmental issues and how individuals, communities and businesses can manage or change their lifestyles and ecosystems to live sustainably. The overarching goal of this field of study is to educate our global societies to live more sustainably (Haugen, 2006). To face the present and perhaps a distressing future, environmental adult education seems to be a relevant proposition. For those of us who believe that environmental adult education should be community based, there is no better avenue to start creating awareness of the interaction and interdependence between living organisms like humans and their surroundings than in adult education. As Lindeman (1947) argues, adult education is life and we must live it.

From the classroom to the forests, fields, streams, wetlands and grasslands, environmental adult education takes place in both formal and non-formal learning

environments and programmes. As earlier mentioned, to face the present and perhaps a distressing future, environmental adult education seems to be a relevant proposition to challenge various environmental problems connected to social and community issues to ensure environmental sustainability. Local communities face many challenges in an increasingly globalized world. A new framework for sustainability that includes environmental adult education can help them survive, and even thrive in the age of globalization. "Environmental adult education is one framework within which adult educators can facilitate collective learning opportunities for adults around ecological concerns in order to formulate concrete responses" (Haugen, 2006: 1). As such, it is a vital part of the field of adult education and a lively contributor to our ongoing festival of knowledge. It engages with concerns held by many people throughout the history of the field, while at the same time making a contemporary contribution to research and knowledge production.

To address the question of environmental unsustainability, we need both a critique of our current unsustainable ways of life and a vision of more sustainable societies. Environmental adult education can address both issues. First, it can be considered counter-hegemonic by definition. It withdraws "spontaneous consent" from the dominant hegemonic order, which is the first step in a liberatory process of developing an effective critique of environmental destruction. Without breaking the compulsion to believe in the status quo, there can be no transformative learning – the springboard for envisioning alternatives. Second, environmental adult education can build a vision of other kinds of society that are centred on environmental consciousness and dedicated to sustainability. In this way, environmental adult education can grapple with questions of unsustainability while following the emancipatory paths already laid down by the overall field of adult education. Although it can be organized in the formal education system, environmental adult education generally takes place in a non-formal education setting. This means that the organized learning can take place in many forms including vocational education, literacy education programmes in communities, on job training, and at work places (Haugen, 2006).

There is need to have adult education that is for all adults, responsive to the needs of society and sustainable as it was in Africa before the coming of the western influence through slave trade, missionaries, colonization, neo-colonization and now globalization (Mtonga, 2007). It is argued by some radical scholars that adult education in Africa in the twenty-first century should aim at promoting critical thinking to seek solutions to various challenges in society (Merriam and Ellias, 1980; Freire, 1972; Chilisa and Preece, 2005; and Giroux, 1992). Critical thinking is an essential part of education for sustainability approaches to environmental adult education of which this study is a part. It challenges us to examine the way in which we interpret the world and how our knowledge and opinions are shaped. Critical thinking and dialogue lead us to a deeper understanding of interests and issues in our communities.

Ideally, learning is a common and complex activity. Research reports elsewhere, on adult education, support the idea that teaching adults should be approached in a different way from teaching children and adolescents (Knowles, 1970; 1980; Beder, 1982; Gorham, 1984; Flaxington, 1996; Nafukho *et. al.*, 2005). Many aspects of effective teaching apply to all age groups. However, adults have had more life experiences and in many ways are differently motivated than children. Adults are more self-directed in their learning and have a greater need to know why they should learn something. Self-initiated learning is the most lasting and pervasive. In adult education, learning should be applicable to the learner's work or to other responsibilities valued by the learner (Nafukho *et. al.*, 2005). Thus, it is important that the educator knows the learner's needs and design learning activities that are relevant to those needs. The learner should be actively involved in learning, with the educator acting as a facilitator. The adult educator should recognize that adults have different learning styles and should tailor instructions or facilitations to the characteristic ways adults prefer to learn. Understanding the principles of adult learning can help educators become better facilitators of learning. The importance of these principles is recognized in formal education, non-formal education, informal and business settings.

Among the common educational techniques through which adults may learn in communities are group work, self-directed, role-playing, lecturing, demonstrations and

dialogue (Colb, 1976; Mezei, 1991; Humber, 1996: 36; Renner, 1999; Brown, 2001: 14). Many communities these days find themselves under extraordinary stress. Even in affluent communities, taking care of one another – educating children, caring for the sick, helping people who need a hand – is proving difficult. In poor communities like most rural areas in Third World countries the stresses are even more; extreme poverty, oppression, environmental injustice, failed educational systems, and diseases are making life a daily challenge. To solve problems like these takes more than individual action, it takes community action. Communities of all kinds need to work together, thinking about the problems they face in a holistic way, and working to strengthen the fabric that binds them together.

Humans are social conversational beings and are dependent on exchanges and interactions, be they verbal or non verbal. This dialogue can take the form of face-to-face communication with conversation, gestures, and facial expressions or can be a solitary activity involving internalized conversation and private reasoning. Two-way communication is accepted by Lindeman (1956) as the most important distinguishing feature of any educational process. He argues that true adult education is social education which, at that time, definitely placed it within the face-to-face dialogical activity arena and not within the verbally non-dialogical and print based educational arena. Similarly, Freire (1972; 1976) views dialogue as a social process and as such also an essential component for learning. Student passivity is the cause for declining motivation which is at the root of the educational crisis.

Firstly, Freire's emphasis on dialogue has struck a very strong chord with those concerned with community and informal education. Given that informal education is a dialogical (or conversational) rather than a curricula form is hardly surprising. However, Paulo Freire was able to take the discussion on several steps with his insistence that dialogue involves respect. It should not involve one person acting on another, but rather people working with each other. Too much education, Freire (1976) argues, involves "banking" - the educator making "deposits" in the educatee. Paulo Freire was concerned with *praxis* - action that is informed and linked to certain values. Dialogue wasn't just about deepening understanding, but was part of making a difference in the world.

Dialogue in itself is a co-operative activity involving respect. Dialogue education empowers people to defeat poverty of participation and enables learners to fully participate in their day-to-day activities required in life to achieve self-esteem and above all, self-actualization.

Dialogue education is one popular education approach to adult education used in communities, especially among the disadvantaged rural communities today. The dialogue education approach was first described by adult educator, Jane Vella in the 1980's. This approach to education draws on various adult learning theories, including those of Freire, Knowles, Lewin, Mezirow, and Bloom (http://www.globalearning.com; Vella, 2004). It is a synthesis of these abstract theories into principles and practices that can be applied in a concrete way to learning design and facilitation. Dialogue education is a form of Construtivism and can be a means for Transformative learning (Vella, 2004). Dialogue education shifts the focus of education from what the teacher says to what the learner does, from learner passivity to learners as active participants in the dialogue that leads to learning (http://www.globalearning.com). A dialogue approach to education views learners as subjects in their own learning and honours cardinal principles of mutual respect, love and open communication (Freire, 1972, 1976; Vygotsky, 1978 and Vella, 2002). Learners are invited to actively engage with the content being learned rather than being dependent on the educator for learning. Ideas are presented to learners as open questions to be reflected on and integrated into the learner's own context (Vella, 2004). The intent is that this will result in more meaningful learning that has an impact on behaviour.

Adult education, like all other forms of education, is not neutral and has often included a political and socially transformative perspective. Since Freire's work on critical literacy and its emancipatory potential, the social and political role of adult education has become a central pillar. With his motto "from reading the word to reading the world", Freire invited people to explore the social and political as well as the physical environment. In his work, Freire developed an approach to education aimed at helping adults liberate themselves from the oppression of others. To do this he first concentrated on teaching adults to "read the world" so they could then "read the word". By "reading the world" he

meant helping adults understand the differences between the world of nature and the world of culture. Nature is made by natural forces and is not subject to change by humans. Culture, on the other hand, is made by humans and can be changed by humans (Freire, 1973). We "read the world" to know what is nature and what is culture. Oppressive conditions are cultural and hence capable of being changed by humans. This method of "reading the world" and then "reading the word" was used extensively to build on the knowledge that adults possessed and to teach them to read and dialogue on themes critical to the learners, using the language that they already used to express their knowledge. Then new knowledge was introduced to stimulate adults to take actions to change their oppressive situations.

Freire (1976) contrasted this learner-centred, participatory approach in which adults helped determine the content and direction of their own education with the more traditional, school-centred education in which policy-makers, administrators or teachers determine the content and direction of education and attempt to deposit and "bank" knowledge in learners' minds even if they do not understand the value of the new knowledge. Freire (1973) discusses the dialogic nature of this pedagogy - teachers do not lecture, but continually pose questions and encourage students to be co-investigators and develop the confidence and abilities they need to not just "read the world", but to change it (Mtonga, 1986).

The environmental factor is now becoming increasingly important and can hardly be ignored in educational efforts committed to social and political goals. With the links between changes in the physical environment and current social and political problems becoming more evident, environmental adult education is assuming an important social function. It is developing into a more holistic education practice similar to the education envisaged by Freire (1972, 1973, 1976).

In many African countries, the community has played a major role in providing adult education programmes (Nafukho *et. al.*, 2005). In Zambia, adult education has transformed over years from pre-colonial to post-independence times. Msimuko (1987) has ably demonstrated the importance and all-roundness of indigenous education in pre-

colonial Zambia before it encountered western education. He says that indigenous African education emphasized social responsibility, history of an ethic group, job orientation, political participation, and spiritual and moral values. Indigenous education was transmitted orally (using dialogue) in mother-tongue. People used songs, storytelling, riddles, proverbs, dances, plays, ceremonies, lectures and discussions in indigenous education. However, with the coming of the Europeans, missionaries (Christianity and Islam) first strived to replace the African indigenous community-based holistic education system with the school-centered western education system, shrines with churches and mosques, diviners and herbalists with hospitals (Mtonga, 2007).

The Petauke community in the Nsengaland was not spared by this transformation. Today, has this transformed education system in Petauke district helped individuals gain awareness of their environment and acquire knowledge, values, skills, experiences, and also the determination which will enable them individually and collectively to solve present and future environmental problems as well as meet their needs without compromising those of future generations? Holistic education should, among others, facilitate the dissemination of knowledge about the environment's direct and indirect physical and related social impact. It should also transmit knowledge on the interaction between local activities and their effects.

Under the influence of western education system, Zambia's Eastern Province, in which we find Petauke district, has the lowest literacy rate in the country (38 per cent); and the figures are much lower in the remote areas and among the aged and women (Central Statistical Office, 2003). Results from the 2000 census reveal that the general literacy rate (proportion of literate population aged five years and above) for Zambia had stagnated at 55 per cent since 1990. Despite this, youth literacy rates (15-24 years) had declined from 75 per cent in 1990 to 70 per cent in 2000 while there had been a slight increase in adult literacy (proportion of literate population aged 15 years and above), from 60 per cent to 67 per cent (Central Statistics Office, 2003). Eastern Province has the lowest literacy levels, with the general literacy rate at 38 per cent compared to Lusaka and Copperbelt with the highest (70 per cent and 71 per cent, respectively). Functional literacy rates are even lower than this. Adult and youth literacy rates are also low in

Eastern Province compared to the rest of the provinces at 48 per cent and 50 per cent, respectively.

Results from the first comprehensive nation-wide survey on education indicate that the Eastern Province lags behind in terms of education. According to the results of the 2002 Zambia Demographic and Education Survey (ZDES) conducted by CSO, Eastern Province has the lowest primary school attendance rate (54 per cent) compared with North-western Province which had the highest primary attendance rates of 75 per cent. The survey also shows that Eastern Province had the lowest secondary school attendance rates at only eight per cent, with Copperbelt Province having the highest secondary school attendance rates of 38 per cent. Eastern Province had the highest percentage of children (15 per cent), citing household labour contribution as the reason for not attending school. The youth and children of today are the adults of tomorrow; therefore, the picture of adult illiteracy rate might remain high in Eastern province for many years to come.

This high illiteracy rate among adults in Eastern Province in general, and Petauke district community in particular, is an aspect of concern. Common sense has it that a community that has high levels of illiteracy risks being rocked with social and economic problems such as poverty, hunger, injustice, gender imbalance, drug abuse, diseases, land degradation and other environmental problems that can hinder development. Existence of hunger, poverty, lack of clean drinking water and frequent occurrence of environmental issues of drought and floods in Petauke are equally of great concern.

So far, to the knowledge of the researcher, no study has been carried out to establish how communities with high illiteracy rate in Petauke learn about how to protect and improve their natural environment for current and future generations' development. This study is aimed at filling in this knowledge gap.

1.1 Statement of the Problem

The overall research problem addressed in this study is to investigate how illiterate adults in Petauke district learn about environmental sustainability. Petauke district has high illiteracy as well as rampant environmental degradation that needs addressing.

Knowledge and access to information are essential for effective environmental management and have significant impacts on the economy and the livelihood choices people make. Indigenous knowledge systems based on centuries of observation and continually developed in response to changing social and environmental conditions are an important resource for many rural people. However, this traditional education system was greatly disturbed by the coming of Europeans to Zambia in general and Petauke in particular. When Europeans started coming to Zambia, as part of their evangelizing and oppression mission, they introduced literacy into what had been a completely oral society for the purpose of creating spheres of influence and enabling converts to read the bible. Unlike the caring indigenous education system which was all-round lifelong and for all, western education system is selective, disadvantaging the majority rural poor. Whereas the knowledge was considered a right and shared by all in the indigenous education system, it is now reserved for few privileged members of the Petauke community who are literate in the Western education system.

Although blessed with abundant natural resources, there is no question that extremely high levels of poverty exist in Zambia in general and Petauke in particular today. The incidence of this poverty is higher in rural areas than in urban areas and more extreme among female-headed households than male headed households and this characteristic cuts across all provinces. Poverty is one of the drivers of environmental degradation, largely because the poor have limited choices and depend heavily on the natural resource base.

The livelihood of "Kakwewa-Lusowe watershed" and "Showground" compound communities of Petauke is mainly dependent on activities that have to do with the use of the natural environment. As reported by the Catholic Centre for Justice, Development and Peace (CCJDP), despite abundant natural resources, easy accessibility and high potential in agriculture and tourism, there has been significant environmental degradation in the district contributing to reported incidences of floods, drought, poor harvests, shortages of safe and clean water, hunger and visible high poverty levels among indigenous residents (http://www.ccjdp.org.zm/justice_solidarity.htm). We do not know

how adults in these two Petauke communities, with high illiteracy rates, learn about environmental sustainability. This study was an attempt to solve this problem.

1.2 Purpose of the Study

In view of the above, this study sought to investigate the role of dialogue education in ensuring environmental sustainability among the illiterates and semi-illiterates in Petauke district of Zambia.

1.3 Objectives of the Study

Arising from the purpose of study highlighted above were the following specific objectives:

(a) to find out how illiterate and semi-literate adults in "Kakwewa-Lusowe watershed" community and "Showground" compound community in Petauke district learn about environmental sustainability.

(b) to establish levels of awareness of environmental sustainability among illiterate and semi-literate adults in "Kakwewa-Lusowe watershed" community and "Showground" compound community in Petauke district.

(c) to access possibilities of proposing additional approaches to "Kakwewa-Lusowe watershed" and "Showground" compound communities in Petauke as solutions to curb environmental degradation.

1.4 Research Questions

In order to achieve the objectives of the study, the following research questions were formulated:

(a) how do illiterate and semi-literate adults in "Kakwewa-Lusowe watershed" community and "Showground" compound community in Petauke district learn about environmental sustainability?

(b) what are the levels of awareness of environmental sustainability among illiterates and semi-literates adults in "Kakwewa-Lusowe watershed" community and "Showground" compound community in Petauke district?

(c) is there room for additional environmental sustainability approaches to be proposed in "Kakwewa-Lusowe watershed" community and "Showground" compound community in Petauke district?

1.5 Significance of the Study

This study is important as it may contribute to the literature on the role of dialogue education in environmental sustainability in a community with high illiteracy rate. The findings may help illiterate, semi-literate and literate adults in Petauke communities value the need to share and use knowledge on environmental sustainability in order to curb the diminishing of natural resources and reduce the rate of global warming and its climate change effects. The findings may further help improve valuing of natural resource uses to further sustain the rural people's livelihood, generate income and bring about real development in their communities. The findings could also add to the body of knowledge on environmental adult education and stimulate further research in the field of adult education.

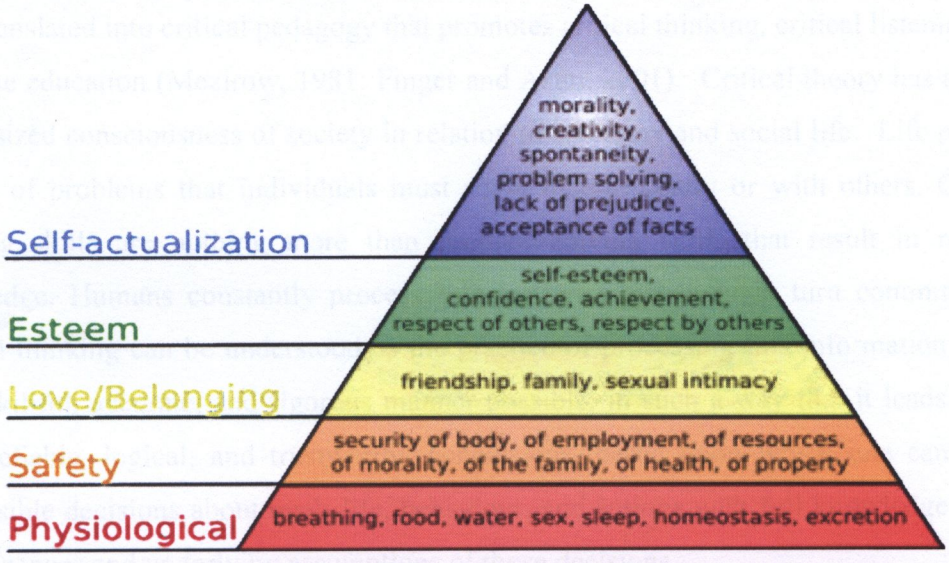
1.6 Theoretical Framework

Theory and practice are intertwined. We need theory to put into practice almost anything in this world. For example, before we make a table we first think or visualize what it should look like before we start the actual practice of making it. The same applies if we are to understand how adults learn; we need to understand the learning theories underlying the complex learning process. The general theory which guide how adults learn is andragogy - an educational approach promoted by Malcom Knowles (1970; 1980) characterized by learner-centredness (i.e., the student's needs and wants are central to the process of instruction and learning), self-directed learning (i.e., students are responsible for and involved in their learning to a much greater degree than traditional education), and a humanist philosophy (i.e., personal development is the key focus of education). Related concepts include; facilitated learning, self-directed learning, experiential learning, critical thinking, and transformational learning.

This study is mainly guided by basic needs, critical thinking and transformative learning theories. An American psychologist, Abraham H. Maslow, is particularly associated with

"needs" theory. In 1943 he published a classification of needs into five overlapping categories, which have found wide acceptance, to the point where the phrase "hierarchy of needs" is now commonly used without explanation (Maslow, 1943).

Figure 1: Maslow's Hierarchy of Needs



Source: adapted from Maslow, A. (1943).

Maslow's theory states that until you satisfy the lower needs - starting with survival - you cannot move forward through the other needs to achieve self-actualization. Maslow also suggested that people are in a continuous state of motivation, and that the nature of that motivation is variable and complex. Further, people rarely reach a state of complete satisfaction, except for a short time. The basic physiological needs arise from a person's instinct to stay alive and reproduce his or her kind – for air, water, food, sleep, sex, to mention just but a few. In all except the most primitive communities, these needs largely take an intermediate form of a need for money. As one need is satisfied, another overlapping need assumes prominence and motivates further effort until satisfied – when yet another clamours, as it were, for satisfaction. Hence, we should think of a sequence or hierarchy of needs, rather than a simple list of human needs driving us on. In adult education, the recognition of this hierarchy is cardinal as we help adult learners attain the much desired self-actualization. *Self-actualization needs* (in Maslow's Hierarchy) consist of the need for self-realization, continuous self-development and the process of becoming

all that a person is capable of becoming. These adult learners should be helped understand and appreciate the need to use the natural environment in a sustainable manner to still meet their never ending needs of tomorrow and those of future generations. This calls for the need to develop a literacy of critical thinking.

In the field of adult education it is Jürgen Habermas' (1981) Critical Theory which has been translated into critical pedagogy that promotes critical thinking, critical listening and dialogue education (Mezirow, 1981; Finger and Asún, 2001). Critical theory has always emphasized consciousness of society in relation to economy and social life. Life poses a variety of problems that individuals must solve independently or with others. Critical thinking skills are nothing more than problem-solving skills that result in reliable knowledge. Humans constantly process information which they in turn communicate. Critical thinking can be understood as the practice of processing this information in the most skillful, accurate, and rigorous manner possible, in such a way that it leads to the most reliable, logical, and trustworthy conclusions, based upon which one can make responsible decisions about one's life, behaviour, and actions with full knowledge of the consequences and underlying assumptions of those decisions.

To assess the value of critical thinking in adult education it is useful to compare the fundamental principles of critical thinking with those of the dominant philosophies of adult learning. When we juxtapose the methods and objectives of critical thinking with those of the community education and development, self-directed learning, and transformative learning, we find some points of conflict but many moments of convergence. On the whole, then, we can say that critical thinking is consistent with the values of adult education.

The theory of transformative learning was developed by Mezirow (1991), who stresses that making meaning is nothing else than making sense of an experience. We interpret it and we use the interpretation, i.e., we are making meaning to guide our decision-making or action, and thus we learn. Transformative learning (or transformational learning) is a process of getting beyond gaining factual knowledge alone to instead become changed by what one learns in some meaningful way. It involves questioning assumptions, beliefs

and values, and considering multiple points of view, while always seeking to verify reasoning. At the core of transformative learning theory, is the process of "Perspective Transformation" which Mezirow (1991) saw as the same concept as Paulo Freire's "conscientization" and Jürgen Habermas' "emancipatory action" domain of learning. The theory posits that for learners to change their *meaning structures* - that is, beliefs, attitudes, and emotional reactions - they must engage in critical reflection on their experiences, which in turn leads to a transformation of perspective. Mezirow's (1991) phases of perspective transformation begin with a disorienting dilemma and then moves through stages which include emotional release, sharing with others, critical reflection, and, finally, action.

The transformative learning theory is an adult education based theory that suggests ways in which adults make meaning of their lives. It looks at "deep learning," not just content or process learning, but examines what it takes for adults to move from a limited knowledge of knowing what they know without questioning (usually from their cultures, families, organizations and society). It looks at what mechanisms are required for adults to identify, assess and evaluate alternative sources of information, often sources that may look at how adults can identify, assess and evaluate new information, and in some cases, reframe their world-view through the incorporation of new knowledge or information into their world-view or belief system. Adults' learning of both instrumental and communicative nature is characterized by a reflective way of thinking, according to Mezirow (Ibid). *Instrumental learning* means that an individual is occupied with task-oriented problems. For this kind of learning s/he needs different skills or techniques to exercise, for example, by a simple learning of how to walk or very complicated how to build an aircraft. *Communicative learning* means to look for cohesion in what others are saying or get a balance between what we see and understand. In communicative learning the approach is interpretative, i.e., we want to understand what is meant through speech, writing, drama, art, or dance by others. It is in the concept of reflection that he sees a typical way of human thinking.

Education of most worth for Africans in the twenty-first century would be the type of education which, through dialogue education, produces informed citizens who are

capable of using critical thinking in making intelligent decisions about everyday challenges. This type of education must make a person think for him/herself. This is the type of education Freire (1972, 1973, 1976) calls education for critical consciousness. This type of education should enable people to work by themselves; learn how to gather, analyze, synthesize and assess information; learn how to analyze questions and problems; learn how to enter sympathetically into the thinking of others; be able to make effective economic, political and social contributions to their own society and learn how to deal rationally with conflicting points of view.

1.7 Operational Definitions of Terms

The following terms in the study are defined as follows:

Adult: Humans aged 15 years and above are considered adults in this study.

Adult education: In this study, adult education is taken to be a lifelong learning process concerned with ways and means of helping adults learn by exploring, critically investigating, experimenting, acquiring and using knowledge and skills that adults essentially require for a fruitful everyday life.

Learning: In this study, learning is the acquisition of new skills, knowledge or attitudes which can be demonstrated by a relatively permanent change in an individual's capabilities and/or behaviour.

Illiterates: In this study, the term is used as per the definition provided by Central Statistical Office (2003) arising from the 2000 national Census of Zambia. The Census report (Central Statistical Office, 2003) defines literacy as acquiring the skills of reading, writing and arithmetic and the ability to apply them to one's day-to-day life. This study, thus, defines "illiterates" as people who cannot read, write, or calculate in any language, even if they may have been to school.

Dialogue: This is the act of taking part in a reciprocal conversation, discussion, or negotiation. In this study, this definition is applied to the act of the adult learner in the field of adult education whose goal is to experience the process of deep listening and communicating rather than the outcome of a decision.

Communication: In this study, communication is defined as the process by which meaning is exchanged between individuals through a common system of symbols, signs or individual symbols.

Group: Humans are small-group beings. Most of us spend much of every day as part of some kind of group. In this study, group has been defined in line with Johnson and Johnson (1994: 13) as two or more individuals in the face-to-face interaction, each aware of his or her membership in the group, each aware of others who belong to the group, and each aware of their positive interdependence as they strive to achieve mutual goals. A group is able to share experiences, to provide feedback, to pool ideas, to generate insights, and provide an arena for analysis of experiences. The group provides a measure of support and reassurance. Moreover, as a group, learners may also plan collectively for change action. Group discussion is a very effective learning method. Participation is a fundamental process within a group, because many of the other processes depend upon participation of the various members.

Group dynamics: In this study, group dynamics refers to the study of groups, and also a general term for group processes. Relevant to the fields of psychology, sociology, education and communication studies, a group is two or more individuals who are connected to each other by social relationships. Because they interact and influence each other, groups develop a number of dynamic processes that separate them from a random collection of individuals. These processes include norms, roles, relations, development, need to belong, social influence, and effects on behaviour. The field of group dynamics is primarily concerned with small group behaviour.

Community: In this study, "community" has been defined as a group of interacting people living in a common location. In the physical world, communities are typically groups of people (a village, compound or a town, for instance) held together by some common identity or interest.

Dialogue education: This is a popular education approach to adult education first described by educator Jane Vella in the 1980's. It shifts the focus of education from what the teacher says to what the learner does, from learner passivity to learners as active participants in the dialogue that leads to learning. This approach to education draws on various adult learning theories, including those of Freire (1973), Knowles (1970), Lewin (1958), Vygotsky (1978), Mezirow (1991) and Harbermas (1981). In this study this definition is applied to a synthesis of these abstract theories into principles and practices

that can be applied in a concrete way to learning design and facilitation. Dialogue education is a form of Constructivism and can be a means for Transformative learning.

Transformative learning (or transformational learning): In this study, this is a process of getting beyond gaining factual knowledge alone to instead become changed by what one learns in some meaningful interactive way. It involves questioning assumptions, beliefs and values, and considering multiple points of view, while always seeking to verify reasoning.

Constructivism is a philosophy of learning founded on the premise that, by reflecting on our experiences, we construct our own understanding of the world we live in. Each of us generates our own "rules" and "mental models," which we use to make sense of our experiences (Vygotsky, 1978). Learning, therefore, is simply the process of adjusting our mental models to accommodate new experiences. It is a search for meaning. Therefore, learning must start with the issues around which students are actively trying to construct meaning. Under constructivism, the purpose of learning is for an individual to construct his or her own meaning, not just memorize the "right" answers and regurgitate someone else's meaning. Since education is inherently interdisciplinary, the only valuable way to measure learning is to make the assessment part of the learning process, ensuring it provides students with information on the quality of their learning. In other words, learning involves constructing one's own knowledge from one's own experiences.

Environment: In this study, the concept is used to refer to the natural environment, commonly referred to simply as the environment. It is a terminology that is comprised of all living and non-living things that occur naturally on Earth or some region thereof. Earth is the only planet in the universe where life is known to exist.

Sustainability, in a general sense, is the capacity to maintain a certain process or state indefinitely. In this study, the concept has been applied more specifically to living organisms and systems.

Environmental sustainability: Meeting the needs of the present without compromising the ability and opportunities of future generations to meet their needs. Encompasses, e.g. keeping population densities below the carrying capacity of a region, facilitating the renewal of renewable resources, conserving and establishing priorities for the use of non-

renewable resources, and keeping environmental impact below the level required to allow affected systems to recover and continue to evolve.

Sustainable development: In this study we follow the Brundtland definition (United Nations, 2006) which refers to development that meets the needs of the present without compromising the ability and opportunities of future generations to meet their own needs.

Ecosystem: In this study, this concept is defined as the dynamic complex of human, plant, animal, bird and micro-organism communities and their non-living environment interacting as a functional unit.

Livelihood: The definition used in this study is that provided by Chambers and Conway (1992) which states that a livelihood comprises people's ways of life and activities that they are engaged in to earn a living.

1.8 Delimitation of the Study

The study was limited to an investigation of adults in "Kakwewa-Lusowe watershed" and "Showground" compound areas of the vast Petauke district. The views and experiences of people in these areas were of used in this study. Information was triangulated on the following people: agricultural extension officers, forestry officers, Zambia Wildlife Authority (ZAWA) officers, Ministry of Education (DEBS), department of Water Affairs, Social Welfare and Community Development, Environmental Council of Zambia officers and Petauke District Council officers as local government.

1.9 Limitations of the Study

One of the limitations of the study was the lack of adequate literature on the role of dialogue education on environmental sustainability. There seems to have been no studies carried out in Zambia particularly among adult educators on the role of dialogue in ensuring environmental sustainability despite the critical significance of the natural environment to humanity. Another limitation was the limitation of funds by the researcher to cover a larger area of the district over a longer period of time than six weeks to make more observations during fieldwork as participant observer.

Organizing focus group discussions (FGDs) proved difficult especially in the "Showground" compound as few members of the Resident Development Committee

(RDC) were not willing to participate in the discussion. Some were even asking to be paid some participation allowance. It took the researcher a lot of persuasion and patience to constitute a group for discussions.

1.10 Organization of the Study

This dissertation is organized into six chapters. The first chapter has an introduction which gives a synopsis of the background to the present study. Further, an attempt has been made to explain certain concepts that are used in the study in order to make them clear to the reader. The chapter also comprises the statement of the problem, purpose, objectives, questions, significance, theoretical framework, delimitations and limitations of the study.

The second chapter reviews related literature on how illiterate and semi-illiterate adults learn about environmental sustainability. It has attempted to analyze some of the existing literature on the subject of awareness of environmental sustainability among illiterates at a global level and Africa.

Chapter Three discusses the methods of data collection used in the study. The chapter is divided into sections subsumed under the following headings: the research design, study area, study population, the sample and sampling procedures, data collection procedures, research instruments and data analysis.

The research findings are presented in Chapter Four. Chapter Five consists of discussion and analysis of the findings of the study. Chapter Six deals with the summary, conclusion and recommendations. This chapter ends with suggestions for further research. The subsequent pages consist of the bibliography and appendices.

CHAPTER TWO

REVIEW OF LITERATURE

2.0 Introduction

Additional information on the subject matter in this study was obtained from past written materials. Literature search was employed because it offers the greatest opportunity to benefit from the experience of others. Documents consulted here included books and journals, annual reports for various organizations, government policy documents, international and local publications, and conference, workshop and seminar presentations, oral communication and the Internet.

In this chapter relevant literature on the role of dialogue education in ensuring environmental sustainability among illiterates was reviewed. The literature related to three issues is discussed in detail:

1. How illiterate and semi-literate adults learn about environmental sustainability;
2. Awareness of environmental sustainability among illiterate adults in rural communities; and
3. Possible approaches to curb environmental degradation in rural communities.

2.1 How Illiterates Learn about Environmental Sustainability

Written literature on local studies was not available due to lack of studies on how illiterates learn about environmental sustainability in Zambia. However, the researcher reviewed a number of international published literature related to the issue and further reviewed few dissertations. For instance, Martha Johnson (1992) states that aboriginal Dene of Canada used informal traditional environmental/ecological knowledge (TEK) to learn about environmental sustainability which was mostly shared verbally in their Dene language of northern Canada. Traditional environmental knowledge gained international recognition through such documents as the *World Conservation Strategy* (1980) cited in Johnson (1992) and *Our Common Future* (Brundtland, 1987). Both reports emphasized

the need to use directly the environmental expertise of local people in managing natural resources.

For many indigenous (aboriginal) people, TEK is at the heart of their cultural identity and remains a viable aspect of their way of life. For the rest of the world, apart from the ethical imperative of preserving cultural diversity, TEK is important for many tangible and practical reasons (Johnson, 1992) cited below:

- *New biological and ecological insight:* Fresh insight can be derived from perceptive investigations of traditional environmental knowledge systems.
- *Resource management:* Much traditional knowledge is relevant for contemporary natural resource management in areas such as wetlands, tropical moist forests, circumpolar regions, high-altitude dry land, and coastal areas.
- *Protected areas and conservation education:* The 'protected area' concept may be promoted to allow resident communities to continue their traditional lifestyles, with the benefits of conservation accruing to them. Traditional knowledge may be used for conservation education, especially where the local community benefits from the protected area.
- *Development planning:* The use of traditional knowledge may benefit development agencies in providing more realistic evaluations of production systems, natural resources, and the environment.
- *Environmental assessment:* The time-tested and in-depth knowledge of indigenous peoples about their habitat is a valuable resource in assessing the social and environmental impacts of proposed development projects.

As Skinner (cited in Mtonga, 1980: 116) puts it, "adaptations of populations to varying ecological zones is a function of environment, technical inventories, social organizations and ritual practices."

Reporting on findings on environmental sustainability among Dugli-Jawarra People's Protected Area (PPA) in India, Phukan (2005) noted that sustaining the incomes of forest communities while conserving biodiversity can be a challenge. Biswa Ranjan Phukan further reports, however, that a new approach to forest management in India is being

implemented to try to change the attitude of economically poor people who might have otherwise dismissed conservation - and eschewed related behaviours - as a threat to their lifestyles and source of financial stability. The new approach is community-based resource management jointly shared by the villagers and government forestry officials. In fact, the author suggests that the main thrust of the Dugli-Jawarra's People's Protected Area saw villagers and the forest department working together to adopt management strategies based on local community participation and empowerment, including:

- income generation opportunities through skill development;
- awareness campaigns;
- lectures on biodiversity conservation;
- promotion of non-destructive harvesting;
- equitable sharing of benefits from the managed forests and
- engagement in various village development activities.

Furthermore, research shows that:

- Villagers have learned new management skills, such as participatory forest protection, silviculture, how to sustainably harvest forest products, and primary processing of Non-Timber Forest Products (NTFPs);
- The improved infrastructure in the Protected People's Area (PPA) helps villagers trade their products;
- *Improved skills and market access allows villagers to sell directly to consumers,* rather than through a middle person, meaning they get better prices for their products;
- Villagers are now more likely to make decisions as a group, rather than acting for individual gains;
- The joint forest management system has empowered villagers to discuss needs and aspirations with forest officials; and
- The new forest policies have rehabilitated the Dugli-Jawarra forests. The policies have encouraged a shift in the approach from forest management for timber production to a multiple use framework focusing on NTFPs and poverty alleviation of forest-dependent communities.

What types of communication approaches have contributed to these positive impacts? According to Phukan (2005), part of the equation is a democratic, participatory structure guiding the decision-making process for Forest Protection Committees (FPCs) and Village Forest Committees (VFCs). Every member apparently has an equal opportunity to express his or her opinion, and the final decision is made by majority decision.

Elsewhere in Ghana, Participatory Community Development (PACODEV) (2004) reveals that illiterate women in the area around the village of Naga, in Kassena Nankana district in northern Ghana use video tapes depicting environmental degradation and possible measures to mitigate the crisis to train, learn and educate others as well as devise community plans for the management of natural resources. In November 2003, a women-led non-governmental organization (NGO) Participatory Community Development (PACODEV) provided training for 25 women from five villages to act as community planning facilitators to guide the planning process. One hundred and twenty women from these villages formed community-planning groups, each with 24 members. Throughout the training, video recorders and cameras were used as training tools, and to record examples of environmental degradation. The women were then able to use these recordings in the planning sessions to identify areas where action was needed. The equipment was also used to show video documentaries borrowed from the Ghanaian Environmental Protection Agency (EPA) and the Department of Food and Agriculture of Kassena Nankana District (DFAKND). The video recordings and drawings helped to widen the discussions in the planning groups about environmental problems, including soil erosion, forest clearance, bush fires, drying streams, and depleted fish stocks in the rivers. The report states that since 95 per cent of the women were illiterate, the use of videos and drawings rather than written texts enabled them to participate fully in the training and planning sessions, and make their voices heard in their own language.

The resulting community plans prepared by the women's groups included measures to prevent bush fires and to use natural resources in more sustainable ways. They also proposed planting trees to prevent further soil erosion, as well as to provide fruits, fodder for animals, and fuelwood for domestic use. The women's plans were then integrated into one plan for the Naga area reports, which was presented to the Kassena Nankana district

assembly. This shows how significant illiterate people can be to the development of communities when empowered with active participation.

Mtonga (1980) reveals that *nyau* (zoomorphic animals) characters among the Chewas and some Nsengas of Eastern Province in Zambia teach a lot on the relationship between humans and animals. For instance, it is very common in the dry season on the day of *nyau* performance for the *nyau* characters masqueraded as elephant (*njovu* or *nzovu*), zebra (*mbizi*), python (*nsato*), tortoise (*fulu*), jackal (*nkhandwe*), to name but a few, to be seen to go to waterholes very early in the morning to drink water before appearing to the people. Mtonga reports that these zoomorphic animals (*nyau*) slowly march through the dry savannah grasslands, which at that time of the year, have been burnt but there are still patches of grass scattered here and there. This natural and physical setting helps to make the scene more realistic.

For thousands of years, indigenous peoples around the world have used knowledge of their local environment to sustain themselves and to maintain their cultural identity. Only in the past few decades, however, has this knowledge been recognized by the Western scientific community as a valuable source of ecological information. Today, a growing body of literature attests not only to the presence of a vast reservoir of information regarding plant and animal behaviour but also to the existence of effective indigenous strategies for ensuring the sustainable use of local natural resources.

Chipili (2006), found that informal learning through dialogue, posters and films were the most popular methods used for environmental education among refugees from Congo at Kala Camp in Kawambwa, Zambia.

2.1.1 The Concepts of Literacy and Illiteracy

Although the history of literacy goes back several thousand years to the invention of writing, what constitutes literacy has changed throughout history. The concept of illiteracy does not have a universally accepted definition. In simple terms, illiteracy is the state of not knowing much about a subject to function fruitfully in one's life. In its earliest uses, the term literacy referred solely to the ability to read and write; one either could or could not. When you cannot fill out a voting ballot, read with comprehension a

local newspaper, apply for a better job, or even understand street signs life can be difficult to navigate. This is what each day is like for the approximately 860 million people worldwide who do not know how to read. According to the United Nations Educational, Scientific and Cultural Organization (www.unesco.org and UNESCO, 1998), about two-thirds of all illiterate people are women.

Literacy, broadly conceived as the basic knowledge and skills needed by all people in a rapidly changing world, is a fundamental human right. In every society literacy is a necessary skill in itself and one of the foundations of other life skills. There are millions, the majority of whom are women, who lack opportunities to learn or who have insufficient skills to be able to assert this right. The challenge is to enable them to do so. This will often imply the creation of preconditions for learning through awareness-raising and empowerment. Literacy is also a catalyst for participation in social, cultural, political and economic activities, and for learning throughout life (UNESCO, 1998). Adult educators should, therefore, commit themselves to ensuring opportunities for all to acquire and maintain literacy skills and to create in all communities a literate environment to support oral culture through dialogue education. The provision of learning opportunities for all, including the unreached and the excluded, is the most urgent concern in Zambia and many other third world countries so that people can live their lives to the fullest.

Today, when we speak or think of "literacy," just what is it that we have in mind? Does the term convey the same meaning to each of us? Has that meaning changed over time, and if so, what factors are responsible? First, the argument is often made that literacy is an ever-expanding concept, with new requirements added regularly to society's definition of a literate person. Second, in contrast to those who see the definition of literacy changing through an additive process, there are many who believe its definition has been, or should be, *fundamentally* altered as a consequence of a number of technological and/or socio-economic factors. Definitions of literacy today are multiple, complex, shifting, and often at odds with each other. Today, in Zambia we generally understand literacy as describing - at the minimum - the ability to read, write, spell, listen and speak. But, many literacy experts see that definition as too confining. Many literacy researchers and

scholars want to define the term only within the context of a specific society, rather than to attempt a universal definition. Further, in modern times, illiteracy is seen as a social problem to be solved through "education for all" citizens (Ministry of Education, 2008).

As alluded to earlier, traditional approaches to literacy focus on the skills of reading and writing texts. Reading texts involves processes of decoding and comprehension and is a cognitively demanding task for new readers (Just and Carpenter, 1987; Snow and Strucker, 2000). The reader must use decoding skills to convert the printed text into the mental equivalent of spoken words while at the same time constructing a mental understanding of what these words mean – that is, comprehend what the text is saying. These two processes interact, and they can help or detract from each other.

For fluent readers, the process of text decoding is automatic, and most of the reader's cognitive resources are used in understanding the meaning of the text. Conversely, an understanding of the text topic helps the reader figure out an unfamiliar word or difficult passage. However, the process is slow for readers with limited decoding skills and they spend more of their cognitive resources on the act of decoding. Consequently, there are fewer cognitive resources available for understanding the meaning of the text, and the slowness of the process makes it more difficult for readers to keep their understanding in memory so as to support decoding and continued comprehension. Also, the more unfamiliar or complex the subject matter of the text, the more challenging is the task of comprehension.

Decoding, especially the sounding out of words (in alphabetic scripts), is a major problem for adult illiterates, as research in the United States of America (Perfetti and Marron, 1995) and in the Third World (Abadzi, 2003) has shown. On the other hand, adult literacy learners have an advantage over young readers in that they often bring a strong sense of purpose, a significant amount of world knowledge, and – for those learning to read their mother-tongue – a significant spoken vocabulary that they can use to help with decoding. While the specific purposes and background knowledge vary significantly among adults, the more the text deals with topics that are familiar and interesting to adult learners, the more mental resources will be available to focus on

building and using decoding skills, and the more motivated the learners will be to continue their engagement in the reading process. As decoding skills and comprehension strategies develop, these literacy skills can become more self-regulated and be used to understanding increasingly challenging texts. They become a significant resource for further learning throughout one's lifetime (Chall, 1999).

2.1.2 Adult Learning as a Social Process

Adult learning is best understood through the philosophy of andragogy promoted by Malcom Knowles. Knowles (1970, 1980) was an associate and student of Eduard Lindeman whose works were highly influenced by Dewey (1916, 1933 and 1938). Philosophy is always considered an adult subject and equated with knowledge that is infinite, ultimate and absolute. "One of the important characteristics of philosophy is generation of critical thinking, reasoning, and reflection on any problem or subject area related to human activity" (Shirur, 1997: 12). Andragogy literally means leader of humans (*andr-* is Latin for "man" and *agogus* is Latin for "leader of"). Dusan Savicevic, a Yugoslavian educator, made Knowles aware of the term "Andragogy" in 1967 (Knowles, 1990). The term was actually coined by a German educator, Alexander Kapp, way back in 1833. He used it to describe elements of Plato's education theory. Knowles had already begun building a comprehensive theory of adult learning that is anchored in the characteristics of adult learners. Simply put, andragogy is the science and art of helping adults learn. Beginning with concepts researched by Cross (Adult Learning Theory), Gagne (Conditions of Learning), Houle, Rogers (Experiential Learning), Tough, and others, he developed the andragogical model based on several assumptions that differed from the accepted pedagogical models. These include:

1. *The need to know* – Adults need to know why they need to learn something before undertaking to learn it.
2. *The learner's self-concept* – Adults have a self-concept of being responsible for their own decisions, for their own lives. Once they have arrived at that self-concept they develop a deep psychological need to be seen by others and treated by others as being capable of self-direction. As a person matures, his or her self-concept moves from a dependent personality towards a self-directing human being.

3. *The role of the learner's experience* – Adults come into educational activity with both a greater volume and a different quality of experience from youths. An adult accumulates a growing reservoir of experiences as one matures which serves as a rich learning resource. For an adult, personal experiences establish his or her self-identity and are considered highly valuable. Adult earning is integrative. The adult learner brings a breadth of knowledge and a vast array of experiences to the learning situation. Adults learn best when they use what they already know and integrate new knowledge and skills into this bank of knowledge. In the event this new knowledge or skill is in direct opposition to what the learner already knows or believes, there is a possibility of conflict, which must be addressed immediately.
4. *Readiness to learn* – Adults become ready to learn those things they need to know and be able to do in order to cope effectively with their real-life situation. The readiness of an adult to learn is closely related to the developmental tasks of his or her social roles.
5. *Orientation to learning* – In contrast to children's and youths' subject-centered orientation to learning (at least in school), adults are life-centered (or task-centered or problem-centered) in their orientation to learning. There is a change in time perspective as an individual matures, from one of future application of knowledge to immediacy of application; thus an adult is more problem-centered than subject-centered.
6. *Motivation* – While adults are responsive to some external motivators (better jobs, promotions, higher salaries, and the like), the most potent motivators are internal pressures (the desire for increased job satisfaction, self-esteem, quality of life and the like) (Knowles, 1990: 57-63).

Knowles (1970) was the first to clearly theorize how adults learn and describe adult learning as a process of self directed inquiry. Adults differ from children not only with regard to physical characteristics but also in their learning histories, psycho-social attributes like values, attitudes, interests and so on, because they are constantly interacting with dynamic, complex and even explosive environments outside. In short, Knowles argued that:

- Adults have a need to know why they should learn something. An adult has to consider it important to acquire the new skill, knowledge or attitude.
- Adults have a need to be self-directing and decide for themselves what they want to learn.
- Adults have a far greater volume and different quality of experiences than young people so that connecting learning experiences to past experience/s can make the learning experience more meaningful and assist the participant to acquire the new knowledge.
- Adults become ready to learn when they experience a life situation where they need to know.
- Adults enter into the learning process with a task-centred orientation to learning.
- Adults are motivated to learn by both extrinsic and mostly intrinsic motivation (Knowles, 1990).

Knowles' theories have formed the basis of much of the current adult learning theory. So how can these theories be applied to the real world of facilitating learning? As an educator you can provide real or simulated experiences through which the learner can experience the positive benefits of knowing and the negatives of not knowing. Teaching should be commenced by creating a climate of mutual trust and clarification of mutual expectations with the learner. In other words, a cooperative experiential learning climate. Adults are *autonomous* and *self-directed.* They need to be free to direct themselves. Their teachers must actively involve adult participants in the learning process and serve as facilitators for them. Specifically, they must get participants' perspectives about what topics to cover and let them work on projects that reflect their interests. They should allow the participants to assume responsibility for presentations and group leadership. They have to be sure to act as facilitators, guiding participants to their own knowledge rather than supplying them with facts.

Learning, according to Dewey (1916, 1933 and 1938) is something that students do for themselves. The educator's responsibility is to organize, stimulate, instigate, and evaluate the highly complex process of education. The educator (teacher) provides the setting that is conducive to learning. In so doing, the educator also becomes a learner, for the

relationships between educator and learners are reciprocal. Both should plan and learn from each other. This succeeds best through the use of dialogue.

Dewey (1916) rejected the view that the educator merely stands off and looks on. He wanted educators to participate and share in all the learning activities:

> In such shared activity, the teacher is a learner, and the learner, without knowing it, a teacher, and upon the whole the less consciousness there is, on either side of either giving or receiving instruction, the better (Dewey, 1916: 103).

Learning has also been described as "social" by Lindeman (1956), Freire (1970, 1972 and 1973) and Mezrow (1991). Learning can be defined as the competence-building, acquisition of knowledge, attitudes, capacities, and skills. It takes place not only intentionally (intentional learning) but also incidentally (functional learning), and not only in the institutional context of a school, training facility, university, etc. (formal learning), but also in real-life practice (informal learning) (Organization for Economic Co-operation and Development, 1977; Simkins, 1977; Vella, 2004). Learning is no longer considered an individualized acquisition of information and behavioural change, but is bound to the complex mesh of biological factors, socio-cultural integration and emotional and motivational processes. Within the framework of such multi-perspective considerations, learning is presented as a "construction of knowledge": Learning, moreover, means developing knowledge and competencies – on the basis of "biological disposition", individual experiences and existing knowledge structures – which can be useful and usable in real-life situations. New information is connected to previous knowledge, it is interpreted against the background of one's own experience and thus "networks" are constructed that can train to act in concrete situations. This is a process.

The social process of learning as a construction of knowledge usually involves critical thinking. Critical thinking challenges us to examine the way we interpret the world and how our knowledge and opinions are shaped by those around us. Critical thinking leads us to a deeper understanding of interest behind our communities. The adult learner should develop good listening skills which are intertwined with critical thinking. Listening, an important key to successful communication, is one of the primary ways in which we

discover others, enrich our relationships, and broaden our knowledge. Being a good listener involves actively attending to and understanding the messages we hear. The importance of listening is even clearer when we consider how we use it in our personal and professional lives. Listening helps us build and maintain relationships and can even help us determine whether the person we are talking to is being deceitful (Di Batista, 1997). Listening is also recognized as an essential skill for business success (Goby, 2000). Because of effective listening we are able to improve workplace and community relationships and be more productive (Salopek, 1999).

In dialogue education, listening is very important as it is directly connected to our ability to think about and remember information. Indeed, critical listening and critical thinking are intertwined. A classic study of listening showed that Americans spend more than 40 per cent of their time listening (Rankin, 1926 cited in Pearson *et. al.*, 2003). Weinrauch and Swanda (1975) found that business personnel, including those with and without managerial responsibilities, spend nearly 33 per cent of their time listening, almost 26 per cent of their time speaking, nearly 23 per cent of their time writing, and almost 18 per cent of their time reading. When Werner (1975) investigated the communication activities of high school and college students, homemakers, and employees in a variety of occupations, she determined that they spend 55 per cent of their time listening, 13 per cent of their time reading, 29 per cent speaking and three per cent writing. In Germany, students in primary school are expected to listen for about two-thirds of classroom time (Imhof and Weinhard, 2004). In Australia, Davis (2000) found that college students spend 54.1 per cent of their time listening, 30.5 per cent of their time speaking, 3.1 per cent of their time writing and 12.3 per cent of their time reading.

According to these studies, you spend over half your time listening either to other people or the mass media. This is followed by speaking. The two skills are critical in conversations, a significant component of dialogue education and adult educators need to promote them between the adult learners and themselves and among learners to facilitate reciprocal relationships. In conversation, knowledge is not a fixed thing or commodity to be grasped. It is not something "out there" waiting to be discovered. Rather, it is an aspect of a process. It arises out of *interaction*. "Only by seeking to learn from the

'other', only by fully grasping its claims upon one can it be critically encountered" (Vella, 2002: 8). We have to open ourselves to the full power of what the "other" is saying. "Such an opening does not entail agreement but rather the to-and-fro play of dialogue" (Ibid). We seek to discover other peoples' standpoint and horizon. By so doing their ideas become intelligible, without our necessarily having to agree with them (Vella, 2004), we can come to terms with the other.

2.1.3 Concept of Critical Literacy Participation in the Context of Dialogue Education

Critical literacy is usually traced to Freire (1972, 1973), the Brazilian lawyer turned educator. Freire (1972) developed a revolutionary pedagogy that shared reading and writing with the illiterate peasants who were crowding into the *favelas*, the ramshackle slums thrown up on the garbage dumps around São Paulo, Brazil. His approach began with Socratic conversations to develop his students' power to use language as an aid for thinking. Only when they could name their problems did he take his students a step away from spoken language towards the written word. Careful to approach the students as equals, Freire used pictures to remind them of a problem in their lives, and through dialogue he led them to examine causes and effects and possibilities for action. The written word was then introduced to anchor the students' insights. They wrote words for ideas that aroused powerful feelings, and then later as they read their words they could return to those insights, debate them, and create further insights. In this dialectical manner, Freire's pedagogy could raise his students' consciousness, a process he called by the Portuguese name *conscientizaçao* (Freire, 1970).

Freire was aware, of course, that it is possible to teach without raising consciousness. His urban peasants, fresh from the countryside, thought in patterns that he called *magical consciousness* (Freire, 1973). Although they were often victims of oppression - they may have been forced off the land, and now that they were in the city, they suffered from grinding poverty - they saw themselves as part of nature, if they saw themselves at all, and neither recognized the sources of their distress nor the possibility of acting on the world to change their circumstances. Traditional teaching wouldn't help them much. It would not make them find root causes and possibilities for change, but would rather fill

their heads with other people's static ideas. Freire called the effects of this kind of teaching *massification*. Massified students, he said, have the illusion of being educated, of being free, of being able to understand and control their circumstances. But they are not much more conscious or analytical than their illiterate counterparts. Only those whose critical faculties have been nurtured through dialogue about the issues that matter in their lives develop critical consciousness.

Freire's (1973) observations of the differences between magical consciousness and critical consciousness sound like political constructs. But they are strikingly similar to the findings of a Russian psychologist, Luria (1982). Luria visited villages in rural Uzbekistan in the 1930's and asked a series of interesting but innocuous-sounding questions that explored the villagers' ways of thinking and communicating: how they used words to name things, their ability to reason with syllogisms, their self-reflectiveness, and even their ability to ask questions about ideas that were foreign to them. When he compared the responses of illiterate peasants with those of adults who had had even a few years of education, the differences resembled something like magical consciousness in the former case and something like critical consciousness in the latter case. Literacy, or schooling, or both made a palpable difference in the way Luria's subjects thought about language, about themselves, and about the world.

Critical literacy highly encourages participation. Participation implies involvement of people in shaping their own destine (Mtonga, 1986). In the learning context, participation is an act of taking part or having a share with others in learning action. It is basically a dialogical process in which people share their own perceptions, ideas, values, and attitudes. This dialogical process provides opportunities to people to understand perceptions, views, and attitudes of others and review and modify their own in light of others' views and ideas and accordingly make decisions and recommendations on several important issues of relevance to them. As Freire (1973) has stated several issues facing people are so complex that no one, however well informed or educated, can provide answers to all issues. On the other hand, no one is totally ignorant but each person has rich experiences which may provide valid and relevant information for finding solutions. Participation is therefore an appropriate group learning process for adults in which

mutual and interactive learning occur spontaneously. Group learning attempts to help structure the entire learning process including the time and goals. Group interactions in group dynamics can sensitize people to understand not only others but oneself. Self-knowledge therefore lies at the root of self-transformation which is the ultimate goal of adult education.

The philosophical basis of participation is primarily the positive attitude to oneself as reflected in self-confidence and self-reliance (Illich, 1970). Independence is a vital pre-requisite to function effectively in modern society and adult education has to aim at not only liberating people from dependency but also at learning to be participative. It is therefore, necessary that learning methods and strategies designed and used should create those conditions essential for developing autonomy and interaction in learning. Teaching adults through discussion methods is considered to be the most appropriate method to train them for thinking, reflecting and articulation. The basic rule is to start discussion with small groups for shorter periods of time with simple tasks foe learning in the beginning. Then gradually the size of the group and the complexity of the task or problem for learning can be increased.

As Vella (2002, 2004) points out, if the general aim of a discussion-cum-learning group is to make learners think and converse freely so that the flow of communication is kept in order, adult educators have to maintain a low profile and, if necessary, withdraw for a while at times. In other words, the conversation in the group should flow from learner to learner with less control by the educator. However, discussions of such situations are more likely to take the form of an aimless chat. It is, therefore, necessary to make the learner group work on specific tasks of common interest and concern. In a rural setting facing environmental degradation, themes for discussion could include; usefulness of forest products, organic farming, fish breeding, bees or trees and humans, bush burning and its effects. It is also desirable to alternate with individual and group tasks to develop and sustain learner interests. Effective learning involves integrating new ideas and new knowledge with existing understanding (conceptual) and ideas in order to solve problems. The relationship between what people know and what they do not know is dynamic and may be informed by their experiences, peers and immediate environments, among other

elements. "Humans", as Kuenstler (1954: 10) wrote, "can only make progress in cooperative groups."

Successful learning requires an approach that reflects the relationship between learning and real life and recognizes the need for motivation towards the process, in addition to the necessary confidence and learning skills. Therefore, learning involves people taking responsibility for their own learning, while the task of *"educators"* is to provide an environment in which this can be done most effectively. The participatory approach thus teaches adults how to understand problems, identify their needs, analyze those problems and needs and prioritize them and evolve methods of encountering and solving those problems and meeting the identified needs successfully both at individual and group levels (Mtonga, 1986 and Burbules, 1993). In the above described group learning situation, the role of the adult educator is primarily to initiate and involve learners in three important acts of learning – participation, reflection and counselling.

In actual practice, we find that most adult illiterates in the community lack time and resources to participate in adult learning programmes specially designed for them. It is probably because these programmes have seldom been designed with the participation of those for whom these are meant but are imposed on them. Another reason attributed to their lack of interest and high drop-out rate or indifference to learning may probably lie in the culture of these socio-economically deprived groups of adult learners for 'personal intellectual pursuits' as Lovell (1980) terms it, has little appeal for many of them. Adult illiterate and semi-illiterate learners are likely to participate actively only when education programmes emerge out of their own demand for meeting their pressing needs or solving their own socio-personal problems. Attitude towards education also cause non-participation because normally adults equate education with schooling and formal teaching. Once a keen sense of interest and urge to learn is created, all the above inhibiting factors can well be encountered successfully. This sense of interest can be generated successfully through dialogue education, a model initially credited to Freire (1972, 1973).

The Brazilian Freire's pedagogy has diffused far beyond the slums of Brazil. At Hobart and William Smith Colleges in the United States, Freirean dialogues are popular with many lecturers who agree that traditional teacher-centered instruction does not teach students to think for themselves (Luke, 2000). Many of them share Freire's belief that the first goal of education is to empower students to become questioning and analytical. It doesn't matter that the students are not destitute; they are still beset by assaults on their consciousness in the form of corporate-constructed images of gender, consumption, and class prejudices. Methods worked out by Freire (1972) for use with the poorest of the poor can be effective with our students and rural adults too in Zambia as can be competently illustrated by Mtonga (2007) and Chakanika (2007) who use a kind of dialogue education with their students of adult education programmes in the School of Education at the University of Zambia (UNZA), Lusaka.

From the 1960's into the 1980's, Freire's work formed the basis for the revolutionary educational systems of Guinea Bissau and Tanzania in Africa; El Salvador, Nicaragua, and Haiti in Latin America; and elsewhere. Since the 1980s Jane Vella (2002; 2004) has been using Freire's model which she has modified and call it dialogue education. She has used dialogue education in many parts of the world through her organization called Global Learning Partners. Her organization provides training and consulting services for organizations and individuals who work with adult learners. Dialogue education shifts the focus of education from what the teacher says to what the learner does, from learner passivity to learners as active participants in the dialogue that leads to learning (http://www.globalearning.com). A dialogue approach to education views learners as subjects in their own learning and honours central principles such as mutual respect and open communication (Vella, 2002). Learners are invited to actively engage with the content being learned rather than being dependent on the educator for learning. Ideas are presented to learners as open questions to be reflected on and integrated into the learner's own context (Vella, 2004). The intent is that this will result in more meaningful learning that has an impact on behaviour. Vella's (2002, 2004) academic research into the work of theorists like Freire (1972, 1973), Knowles (1970, 1990), Lewin (1958) and Vygotsky (1978) confirmed what she saw in the communities in North America, Africa and Asia where she had worked. Her works confirmed that adults learn best through a "dialogue"

that takes place in an atmosphere of mutual respect and safety, and with learning designs that are grounded in the reality of their lives.

2.1.4 Critical Literacy in Australia

Freire's ideas have probably found the most fertile soil in recent years in Australia (Luke, 2000). The Australians have led the world in a movement now called critical literacy. Critical literacy is not quite the same as critical thinking although both are highly encouraged in critical pedagogy in which we also find dialogue education. Critical pedagogy is a pedagogy designed for the purpose of enabling the learner to become aware of and conscious of, conditions in his or her life, in society, and to have the necessary skills, knowledge and resources to be able to plan and create change. It is consciousness-raising. Critical pedagogy, as does critical theory, strives to help one see the true situation, often being a form of oppression resulting in decreased freedom, and to help one understand that this can be changed - in other words it reveals possibilities, the learner is able to discover the possibilities and then act on them.

Dewey explains that there is an intermediary between aimless education and education that indoctrinates and inculcates. "The alternative is the kind of education that connects the materials and methods by which knowledge is acquired with a sense of how things are done and of how they might be done; not by impregnating the individual with some final philosophy...but by enabling him or her to understand existing conditions that an attitude of intelligent action will follow from social understanding" (Dewey, 1933: 12). Freire's Critical Pedagogy did not grow out of mere principles but out of his direct involvement with Brazil's poor farmers. He saw that their social and economic sub-service and their lack of a "voice" and of competence to conceive reality critically and comprehensibly could not be separated from their inability to act correctly for change in their reality. The aim of Freire's Critical Pedagogy is to restore to marginalized groups their stolen "voice", to enable them to recognize identify, and give their name the things in the world. the centrality of language in Freire's thought relates to his concept of "truth" and a class struggle that will allow the marginalized and repressed an authentic "voice", as if their self-evident knowledge is less false than that which their oppressors hold as valid. Implicitly, Freire contends that the interests of all oppressed people are the same,

and that one general theory exists for deciphering repressive reality and for developing the potentials absorbed in their collective memory. An alternative critique of language which does not claim to empower the marginalized and the controlled to conceive and articulate their knowledge and needs on the one hand, and is not devoted to their emancipation on the other, is mere "verbalism", according to Freire (1973).

The purpose or common cause of the educator and the educated, the leader and the followers, in a dialogue between equal partners is called here 'praxis'. Praxis in education aims to bridge the lacuna between theory and transformational action that effectively transforms human existence. This concept of transformation contrasts with educational concept of Critical Theory. Here learning and education are basically the individual's responsibility and possibility, and are always an ontological issue while epistemologically concretized in the given historical social context. They are conditioned by an individual's competence to transcend the "father image", prejudices, habits, and external power relations that constitute the collective in order to attain full personal and human growth (Freire, 1973). According to Freire, this personal development is conditioned by critical acknowledgment and should occur as part of the entire community's revolutionary practice. Only then can successful educational praxis realize its dialogical essence. The dialogue is an authentic encounter between one person and another, an educator and her/his fellow who wants to be dialogically educated, and the encounter should be erotic or not realized at all. "Love" is presented as the centre and the essence of dialogue (Ibid). Critical thinking is a great part of dialogue education.

Critical thinking is an understanding of the nature and significance of subject matter, evaluating viewpoints, and solving problems. Whereas critical thinking focuses on claims and their support, on interpretations and applications, critical literacy has a more skeptical slant, and something of a political orientation. Critical thinking starts from the assumption that we are often governed by our prejudices, and that language could free us if only we could use it clearly and rationally. What we read and hear is often in need of analysis and interpretation, and what we speak and write may need to be reworked, so that we make clear claims that are logically supported by evidence.

Critical literacy, in contrast, starts from the premise that language is always used in some context that includes power relationships. Thus language is a form of politics. All texts (including scripts for drama, movies, television shows, and advertisements) are prepared by someone for a purpose. Since those purposes are not often transparent, readers need to develop and exercise their critical faculties to filter what they understand and believe from texts. We are constantly assaulted by language that is not just unclear, but often deliberately deceptive and manipulative. Students need tools for unmasking the true purposes of language within a particular context so they can both understand its true meaning and, as necessary, free themselves from its pernicious effects.

Proponents of critical literacy say their practices are not just for college-level philosophy classes, but for all readers, even at lower levels. As Luke (1994) argues, the coming of the Internet has exposed students who are just old enough to click a mouse to whatever arguments that anyone with access to a computer wishes to aim at. Thus, a student researching the Holocaust online will find nearly as many articles claiming nothing of the sort ever happened as those describing what did happen.

2.1.5 Brief History of Dialogue Education in Adult Education

In the Dialogue education approach, the idea of dialogue is used in contrast to the monologue approach often seen in traditional adult education, whereby teachers present information to learners who receive information without engaging with it. This was labelled the "banking" approach to education by Freire in his famous work *Pedagogy of the Oppressed* first published in 1970. According to Freire, the traditional monologue approach to adult education views learners as empty vessels ready for teachers to deposit information into. Freire (1973) and others recognized a need for reform in adult education practices, particularly with respect to equity in the relationship between adult learners and teachers (Arnold *et. al.*, 1991; Vella, 2004).

Influenced by these theorists, Vella began to develop a structured set of principles and practices to translate the theory into action and results. She began using dialogue education practices in her teaching in the 1970s and these were further developed into a systematic approach while completing her doctoral thesis at the University of

Massachusetts. At this point, she named her approach popular education after Freire's model (Vella, 2004 and www.globalearning.com).

The concept of dialogue has held a central place in Western views of education ever since the teachings of Socrates (Bridges, 1988 and McPeck, 1990). The back-and-forth form of question and answer, challenge and response, has been viewed as the external communicative representation of a dialectical process of thinking based on conjecture, criticism, and reconstruction of ideas. Some of these views of dialogue have stressed the role of the teacher as a facilitator of a student's discovery of certain insights on his or her own; in some cases it is in pursuit of an answer the teacher has in mind already, in others, of an answer neither participant could have anticipated. In considering dialogue as a form of pedagogical communicative relation, then, certain simple distinctions and categories interfere with deeper understandings of the issues at stake. Certain accounts of dialogue, notably that of Freire (1970, 1973), and to an extent that of Socrates as we encounter him in some of Plato's dialogues (http://plato-dialogues.org), have suggested that there are basically only two alternative choices for pedagogy.

The first is variously termed lecturing, recitation, monologue, "banking education," or even "mug and jug" – all views holding that knowledge, possessed by the teacher, is "poured," "fed," or otherwise transmitted more or less directly to a passive, receptive student. In this dichotomous characterization, the alternative to this approach is "dialogue," a relation in which the student is more of an active partner in the teaching-learning process. This dichotomy oversimplifies important issues on each side of the relation, obscures multiple forms that both "lecture" and "dialogue" might take, and places a range of important issues along a single either/or dividing line. On the one side, lecturing or more "monological" approaches can actually take a range of forms. Some lectures do indeed ask only to be heard and remembered (although even doing this with some success at gaining understanding requires a much more active response by the student than simply hearing and recording the data). Other lectures invite a high degree of thoughtfulness, skepticism, and imaginative response by the audience; some could even be considered "dialogical" in the sense that the speaker frames issues and questions in a

way that invites an active reinterpretation of meaning from multiple standpoints among the listeners.

The modern dialogue education approach became even more advanced as Vella created her own training company known as Jubilee Popular Education Centre (JPEC), now called Global Learning Partners (GLP), in 1981. Through this organization, more than 3,500 learners from 60 countries around the world have completed workshops about the dialogue approach to learning design and facilitation. The approach has also been used for conducting learning assessments, learning evaluations and designing and facilitating meetings (www.globalearning.com).

2.1.6 Key Principles of Dialogue Education According to Jane Vella

Dialogue education promotes reciprocal conversation based on mutual trust and respect for each participant. The principles outlined by Vella (2002, 2004) can be summarized thus:

- **Dialogue** - This primary principle of dialogue education positions dialogue as the means to the end result of learning, rather than as an end in itself. The principle assumes that any adult has enough life experience to converse with any teacher on any subject *and* that learners learn best when content relates to their experience. Thus, two-way, open dialogue needs to be a part of all learning activities. It promotes active participation by the learner.
- **Learners as Subjects or Decision makers** - Learners must be seen as subjects acting upon content instead of objects to be acted upon or to receive content. This principle may be demonstrated by following the guideline:
  "Don't ever do what the learner can do; don't ever decide what the learner can decide" (Vella, 2002: 16).
- **Achievement-Based Objectives** - Objectives that are achievement-based, describe what learners will do with the content in an observable way. The objectives are described using action verbs such as "What?" based on Bloom's taxonomy of educational objectives (http://www.fctel.uncc.edu).
- **Learning Tasks** - Learning tasks are structured as open questions (i.e. questions with no set, "right" answer) asked of learners, inviting them to interact with the

content in some way and leading to open dialogue between learners and teachers and amongst learners. These tasks determine how learners will achieve the objectives (*What for?*) that help them to learn the necessary content (*What?*) in order to arrive at the outlined purpose (*Why?*).

- **Accountability** - Accountability is one of the most important principles in adult learning. Teachers must be accountable to learners through their learning design and facilitation and learners must be accountable to the teacher, each other and themselves through their actions.
- **Teamwork and Small Groups** - The use of small group work is a central practice in dialogue education because it creates a safe environment for learners to find their voice, reflects life situations of teamwork and allows for peer mentoring which can enhance learning.
- **Praxis** - Learners must have opportunities to act upon content and then reflect on their actions in order to draw conclusions. This can be achieved through the use of analysis and synthesis. Analysis is taking apart information, or a situation and synthesis is putting it back together are both necessary for learning to occur.
- **Relevance and Immediacy** - Content needs to be immediately applicable, useful and meaningful (relevant) to the context of the learner in order for learning to occur.
- **Ideas, Feelings, Actions** - In order for significant learning to occur, ideas (cognition), feelings (affection) and actions (psychomotor) all need to be used in learning activities.
- **Engagement** - Learners are engaged in making theory on any subject and educators must use cognitive, affective and psychomotor activities to engage learners in this process. When learners are engaged they are committed to the learning process.
- **Safety** - Learners must feel safe in order to engage with other learners, teachers and the content. The atmosphere and design for learning must create a safe environment for learners. Challenge is still necessary for learning to take place, but with the promise of support, reinforcement and being provided with all of the

tools (skills, knowledge and abilities) necessary to do the task, learners can feel prepared to undertake this challenge.

- **Sequence and Reinforcement** - Sequencing activities help to ensure learner safety and success in task completion by building from small to large, simple to complex, single to many and familiar to unfamiliar. When learners repeatedly interact with the content in diverse and engaging ways, learning is reinforced.
- **Clear Roles** - Learners must see the equality between teacher and learners and among learners. This can be supported by teachers through the demonstration of listening intently, showing interest in the learners and expressing humility.

While none of these ideas are new to adult learning theory, the unique contribution of Dialogue education is the highly structured system which has been devised to implement known adult learning theory in a concrete way. Adult learning theory is widely understood, however, it is used with much less frequency in practice. The dialogue education approach, because it offers well constructed, specific principles and practices, demands congruence between theory, design and implementation. Such congruence leads to improved learning and resulting behaviour change (Auerbach (1992); Vella, 2004).

Structures of Vella's Model of Dialogue Education

1. *Learning needs and resources assessment (LNRA)* - To discover the present knowledge and skills of the learners and help develop further goals.
2. *The Seven Steps of Design* - In designing learning activities in dialogue education, educators seek to answer in as much detail as possible the questions:
   (i) ***Who?*** - Who are the learners, the educators, other participants?
   (ii) ***Why?*** - The situation that calls for the learning, especially in terms of why the learners want to be there.
   (iii) ***When?*** - Will the learning take place (timing and total length of time available)?
   (iv) ***Where?*** - Will learning take place (location, set up, etc.)?
   (v) ***What?*** - Specific Content (Knowledge, Skills and Attitudes) will be covered to address the *Why*?

(vi) ***What for?*** - Describes the Achievement-Based Objectives (ABOs) for each element of Content.

(vii) ***How?*** - The Process (learning tasks) through which learners interact with the *What* to meet each ABO (*What for*).

By answering these questions in detail and ensuring congruence throughout, a strong, accountable design can be prepared.

3. *Learning Tasks (How?)* - work by using active verbs to engage the learner and work at proficiency in knowledge, skills, and attitudes (both individuals and groups). This leads to the development of the four **I's**.

- **Four I's** - One particularly helpful sequence for a learning task involves four parts: ***Inductive*** work that allows the learner to reflect on their past experience, ***Input*** which provides some new information for the learner to consider, ***Implementation*** which invites the learner to apply this new information and finally, ***Integration*** to bring the new understanding back into the context of the learner (Adapted from Vella, 2004).

The role of dialogue education is cardinal in modern adult education. Dialogue education is not simply the interactive participatory means that informal educators use, but is also what adult educators should seek to cultivate in local life world-over to meet various challenges of the twenty-first century. Facilitating local dialogue can lead to local cooperation and, in turn, to effective and sustainable local action on real-life developmental projects in communities as well as help individuals attain self-actualization. A dialogue is most effective when the actors are in a position to exchange rather than to receive views, information or ideas.

"Dialogue", the Brazillian educator Freire says, "is the encounter between men, mediated by the world, in order to name the world" (Freire, 1972: 69). Dialogue is indispensable to the act of cognition which unveils reality or "truth". Search for the truth involves integration of new experience with previous experience in a process of acquiring authentic knowledge. Knowledge is developed through learning which involves the construction of meaning (contemplation or "inner dialogue") and the negotiation of meaning (discussion or "outer dialogue") i.e., experiential learning. Freire (1972) goes

on to say that knowledge emerges only through invention and re-invention, through the restless, impatient, continuing, hopeful inquiry human beings pursue in the world, with the world, and with each other. "The essence of dialogue is the 'word.' Two dimensions of the word are 'reflection' and 'action.' Without reflection, the word becomes 'activism.' Without action (communication), the word becomes 'verbalism.' Dichotomizing the word makes it false and results in inauthentic forms of thought and existence" (Freire, Ibid: 68). Dialogue is a mode of exchange among human beings in which there is a true turning to one another and a full appreciation of another person, not as an object in a social function, but as a genuine being (Martin Buber, 1914 cited in Vella, 2002).

Dialogue, is a way of exploring the roots of the many crises that face humanity today. It enables inquiry into, and understanding of, the sorts of processes that fragment and interfere with real communication between individuals, nations and even different parts of the same institution or organization. In dialogue, a group of people can explore the individual and collective presuppositions, ideas, beliefs, and feelings that subtly control their interactions. It provides an opportunity to participate in a process that displays communication successes and failures. It can reveal the often puzzling patterns of incoherence that lead the group to avoid certain issues or, on the other hand, to insist, against all reason, on standing and defending opinions about particular issues. Dialogue can be used to address a number of modern challenges like global warming, which is partly a result of human activities that have led to environmental degradation.

2.1.7 Brief History of Adult Education in Zambia

Learning is an ancient tradition in Zambia and since times lost in the dawn of history, the Zambian people have developed various types of institutions and medium to pass on to the new generations the knowledge, skills and wisdom gained by their predecessors. That knowledge was superior to material acquisitions is a theme of innumerable tales, wise sayings and proverbs in the Nsengas of Petauke and other indigenous people of Zambia. There are even instances which illustrate some of the most modern concepts of lifelong education outlined by many African scholars like Msimuko (1987), Kenyatta (1979) and Tiberondwa (1976). According to these, there were formal and informal

institutions for exchange of ideas, sharing of knowledge and learning of skills like *nsaka* or *kunsaka*; and institutions of learning like *mitungu* or *ndola* (teachings for girls when they reach puberty usually accompanied by drumming, dance and song) and *nyau* (secret society) among the Nsengas and Chewas of Eastern Province of Zambia. Besides, activities associated with places of worship and burial were also part of the educative process. Folk drama, proverbs and story telling were also forms of entertainment or religious activity which contributed to the education of adults. *Nyau* was used extensively by the Chewa of Central Africa to resist colonial influence on the indigenous African culture (Mtonga, 1980). Nsengas and their neighbours the Chewas interact so highly. Although *nyau* is originally of Chewa culture, you find a number of members of the secret brotherhood society of *nyau* among Nsengas of Petauke. *Nyau* mainly prepared boys for adulthood just like *mitungu* for the females. However, as Mtonga (Ibid) puts it, there are also some women who are initiated into the *nyau* organization.

The tradition of adult education in Zambia is as old as the civilization itself. Although not called by this name, adult education has existed in Zambia from very ancient days – from the time when the arts of writing and reading were not yet known. In the African traditional system, community education has always been lifelong and all round (Msimuko, 1987). This is the way through which we have passed on our culture from one generation to the other though with some modifications due to Western influence. Zambia had rich multi-ethnic and multi-layered traditions but with the onset of pre and colonial change, the country lost much of this richness (Namafe, 2006). Our culture is something that surrounds us, something that is part of us, and is inextricably linked with the land upon which we have lived for thousands of years.

Ancient education in Zambia was in terms of community needs; its objective was to fit a man or woman to be a member of such community. It made people live their lives to the fullest unless under natural disaster. In Petauke, perhaps as in many other parts of the world, literacy in the form of reading and writing was considered of very little importance as against real education, which does not necessarily require reading and writing. How ancient literature (such as poems, story telling, proverbs and wise sayings of the elders), philosophy, religion, art, skills, care for environment and other sciences

had developed so highly long before the art of writing and reading came to be known, and how all these branches of learning were handed down from one generation to another, is still a marvel, especially to Western people. African indigenous education is traditionally oral and practical, this is a form of dialogue education or what Freire (1973) called critical literacy.

Traditionally, in Zambia and other parts of Africa, adults have a special place in society. They have power to influence decisions of their families, clans, headmen and chiefs (Kenyatta, 1979; Msimuko, 1987). They are teachers of morals for the young as they grow up. Kenyatta (1979) points out that elders are a symbol of their ancestral spirits. The function of elders in their family, clan, group or community is one of harmonizing the activities of various age-groups, living and dead. They offer help to the community with their advice, wisdom and experience. In turn, the community honours them very highly. These elders did not need to be literate to win such respect and special place in society.

Even today numerous religious mendicants who cannot read or write are found, but can expound some of the deepest philosophies of the traditions such as traditional medicine men, *nyau* (secret society among Chewas and few Nsengas in Eastern province of Zambia whose members claim to have supernatural powers to communicate with ancestors) and *alingizi* (counsellors) found in some rural Zambia. Others can compose beautiful lyrics in praise of chiefs. In fine arts too are people who carve wood or marble into artistic objects without having learned even the rudiments of drawing or geometry. It is common to find peasants who cannot read and write show wonderful knowledge of their natural environment, their indigenous religion, folk-lore and epics. It is an admitted fact, therefore, that adult education is entirely in accord with the genius of the people.

The formal Western adult education field's historical roots can be traced to Europe and then America. Formal adult education, as we understand it today, was introduced in Zambia by the Christian missionaries in 1883. The first school was started by Fredrick Anort at Lealui in Barotseland (present Western Province) with three adult students as a tool for the social and cultural transformation of indigenous cultures. This school was a

cooling factor to calm Africans while Europeans stole precious natural resources from the continent (Mtonga, 2007). This unwritten goal by the Europeans has been very effective. Since then formal education in Zambia has not been responsive to the needs of the indigenous people. It just has been a cooling factor; creating more problems.

It should be mentioned, however, that although missionary education attempted to change the traditional way of life, it persisted with modifications. Adult education as introduced by missionaries included the teaching of the Bible, the three Rs: reading, writing and arithmetic; health education, agricultural extension; crafts and carpentry. The main aim of missionary education was evangelism (Tiberondwa, 1979). Adult education as a tool for social and economic change was used in the attempts to transform Zambian traditional societies and their life styles. This is well summarized by Tiberondwa (1979: 59) by saying:

> ...the medicine men and herbalists were persecuted, being lebelled witchdoctors and sometimes punished. The worshipping of traditional Gods was regarded as primitive and superstitious, the wearing of certain ornaments (like copper leg bungles in Zambia) which were believed to be curative was discouraged, the dancing at weddings was regarded as sinful, the local drinks were replaced by imported ones and the people who continued drinking African alcoholic drinks were called drunkards. Instead of listening to the African riddles and the wise sayings of the African elders, the children spent evenings trying arithmetic and reading about the Sermon on the Mount and the Parables.

Perhaps it is against this background that we still find a very high number of people in Petauke and much of Eastern Province of Zambia resisting attending the formal Western-oriented education system as it is not responsive to their individual and societal real needs but that of the Western countries and Christian and Islam religions. Such an educational system is of no value indeed to our people. This is further illustrated by recent remarks by the Permanent Secretary in the Ministry of Science, Technology and Vocational Training, Zambia, Dr Buleti Nsemukila who was reported to have said that following research carried out in his ministry, there was great need to change the curriculum in the education system in Zambia so that it can be responsive to societal needs (Zambia

National Broadcasting Corporation (ZNBC), 2008). This will solve the problem of high levels of unemployment as the current education system prepares people to be employed in jobs after getting their school certificates. Our education system needs to prepare people for work, not jobs. An education system which prepares citizens for work, as the African indigenous education system did, does not experience unemployment. Everybody has work to do and a role to play in society. Although it cannot solve all the problems of our adults and youths, dialogue education which can be offered through community education and development may be the best alternative to the present educational system in Zambia. As John Mwanakatwe (1969) puts it, adult education is undoubtedly a dynamic factor for promoting all forms of development. Its effect on political, economic and social change can be enormous.

It must be accepted that one positive solution to the problem of illiteracy is to provide the means of educating and training all the citizens of the nation. This can be achieved through mass education which employs dialogue education. Responsive education and training help citizens to be creative, to be more productive and self-reliant. Therefore, instead of the present situation in which mass education is left to be achieved through literacy classes (which many adults shun) that are not responsive to people's needs, use of dialogue education can be a solution as all communities in our country use some form of dialogue everyday. Dialogue education can bring about critical literacy so much needed in our disadvantaged societies like rural communities.

Wesler (1978) points out that "education is a natural community process, of which the traditional school system is but a single component. In every community, all the people are being educated all the time by everything that is happening in that community. It is both the amount and the overall quality of education that distinguishes one community from another" (Wesler, 1978: 544 cited in Vella, 2004). Lindeman (1956), goes to give a definition of adult education which underlies the theoretical and practical thinking of many adult educators today. The following is his conception of adult education:

> A cooperative venture is non-authoritarian, informal learning, the chief purpose of which is to discover the meaning of experience; a quest of the mind which digs down to the roots of the preoccupations which formulate our conduct; a technique of learning for adults which makes

> education coterminous with life and hence elevates living itself to the level of adventurous experiment (Lindeman, 1956: 126).

Lindeman, considered father of adult education in the United States was an American with a Danish background. Probably due to the influence of the famous Folk High School of Denmark initiated by Frederic Severin Grundtvig, Lindeman emphasized that adult education will be via the route of *situations*, not subjects. Adult education should be based on real life. The resource of highest value is the learner's experience as one searches for life's meaning. This situation-approach to learning among adults highly recommended the use of discussion (organized talk), which is a form of dialogue.

2.1.8 Adult Literacy in Zambia

Zambia, like many other countries, has been actively striving to meet the recommendations of Jomtien's Conference on Education for All (EFA) held in 1990. The major goal of the Conference was to meet the basic learning needs for all children, youth and adults. United Nations Educational, Scientific and Cultural Organization (UNESCO) (1978 cited in Wagner and Kozma, 2005: 36) defined a literate person as "one who can with understanding both read and write a short simple statement on his or her everyday life...A person is functionally literate who can engage in all those activities in which literacy is required for effective functioning of his group or community." The 1990 EFA broadened the discussion of literacy goals to that of basic learning needs or competencies (UNESCO, 1998); a combination of the three Rs of reading, writing and arithmetic with other knowledge, problem-solving and life skills. Within the EFA perspective, such competencies refer to both formal school-based skills (e.g., ability to read prose text or to understand mathematical notations) and the ability to manage functional tasks, regardless of whether such competencies were developed through formal or non-formal education, or through personal experiences in diverse informal learning situations. The International Action Plan for Implementing Resolution 56/116 of the United Nations states that "Literacy for all is at the heart of basic education for all and that creating literate environments and societies is essential for achieving goals of eradicating poverty, reducing child mortality, curbing population growth, achieving gender equality and ensuring sustainable development, peace and democracy" (United Nations, 2006: 3). We know that illiteracy is a serious obstacle to the establishment of a social order based on

equality, justice and freedom based on participation. It must however, be mentioned that the end of all knowledge in people must be the building of character. Literacy of reading and writing is not the end of education nor even its beginning. It is but just one of the means whereby people can be educated.

Research findings reveal that most learning takes place through informal learning. Numerous international studies have estimated that informal learning makes up 60 to 80 per cent of the overall competence acquisition (Organization for Economic Co-operation and Development (OECD), (1977), among others). Therefore, learning is primarily not an institutionalized practice, but rather a way of life.

As important as formal and non-formal learning are, they represent only a minute fraction of the learning that occurs within any one person's lifespan. In fact, there is evidence to suggest that, in terms of both duration and impact, informal learning far outstrips the other two types. It occurs more or less continuously and is coterminous with life. It requires no particular preparation, although those who are more attentive and or have a wider circle of experiences are likely to have both more extensive and more diverse incidental learning. It should, however be mentioned that informal and incidental learning does not always occur in informal settings; indeed considerable informal learning occurs in formal settings such as schools, colleges, universities and training centres, but it is not explicitly planned and managed as part of the curriculum or programme of study. Indeed, our environment and the way we relate to it have much helped us attain the kind of persons we are – through learning from experiences. Dialoging with others (such as having conversations with friends and relatives), listening to the radio, watching television, reading, attending political rallies, attending formal classes and lectures, travelling, falling sick, losing a beloved one, even getting bawled out by the boss – all these leave their marks on us and change us in one way or the another. It is difficult to think of anything we do that does not either encourage our development towards maturity or thwart it.

It is through fellowship with other people that all normal people grow in mental, social, and spiritual stature; the health of a society is largely dependent on its members having

warm human relationships with their fellows over a considerable part of their daily lives. All day long we interact first in one group and then in another. "We are born and brought up in a group called a family, we live in a dwelling as part of a group, we learn in groups contained in the same classroom, we work in groups, we interact with friends in groups, and we spend much of our leisure time in groups" (Johnson and Johnson, 1994: 5). Given time and a fair absence of external disturbing influences, most societies, communities or groups can manage to achieve reasonable stability in human relationships – whether the society is a school, training centre, village, factory or larger or smaller area of a town. People find out where they fit. Johnson and Johnson (Ibid) sum it by rightly stating that humans are small-group beings: "the ubiquitousness and the inevitability of being in them makes groups one of the most important factors of our lives.... As humans we have inherent social nature: our life is filled with groups from the moment of our birth to our death (Johnson and Johnson, 1994: 5)." Probably the most important small group on which dialogue education should be encouraged is the family. Most families in our communities are led by adults. It is these adults who need literacy of critical thinking to help families satisfy their hierarchy of needs in everyday life.

In the draft Zambia national adult literacy policy of 2008, there are different types of literacy classified on the basis of content and sometimes location and level that include basic literacy, adult basic education, functional literacy, literacy for livelihood and workplace literacy (Ministry of Education, 2008). These concepts are explained below.

Basic literacy: This is a type of literacy which emphasizes teaching the skills of reading and writing for their own sake. In earlier projects, basic literacy was treated as a stand alone educational activity and when participants began to drop out of literacy classes due to irrelevance of instructional material, basic literacy was found to be inadequate.

Functional literacy: This is literacy related to an occupation in which learners are engaged. Functional literacy programmes are initiated and implemented by the state. Often the choice of subject matter is based on single occupations and in most parts of Africa emphasis is on agriculture. In Zambia's Eastern Province, emphasis was on growing more maize and groundnuts.

Literacy for livelihood: This is literacy related to the way people live. It is an extension of functional literacy but without an overarching curriculum for a group. The curriculum would arise from the way the participants earn their living. Different designs for this type of literacy has been observed that include incorporating literacy into existing projects or existing livelihood into existing literacy (Oxentham, 2002 cited in Ministry of Education, 2008). In a number of projects where literacy was introduced into existing livelihood projects the results were more positive than in projects where literacy came first and livelihood followed.

Workplace literacy: This is a form of literacy project organized to provide literacy education to workers in an industry. It is aimed at improving literacy skills for workers and can be extended to provision of literacy that improves the wealth and health being of the workers.

Basic adult education is the provision of basic education to adults. Besides promoting lifelong education among adults, basic adult education promotes basic skills of literacy (reading and writing) and computational skills necessary for functioning at levels comparable to students in the elementary education system. Courses may be remedial for students, or they may provide educational opportunities for students who speak but do not read a functioning language. These programmes are competency-based in that they are designed to teach the basic academic and life skills necessary for success in today's world.

The vision of adult literacy education in Zambia is to contribute to the promotion of a learning society in which individuals and the community will live and value knowledge for their own self and community advancement (Ministry of Education, 2008). Conceived thus, literacy education shall:

(a) inculcate among youth and adults the will to learn, to read and write, and analyze;
(b) contribute to the promotion of democracy;
(c) promote the values of honesty, generosity, industriousness, critical thinking; and
(d) raise self-esteem for effective participation in matters related to citizenry, economic and social development.

The term 'illiterate' predated the positive term with respect to general literacy, as literacy for livelihood, mathematical literacy, computer literacy, visual literacy, cultural literacy, environmental literacy, and so on.

2.2 Awareness of Environmental Sustainability among Illiterate Adults in Rural Communities

Studies conducted in Zambia so far reveal that the levels of awareness on environmental sustainability are low (FAO, 2001). These studies were supported by the country reports on the performance on the Millennium Development Goals (MDGs) (United Nations Development Programme, 2007). However, it is important that we discuss in detail what is meant by environmental sustainability literacy as this is closely related to levels of awareness. As described by Michaels and O'Connor (1990: 2):

> Literacy...is an inherently plural notion. We each have, and indeed fail to have, many different literacies. Each of these literacies is an integration of ways of thinking, talking, interacting, and valuing, in addition to reading and writing...Literacy then is less about reading and writing per se, and is rather about ways of being in the world and ways of making meaning with and around text.

Most literacies are defined in cognitive terms. Knowledge is a necessary pre-condition of thoughtful behaviour and action. Educational systems usually limit their operational objectives to the attainment of knowledge and skills related to their effective and efficient acquisition; they do not actively promote the pro-active development of "responsible environmental behaviour," as described by Hungerford (1987) and Iozzi, (1989).

Although environmental literacy is not identified by direct reference in most discussions of educational goals, it may be inferred from considerations of specific literacies such as those identified in UNESCO. One of the more surprising new concepts of literacy, which we encountered, is "environmental literacy" - defined by UNESCO (http://www.unesco.org.) as "a basic functional education for all people, which provides them with the elementary knowledge, skills, and motives to cope with environmental needs and contribute to sustainable development." Environmental literacy is seen in terms of a continuum, which begins with nominal literacy (the state in which one recognizes some of the terms used in communicating about the environment but has little awareness of their meaning), progresses to functional literacy, and culminates in operational

environmental literacy, which is characterized mainly by the individual's ability and willingness to "examine and choose among alternatives" and to "take positions and actions that work to sustain and develop the foundation of environmental knowledge" (Moseley, 2000: 23-24).

Since the term was coined, a distinguishing characteristic of environmental literacy has been its "action" perspective. Environmental literacy is essentially the capacity to perceive and interpret the relative health of environmental systems and take appropriate action to maintain, restore, or improve the health of those systems. However, as Roth (1992) puts it, environmental literacy should be defined in terms of observable behaviours. That is, people should be able to demonstrate in some observable form what they have learned - their knowledge of key concepts, skills acquired, disposition towards issues, and the like. Levels of literacy are generally assumed to exist but are not often defined. With respect to environmental literacy, Roth proposed the identification of three levels:

- **Nominal,** indicating "ability to recognize many of the basic terms used in communicating about the environment and to provide rough, if unsophisticated, working definitions of their meanings";
- **Functional,** indicating "a broader knowledge and understanding of the nature and interactions between human social systems and other natural systems"; and
- **Operational,** indicating "progress beyond functional literacy in both the breadth and depth of understandings and skills."

Basically, this environmental literacy can be achieved through either formal, non-formal or informal education.

Formal education: This is the hierarchically structured, chronologically graded "education system", running from primary school through the university and including, in addition to general academic studies, a variety of specialized programmes and institutions for full-time technical and professional training.

Informal education: This is the truly lifelong process whereby every individual acquires attitudes, values, skills and knowledge from daily experience and the educative

influences and resources in his or her environment - from family and neighbours, from work and play, from the market place, the library and the mass media.

Non-formal education: This refers to any organized educational activity outside the established formal system - whether operating separately or as an important feature of some broader activity - that is intended to serve identifiable learning clienteles and learning objectives.

The distinction made is largely administrative. Formal education is linked with schools and training institutions; non-formal with community groups and other organizations; and informal covers what is left, e.g. interactions with friends, family and work colleagues (Coles, 1988). Societies need to have high levels of environmental literacy to bring about the much desired environmental sustainability. More simply, environmental literacy derives its focus from four basic issues that take it well beyond the typical boundaries of science education, or any of the traditional disciplines:

- the interrelationships between natural and social systems;
- the unity of humankind with nature;
- technology and the making of choices; and
- developmental learning throughout the human life cycle.

Thus, environmental literacy draws upon six major areas: environmental sensitivity, knowledge, skills, attitudes and values, personal investment and responsibility, and active involvement. In Roth's descriptions of the specifics of literacy level, environmental sensitivity and attitudes and values are subsumed under the term "affects," while personal investment and responsibility and active involvement are subsumed under the term "behaviour." This creates four strands - knowledge, skills, affect, and behaviour - to be addressed in education for environmental literacy, the main focus of environmental adult education. Sustainability literacy means that societies must be able to achieve more than to have the ability to read and write in a local language. It requires a global language that can explain sustainability as a functional educational tool which can be implemented through a core curriculum. This will require a greater degree of understanding and fluency in all aspects of sustainability, especially the role of population, resource use and

feasible solutions. Sustainability literacy is the ability to impart forest dwellers knowledge, (ie., how to live within the planet's ecosystem) to consumer civilizations. It is the ability to educate societies so that they function within the web of life.

Sustainability is a characteristic of a process or state that can be maintained at a certain level indefinitely. The term, in its environmental usage, refers to the potential longevity of vital human ecological support systems, such as the planet's climatic system, systems of agriculture, industry, forestry, fisheries, and the systems on which they depend. In recent years, public discourse has led to a use of 'sustainability' in reference to how long human ecological systems can be expected to be usefully productive. In the past, complex human societies have died out, sometimes as a result of their own growth-associated impacts on ecological support systems. The implication is that the modern industrial society, which continues to grow in scale and complexity, may also collapse if environmental sustainability practices are not observed for the present and future generations. The implied preference would be for systems to be productive indefinitely, or be "sustainable." For example, "sustainable agriculture" would develop agricultural systems to last indefinitely; "sustainable development" can be a development of economic systems that last indefinitely, etc. A side discourse relates the term sustainability to longevity of natural ecosystems and reserves (set aside for other-than-human species), but the challenging emphasis has been on human systems and anthropogenic problems, such as anthropogenic climatic change, or the depletion of fossil fuels reserves.

Though relatively new, the term "sustainability" has already proved useful. Sustainability discourse is the discussion of how to make human economic systems last longer and have less negative impact on ecological systems, and particularly relates to concern over major global problems relating to climate change, deforestation and oil depletion. More useful than discussion, however, is to find ways to make some unit of economic production - a business firm, a family household, a farm, a village, a district, a country, a continent and the global village - more sustainable.

If we are interested in the sustainability of human societies, then the focus should be on the interaction of *humans* with each other, other organisms, and the physical environment, i.e., human ecology (Moran 2006; St Claire, 2003; Steiner 2002 and Marten 2001). The primary way through which humans interact with each other is language which persuades people to behave in ways which have differing impacts on the ecosystems which support life. Education for environmental sustainability should be a lifelong learning process which recognizes that ecological problems exist within a socio-economic, political and cultural context. A sustainable future cannot be achieved without addressing the relationship between environmental problems and current development paradigms. Adult environmental education can play an important role in sensitizing and mobilizing communities and decision-makers towards sustained environmental action. Developing an understanding of the life cycle for every action in our lives is essential for all. This is civilizations finest hour, we do or we die as we destroy our world. We all need to learn to learn from each other. This is the resource humanity urgently needed to utilize in modern adult education – dialogue education. This can be summarized thus:

> *The scarcest resource is not oil, metals, clean air, capital, labour, or technology. It is our willingness to listen to each other and learn from each other and to seek the truth rather than seek to be right* (Meadows, 1992: 36).

2.2.1 Significance of Environmental Sustainability Awareness in Communities

Environmental issues are cross-cutting and as such there is great need for adult education to take keen interest in promoting environmental sustainability awareness in communities. Human's disturbed relation to nature unfortunately is not structured so that an ever-ready list of environmental precepts and prohibitions would suffice to establish a long-term balance between humans and the demands of nature. However, most people and nations recognize that protecting the quality of the environment is the single most important challenge facing human society today. "Humanity's destruction of the planet, especially in the post-industrial nations, is shameful" (Field, 1991: 3). Although a cleaner and healthier natural environment will not itself reduce poverty, disease, famine or injustice, it is certain that none of these things can be achieved without it. In rising to the challenge, education and training through adult education have a very important contribution to make. That contribution can take place at a number of levels.