



Adult Literacy Programme: Application of knowledge and skills acquired in Activities related to Environmental Development and Management

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ABSTRACT

Adult Literacy Programme provides knowledge and skills that enhance human capital useful for solving various problems. Despite the provision of the programme, the problem in Vihiga County has however, been environmental degradation due to deforestation. The study therefore, tried to establish how the learners used the skills acquired for environmental development and management. A conceptual framework based on educational *production function theory* was used to explain the link between the programme and environmental development and management. The study was qualitative in nature and used a descriptive survey design. Data analysis involved organization, transcription and categorization of data into emerging patterns and the results are presented narratively and in form of frequency tables, graphs and photos. The findings revealed that the knowledge and skills acquired were used to sustainably manage the environment. The findings may be used by educational planners to re-design the curriculum and to effectively link it to environmental issues of concern in society. Although the knowledge and skills acquired were being applied, more emphasis should however be put on occupation-education link to ensure practical application of skills.

1.0. INTRODUCTION

Knowledge and skills acquired from Adult Literacy Programme (ALP) help the beneficiaries to improve their technical and functional competency. This in turn enables them to take necessary action to solve various problems that bedevil society. It therefore, helps them to meet their own needs and the needs of their society (Smith, 2002). Application of the knowledge and skills acquired to solve the problems that the individuals face in their daily lives is the cornerstone of the ALP. It is basically what motivates adults to join the programme and therefore, adds value to it. What matters to adult learners is the need to relate the knowledge and skills acquired to solution of their immediate problems. Certain studies such as the one on *'using sustainable land management practices to adapt and mitigate climate change in sub-Saharan Africa'* (UNESCO, 2006), established that, farmers and communities could be resilient to climate change by increasing food production, soil and water conservation and enhancement of food security through the adaptation of appropriate land management practices (WWF, 2006). It was therefore, important to try to find out if adult literacy programme in Kenya and in Vihiga in particular, could also help to provide the citizens with requisite knowledge and skills to practically and sustainably manage the environment.

Functional nature of Adult Literacy Programme

Studies on the relationship between adult literacy programme and poverty and between work and education (UNESCO, 2004) have revealed that, when effectively and efficiently implemented, the programme can be used to counter the high risk environments. These also include conditions like extreme poverty and environmental degradation. As found in Europe in a study on poverty, work and education by Kotze (2007), the use of functional literacy skills in the promotion of sustainable livelihood activities has the capacity of improving individuals' daily lives. This is important where people have to cope with the problems which expose them to common contingencies such as illnesses and death.

As has been revealed by studies, which relate adult learning to skill acquisition and production, as opined by Caillods (2008) that ALP should involve a well-coordinated off-the-job or class-based learning and on-the-job or field-based experiential learning to facilitate skill acquisition as adults learn by-doing, or through experience. Experiential learning empowers and it is especially key to learners who often apply the knowledge and skills acquired immediately to solve various problems in society. According to Vaizey (2011), it increases their productive capacity and this confirms the fact that, the social rate of return on basic education like the adult literacy programme as he posited, often have positive and is significantly higher than that of

primary school education where knowledge acquired is meant for *future use*.

The individuals and groups who have benefited from the programme are therefore, expected to be more productive and able to promote change in their prevailing socio-economic status. This notion on the productive capacity of the programme agrees with what Paulo Freire (1969) stated in his book, *"Pedagogy of learning"* that, adult literacy programme integrates the notions of active learning within particular socio-economic and cultural settings where "every reading of the word is preceded by a reading of the world" basically aimed at solving problems in society (UNESCO, 2006).

In China, the adult literacy programme had been designed to ensure that it was responsive to environmental issues and that, the knowledge and skills acquired had to make the learners get involved in activities. It was expected to help in the sustainable management of the environment (UNESCO, 2005). In India, a study undertaken in 2005 by Madhu Singh (UNESCO, 2005) revealed that the skills acquired from the programme can easily be put into immediate use to start small-scale ventures unlike the case of the formal school system where knowledge is banked for future use.

In another study on the functionality of adult literacy programme in Gongore in Guinea, Barry (2000) found that the women participating in the programme had engaged in income-generating projects such as poultry farming.

In Mozambique, Van der Linden and Rungo (2006), in their study established that the contexts that form the learning themes in adult literacy programme must contain how the learners apply specific knowledge and skills to tackle various issues in society. This agrees with Carr-Hill *et al* (1991) in their study on the *"Functioning effects of the Tanzanian literacy programme"* in 1991 in Tanzania in which it was established that, the learners acquire necessary skills for solving various problems faced in society. These are functional skills that make learners to engage in such socio-economic activities as cash crop farming besides subsistence farming as well as activities that conserve the environment. In Kenya, education is not only seen as an all-round empowerment tool and a key determinant of earning, but also as an important exit strategy from poverty (Oluoch & Othuon, 2008). This is especially true when the beneficiaries of a programme engage in income-generating activities (IGAs), some of which may be related to environmental development and management.

The Importance of Adult Literacy

Adult literacy has been found to promote equity in education. This happens when it provides an opportunity for members of society who were earlier disadvantaged as a result of their earlier deficiency in basic education to catch up on what they had earlier not been able to attain.

It also facilitates the acquisition of necessary skills to enable the beneficiaries to participate in community development, and is therefore, transformative. According to Mapa (2010), the programme should empower individuals and groups of people with environment-related skills to take action to transform their lives and environments and improve their own situation. According to UNESCO (2009), learning and acting in ALP to solve local problems are the key operational elements. This increases the capabilities of individuals by promoting collective activities that are experiential and empowering, and this is especially important in Environmental development and management.

Literacy for improvement of socio-economic well-being

Adult literacy programme is both a human right and an empowering tool (Republic of Kenya, 2007). This is so especially where promotion of gender equality and empowerment of women is concerned. This notion is also shared by Kwapong (2005), when in his study in Ghana on *'Using adult education for empowerment of women'*, he established that, women who participate in literacy programmes have better knowledge of health, environmental issues, and family planning. Women's empowerment through the programme should therefore, be explained as the process of improving the human capital of women for effective participation in all aspects of development. This has also been confirmed by UNESCO (2006) which has established that, farmers and communities who have benefited from the programme have been resilient to climate change and are able to take definite action to solve the problems related to environmental degradation. This study therefore, tried to check on the activities the learners involved in order to deal with the totality of the real issues affecting the community as a consequence of their participation.

In Uganda, an evaluation ALP had established that the literacy programme had equipped the learners with practical knowledge, especially in the areas of agriculture, adoption of better health practices, crop and animal husbandry and handicrafts. This conception also led United Nations Conference on Education at Hamburg (UNESCO, 2006), to adopt the themes concerning the role played by adult literacy in relation to the environment, health and population management at the Conference.

2.0. RESEARCH DESIGN AND METHODOLOGY

Design

The study on the impact of adult literacy programme concerning how it helps in environmental development and management was conducted in Vihiga County in Kenya. It used descriptive survey design. This, according to Borg and Gall (2007), was the most appropriate design to effectively generate the data that

was largely qualitative in nature. The design was used because it could effectively reveal an individual's lived experiences of events in the area as well as its ability to get the opinions and attitudes of the respondents. This design was also able to facilitate in-depth and longitudinal explanations which, according to Ospina (2004) and could also allow for the most unexpected issues and ideas to be followed further into more detail.

Sample

The sample for the study comprised of 784 adult literacy learners and 15 facilitators sampled out of the accessible population of 2,622 learners and 18 facilitators respectively. They were selected proportionately from all the four sub-Counties, giving fair consideration to gender representation. The sample for the learners was selected through simple random sampling method in which 30% of the population of the learners was picked to give a fairly more accurate result (MaCrr Research, 2015; Mugenda & Mugenda, 2005). Random sampling was used to give every participant an equal opportunity of being picked as not everyone could participate. The 15 facilitators were however selected through saturated sampling method.

Instrumentation

Owing to the nature of qualitative researches, multiple data collection approaches were used. The chosen methods included the use of interview schedules, questionnaires, and document analysis guide and observation checklist. The use of various instruments for data collection was meant to add flavour, help to counter-check the accuracy of the results obtained and therefore ensure further validity (Noble & Smith, 2015). Cameras were also used to capture the activities in which the learners were involved.

Piloting

For credibility and integrity of the findings, the instruments were made to pass the validity and reliability test. This included pre-testing of the instruments.

i). Validity

Although both qualitative and quantitative data paradigms try to find the truth (Bashir, Tanveer & Azeem, 2008) qualitative studies are used in understanding and describing the world of human experience, hence the need for validity in qualitative research to reveal the extent to which the data is plausible, credible and trustworthy. They posited that validity in qualitative research is, basically concerned with the accuracy and truthfulness of the scientific findings and does not lend to statistical or empirical calculations of validity like their quantitative counterparts.

Validity therefore involved participants' validation-where the participants were invited to comment on the

interview transcript and whether the final themes and concepts created adequately and accurately reflected the phenomena being investigated. Validity was also ensured by the use of two or more data sources, methods, investigators and approaches to data collection and analysis in the study of a single phenomenon and validating the congruence among them.

For face validity, the instruments were piloted among 50 learners and 3 facilitators from the study area and who were later not used in the final study. This was done to check the views and acceptability of the questions. According to Kothari (2004), this was necessary in order to check whether the instruments could effectively generate the responses desired by the study.

ii). **Reliability**

Reliability of the findings was ensured through pretesting of the instruments. During the data collection, reliability was further ensured through constant and keen follow-up by the Researcher and his Assistants to ensure that the instruments for data collection could consistently yield the same data using the same methods. Consistency was also ensured by using different instruments to collect the same data. This solicited for the same information which, according to Guba and Lincoln (Trochim, 2006), proved the dependability and confirmability of the information obtained. The daily debriefing meetings and sharing the lessons learnt by the Researcher and his Assistants was done and to give feedback as well as make adjustments to the instruments whenever was necessary. This further ensured reliability of the findings.

Data Collection

Data was collected in the natural setting of the participants such as the classroom, the learning centres and in the field where the learners worked on the farms. This was done because the qualitative methods used seek to describe, explore and understand the phenomena from the perspectives of the individual respondents. During this period besides daily debriefings there were regular follow-ups with the

Research Assistants to ensure that the respondents not reached were either followed a second time or replaced with others from the same locality.

Data Analysis

The process of data analysis involved assembling and reconstructing the data to make it meaningful and comprehensive. This was done in a transparent, rigorous and thorough way while remaining focused to the participants' accounts which, according to Noble and Smith (2015), are the nature of qualitative researches. Data analysis involved the organization, transcription and categorization of information into the emerging themes for ease of familiarization. The information was then coded to identify specific pieces of data which corresponded to different themes followed by emergence of specific themes relevant to the area of study. According to Fereday and Cochrane (2006), and Taylor-Powell and Renner (2005), this process allows for the patterns and relationships between variables to be established. The patterns that emerged showed the effects and interactions between the programme and the efforts to develop and manage the environment. Information captured as photographs also provided illuminating description of the phenomena and to support the textual data obtained.

3.0. RESULTS AND DISCUSSION

The majority of the learners had very positive views on the influence of the programme on environmental development and management. This was important because successful implementation of a programme is determined by the extent to which the beneficiaries positively view and apply the knowledge and skills learnt in their daily lives to solve various problems in society. The results showed that the majority of the learners generally agreed that afforestation is indeed key to environmental management. The other areas viewed positively as key to environmental development and management were agro-forestry and the making of energy-saving *jikos* which in particular ensured the usage of very little fuel, hence reducing the cutting down of trees.

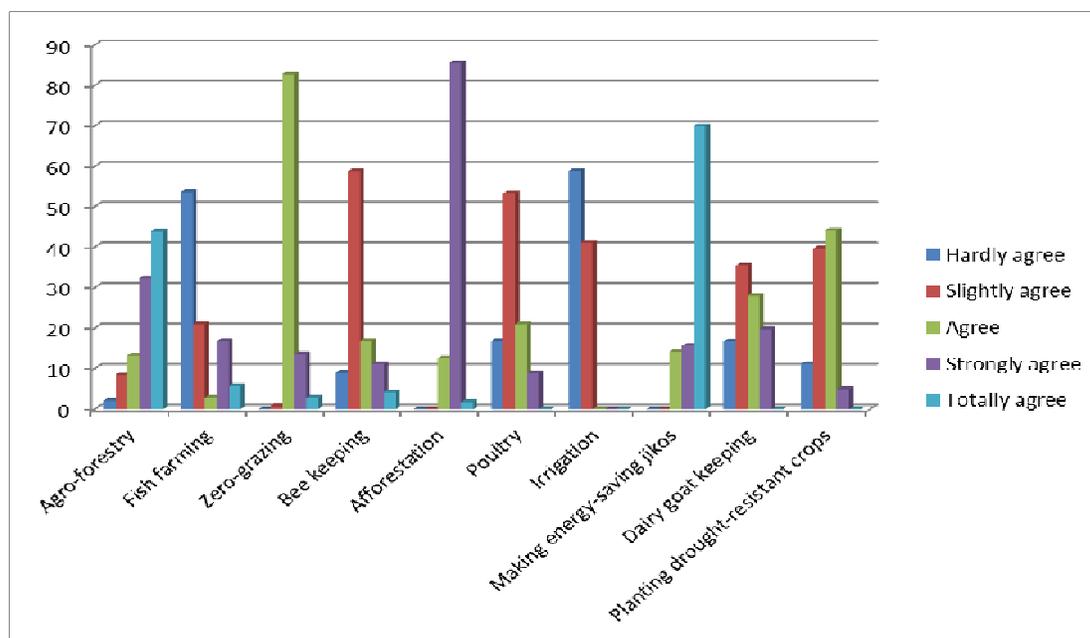


Figure 1. Opinions, views of learners on contributions of certain activities to environmental management

The results obtained from the study therefore confirmed the contention of UNESCO (2012) that, the adult literacy programme has the capacity to create environmentally literate citizenry. After benefiting from the programme, the learners were therefore, willing to use acquired knowledge and skills to make decisions to improve the well-being of their environment. According to Filno (1997), this can be proved when learners use appropriate behavioural strategies to apply such knowledge and understanding to make sound and effective decisions to sustainably manage the environment through various mitigation strategies

Utilization of Knowledge and Skills to manage the environment

When the study sought to establish the impact of the programme in enhancing environmental development and management, it was established that, the majority of the learners (44.2%) used the skills to plant trees to mitigate the problem of deforestation. The learners who had benefited from the programme also used fertilizers (39.3%) to improve soil fertility which is important in environmental development and management. Other learners dug terraces, made fireless cookers, energy-saving *jikos* and planted drought-resistant crops among others.

Table 1: Areas in which learners utilized the knowledge acquired

Utilization of knowledge	%
Storage of water	7.3
Digging terraces	11.1
Planting trees	44.2
Use of fertilizers, improved farming methods	39.3
Making fireless cookers	12.6
Making/using energy-saving jikos	6.3
Planting drought-resistant crops	14.7
Planting early- maturing crops	2.4
Planting napier	18.2
Bee keeping	0.8
Poultry keeping	25.4
Zero grazing	9.8
Fish farming	4.8
Goat keeping	5.0
Brick making	2.5
Making food warmers	11.8

The adult literacy learners therefore used the skills acquired from the programme to generate income without necessarily destroying the environment. The results obtained have therefore confirmed what had been suggested by Anderson (2010) in his studies on “*how to combat climate change through quality education*” that, the education sector in general, and the adult literacy programme in particular, offers an untapped opportunity to promote sustainable environmental management. That the learners had acquired, and were using new and innovative practices and technologies as well as production skills show that, the skills acquired from the programme capacitated the learners to fully participate in socio-economic development activities. The utilization of knowledge and skills acquired is further proof that, besides the provision of basic skills of reading, writing and simple numeracy, the programme promotes functional application of knowledge and skills in activities in which basic literacy is required in everyday life (UNESCO, 2006). This may further confirm what was argued by Van der Kamp and

Scheeren (1996) that, functional literacy is key to the acquisition of other forms of literacy.

The findings of the study have supported the fact that Kenya had realized the importance of adult literacy and increased attention to it. This is done in order to boost the effects of the programme in solving various problems in society (Republic of Kenya, 2008). It had also been established by UNESCO (2005) that, the programme helps in the promotion of family planning and the reduction of child mortality and the curbing of population growth. This further confirms the importance of the programme in solving contemporary problems in society.

As the findings revealed, most of the activities in which the learners were involved directly contribute to sustainable environmental management and generation of funds that the learners needed to solve their various problems. As they were able to generate financial resources from these activities, they never involved in the cutting down the trees to sell as firewood or to burn charcoal to get income.

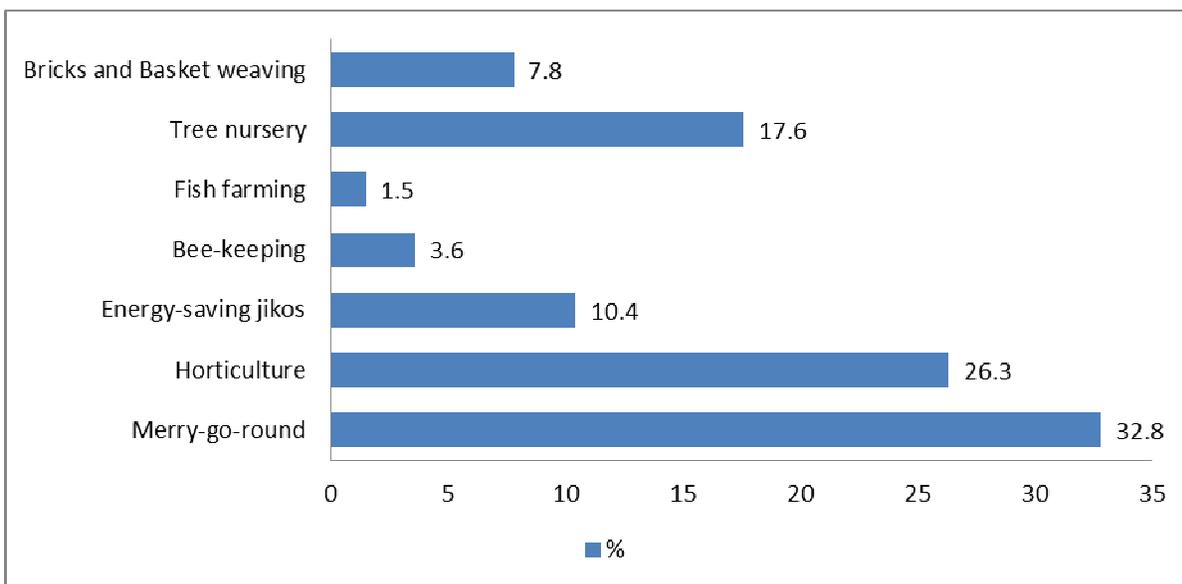


Figure 2: Income-generating activities learners engage in at the centres

Using Income Generating Activities (IGAs) in the programme is a means of building up the motivation and experience of learners as they get opportunities to undertake activities that promote their income and a reduction of expenses, while in the process, engaging in certain activities that promote sustainable environmental management. The programme therefore, tried to equip learners with survival skills and empower them to function better in society. This can be corroborated by another study by the International Fund of Agricultural Development (IFAD) in Hoima, Masindi and Kibasale in Uganda in 2000 on gender mainstreaming programme for Eastern and Southern Africa, where it was revealed that, functional literacy programme involved other useful learning besides the acquisition of reading, writing and arithmetical skills (3Rs) to empower the citizens to be

more functional. The programme was found to be a powerful tool for empowering poor rural women, particularly in helping them to apply their newly learnt skills. The results of the study also seem to have confirmed what modern research findings and thinking about literacy has suggested. This is the expansion of the meaning of literacy to include the ability to use varying levels of analysis, degrees of abstraction, more sophisticated symbol manipulation, the application of theoretical knowledge and other skills that go far beyond simple reading and writing. This has given birth to other aspects of literacy such as computer literacy, financial literacy, and economic literacy, social, environmental and political literacy among others (UNESCO, 2004).

Environmentally Innovative practices

The findings have established that the programme facilitated creativity and adoption of new ideas and practices that lead to the improvement of living standards. This is true as the majority of the learners were involved in activities where the use of innovative practices was critical. It was established that horticulture (25%) was most popular as the knowledge and skills acquired programme were used to grow vegetables under small scale bucket irrigation. Other participants practiced fish farming (1.5%) and bee keeping (3.6%) which are non-destructive income-generating activities. According to KEEP (2013), bee keeping is especially important in sustainable environmental management as the residents get alternative sources of income and desist from cutting down the trees. Other learners still used energy-saving (10.4%) and other eco-friendly technologies or kept exotic breeds of goats which are drought-resistant and energy-efficient.

The findings also revealed that the learners used the skills acquired to store and conserve water. This was especially important as sustainable water management and harvesting is a key factor in environmental management. The used of acquired water conservation skills is important in the face of unprecedented scarcity of water that is occasioned by climate change as global warming has been taking a toll on water sources and bodies (WWF, 2006).

As the learners applied the knowledge and skills acquired in the area of environmental management, through *the neighbourhood effects* of education or the positive spill-over effects of education (Ayodo, Gatimu & Gravenir, 1991), the non-participant neighbours around them may also copy them and start to practice environmental management, and this may be of interest to the educational planners. The study was therefore able to establish the functionality of education and the importance of investing in human capital to develop and manage the environment. The study therefore established that, adult literacy centres have the capacity to offer education that promotes the functional application of skills to solve local problems. This is in agreement with what had been established by a research by Hicking and Hudson (2003) in adult literacy that the strategy for learning should focus on acquisition and application of knowledge and skills to solve immediate problems in society.

The study has established that, learners' participation in the adult literacy programme has effect on their earnings and ability to manage the environment. This confirms what the World Bank (2001) also stated that, adult learners are more achievement-oriented, more self-reliant, and more adaptive and above all, more trainable as they come to the learning centres with the desire to learn definite skills for immediate application to solve individual and community problem. As the study has confirmed what matters greatly to the adult learners, as had also been noted in a study on *education production function in secondary schools in Kenya and*

Tanzania conducted by Knight and Sabot (2011), is the level of cognitive achievement. This bears a highly significant positive relationship to educational level and ability to function better in society, and not necessarily the direct tangible and quantitative returns.

4.0. CONCLUSION

The findings of the study established that the learners effectively applied the knowledge and skills acquired from the programme to develop and manage the environment. The programme therefore, provided the learners with necessary knowledge and skills for improved productivity and environmental development and management. Because the learners had also gotten some skills during field days, seminars and the parents, funerals, neighbours, *barazas*, NGOs, former schools, churches and the media, the knowledge and skills used might however not have been wholly acquired from the ALP alone. The programme was therefore, not the only source of knowledge and skills on environmental development and management issues. The utilization of new knowledge and skills also shows the importance of investing in human capital as a solution towards reducing various problems in society. The knowledge and skills acquired from the programme had therefore, contributed towards environmental management and development.

5.0. RECOMMENDATION

Educational Planners and implementers should attach more emphasis on the practical application of acquired knowledge and skills. They should lay more emphasis on occupation-education relationship in ALP by encouraging the off-the-job on-the-job learning experiential learning. This will ensure that the learners immediately apply the skills acquired for the solution of individual and community problems.

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