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CONTENTS

- 132. The Operation of the Commerce Festival as an Activity Approach to Learning**
Cheung, C. K. & Emily Y. M. N.
- 141. Education for Sustainable Development in Higher Education Institutions in Southern Africa**
Kethoile, M. J.
- 152. Education and Human Resource Planning In Nigeria: The Case of National Manpower Board (NMB)**
Agabi, C. O. & Ogah, J. I.
- 166. Information and Communication Technology Empowerment of Early Childhood Education Teachers in Botswana**
Bose, K.
- 177. The Role of Women in Sheep and Goats Production in Sub-Saharan Africa**
Hulela, K.



The Operation of the Commerce Festival as an Activity Approach to Learning

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Abstract

The main purpose of this study was to investigate changes in skills, motivation to learn and construction of knowledge in activity learning with business subjects through the operation of a Commerce Festival in a secondary school in Hong Kong. The results of this study clearly indicate the students' positive perceptions of skills improvement. Holding the Commerce Festival by conducting activity learning in business subjects created a positive atmosphere, which enhanced students' motivation to learn and develop generic skills. Nonetheless, there are areas in the activity learning approach that need improvement, such as task structure, students' readiness for activity learning and teachers' readiness for a paradigm shift in teaching practice.

Keywords: Hong Kong, Activity Approach, Learning, Commerce Festival, Business Subjects

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INTRODUCTION

Society is dynamic and changing at an increasingly rapid pace. Education in Hong Kong must keep abreast of the accelerated pace of change and provide opportunities for students to learn beyond the confines of the classroom. In business education, educators are being asked by the business sector to link theory and practice in real business contexts to face these challenges: to teach students to be life-long learners, to think critically, to develop creativity, and to co-operate and communicate harmoniously in a team (Cheung, 2008). This study aims to provide insights into activity learning in business subjects and how this learning approach can increase motivation and enhance the generic skills which are important in business.

The changing agenda of schooling and the wave of curriculum reform in Hong Kong

In attempting to maintain Hong Kong as a competitive economy, the traditional pattern of schooling will no longer be effective in ensuring the employability of the work force. Work in the contemporary world is characterized by its high mobility, flexibility and adaptability. Danish economists Lundvall and Johnson (1994) used the word "multi-skilling" to refer to the permanent innovation, unstable and highly competitive markets, new technologies and flexible specialization of business management which are characteristics of the knowledge-based economy. They noted that in the knowledge economy:

First, there is a growing need for a broader participation in learning process. Swift and efficient innovation processes must involve all layers in the firm. Second, multi-skilling and networking skills become of crucial importance. Third, the capability to learn in and to apply learning to the processes of production and sales becomes the most important dimension to the viability of the modern firm. Management skills become related to the establishment of routines and rules which stimulate interactive learning. (Lundvall & Johnson, 1994: 25-26)

This implies a holistic approach to learning in the workplace. It indicates that employers need workers who can take the initiative and solve problems not only in managerial and professional positions, but also in production and clerical work. Moreover, business is looking for employees who can work and learn effectively as part of a team. In this respect, companies will retain good workers if they are able to provide a working environment that not only stimulates productivity and application, but also fosters continual learning. Holistic learning in the workplace also imbues a company with a culture of sharing and acquiring new knowledge and skills. In order to prepare our students to be “multi-skilled” and increase their chances of employment, our present teaching practices should change to better suit the needs of a learning society. Watkins *et al.*, (1996) described a learning society in which employment prospects relate more to the ability to enhance and transfer learning than to the accumulation of qualifications. In Hong Kong, the learning practice in school has traditionally been mainly concerned with learning content and an examination-driven syllabus. However, it is not enough to supply students early in life with a store of knowledge to be drawn on in their later life. Knowledge and skills tend to change rapidly, and everyone will need to know how to deal with unprecedented situations in the future. The first and most obvious requirement is that learning how to learn becomes a priority.

The reform proposals of the Education Commission for the Education System in Hong Kong 2000 elucidated the following aims of Education for the 21st Century as:

To enable every person to attain all-round development according to his/her own attributes in the domains of ethic, intellect, physique, social skills and aesthetics, so that he/ she is capable of life-long learning, critical and exploratory thinking, innovating and adapting to change; filled with self-confidence and a team spirit; willing to put forward continuing effort for the prosperity, progress, freedom and democracy of his/her society, and contribute to the future and well-being of the nation and the world at large. (Education Commission, 2000)

In the domain of learning, the following aim was outlined as:

Our priority should be to enable our students to enjoy learning, enhance their effectiveness in communication and develop their creativity and sense of commitment. (Education Commission, 2000)

To align with the aims of 21st Century of Education, the Curriculum Development Council (CDC, 2001) also suggested that generic skills should be built into the curriculum. These generic skills are considered to be essential for increasing opportunities for employment.

In an age of educational reforms, we, as business educators, should reflect on our teaching methods at all times. Our teaching pedagogy should no longer be a didactic one, but an approach which puts more focus on the teacher as a facilitator of students’ learning. What can be done to help students acquire the generic skills and what can teachers do to make it happen? This study aims to explore this using an activity approach.

The school

Almost 99% of the student intake of the school in this study comprised academic under achievers. Recently, the school underwent a self-evaluation program, and a questionnaire survey on the learning attitudes and socio-economic status of students was conducted. The data collected revealed that 80% of the students were unmotivated in their learning, and the majority of the students believed that they were not really able to succeed in a world that defines success as passing standardized public examinations.

Not only do students in the school lack motivation to learn, many teachers are struggling with job satisfaction; they find their teaching is not helping students attain either academic or generic skills as stipulated in the educational reform documents.

Set against the low morale of teachers and poor motivation of the students, the researcher worked with four teachers of the Commerce Department in the school to try to create a positive atmosphere which enhanced students' motivation to learn and develop generic skills by implementing activity-learning in secondary business subjects.

Respondents were students from secondary four to secondary seven. The interviewees were thirteen students representative of each task group and four teachers from the Commerce Department and the data collection procedure lasted for half a year.

The Commerce Festival – an activity learning approach

This study made use of a Commerce Festival to enhance students' generic skills and their motivation to learn. Before launching the activities, an organizational chart of Committee members of the Commerce Festival including leaders of five task groups was set up. The various functional task groups consisted of: the promotional team, stall organizers, arts and craft team and presentation of the company start-up proposal. Each task group consisted of students from secondary four, five and seven classes. Also, each task group was assigned one business teacher as facilitator, whose role was to give more responsibility to students' own learning and to advise students regularly on their learning processes.

The Commerce Festival lasted for a week, and the schedule of events held was as follows:

- i) Creating and editing material about the subjects taught in the Commerce Department and posted on ten pieces of white board for exhibition in the covered playground.
- ii) Presentation of business proposal plans by four groups of students during the Assembly. This presentation was delivered to the audiences by soliciting their votes to invest in the potential company. In addition, teachers and the audiences gave marks and comments to each group.
- iii) Holding a Fun Fair Day for charitable sales and stalls for playing commerce puzzles and games in the school hall.

Through the captioned series of activities, it was envisaged that the students who participated in the Commerce Festival would be able to apply their knowledge in business and, in doing so, enhance their generic skills such as creativity, communication and cooperation and motivation to learn.

DATA COLLECTION INSTRUMENTS

The data collection instruments were questionnaires about student's participation in the Commerce Festival, and interviews with students and teachers. The questionnaire contained 25 questions; grouped into five major skill areas namely, management skills, inter-personal skills, communication skills, creativity skills and cooperation skills for students to express their feelings and beliefs about skills changes after the Commerce Festival. The interviews of teachers and students were recorded and transcribed to help the researcher in coding and analyzing the data gathered from the questionnaire survey.

The pilot

Realizing the importance of a pilot study, the researcher asked secondary four students to complete the questionnaire to ascertain its comprehensibility. It was found that they had no difficulty understanding the Chinese version of the questionnaire and interview questions except the term "traditional style of teaching", which I needed to rewrite in simple phrases like 'chalk and talk' teaching and 'one way communication' by the teacher to 'deliver knowledge in the classroom.' Amendments were made accordingly to improve clarity.

FINDINGS

Findings of the questionnaire for participants in the commerce festival

Table 1 Distribution of percentage for the skills surveyed

Types of skills	Strongly agreed or agreed (%)
Communication	84
Time management	81
Cooperation	81
Creative	52
Inter-personal	84

Overall, the results of the questionnaire survey showed that the students felt that the activities in the Commerce Festival helped them build skills. More than eighty percent of the students reported that they had improved in their time management skills, inter-personal skills, communication skills and cooperation skills.

However, in the area of creative skills, only around one-half (52%) of the respondents claimed improvement. It might be inferred from the respondents that students were not quite familiar with how to synthesize ideas in doing the real task. These responses indicated that the students were not dynamic learners, but were used to a spoon-feeding method of teaching and were not able to perceive and process information correctly. This showed that the students were not creative in exploiting applications and learning by trial and error and self-discovery.

Findings of the interviews with students

In the interviews, students were found to have similar perceptions of the learning process and motivation. The interview data show that the learning process was closely related to (a) students' perceptions of teaching method and learning style, and (b) the crucial factor of meta-learning in helping the students learning process.

One significant response was that 11 out of the 13 students expressed their fear and difficulty when they were told to do their own task and learning in this activity learning. The following quote sums this up nicely:

We felt it was very difficult because we had never embarked on a task by ourselves. Usually, we have teachers to guide us. Besides, we found that there was not enough time to complete the exhibition board. The feelings of difficulty gradually disappeared though.

The learning mode adopted in the Commerce Festival was student-centered and based on independent learning. The teacher acted as a resource and provided guidance and directions. The interview data indicated that the majority of subjects felt very anxious in the first two days of the activity learning. This was because students were accustomed to the usual teacher-centered style based on teachers' "spoon feeding" of knowledge. They had not previously experienced self-learning and discovery learning and this resulted in "fears, stress, and difficulty" upon knowing that they were responsible for their own learning. It took them some time to recompose their feelings with the help of the mediation and assistance of the facilitators (teachers) and the capable members in the group. This mediation was in line with the theory underpinning Vygotsky's (1978) concept of the 'Zone of proximal development'.

When the initial fear of difficulty had passed, students started to pick up, and they seemed to enjoy activities to be incorporated in the classroom to help them gain more understanding in the subject knowledge. The following extracts express their feelings

Activities conducted beyond the confines of classroom are more lively and interesting because I have participated in the task and even played with the games on the Fun Fair Day, which impressed me very much. This kind of learning helped me to retain subject knowledge easily in my memory.

Findings indicated the students' interest in activity learning beyond the confines of classroom. They perceived activity learning to be more experiential learning and valued interactions with teachers. Most important of all, the activity learning was interesting and motivating for students and subsequently led to intrinsic motivation.

Construction of Knowledge

The outcome of the learning process was the active construction of knowledge on the part of the students through activities in the Commerce Festival. The students enjoyed the activity learning and were able to construct their own knowledge. The following extract is an example:

I enjoy this kind of learning approach because it required students' participation in learning and awareness of learning responsibility. After all, we secondary students need to enhance our skills in creativity, communication and cooperation and increase our motivation to learn. It gave me a sense of achievement in the construction of knowledge that I was able to integrate knowledge in Business Studies and Principles of Accounts. I presented the researched material such as: procedure of setting up company, capital cost, budgeting, pricing of product, advertising and promotion of sales, and planning of human resources into the task.

Findings highlighted that students had to go through the cycles of meta-learning. In the activity learning, students were encouraged to reflect on their learning. They were asked by the teachers, who acted as facilitators, to be explicit about what they had got out of this learning experience. They accomplished the learning task by searching for analogies, relating new information to previous knowledge, analyzing the knowledge, and identifying and applying what was helping their learning. They were able to relate knowledge across subjects to the activities carried out. Their participation in the groups was high. They were resourceful in collecting information to discuss with their group members. They reached a consensus through a gradual process of collective discovery of learning, negotiation and joint decision making to reach solutions. The interview data reflected that they gained interest in learning business subjects. These students generally enjoyed the activity learning, which gave them greater awareness of the business environment. This happened because the activities in the Commerce Festival contained elements of current business news. Besides, they were in control of their own learning, and the ability to integrate different subject domains of business subjects helped them to build confidence and gain a sense of achievement. In all, the students, who were able to construct knowledge, gained mastery of study skills after participating in activity learning. These skills included gathering, classifying, summarizing and presenting materials, and being more organized in the use of time in their studies. These skills will eventually lead to life-long learning skills in the future. In general, the students were able to view activity learning as the construction of knowledge and meaning.

Improvement of skills

Most of the students interviewed acknowledged that they had improved in generic skills, notably cooperation, communication, time management, and interpersonal skills after the activity learning. These results also tallied with the survey conducted in the questionnaire survey. The results indicated that there was positive interdependence in the group and that all the members were able to divide up the work, respect each other's opinions, communicate and share resources and contribute to the accomplishment of mutual goals. Furthermore, students respected each other's opinion and valued group members' contributions to communication, cooperation and conflict management. These skills were indispensable to each group's success. The following extract from a student interview sums this up well:

Good team spirit is very important to accomplish the task. I have improved my communication skills in that I conversed precisely with my group members. Whenever there was diversity of opinions, our group members would listen and respect each other and then decide by votes. We had good cooperation in our group; otherwise we could not have finished our task in time. We divided our task into sub-tasks and then individually worked on the task agreed. I also appreciated my group members' contribution for the accomplishment of the task.

Although in general students perceived there that there had been an improvement in generic skills, as with the results from the questionnaire survey, later interviews confirmed that their improvement in creative skills was very limited:

Regarding the creative skills, there is no improvement in creativity. Because, we just put all the materials which were provided by the teacher on the exhibition board. Moreover, we should have preferred the teacher to give us the solutions to our task problems.

Students in Hong Kong are in general rote learners accustomed to a surface learning approach. Surface motivated students reproduce what teachers want them to do. Usually, students do not see interconnections between the subject matter and the significance of what they have learned. However, Johnson and Johnson (1991:31) argued that “creativity is not a characteristic of a person but rather the result of certain types of interaction among individuals.” They pointed out that no effective problem-solving can take place without some amount of creativity. They also stated that “the ability to engage in divergent thinking, to take risks in solving problems, and to engage in open controversy are all aspects of creative interaction (ibid).” In line with the review by Johnson & Johnson, the findings illuminated in hindsight that task design determined divergent thinking, the amount of creative thinking. Take, for instance, the task in the Commerce Festival, the exhibition board, which did not require much creative thinking, and so the subjects only searched for material or received the material from the teacher and stapled it to the boards. In general, cooperation skills are the essential core element in a successful group, where group members support and help each other and thereby, foster trust and effective communication with each other.

Interviews with teachers

Four teachers of the Commerce Department were interviewed. From the interviews, it was apparent that their main role in this activity learning program was to act as facilitators to provide guidance to the students to accomplish the task.

As for attainment of the goal of the activity learning in the Commerce Festival, there were divided opinions from the four interviewees. Two interviewees, referred to as Teacher A and Teacher B in the interview, felt that the activity learning approach had achieved its goal because the students were able to integrate knowledge across subjects and develop their skills. The other two interviewees (referred to as Teacher C and Teacher D in the interview data) had reservations about the fulfillment of the goal. Teacher C observed that not all students had achieved the integration of knowledge in the activities undertaken. Teachers A and B were more positive about the students’ meta-cognition and self-learning skills as manifested in the activities. Below are the quotes from the first two interviewees:

Basically, the learning goal of the activity learning was achieved especially the Business Start-up Proposal. I recall that a group with the proposal to sell educational toys and kits to children was able to think deeply about the task. They considered socio-economic factors like low birth rate of the community: the majority of people would have only one child. As a result of this, the family would certainly invest resources for the child’s education. This group had researched statistical data to support their reasons for selling the educational data. I could see they had the business acumen to start up a company. All in all, this group knew how to relate their subject knowledge across subjects like Business Studies, Commerce and Principles of Accounts, and even Computer Application like Power Point Presentation, so as to accomplish the task. It was really not easy to piece the fragmentation of commerce subjects together and construct the knowledge in the task. They did a good job. Besides this group, other groups were in control of their own learning. As regards the generic skills, there was cooperation, trust and communication. In addition, students made a lot of improvements in problem solving skills when they learned that the companies could not donate goods for the charity sale. They were disappointed in the first instance; then, they discussed this matter by themselves and solved the problem by making posters for soliciting the whole school to donate stuff like” soft toys, stationery, and other accessories etc. (Teacher A)

The other two interviewees (Teacher C and Teacher D) revealed that they had reservations about the learning goal; however, certain improvements in classroom behavior like off-task behavior and students’ concentration levels were noted, as in the following quotes:

Some of the students were passive in the process of learning in that they were quite reluctant regarding independent learning. They completely relied on the resources that I provided to them and put them on the exhibition board. However, some students did gain interest in learning commerce subjects through participating in the Commerce Festival. Their levels of concentration were comparatively higher than before participating in the activity learning. There were less off-task behaviors since after that. (Teacher C)

These comments indicate that the nature of the task assigned determined the level of construction of knowledge in the activity learning approach. This has further implications for studies in this area.

Regarding the improvement of generic skills, four interviewees were of the same view that the students gained generic skills, especially in the areas of cooperation, communication, time management, conflict management and interpersonal skills.

DISCUSSIONS OF FINDINGS

The questionnaire data obtained from students participating in the Commerce Festival indicated that there were improvements in participants' skills. This was also supported by the positive comments in the interviews with teachers and representative participants of each task group. In light of the reservation about this activity learning approach as reflected in the comments made by some teachers and students, further developments and refinements would be expected to make the activity learning approach more acceptable for students' development of cognitive and affective skills.

There are three major aspects evident in the questionnaire survey and interviews. These are: (a) learning method and learning process, (b) learning environment and skills development, and (c) task structure, which are all discussed in the following paragraphs.

With reference to learning method and learning process, it is evident that activity learning is distinctly different from traditional learning conducted in classrooms. This activity learning aims to transform students' learning from passive to active approaches, and this transformation requires students' to be in control of the learning process to acquire knowledge. As Stern and Huber (1997:39) pointed out, "self-regulation by learners of the various phases of the learning process, which include, among others, goal setting, planning, monitoring, and assessment, leads to construction of new knowledge in the learner's mind." If the designed activity learning is to bring about students' meta-learning and independent learning, then a major responsibility falls on teachers. A concerned, caring approach on the part of teachers highlights the quality of student-teacher relationships. Though the activity learning in the Commerce Festival relied on students' accepting responsibility for their own learning, it was still important for teachers to show care and facilitate the students' learning process. Students felt supported when teachers showed their commitment and assumed a share of responsibility for their learning. It was clearly evident from the interviews that students were relieved by being able to refer their problems to the teachers for guidance. In general, teachers were more concerned with process than product, and with encouraging exploration and the development of skills. There was a paradigm shift in the teacher's role from knowledge transmitter to facilitator.

The learning process in this case study of activity learning reflected Piaget's (1950) major emphasis on learners as *active* meaning-makers rather than passive 'recipients' of knowledge. This had an impact on the role of teachers as learning facilitators, who saw students as resources for one another. Students were given more space to learn and for self-reflection on their own learning. However, further interviews indicated that not all students became involved in some activities, and some students were not ready for this kind of discovery learning. A possible explanation is that the meta-learning skills need to be developed and taught gradually from the beginning of school.

With regard to the learning environment and skills development, it was evident that the events held in the Commerce Festival contained a social and cultural environment which required students' active participation in decision making and appreciation for individual differences. Prominent researchers like Vygotsky (1978) and Bruner (1972) take full account of the social and cultural contexts of learning, given that schools are socially and culturally organized institutions. There is evidence that the students had developed positive attitudes towards subject areas, team members and task activities in the socio-cultural environment of the Commerce Festival. These activities could not have taken place if students had worked individually. Through a division of labor and a shared responsibility for goal accomplishment, students shared each member's resources and worked cooperatively in groups. Students who were particularly capable and conscientious were definitely able to carry out the meta-learning cycle. They went through the two connected cycles reviewing, learning and application to accomplish the task and to give help to less capable ones. In this socio-cultural context of learning, knowledge construction through the mediation of more capable others would take place, reflecting Vygotsky's (1978) concept of the 'zone of proximal development'. As revealed by the comments given by the students interviewed and the survey results, there was a clear perception of improvement in the skills. The efficacy of the activity learning approach on skills was especially noted in the areas of cooperation, communication, time management, and interpersonal. The activity learning also mirrored the real world of work where there is increasing need for students to solve problems together. For instance, when students found that their soliciting for donations of goods for charitable sale failed, they resolved this through discussion of various alternative solutions and

solicited internally from school sources. The more the students are exposed to this authentic context of learning, the more the students will develop their employability skills in areas of problem-solving, team work and critical thinking.

The Commerce Festival task was perceived to be difficult as evidenced by students' expressions of fear and worry in the interviews. Tasks are an important part of activity learning. Whether the tasks can activate the three systems of thinking (self-system, meta-cognitive system and cognitive) as developed by Tileston (2000) will depend on several factors. These include the students' perceptions of their ability to succeed, the students' current state of subject knowledge and the appropriate task structure and support given by the teachers as facilitators. Appropriate tasks included balancing "breadth and depth" as in the Business Start-up Proposal. Games stalls for commerce quizzes and puzzles stimulated students' higher order thinking skills, creativity skills and construction of knowledge. Once students had positive self-efficacy about the task, their meta-cognitive systems became engaged. The meta-cognitive systems then facilitated learning goals, problem solving skill and self-reflection skills. Once the meta-cognitive system was engaged, it was in communication with the third system, the cognitive system. The cognitive system enabled students to process information, compare and classify. In this way, knowledge was constructed and applied to the task.

Throughout the process of activity learning, help and motivation from teachers was particularly critical to the accomplishment of the tasks in the Commerce Festival. Teachers needed to monitor the groups as they worked for the Commerce Festival. The teacher played the important role of carefully monitoring how well the groups were functioning. Teachers needed to intervene when problems were out of the group's control. From the interview data, it was found that Teacher B facilitated the process of doing this by re-directing the groups of Business Start-up Proposal back on the right track.

From the interviews of students doing the exhibition board, it is clear that students of this group were accustomed to traditional spoon-feeding and tended to solicit help from teacher often. They all perceived that there was no improvement in creativity and construction of knowledge because the teacher just gave all the materials to them whenever they asked. Hence, it is crucial for teachers to change their mind set from "learning transmitter" to "learning facilitator".

CONCLUSION

The purpose of holding the Commerce Festival through activity learning was to provide a means whereby students were able to develop generic skills and motivation to learn. It was also hoped that students would internalize these skills to be life long learners. The responses from the subjects in the survey and interviews affirmed the effectiveness of the approach in learning commerce subjects. They agreed that the learning environment helped to promote cooperation and knowledge building.

Having engaged students in activity learning, there are three implications arising from the case study. First, students and teachers held similar views about the changes in students' generic skills such as, cooperation, communication, interpersonal, and motivation to learn after participating in the Commerce Festival. They agreed that more interaction and harmonious relationships developed in the activity learning approach. As Johnson and Johnson (1988:34) stated, "being able to perform technical skills such as reading, speaking, listening, writing, computing, problem-solving, etc., are valuable but of little use if the person cannot apply those skills in cooperative interaction with other people in career, family, and community settings."

Second, the activation of the meta-learning cycle is conducive to the learning process. The paradigm shift in teaching from knowledge transmission to knowledge facilitation is of paramount importance in developing students' life-long learning skills. Teaching should not just focus on students' performance in relation to curriculum tasks and public examination results. There is a long-term need to foster students' development in generic skills and social responsibility to cope with the complex, fast moving nature of modern economies and society.

In conclusion, activity learning provides students with learning experiences to develop skills in several areas: problem-solving, communication, cooperation, decision making, uses of information technology to search material and construct knowledge, and improving student motivation and understanding. All these skills are vital in the work place. Furthermore, learning activities which involve team work, problem solving and analyzing will better prepare students to adapt in the workplace in the future.

Limitations of the Study

The study includes only those students who participated in the events held in the Commerce Festival. Those commerce students who were not responsible for launching the Commerce Festival were excluded for ease of control of task members and time. The scope of this study was limited to senior form students in the commerce stream; therefore, no

attempt was made to extend the findings beyond this level of students. The impact of the low economic status of students could have been examined and probed in the interviews in order to gain deeper understanding of students' negative feeling to learning.

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Education for Sustainable Development in Higher Education Institutions in Southern Africa

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Abstract

The implementation of education for sustainable development (ESD) demand for a review of the current epistemological and pedagogical practices in the context of the objectives of the United Nations Decade of Education for Sustainable Development (UNDESD). Most of higher education institutions are grappling with the introduction of education for sustainable development into the curriculum. The paper is interrogating possible epistemological and pedagogical practices for higher education institutions in Southern Africa. It draws on reports from Southern Africa Higher Education Institutions. The paper highlights on themes and topics that may be of interest, most useful and suitable for teaching education for sustainable development in contributing to the implementation of UNDESD at higher education institutions. It explores social, economic, political and ecological issues, local contexts and impact. The paper stimulates and invites debates on sustainability issues and their implication for research, community engagement and teaching and learning practices at higher education institutions and curriculum policy change to promote social transformation.

Keywords: Education for Sustainable Development; Higher Education Institutions; Re-orientation; Epistemological; Pedagogical practices.

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INTRODUCTION

The current initiatives on education for sustainable development in Southern Africa had been given impetus by the UN declaration of a Decade of Education for Sustainable Development (ESD). The UNDESD came at a time when debates were gaining momentum on what, how, why, where and who should or is to be playing an effective lead in partnership with UNESCO and other agencies. The current debates on what is education for sustainable development are trying to understand the concept, its appropriateness, implications in different contexts and education policies. The debates on how to appropriate/re-orientate education to incorporate education for sustainable development was trying to interrogate different approaches to harmoniously mainstream education for sustainable development without causing any tension within higher education institutions' curriculum. This paper is examining the possibility and appropriateness of ESD in the curriculum and focus on its implications as far as epistemological and pedagogical discourses are concerned in higher education institutions in Southern Africa. It is meant to assist educators in higher education institutions in their implementation of environmental and sustainability education for sustainable development. The analysis is based on the authors' views drawing on education for sustainable development concept and discourses. It is also drawing on the current practices and initiatives in higher education institutions as reflected in education practitioners' reports at the Southern Africa Development Community (SADC) Regional Environmental Education Centre (Ketlhoilwe, 2008). It also draws on the base-line study reports by Lotz-Sisitka, Gumede, Olvitt, &

Pesanayi, (2006a) on the status of education for sustainable development debate, practice and suggests mechanisms needed for supporting this practice concentrating on themes and topics that may be identified as most useful and suitable for teaching education for sustainable development in higher education institutions to make a meaningful contribution to the implementation of UNDESD. More insights are drawn from the Sub-Saharan Africa Strategy of Education for Sustainable Development (2006) and other initiatives in the Southern Africa region.

United Nations Decade of Education for Sustainable Development

United Nations Decade of Education for Sustainable Development (UNDESD) came at a time when different views are still part of the debate about what education for sustainable development is. The UN General Assembly Resolution 59/237 that declared the Decade encourages Governments to consider the inclusion of measures to implement the Decade in their respective education systems and strategies, and where appropriate national development plans (UNESCO, 2005). The overall goal of the UNDESD is to integrate the principles, values and practices of sustainable development into all aspects of education and learning. It also invited governments to promote public awareness of the decade and wider participation during the Decade, *inter alia*, through cooperation with and initiatives engaging civil society and other relevant stakeholders especially at the beginning of the Decade (*ibid*).

UNDESD's main thrusts are improving access to quality basic education; re-orientating existing education programmes; developing public understanding and awareness; and providing training (UNESCO, 2002: 2). The Decade of Education for Sustainable Development addresses pedagogical processes, the validation of knowledge and the functioning of education institutions. It also promote a set of underlying values, relational processes and behavioural outcomes, which should characterize learning in a range of contexts (*ibid*) including research and community engagement in higher education institutions. The dilemma that may arise as a result of the emerging education for sustainable development as a dominant narrative may be the choice of emphasis on environmental education or education for sustainable development in some countries resulting in slow pace in curriculum innovation process to address sustainability. A variety of contextual understanding of education for sustainable development is already shaping education policy discourses and influencing pedagogical practice in higher education institutions. Some of the Southern African universities have established a research network on education quality for sustainability and are working in partnership with UNEP to mainstream environment and sustainability issues in African universities (MESA). The MESA initiatives are broadened to include other universities across the globe through the GlobalUniversities Partnership for Environmental Sustainability (GUPES). These initiatives promote both collaboration among higher education institutions and epistemological practices during the UNDESD and beyond.

Debates around education for sustainable development discourses may continue to compound curriculum processes in higher education institutions and perhaps globally. What is perceived to be a choice between education for sustainable development and other education systems may be further compounded by its complexity, uncertainty, unstable and competing perceptions, and open-ended understandings of education for sustainable development. In Southern Africa, like in most parts of the world education is undergoing some transition as it begins to emphasize sustainable development. Education for sustainable development had been contested by some intellectuals such as Jickling and Wals (2003), Huckle and Sterling (1996). It has been blamed for being instrumentalist and for attempting to narrow education as an open-ended process and for constituting 'development' as the endpoint for educational discourse. Sustainability is perceived as shallow in theory requiring further research and discussion in the context of higher education. This remains a challenge to higher education institutions. It appears there is a dire need for curriculum development in higher education institutions to direct education for sustainable development. UNESCO (2002) argues that education policy development should encompass or create space for education for sustainability across sectors and stretch beyond compartmentalized sectors and provide linkages, exchange and interaction among stakeholders in education. As acknowledged by UNESCO (2002), the root of education for sustainable development is firmly planted in the environmental education efforts and has striven towards achieving the goals and outcomes similar and comparable to those inherent in the concept of sustainability. Therefore, in incorporating sustainability in the education system, environmental education should not simply be viewed "as something of an 'historical artifact' informing ... recent discourse on 'ESD'" (Lotz-Sisitka, 2004: 48), but should enable a more dynamic and reflexive discourse with contemporary validity and value. Higher education institutions in Southern Africa region should consider both global and regional strategies in curriculum innovation to contribute to the implementation of the UN Decade of Education for Sustainable Development.

The Sub-Saharan strategy on UNDES

To translate UNDES goals and objectives into workable and measures the sub-Saharan Africa strategy for Education for Sustainable Development coined its strategic objectives as follows;

- To improve the harmonization and commitment for the implementation of education for sustainable development at the regional and national level
- To broaden public awareness on and to strengthen the practice of principles of sustainable development both in individual and collective lives
- Promote an education system, which enhances African cultures especially in the dimensions that contribute to sustainable socio-economic development
- To strengthen in all its dimensions the quality of education within the framework of sustainable development
- Consolidate and diversify partners with a focus on education for sustainable development (UNESCO-BREDA, 2006).

These are some of the leads for higher education institutions' curriculum innovations to introduce education for sustainable development. They could be considered for curriculum design, for teaching, in research and in community engagement. To implement these strategies in higher education systems, we do not only require curriculum policy changes, strategies and plans, we also need a deeper understanding of what it is, required and what to implement or appropriate in a particular contexts. This would require an understanding of the principles of environmental sustainability and their implications to contextual institutional mandates. A review of projects reports from SADC Regional Environmental Education Centre has revealed that higher education institutions in Southern Africa are at different stages of considering and or implementing UNDES.

The regional foci when teaching education for sustainable development

Global environmental processes are driven by powerful international organizations such as the United Nations, World Wide Fund for Nature (WWF) and World Conservation Union (IUCN). The driving discourses are based on equity, climate change, poverty, health risks and vulnerability, environmental governance, sustainable development and education among others. Amongst the key global socio-ecological issues are: inadequate supply and availability of fresh water, rapid population growth, and inequality, food shortage, depletion of tropical forests, loss of biodiversity, pollution, desertification and many more (Ketlhoilwe, 2007, 2008).

The 2006 SADC-REEP ESD consultation process covering 600 participants in 14 countries had indicated an interest in education and training initiatives that can help society re-orient towards poverty reduction/alleviation, food security, ecological sustainability and health. The key findings of the consultation process covered the following:

- a) Inadequate debate on sustainable development
- b) Partnerships and participation in the UNDES
- c) Education for sustainable development practice and quality and
- d) Supporting Education for sustainable development practice. (Lotz-Sisitka, Gumede, Olvitt, & Pesanayi, 2006b).

These are areas for considerations in higher education institutions focal areas, namely teaching, research and community engagement to contribute effectively to education for sustainable development. One of the key aspects of education for sustainable development seem to be a need to foster and sustain an on-going open-ended critical review of ways in which sustainable development is being interpreted, appropriated and applied in different social and environmental contexts (Lotz-Sisitka, et al. 2006a). Education for sustainable development creates a new challenge to balance economist, environmentalist and social ideologies in knowledge-creation and for education thinking and practice in Southern Africa (ibid). The content of educational programmes in higher education institutions should be contextualized to take into account national and local realities and concerns. The 2006 (Lotz-Sisitka, Gumede, Olvitt, & Pesanayi) consultation process on education for sustainable development in Southern Africa indicated that institutions and organisations are responding to a diverse range of issues and challenges through environmental, social issues and risks, economic and political challenges.

i) Environmental issues and risks: These areas include increased environmental degradation; over-exploitation of natural resources for short-term benefits; land degradation leading to decline in productivity of the land and food insecurity; fresh water contamination; drought; poaching and loss of biodiversity; deforestation; desertification; pollution and inadequate sanitation. It also includes vulnerability to environmental change (e.g. floods, droughts, global warming); coastal zone degradation and marine issues (degradation of the marine environment and marine resources) (Lotz-Sisitka et al., 2006a). Some of the environmental risks and issues identified that could be also areas of focus in higher education institutions curriculum relates to loss of natural heritage, land use conflicts and uncontrolled urban development (*ibid*). These issues and challenges are not common to everyone and in every context. Higher education institutions could consider these issues in their core activities. That is in their teaching, research and community engagement to effect a social change.

ii) Social issues, risks and challenges: To effectively contribute to UNDESD implementation social issues, risks and challenges in Southern Africa such as HIV/AIDS that result in deepening of poverty and instability in the human resource-base should be part of higher education curriculum. Other social challenges that could be focus for teaching, research and community engagement in higher education institutions include health risks such as malaria; malnutrition and health of children; gender inequality, discrimination and vulnerability of women and children to health risks and abuse. Further social challenges in Southern Africa are street children and orphans; industrial health issues and decrease in general levels of wellness in the work place; increased vulnerability; population growth and settlement patterns; social values and moral regeneration. The quality of education is seen to be too theoretical and the valuing of education in some societies is of low priority (Lotz-Sisitka et al., 2006a). Higher education institutions should elevate the status of these issues through implementation of education for sustainable development and research.

iii) Economic challenges: Southern Africa is characterised by socio-economic challenges such as poverty and decrease in standards of living. There is high level of unemployment, food security, skewed distribution of land wealth, consumerist culture and lifestyles particularly amongst the rich and the youth. In addition the region experiences dominance of globalization and neo-liberal economic approaches; structural adjustment policy impacts (e.g. job losses and unemployment); shortage of resources needed to provide adequate housing, facilities and capital for appropriate development; inadequate resources for social services such as health and education. (Lotz-Sisitka et al., 2006b), These issues may provide the basis for curriculum design in higher education institutions to contribute to the Decade of Education for Sustainable Development.

iv) Political challenges: The Southern Africa region, like most of the less developed regions of the world experiences corruption; poor governance; lack of political commitment and lack of synergy amongst government departments. There are gaps between policies, practices and needs on the ground. The region still experiences short term objectives of politicians; decentralisation of policy making (linked to lack of synergy and lack of capacity for delivery and implementation), war and lack of security (Lotz-Sisitka et al., 2006a). These issues are a threat to sustainability and higher education institutions, through their core mandates, that is teaching, research and community services could contribute to the reduction of these political concerns.

The Sub-Saharan Africa strategy (UNESCO-BREDA, 2006) on education for sustainable development suggests that it is no longer necessary to add themes but to renew educational concepts and approaches by strengthening the meaning and substance given to education. Education for sustainable development should be designed basically as the means to develop a critical thinking that induces a change of attitudes and behaviours among students in higher education institutions and within the community. One of the major challenges of education for sustainable development is to meet the training needs of educators and trainers with the view to a profound change in the ways of thinking, attitudes and behaviours for a sustainable development (*ibid*).

Teaching and learning of education for sustainable development should go beyond acquisition and transmission of knowledge, individual development, socialization and economic development to include concrete action towards poverty reduction, peace and social and political stability, gender equality and equity, health promotion, environment sustainability, culture in relation to skills, behaviours and values to be promoted and the enforcement of the principles of good governance and transparent management (UNESCO-BREDA, 2006). These may form the basis for curriculum reform to make a meaningful contribution to the UNDESD. Viable strategies to enhance education for sustainable development implementation include partnerships, participation and networking. These inclusive

frameworks involve participation by formal schooling, universities, training colleges, and public awareness and community development (Lotz-Sisitka, Gumede, Olvitt, & Pesanayi, 2006b).

To ensure education for sustainable development practice and quality the following were identified as strategies deployed by the 14 SADC member states

- Involving people in sustainable development actions to meaningfully reduce poverty and improve the quality of life of the people – through participatory approaches and methods, integrated solutions and critically evaluating the appropriateness of environmental and sustainability education practices
- Participatory, active and learner-centred methodologies
- Dealing with complex issues
- Working with values, ethics and cultural diversity
- Creativity of and critical thinking
- Working with indigenous and local knowledge.
- Ensuring inclusivity in education for sustainable development practice (Lotz-Sisitka et al., 2006b).

To support education for sustainable development practice, it is important to provide adequate institutional policy support, good evaluation and monitoring strategies in higher education institutions. Curriculum and learning support material will need to be developed and or reviewed to strengthen institutional capacity building. Research activities should encompass obligations to provide feedback to researched communities. In many Southern Africa countries, environmental non-governmental organizations are working in partnership with governments to achieve sustainability. This partnership is indicative of change in how power patterns operate. Sharing of responsibility and accountability may go a long way in achieving the global call to engage communities in social practices including research and sharing of the research results.

Most of the Southern African states are engaged in a variety of initiatives to integrate and infuse emerging issues such as environmental, human rights, gender, HIV/AIDS into the mainstream curriculum. Environmental and sustainability issues are cross-cutting, and require multi-disciplinary responses. In preparation for the World Summit on Sustainable Development, a consortium of universities in southern Africa, acknowledged that given the current global human and environmental concerns, universities have significant potential to effect changes in sustainable development processes. Through the Kasane Declaration (2002), universities delegates to the conference declared that in order to maximize their role as important agents in sustainable development, universities should;

- develop human resources capable of integrating social and economic equity, environment and development through democratic and participative processes;
- develop life long learning skills based on problem and project oriented approaches;
- ensure gender equity in their programmes and activities;
- promote the use of information and communication technology in the generation, acquisition and dissemination of knowledge;
- ensure that indigenous and contemporary knowledge systems are brought into the learning and research processes;
- facilitate exchange of views and experiences that will pave the way for educational reforms;
- facilitate equitable socio-economic development through close collaboration with civil society as well as public and private sector in order to support economic, environmental, and technological development;
- be receptive to interacting with other role players in formulating strategies for training and research in sustainable development;
- serve as a role model in sustainable resources management.

In order to succeed in this endeavour, universities will benefit from systematic and coherent cooperation as well as networking for achieving lasting relevance by making significant and meaningful contributions towards achieving the envisaged goals.

The challenge is how these issues and strategies could be incorporated into existing curriculum models and frameworks. Various strategies had been suggested. They include the following;

- *Infusion approaches* – This involves infusing issues into existing curriculum frameworks. This strategy had been adopted by Botswana in its Revised National Policy on Education (Botswana Government, 1994).
- *Integrated approaches* – which involves cross-curricular strategies such as project work and local investigations, where knowledge and skills from various subjects are all used to address the same set of issues
- *Re-orientation* - of subjects to include emergent issues (including ESD) as integral to the subjects. This involves restructuring subject content and outcomes to incorporate emerging social issues so that these become a key dimension of what is learned in the subject. This implies that emerging issues are valued in the same way as any other content and skills in the subjects, and that they are integrated into assessment systems and are also dealt with in textbooks and other ‘normal’ curriculum processes (Lotz-Sisitka, 2006b).

Teaching and learning approaches at higher education institutions

Teaching and learning methods are ways of doing something such as lecture, bibliographic research, survey, and role playing games. The teaching and learning strategies includes problem solving, discussions, field trips and fieldwork, experiments, projects, and cooperative learning. It should be noted that one method or strategy may probably not achieve all the learning objectives and students may not equally respond in terms of learning and developing skills. Therefore a combination of methods or strategies may be required in education for sustainable development (Ketlhoilwe, 2008). The choice of teaching and learning method in higher education institutions could be guided by what is to be achieved as there is no specific and generic effective method for all situations in a learning environment. Students could be introduced to perspectives such as behaviourism, liberal humanism, critical theory, and social constructivism¹ to understand various strategies of teaching and learning they could use in the implementation of education for sustainable development. Most of the countries in Southern Africa favour learner-centred education in pedagogical discourses in environmental learning. This approach acknowledges what the student brings into the learning situation. This may be a wealth of knowledge and social experiences gained over the past years from interaction with the environment and the community. The teaching and learning approaches in higher education institutions should be open-ended to enhance education for sustainable development integration into the main stream of education and take into consideration the experiences of the students. It should be generic enough to allow learning preferences for individuals employing multiple modes of learning to achieve the objectives of the courses within institutions and community contexts. Links with the local community may enable students to appreciate the significance of sustainable development locally and internationally. Opportunities for linkage through the internet with other institutions regionally and international may open opportunities for the exchange of ideas and views on sustainable development (Ketlhoilwe, 2008).

According to Scoullos and Malotidi (2004), seeking to educate for environment and sustainable development requires educators to inspire and encourage a commitment to the values of social justice and equity, peace and ecological integrity, democracy and respect to nature, promoting adoption of new lifestyles and living patterns. Above all educators should create a realistic hope in which the possibility of change and the real desire for change are accompanied by concerted and active participation. (Scoullos and Malotidi, 2004: 30).

Higher education institution’s students should be engaged in active learning, such as simulations exercises, group discussions, and field-work to effectively engage with environment and sustainability issues. Teaching and learning approaches should offer experiential learning opportunities and exploit students’ prior experiences regarding socio-ecological issues to complement the theoretical framework that are grounding the teaching and learning processes.

Research skills should be taken as core activity across higher education curricular to broaden and strengthen participation and knowledge generation about education for sustainable development (Ketlhoilwe, 2008). “UNESCO (2005) also indicates that education for sustainable efforts in the UNDES D need to be informed by research and development work” (Lotz-Sisitka, 2006b: 29). There are a number of research approaches that could enhance education for sustainable development and contribute to UNDES D implementation.

Research could be participatory and action-based emphasizing systematic reflection by the researchers be they learners or lecturers. The students could be guided to engage in research in sustainable development practices. This would include research into socio-economical and ecological problems in and within communities. This could also emphasize pedagogical techniques that equip learners with analytical tool for complex and contemporary socio-ecological, economic and political situations. Higher education institutions’ education for sustainable development

programme may emphasize on information dissemination to share research findings with communities and other researchers nationally and internationally (Ketlhoilwe, 2007). The use of ICTs in research and teaching could bring a number of advantages in the implementation of education for sustainable development. Higher education institutions could set up e-learning programs for their staff members and students. This would be linking students within or between local institutions or between local and international institutions.

RESEARCH METHODS

This is a predominantly qualitative paper based on rich data generated through documents analysis drawn from the SADC Regional Environmental Education Centre. The reports were accumulated since 1998 on various research projects by lecturers. For the purposes of this paper only projects that were based on higher education were selected for analysis. Specific projects on environmental education and education for sustainable development were analysed to establish the status of education for sustainable development in higher education institutions in southern Africa. The research data were specifically on both pedagogical and epistemological practices relevant to education for sustainable development by lecturers who attended the SADC REEC attachment, international certificate and international training programme courses for ten years (1998 – 2008). A total of fifty projects from twenty-three institutions of higher education were used to generate data for this paper (See table 1). This report from institutions of higher education in Southern Africa were supported by various research based literature and ESD oriented literature to strengthen the argument that ESD is gaining currency in environmental and educational global discourses and therefore Southern Africa should be seen to be contextually responding.

Data were analyzed through both inductive and deductive approaches. A collaborative approach with the SADC REEC Programme Manager and Materials Development and Training Manager who assisted in identifying the projects reports and read the findings validated data and the analytical approach was used.

Table 1: Projects related to ESD in Higher Education institutions

Country	Number of Institutions	Number of Projects
Angola	0	0
Botswana	0	0
Lesotho	1	2
Namibia	2	2
Democratic Republic of Congo	1	1
Malawi	3	12
Mauritius	2	2
Mozambique	1	2
South Africa	3	3
Swaziland	2	2
Zambia	3	8
Zimbabwe	5	14
Totals	23	50

DISCUSSIONS

The implementation of the UNDES and ESD discourse are claiming a centre-stage and requires the setting of new directions in education systems to effectively respond to unsustainable development patterns. Institutions of higher education are generally regarded as facilitators and sources of innovations and new knowledge. It is therefore right to expect them to be drivers of ESD related curriculum innovations and key implementers of the UN Decade of Education for Sustainable Development. The current and future graduates from higher education institutions in Southern Africa are to be resources that should uphold the principle of sustainable development. Education for Sustainable Development in higher education institutions should emphasize on multidisciplinary and interdisciplinary approaches to curriculum development and delivery. Its pedagogy should emphasize on shared and group learning for problem solving (Wade and Parker, 2008).

A review of projects reports from higher education institutions in Southern Africa has demonstrated that the introduction of ESD is at different stages and may be compounded by environmental education discourses that are still dominant. As ESD seem to be requiring multidisciplinary or interdisciplinary approaches, some institutions are finding it difficult to house it at a particular discipline or put structures in place that would be a coordinating point for its

implementation. As a result different practitioners from across higher education compartmentalized subjects are trying to place it within their subjects without indicating how they would cooperatively link with other discipline. It is vital that its implementation is properly coordinated to promote both interdisciplinary and multi-sectoral approaches for sustainable development through an informed curriculum change.

The focus for epistemological practices is on socio-ecological, economic, political issues and risks. The emphasis is to equip the beneficiaries of the oriented educational system with skills that would enable them to reflectively and reflexively cope with varied situations. ESD is a liberating type of education that needs to be contextually oriented to be relevant to its recipients and society. ESD issues could be incorporated into existing curriculum models and frameworks through infusion and integration approaches. Each or both approaches should be contextually implemented for effective curriculum innovation in higher education institutions. Both Sub-Saharan Africa ESD Strategy (2006) and the SADC Regional Indicative Strategic Development Plan (RISDP) (2003) espouse environmental awareness and sustainable development. Multidisciplinary and interdisciplinary approaches would be ideal for both curriculum approaches to restructure subjects' content to include ESD issues. It is important that the implementation of ESD is situated within key international policy initiatives such as the United Nations' Millennium Development Goals (MDGs), the Dakar Framework for Action aimed at achieving Education for All goals, the United Nations Literacy Decade (UNLD) and the African Union 2nd Decade of Education in Africa (Ketlhoilwe, 2008). These initiatives would strengthen higher education institutions curriculum innovations for sustainable development.

Of great importance would be teaching and learning methods that are compatible with sustainability principles and resources utilization. It is important to keep students in higher education institutions actively involved in their learning exercise. The use of information technology would also emphasize acquisition of skills that would not only facilitate learning but also minimize waste of resources that would otherwise be used in the traditional conventional type of learning. A variety of teaching and learning approaches should promote learner-centered education as indicated by reports from different colleges of education in Southern Africa. In particular, research skills should be regarded as prime in methodological choice decisions. This is likely to promote independent learning and critical analysis of issues. Research topics should be contextually relevant and be ment to generate new knowledge and suggest solutions to issues affecting humanity, economy, governance and ecological systems. Higher education institutions are expected to lead research on complex interaction of human and the environment. They could investigate strategies, environmentally sound technologies, policies, the establishment of new ethos to stabilize population and efficient use of natural resources to avoid future threats. It is important to create an open flow of information among communities, and higher education institutions themselves. This is crucial to development of new knowledge, technology, instruments and skills for a sustainable future.

Assessment of ESD curricular should be treated as a learning process. It should be skill-based, evidence-based or/and result oriented to equip students for future challenges and sustainable development.

CONCLUSIONS

The Southern Africa states are currently making efforts to define their role and activities to make a contribution to the UNDESD. They are responding differently in different contexts. Some institutions of higher education prefer subject-based introduction of ESD, while others are for institution-wide approach and others prefer open-ended approach through teaching, research and community engagement. New efforts are linked to existing educational policies and the global, national, regional and local contexts. Education for sustainable development has come at a time when countries were grappling with environmental education discourses. The UN Decade of Education for Sustainable Development should be perceived as bringing new knowledge and opportunities that extend and strengthen education quality. With this understanding, concentration of curriculum content should cover issues that are a threat to sustainability of human life, the economy and the development. Higher education institutions' education for sustainable development curriculum contents should strengthen political, socio-economic, and bio-physical environments. Pedagogical discourses should promote reflexivity among graduates to enable them to cope with a variety of challenges and to promote sustainable development. Research and teaching these issues should not be compartmentalised to an extent that students associate them only with academic subjects but a multi model approach should be practiced. For instance, Southern Africa states have identified infusion, integrated and re-orientation approaches. These should be practiced within contexts to effect social change that would not only benefit humanity but even the natural environment and its natural resources.

Finally, as microcosm of the larger community, higher education institutions could demonstrate ways of achieving environmentally responsible living by practicing what they preaches as well as by producing personnel who would be able to turn challenges into opportunities. ESD promote transformative learning, introduces new ways of

thinking, and non-prescriptive approaches to varied situations. It could enable the incorporation of new ways of shaping important issues in the education system in Southern Africa.

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Education and Human Resource Planning In Nigeria: The Case of National Manpower Board (NMB)

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Abstract

This case study describes the activities of the National Manpower Board (NMB) prior to its merger with the Nigerian Institute of Social and Economic Research (NISER). This study describes the activities of the NMB in relation to the development of education in Nigeria. It highlights the scope and techniques of human resource planning in Nigeria as well as obstacles to effective human resource planning. Five research questions guided the study. A nine-item open-ended questionnaire was administered to a randomly selected sample of five senior NMB staff. Relevant documents were also reviewed. The results of this study indicate that the NMB collects, collates and analyses data on human resource development, utilization and requirements using the employers' opinion method and the normative approach. The activities of the NMB spanned across all sectors and all states of the federation. The obstacles faced by the Board included insufficient funds to carry out field operations, insufficient staff, inadequate information from ministries and human resource development institutions, and indifferent attitudes of state governments towards the establishment of zonal and state manpower offices. These obstacles rendered the NMB ineffective in the performance of its statutory duties. It became moribund in 2006 when it was merged with the Nigerian Institute of Social and Economic Research; with NISER retaining its name and responsibilities. This study recommends increased funding for NISER if it is to succeed where the NMB failed. The establishment of NISER zonal offices in all the states of the federation is also strongly and urgently recommended.

Keywords: Manpower; Human resources; National Manpower Board; Planning; Utilization; Nigerian

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INTRODUCTION

Manpower, also known as human resources, can be defined as the bulk of labour available for any particular kind of work. In more specific terms "it is the bulk of human beings with the relevant skills, energies, talents, knowledge and attitudes that can be committed towards the production of goods and services" (Gbosi, 2003: 3). In most developing countries, human resource development is tied to education because it is seen as the path leading to development and

developed country status. The ultimate aim is to achieve economic advancement through the provision of relevant education and hence the production of the right combination of human resources (Ololube, 2009).

In Nigeria, an individual, at any stage of life after basic education, can choose between continuing full time studies, combining work with study, or embarking on full time employment without excluding the prospects of resuming studies later on (FRN, 2004). As such, tertiary institutions are encouraged to run various kinds of part-time programmes. The National Policy on Education also encourages private participation in the provision of formal and non-formal education. All of these efforts are directed at providing adequate and relevant human resources to facilitate the economic advancement of Nigeria.

Specifically, Nigeria, like most developing countries, desires to reposition science and technical education as well as human resources as areas of optimum economic performance. For the purpose of this repositioning, the National Policy on Education recommends not less than 60% of seats in sciences and science-oriented courses in conventional universities and not less than 80% in the universities of technology. For polytechnics, admission into technology and business courses is to be weighed in the ratio of 70:30 (FRN, 2004). The adoption of the universal primary education programme in 1976 and the universal basic education programme in 1999 is part of the education and training efforts to improve the quality of human resources that are available in the country. The modification of educational curriculum at the earliest levels of education to include computer appreciation, introductory technology, integrated science and woodwork is also aimed at the attainment of the desired type of human resources. Other similarly focused government efforts include the establishment of the National Universities Commission (NUC) in 1962, the National Manpower Board (NMB) in 1962, the National Board for Technical Education (NBTE) in 1976, the National Teachers Institute in 1977, and the National Commission for Colleges of Education (NCCE) in 1988. To complement the efforts of these bodies, the federal government also instituted the Education Tax Fund (ETF), the Industrial Training Fund (ITF), and the National Science and Technology Fund (NSTF). Private sector firms and multi-nationals operating in the country are mandated to pay a set percentage of their profits towards the sustenance of these funds. These funds, like the aforementioned government mandated institutions are directed at ensuring that education programmes do not run contrary to national human resource development plans.

In spite of these efforts, Nigeria continues to experience double digit unemployment rates amidst difficulties in meeting human resource requirements in the fields of science and technology. Consequently, a balance is yet to be achieved between manpower production and manpower demand (Ike, 2007; Adeniyi, 2008). The result is a constant shortfall in the supply of teachers in the sciences and in technical and vocational fields of study (Oghuvbu & Akpotu, 2004; Undie, Enya, *et al*, 2004). In addition to the future supply of human resources, this shortfall adversely affects the attitude of students in courses in these fields as well as the confidence of employers of science and technology graduates (Agabi, 2006). The purpose of this study is therefore to highlight the scope and problems of human resource planning as experienced by the National Manpower Board with the hope of eliminating these problems and facilitating the development of the desired human resource mix through education and training.

Assumptions

The study was based on the following assumptions:

1. Human resource planning is an essential activity needed to ensure that the development of human resources is guided to meet the needs of any given society.
2. When human resources are not well planned, it results in an increase in the well-educated unemployed.
3. Prior to 2006 human resource planning in Nigeria was carried out by the National Manpower Board.
4. Education is a major tool of human resource development.

Research Questions

In this historical case study, the human resource planning activities of the NMB are described in relation to educational development and Nigeria's human resource situation. The following research questions guided the study:

1. What was the organizational structure of the NMB?
2. What were the human resource planning activities of the NMB?
3. What was the scope of human resource planning in Nigeria, as carried out by the NMB?

4. What human resource planning techniques were used by the NMB?
5. What were the major obstacles to effective human resource planning faced by the NMB?

Background Information on NMB

The National Manpower Board (NMB) was responsible for human resource planning in Nigeria prior to 2006. It was first established in 1962 under the umbrella of the National Economic Council, as part of the recommendations of the Ashby Commission and was to give full consideration to all aspects of manpower development programmes in Nigeria (Yesufu, 1969). In 1984, the NMB was dissolved, but its secretariat continued to function as a manpower division in the erstwhile Ministry of Budget and Planning. In 1991, the NMB became a statutory body under Decree Number 18 of 30th May 1991. It was inaugurated in October 1992. Section 5 of the decree mandates it to:

- a) Determine and advise the government on the nation's manpower needs in all occupations;
- b) Formulate manpower development and utilization policies and programmes in order to ensure optimum implementation of the same for enhancement of the nation's manpower resources;
- c) Coordinate manpower policies and programmes of federal, state and local governments;
- d) Collect, collate, analyse and publish manpower employment information and data generated through surveys, studies and enquiries including administrative means (FRN, 1991).

This brief background outlines the statutory role of the NMB as prescribed by law. However, in January 2006, the federal government approved the merger of the NMB with the Nigerian Institute of Social and Economic Research (NISER) while at the same time retaining NISER'S name and functions. The functions of NISER as stated in Act 70 of 1977 (updated to NISER Act, Laws of the Federation of Nigeria, 2006 Chapter N115) and as provided in the NISER 2008 information brochure include:

- a) Provision of consultancy services to the federal and state government, their agencies and organizations, in the field of economic and social development;
- b) Conduct research into the economic and social problems of the country with a view to the applications of the results thereof;
- c) Organization of seminars and conferences on problems of economic and social development in the country, whether on its own accounts or on behalf of the government of Nigeria or their agencies;
- d) Cooperate with Nigerian Universities and research institutes and other institutions in the mobilization of the countries research potentials for the task of national development and dissemination of research findings for the use of policy makers at all levels.

NISER consists of five departments namely: economic and technology development, human resources development and utilization, social, governance and physical development, agriculture and rural development, and administration and finance. Clearly, the scope of activities carried out by NISER goes far beyond human resource development. Still the question remains: is NISER in a better position to handle manpower development issues in Nigeria than the NMB, specifically established for such purposes, was? Only time can tell.

CONCEPTUAL FRAMEWORK

Human resource planning involves forecasting the human resource needs of an economy, setting objectives that will lead to the realization of such needs, designing strategies for the achievement of the set objectives, identifying resource needs, and defining modalities for plan implementation. This planning process is not complete without adequate provision for plan evaluation and modification (where necessary). From the perspective of educational planning, Adiele (2006) defines manpower planning as a conscious and rational decision making process geared towards defining the various courses of action that need to be carried out within an educational institution. This definition reaffirms that of Agabi (1999), which asserts that manpower planning is about rational decisions directed at effective human resource development. The ultimate purpose of this planning is to ensure regular and adequate supply and maintenance of relevant human resources in all sectors of the economy, at all times.

The Importance of Planning

Planning is an element of management which can be defined in a variety of ways. For Adesina (1990), planning is a method of deciding what we want to accomplish. It is essentially concerned with concepts of the future, and problems requiring imagination, choice, design and deliberate fore thought. For Koontz *et al* (1980), planning involves deciding in advance what to do, how to do it, when to do it and who is to do it. Planning bridges the gap from where we are to where we want to be. These authors acknowledge that although it is difficult to predict the exact future, considering the interference of factors beyond human control even with the best-laid plans, events are left to chance unless such events are planned. They conclude that planning is an intellectually demanding process which requires the conscious determination of courses of action and the basing of decisions on purpose, knowledge and considered estimates.

The definition of planning proffered by Koontz *et al* (1980) is supported by Akinwumiju & Agabi (2008) who present planning as involving the prediction of events ahead of time and the mapping out of strategies to meet such events. For this duo, planning also involves setting goals for the future and deciding in advance the activities and resources that will lead to the realization of such goals. The purpose of planning is to ensure that goals are achieved within the designated time frame and at minimal cost.

Planning, from the above analysis, can be described as an economic activity directed at the management of time and essential resources with the aim of achieving an identified set of objectives. The success or failure of a plan is therefore measured against the time frame within which the plan is set and the resources made available for the implementation of the plan. Planning is therefore a managerial process directed at the optimal utilization of time and resources in the attainment of a set of clearly identified goals. It is an important process in economic development.

The Need for Human Resource Planning and Development

Generally, human resources refer to people, humanity, and society with all its aspirations, needs and capacities. As an economic resource, manpower is a representation of the aggregate skills and attitudes resulting from the culmination of education and training. Such training is usually designed to equip a labour force with the capacity to plan, organize and carry out economic process when properly allocated. It is from this economic perspective that Gbosi (2003) describes manpower as the bulk of human beings with relevant skills, energies, talents, knowledge and attitudes that can be put to the production of goods and services. Here human beings are not described as manpower or human resources except in that they can be put to some economic use as a resource that in turn can be used for wealth generation or for the facilitation of increases in wealth.

The need for manpower planning is clearly expressed in the following excerpt from Psacharopoulos and Woodhall (1985:72): Skilled manpower is one of the most crucial inputs of modern economy growth (and to avoid critical shortages or surpluses of manpower). Planners have sought to identify future requirements for skilled manpower and to design the education system so as to produce a labour force with the necessary skill and technical or professional knowledge.

It is clear that every plan is directed at achieving specific objectives. Human resource planning helps to eliminate or minimize problems of human resource wastage that arise from unemployment, over-employment and under-employment, as the case may be. The central objective of human resource planning is to construct a strategy of human resource development that is consistent with a country's broader objectives of social, political and economic development. Human resource planning at the very least includes planning of the formal education system, planning of in-service training and planning of adult education. This should also include an analysis of the structure of incentives and the utilization of human resources as well as surveys on unemployment and under-employment and the development of appropriate measures for their alleviation.

Human Resources in Nigeria

A study carried out by the National Planning Commission (NPC) between 1999 and 2003 indicates that industrial capacity increased from 29% in 1999 to 60% in 2003. Income also grew from 2.8% in the 1990s to 5% between 1999 and 2003 while unemployment fell from 18% in 1999 to 10.8% in 2003 with 3.5 million new jobs created in the period under review (FRN, 2004b). Contrary to NPC's report, is the outcome of a situational analysis carried out by the Human Resources Department of NISER and published in 2005. The situational analysis indicates that unemployment in Nigeria worsened in the last two decades due primarily to an upsurge in the output from tertiary education institutions and the inelastic labour absorptive capacity of the Nigerian labour market for the services of university graduates. The analysis also revealed that the failure of past federal government employment policies was a result of

managerial incapability, effort duplication, unaccountability, low quality training inputs, inadequate funding, policy inconsistency and poor governance, unwieldy scope of programmes, and ineffective targeting of beneficiaries. The report stated clearly that in the achievement of employment-intensive economic growth, all economic players including government, the private sector, workers, individuals and non-governmental organizations must pursue policies and programmes aimed at attaining this objective. It recommends remedial measures including linking education and training with labour market requirements, the promotion of an enterprise culture to induce self reliance, risk-taking and the creation of a national environment that rewards positive effort initiative, self employment, and curriculum re-engineering (NISER, 2005).

Other issues hindering Nigeria's ability to achieve the desired level of human resources development and utilization, especially in the area of science and technology, are highlighted by Oghuvbu and Akpotu (2004), and Undie, Enya *et al* (2004). In a study of factors negatively affecting technical school education in Nigeria, Oghuvbu and Akpotu (2004) identified inadequate funding, poor teacher quality, inadequate facilities and inconsistent government policies as major areas of concern. They conclude that these factors generate negative effects irrespective of whether schools are located in rural or urban areas. With the belief that technical colleges form the basis for technological breakthrough in Nigeria, they recommend a consistent policy on funding and the recruitment of qualified technical science teachers.

In a similar study, Undie, Enya, *et al* (2004) investigated human resource wastage in technical subjects in the Cross River State of southern Nigeria. Their study covered all 167 technical education teachers in the three education zones in the state and examined secondary school staff utilization in woodworking, electronics, auto mechanics, building and technical education. Their analysis showed a high level of staff over-utilization due to staff shortages in these subject areas in both rural and urban schools. Their study revealed a gross inadequacy of teachers to teach technical subjects in secondary schools. This explains the poor quality of teachers in technical colleges as observed by Oghuvbu *et al* (2004). Human resources are over-utilized when skilled personnel are in short supply relative to the existing volume of work. This situation is compounded by the supply of used, substandard or obsolete machines to education institutions, irregular power supply which seems to have worsened in the past decade, the shortage of learning materials and physical insecurities or vulnerabilities which often result in vandalism or the outright theft of existing educational equipment (Adeniyi, 2008).

In a similar study, Apagu and Duhu (2008) examined factors affecting the performance of agricultural technology education students in technical drawing. The results of this study revealed the existence of an inconducive learning environment, inadequate drawing facilities and a shortage of technical equipment and tools. The study involved a sample of 60 undergraduate students randomly selected from electrical/electronics, mechanical construction and agricultural technology education programmes, as well as 10 lecturers from the Department of Education Technology at the Federal University of Technology in the Adamawa State of northern Nigeria. The authors conclude that the poor performance of students in this highly technical area was due to the poor learning environment and the inadequacy of instructional facilities.

It is clear that imbalances in the supply and demand of human and basic resources in technical education (as illustrated by the above reviewed studies) negatively impacts on the ability of the NMB to achieve the much desired human resource production ratio of 60:40 in favour of science and technology. There is little wonder then that, in spite of the improvement in manpower utilization between 1999 and 2003 as indicated by the NPC study, double digit unemployment persists in Nigeria. This suggests a considerable gap between human resource planning and human resource plan implementation. National human resource supply and demand imbalances may very well be as result of this gap between planning and plan implementation. Human resource planning is therefore incomplete without the establishment of adequate modalities and the provision of relevant resources to ensure effective plan implementation and the regular review of planned activities.

Human Resource Planning Techniques

Human resource planning involves the use of forecasting techniques to predict future work force requirements. The forecasting techniques used include the employers' opinion method (EOM), incremental labour out-put ratios (ILOR), density ratio method (DRM), international comparisons method (ICM), and Parne's Mediterranean regional project method (MRPM).

The employer's opinion method (EOM) is the most commonly used technique by both developed and developing countries. This method entails obtaining information directly from all employers on the type and number of employees they will require in the near future. An aggregate of all employers minus estimated deaths and retirements over the specified period will produce a forecast of the increase in effective demand for labour by the target year. This

method is suitable for short term planning (less than three years) but suffers from the deficiency of being based on guess work.

ILOR are concerned with a particular type of human resource in an occupational category and industrial output or national income. They involve extrapolating, for instance, further demand for teachers from a linear regression of the number of teachers on national income in a specific period. ILOR are used for long term planning (twenty years and beyond). They can only be used in countries that have time series on output per man cross classified by sector, occupation and educational qualification. Blaug (1974) describes this method as being unsuitable for short term planning, greatly unreliable and unsuitable in the absence of time series.

The DRM, also known as the “ratio of saturation,” involves estimating fractions of qualified manpower in the labour force of an economic sector and then applying this fraction to the demographic forecasts of the total labour force in various industrial sectors. It is used for long term planning that ranges from ten to fifteen years. The alternative to the DRM, according to Blaug, is to estimate stable density ratios between different types of work force, for instance, the ratio of scientists to engineers or engineers to technicians so that a forecast of one leads to that of the other. This method also requires the use of time series.

The ICM involves using the results of human resource planning activities in one country as a basis for forecasting the human resource requirements of another country with similar needs. Blaug (1974) disapproves of this technique because no two countries have exactly the same economic needs, work force requirements or educational characteristics.

The MRPM was developed as a result of “the effort to develop educational plans for Portugal, Spain, Italy, Greece, Yugoslavia and Turkey within a common conceptual frame work” (Blaug, 1970). It is the most generally used technique in determining the demand for educated manpower based on the achievement of a set of predetermined gross national production (GNP) targets. The MRPM involves the multiplication of scalar by:

1. A row of vector fractions of GNP origination in different industries
2. A column vector of labour-output coefficients
3. An industry-occupation matrix
4. An occupation-education matrix.

Ahmed and Blaug (1973), Psacharopoulos (1984), and Psacharopoulos and Woodhall (1985) argue that although the idea of predicting a country’s future manpower requirements with forecasts and using such forecasts as the basis for planning a country’s scale of education is appealing, the reliability of past forecasts are questionable. According to them, the controversy lies in the desirability of attempts at work force forecasting and the validity of the notion of work force requirement or need. They argue that even though advocates of manpower forecasting claim that the purpose of such forecasting is to ensure that the right combination of skills are produced by education systems, the flexibility of the labour market makes the idea of fixed manpower requirement meaningless. They recommend an approach to work force analysis that involves a constant feedback, and regular monitoring of information derived from rate-of-returns estimates, and analysis of wage and salary data. In addition to this, labour market trends should be analyzed. The combination of this approach with a relevant work force forecasting technique is also considered very important.

Factors Inhibiting Human Resource Planning

Effective planning can be hampered by a lack of commitment, the confusion of planning studies with plans, a tendency to under-estimate the importance of planning premises, failure to see the scope of planning, excessive reliance on experience, lack of control and insufficient information (Koontz et al, 1980). These and other inhibiting factors including the politicization of manpower planning efforts and the dearth of professionally trained manpower planners have been identified as major challenges in the achievement of effectiveness in manpower planning (Agabi, 1999). Insufficient and unreliable demographic data and poor funding also constitute major hindrances (Nelson-Twakor, 2005). According to Nigeria’s 1991-93 National Rolling Plan, inadequate financial provisions and shortages of qualified planning staff have consistently ranked among the greatest impediments. Consequently in some cases, well designed projects have been abandoned for lack of funds (FRN, 1992).

Variations between planning contexts and implementation contexts can also result in the failure of a plan. Some plans which are plausible at a particular time may be utterly impracticable or unmanageable in different situations, especially if the political, social, cultural and economic contexts are irrelevant to the new situation (Adesina, 1990). The socio-politically and economic environment in which the planner works therefore has a direct impact on the

success or failure of any plan. This lends credence to the notion that manpower requirement estimates should not be fixed, and should vary with labour market trends and feedback from rate-of-returns estimates.

Organizational structure of the NMB

The NMB was a corporate parastatal under the National Planning Commission. It was headed by a chairman with the assistance of an Executive Secretary and involved an internal audit (see figure 1.0). The diagram also shows that the NMB had three main departments each of which is headed by a Director. They are:

- ❖ Manpower development and utilization;
- ❖ Personnel management, finance and supplies;
- ❖ Manpower coordination, research and statistics.

The first department had two units, namely the Education and Training unit and the Population, Employment and Productivity unit. Each unit was headed by a Deputy Director. The Education and Training unit was further subdivided into two administrative offices consisting of Formal Education and Training and Informal Education and Training. Each administrative office was headed by an Assistant Director (AD). The Formal Education and Training section managed training at the tertiary and sub-tertiary levels while the Informal Education and Training section was concerned with informal education and training at both general and special levels of education.

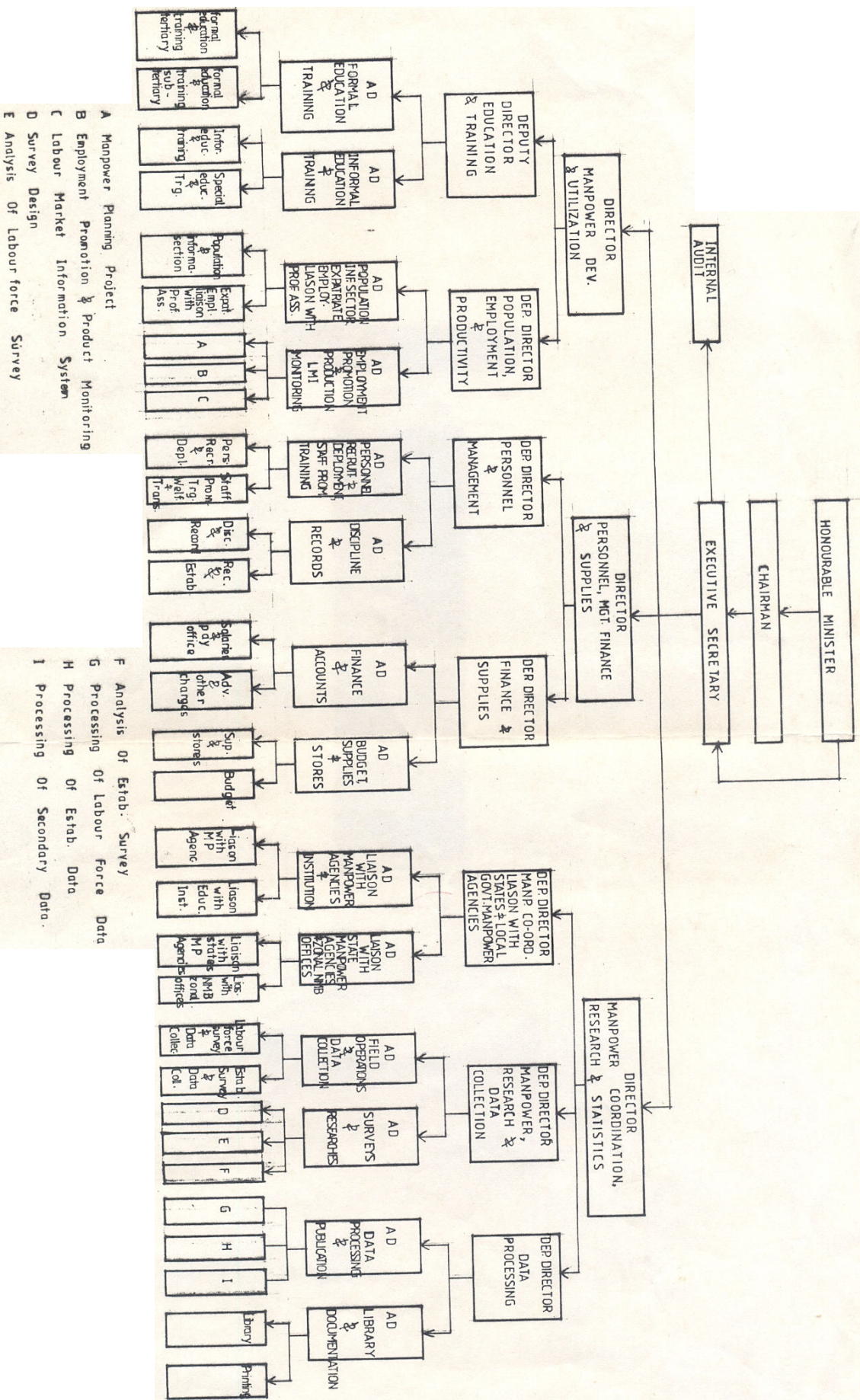
The Population, Employment and Productivity unit as indicated in Figure 1.0 also had two subsections, the population, information and expatriate employment section, which liaises with professional associations, and the employment, promotion and labour market information (LMI) monitoring section. This latter section was concerned with manpower planning projects, employment, promotion and productivity monitoring, as well as the Labour Market Information system. Each of the two subsections under the Population, Employment and Productivity unit was headed by an Assistant Director (AD).

Figure 1.0 also shows that the Department of Personnel, Management, Finance and Supplies was also comprised of two units headed by Deputy Directors. The first unit addressed issues relating to personnel and management, while the second was concerned with matters relating to finance and supplies. The personnel and management unit had two subdivisions headed by ADs: the personnel recruitment and deployment, staff promotion and training section, and the discipline and records section. The former was in charge of personnel recruitment and deployment as well as staff promotion, training, welfare and transfer, while the later was responsible for the maintenance of discipline and records. The Finance and Supplies unit also had two subsections, the finance and accounts section and the budget, supplies and stores section. Each was headed by an AD. The former was concerned with salaries, pay offices, advances and other charges, while the later was concerned with supplies, stores and budget.

The third department, Manpower Coordination, Research and Statistics, has three units: Manpower Coordination (in liaison with states and local government agencies), Manpower Research and Data Collection, and Data Processing. Each is headed by a Deputy Director. The Manpower Coordination unit was comprised of two sections; one liaised with Manpower Agencies and Institutions, while the other liaised with State Manpower Agencies and Zonal Offices of the NMB. Both sections were headed by an AD. The first section had two offices. The first office worked in liaison with Manpower Agencies while the second office worked in liaison with Educational Institutions. The second section also had two offices, one of which worked in liaison with State Manpower Agencies, while the other worked with NMB zonal offices.

Figure 1.0 show that the Manpower Research and Data Collection unit was subdivided into two sections consisting of the Field Operations and Data Collection section and the Surveys and Research section, each headed by an AD. The Field Operations and Data Collection section had two offices, the office of the labour force survey and data collection and the office of the establishment survey and data collection. The surveys and research section had three offices lettered D, E, and F. As shown in Figure 1.0, D was in charge of survey design, E was responsible for the analysis of the labour force survey and F took care of the analysis of the establishment survey.

Figure 1.0: Organizational Structure of the National Manpower Board (NMB)



SOURCE: NATIONAL MANPOWER BOARD, LAGOS.

The Data Processing unit had two sections: the data processing and publication section and the library and documentation section, each headed by an AD. The data processing and publication section had three offices lettered G, H and I. G was responsible for processing labour force data, H was responsible for processing establishment data and I took care of processing secondary data.

Human resource planning activities of the NMB

The result of the data analysis shows that the human resource planning activities carried out by the NMB can be grouped into five main categories. The first of these categories includes collecting, collating and analyzing educational data at all levels. It also includes the organization and analysis of data on employment, the labour force and levels of unemployment in the Nigerian economy. This was done to determine the state of educational growth and development and the state of work force development. The second major human resource planning activity revealed by the study is the estimation of the nation's work force stock and requirements. This was done for all occupations and sectors through forecasts and projections. Thirdly, the NMB again through forecasts and projections, offered regular policy inputs and advised government on the formulation of appropriate human resources development policies and employment issues. The fourth activity involved the coordination of human resource planning activities as well as conducting research on human resource and employment issues. Finally, the NMB checked on the expatriate quota positions of private and public companies on a regular basis.

The scope of NMB's human resource planning activities

In terms of the scope of the NMB's human resource planning activities, this study revealed the following:

- (a) The NMB liaised closely with the Federal Ministry of Education (FME) to generate educational statistics used in monitoring human resource trends and patterns at the different levels of Nigeria's educational system. The FME, as a member of the governing council of the NMB, collaborated with the Board in the exchange of data and in the formulation of education related policies.
- (b) As a result of the symbiotic relationship between the NMB and tertiary education commissions like the National Universities Commission (NUC), National Board for Technical Education (NBTE), and the National Commission for Colleges of Education (NCCE), the NMB assisted in the formulation of the programmes and policies of these parastatals. The NMB also coordinated their activities and those of other government human resource development agencies such as the National Directorate for Employment (NDE), the Industrial Training Fund (ITF), the Centre for Management Development (CMD) and the Administrative Staff College of Nigeria (ASCON) through seminars, meetings and the articulation of their programmes in the Rolling Plans.
- (c) The NMB was closely associated with the Ministry of Labour and Productivity, and its parastatals (such as labour exchange offices, and the professional and executive registry) and worked to obtain relevant data for monitoring labour productivity, labour utilization and employment promotion issues.
- (d) The Ministry of Economic and National Planning, also known as the National Planning Commission, was the Supervising Ministry of the NMB. As a subsidiary of the Commission, the NMB prepared the manpower section of the National Development Plans.
- (e) The activities of the NMB cut across all states of the federation in both public and private sectors. All skills and professional levels in all occupations were monitored by the NMB.
- (f) Finally, the study revealed that with its headquarters in Lagos, the NMB planned to establish four zonal offices in Owerri, Bauchi, Minna and Akure. Each state of the federation was encouraged to set up a human resource planning committee. The zonal offices were to serve as a link between the NMB and local governments to ensure that all establishments in both public and private sectors were covered in field surveys.

Techniques Adopted by the NMB in Human Resource Planning

This study reveals that the NMB used the following techniques in establishing the human resource requirements in each sector:

- (a) Direct approach to employers in each sector: the information generated through this approach was collated and analyzed to ascertain the rate of employment.
- (b) Normative approach: the desirable human resource ratio was determined and applied on current stock to estimate future human resource requirements in each occupation or sector.

This study also shows that apart from field operations, where junior enumerators were used to administer questionnaires, other activities including the collation, analysis and presentation of information were carried out by high and middle level staff of the NMB.

Problems that inhibited the human resource planning activities of the NMB

The following were some of the central problems that inhibited the human resource planning activities of the NMB. They are listed in order of consequence as revealed by this study:

- (a) Lack of highly disaggregated, comprehensive and reliable data for human resource planning and forecasting.
- (b) Lack of effective human resource planning machinery at state and local levels. States were yet to set up human resource committees and units as required by the NMB
- (c) Difficulties in the coordination of human resource planning activities amongst human resource planning agencies and educational institutions due to inadequate funding. This ineffective coordination resulted in the duplication of efforts and overlapping programmes and policies of the agencies and institutions.
- (d) Shortage of work facilities, equipment and well-trained, highly-motivated human resource planners required for effective performance.

This study also reveals that even though the NMB was first established in 1962, it was dissolved in 1984 following a military intervention in politics. It was fully reconstituted with the enabling decree 18 of May 1991 and inaugurated on the 16th of October, 1992. In spite of these political changes, the operational efficiency of the Board remained adversely affected by the above identified challenges.

Summary of findings

The results of this study show that the NMB was a corporate body under the National Planning Commission and was chaired by a part-time chairman. Its operational activities were coordinated by an executive secretary. It had three major departments that carried out the tasks of work force development and utilization; work force coordination, research and statistics; and personnel management, finance and supplies. The departments were divided into units which were further divided into sections and finally into offices. The departments were headed by Deputy Directors who coordinated the operational activities of the NMB. The NMB had five major categories of activities:

- (1) Collection, collation and analysis of data on education at all levels; analysis and organization of data on employment, labour force and unemployment levels in the Nigerian economy.
- (2) Estimating Nigeria's manpower stock and requirements in all sectors.
- (3) Providing advisory services to the government on human resource development and employment issues.
- (4) Coordinating manpower planning activities, research and studies on human resources and employment.
- (5) Regularly monitoring the expatriate quota positions of private and public companies.

The human resource planning activities of the NMB consisted of human resource development at different levels in the Nigerian education system, formulation of education policies in liaison with the Federal Ministry of Education, coordinating the activities of human resource development agencies such as NDE, ITD, ASCON, NUC, NCCE, and NBTE among others. The Board worked closely with the Federal Ministry of Labour and Productivity to monitor the Ministry's area of concern and to promote employment in all skills and professional levels, in all occupations within the federation. In human resource forecasting, the Board made use of the Employers' Opinion Method and Normative Density Ratios in its yearly forecasts.

Finally, this study reveals that staff shortages, a dearth of statistical data, inconsistent government policies on human resource planning activities, as well as inadequate funding were the major problems that challenged effective human resource planning in Nigeria.

DISCUSSION

The results of this study indicate that the NMB was structured into three major departments, with a total of seven sub-departments, each of which had two units for administrative convenience. This arrangement conforms to the federal government specifications for the Board (Federal Government Gazette No. 22, Volume 78 of 1991). As constituent parts of the board, the departments and units performed specific functions. As with most administrative structures, this arrangement made room for the delegation of functions and the ensured coordination of activities.

As mentioned in the presentation of findings, the NMB was responsible for collecting, collating and analysing data on all levels of the education system and employment related issues in all sectors of the national economy. Based on these activities, the Board estimated Nigeria's human resources stock and requirements in all sectors, and advised the government on the same. It also monitored the expatriate quota of private and public companies in the country. These activities ensured the constant monitoring of the nation's human resource development and utilization in all fields so as to channel its economic growth and development towards desired ends. These activities also ensured that the country's economic sectors were not unduly dominated by foreign human resources, while at the same time enabling the Board to make projections on future human resource requirements in Nigeria.

This study also shows that the NMB worked closely with the Federal Ministry of Education, as well as the Federal Ministry of Labour and Productivity. The Board also monitored the activities of all human resource development agencies in Nigeria including the NDE, ASCON, NUC and NBTE among others. This scope of activities enabled the Board to formulate human resource development and utilization policies. It also ensured optimum implementation of such policies. This conforms to the federal government's specifications for the Board (FGN, 1991).

The NMB adopted the Employers' Opinion Method and the normative approach in its yearly manpower forecasting. The Employers' Opinion Method is considered suitable for short-term planning as was practiced by the Board, but Blaug (1970) considers it seriously deficient because of the high risk of relying on guesswork. Although Psacharopoulos *et al* disapprove of the use of forecasts to predict a country's future manpower requirements, because the reliability of past forecasts have been questioned by renown economists on grounds of validity, forecasts even on a short-term basis constitute a necessary foundation for human resources planning and development.

Staff shortages, a dearth of statistical data, inadequate funds, politicized human resources planning activities and inconsistency in government policies were the major challenges faced by the NMB in its human resources planning efforts. This is in line with the observations of Adesina (1990) and Agabi (1999). These challenges were further compounded by the inadequacy of trained teachers in vital subject areas and the shortage of basic instructional facilities in schools as observed by Undie *et al.* (2004), Akpotu *et al* (2004), Adeniyi (2008) and Ololube (2009). In essence, meaningful and effective human resources planning needs to be backed by an adequate number of personnel with relevant training. It also needs to be sufficiently funded, depoliticized and backed by consistent government policies on human resources planning. The same support also needs to be extended to all education institutions at all levels because they constitute the primary processing ground for the next generation of skilled human resources in the desired combinations or ratio.

CONCLUSION

Human resource planning practices in Nigeria, as carried out by the NMB, were not very effective in realizing the nation's human resource planning objectives. This was largely due to inadequate funding, a shortage of qualified staff in human resource planning offices, insufficient data on manpower related issues (arising mostly from the human resource planning techniques adopted by the NMB) and the level of political awareness in the country. The NMB engaged in short-term planning using the Employers' Opinion Method of forecasting future human resource requirements. For a country as big and vastly populated as Nigeria, this method would require a large number of skilled personnel and adequate financial support both of which the Board lacked and the inadequacy of which rendered the forecasting technique grossly ineffective. This is also in consideration of the fact that the NMB was expected to cover all economic sectors in all parts of the country.

The National Manpower Board (NMB) did develop an adequate structural arrangement. The Board also carried out its functions in accordance with the specifications of Decree No. 18 that made it a statutory body (FRN, 1991). It was rendered ineffective in the performance of its statutory duties by poor funding, in particular, and inadequate resource support, in general. Its problems were compounded by policy inconsistency on the part of the federal government which tossed it about from 1962, when it was first established, until it was rendered moribund by its 2006 'merger' with the Nigeria Institute of Social and Economic Research. This merger, that did not include the

expansion of NISER's functions to reflect the absorption of the functions of the NMB, represents a major challenge in human resource planning and development in Nigeria.

Operational effectiveness and efficiency will be difficult to achieve in any human organization that depends on regular, adequate funding and information from other organizations/institutions if the required amount of funds and relevant information are not provided on time and in the right measure.

This study provides background information on the NMB for the general public. It reveals the challenges faced by the NMB in the course of performing its statutory functions. The causes of these challenges are exposed and suggestions aimed at the resolution of such problems are proffered.

The results of this study will be very useful in the field of educational management as a preparation guide for prospective planners and administrators as this study reveals the problems that inhibit educational planning in Nigeria. This information is necessary when designing appropriate strategies that will facilitate the reduction and possible elimination of manpower problems in Nigeria.

Recommendations

NISER has operated in Nigeria since 1960 and has survived the whims and caprices of various political dispensations. With two liaison offices in Lagos and Abuja, and six zonal offices in Akure, Bauchi, Enugu, Minna, Port Harcourt and Sokoto, it is clearly functioning on stronger ground than did the NMB. However, the enormous weight of national human resource planning and development, placed on it through its merger with the NMB, suggests that six zonal offices are not enough if the right information is to be collected in the right volume. This study therefore recommends as follows;

1. NISER should receive greater financial allocations than it did before the merger to enable it to establish additional zonal offices. This increase in funding should be reflective of inflationary trends in the country.
2. NISER should have at least one zonal office in every state to enable it to adequately liaise with local agencies and institutions. This will help it to generate the information needed to guide its human resource activities. Information is power and education without the pertinent information is a waste of both time and energy.
3. NISER should publish its research findings on human resource development and utilization in succinct and affordable volumes. Free copies of such publications should be placed in school libraries, especially at secondary and tertiary levels of education. This will expose learners and teachers to information on areas of national interest in human resource development. It will also help to direct research and instructional interest to the desired areas of national human resource development and ultimately help to bridge the gap between the information desired and the information available.

Suggestions for further research

This study focused primarily on the activities and challenges of the National Manpower Board with the purpose of guiding the present situation towards a better future in human resource development and utilization. This path to a better future now rests on the Nigerian Institute of Social and Economic Research. A comprehensive study of the activities and challenges of NISER in human resource development and utilization is hereby suggested. There is also a need to include NISER's field workers in the sample of potential respondents. Their field experience will help to enrich the results of such study.

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Information and Communication Technology Empowerment of Early Childhood Education Teachers in Botswana

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Abstract

The study assessed the views of in-service participants of the University of Botswana (who are pursuing Bachelors degree in Primary Education) regarding the empowerment of Early Childhood Education teachers with Information and Communication Technology skills. Both quantitative and qualitative research designs were adopted. Eighty-two final year students constituted the sample. A semi-structured questionnaire was used. The findings showed that the respondents strongly believed that the Early Childhood Education teachers in Botswana should be empowered with Information and Communication Technology skills. However, they didn't find the existing curriculum feasible due to lack of in-depth content and pedagogy adopted to deliver the content. The findings showed that the student teachers were not able to realize the usefulness of the popular, generic packages and communication tools. The participants of the study suggested for a comprehensive curriculum with spread-out modules that could offer basic Information Communication Technology skills initially, and provide advanced features in succession, in order to enable them infuse content with technology; perform administrative tasks efficiently; conduct research in Early Childhood Education; and generate local-specific multi-media packages for young Batswana.

Keywords: Early Childhood Education, Information and Communication Technology curriculum, Teacher Education Programme, Teacher Empowerment, Capacity Building

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INTRODUCTION

Information and Communication Technology (ICT) has a wide range of benefits for Early Childhood Education (ECE), as it can be motivating; has positive effects on children's overall development that signifies cognitive, social and affective domains. It reiterates that activities through ICT is more effective as compared to traditional ones; as it encourages children to be involved in creative play, mastery learning, problem solving and conversation (Clements 1994; Haugland & Shade, 1994; Bredekamp & Rosegrant, 1994; Technology and Young Children, 1996; Bose, 2005). Studies have shown that young children prefer to work with peers when working with computers instead of working alone and prefer to get help from peers rather than teachers; show more turn taking behaviour which forms attachments with others and show participation in educational and cooperative play activities (Lipinski, Nida, Shade, & Watson, 1986; Rhee & Chavnagri, 1991; Clements, Nastasi & Swaminathan, 1993).

However, a prolonged usage of ICT has harmful effects both on physical and social development and it might expose children to unsuitable content as well (New Zealand council for educational research, 2004). Thus, an effective school reform is necessary which could spread the best common practices across the whole school through certain

leadership practices, culture and structural supports and use ICT effectively in ECE. Perhaps, the Productive Pedagogy that is often used by teachers to reassemble familiar classroom techniques and strategies into a workable model in order to focus on individualized instruction and ensure high quality, relevant, improved student learning outcomes in a supportive classroom environment might become instrumental for such an effective reform. And ICT could be the solution for such an innovative process, to challenge the older school-based pedagogies.

It is believed that teachers are the key agents to such a transformation as the class-room practices adopted by them are positively linked with high quality student's performance and improved academic and social outcomes of students. Indeed, teachers are the central forces in tapping the learning opportunities created by the introduction of ICT and they hold the key to how teaching-learning takes place in schools. As professionals, they can use and integrated ICT with an understanding of the purpose, the social context, and the best utilisation towards developmentally appropriate practices for young children; and can augment the ability in young children to learn, move, communicate, recreate that are necessary for positive dispositions towards learning (Blatchford & Blatchford, 2006).

The purpose of introducing ICT at a foundation level will be lost if ECE teachers do not establish a linkage between the contemporary theories of learning & development with ICT and facilitate teaching/learning processes (Bolstad, 2004). The ECE teachers need to adopt a cross-sectional objective of the curriculum to permeate all teaching with elements of ICT (ICT and Teacher Education in Chile, 1999) instead of using them sparingly in the computer labs for computer literacy rather than infusing it with content (Bose, 2005). Thus, a reform that values teachers; supports their professional development and systemic policies is essential, especially in an era that refocused on pedagogy and welcomed ways of support that could be provided to teachers, in spite of incidences of teachers' suffering either from change fatigue or from change cynicism (Hayes, Mills, Christie, Lingard, 2006).

Proper attention towards their capacity building must be paid so that they can genuinely integrate ICT in the teaching-learning processes (Wachholz, 2005). To use the new technology in classrooms, they must be empowered with the required state-of-the-art ICT skills, so that the generational gap between the students and the teachers could be met, and the aliens in the classrooms, i.e., the new computer, could be exploited most fruitfully. Training programme that enables the ECE teachers to relate to educational philosophy, and allows them to incorporate their own aspirations, skills, knowledge, and understanding into ICT is essential. Thus, it calls for introduction of an appropriate, effective teacher education programme that provides relevant content tailor-made for ECE teachers as well as empowers the teachers with ICT skills to infuse content and deliver them with a skilful pedagogy.

The curriculum should include right content that enables them to familiarize with ICT and its potential; provides basic skill training to make them computer literate; enables them to log on to the Internet; provides curriculum-integration training; encourages collaborative knowledge-building among practicing teachers by sharing their situated teaching/learning experiences; and enhances their capabilities in researching in their own settings and accessing current research and expertise in ECE (ICT and Teacher Education in Chile, 1999; Sherry & Gibson, 2000; Maheshwari, Mallik & Bose, 2000, Bolstad, 2004). It should have enriching content that would enable teacher educators to become aware of the variety of ways in which ICT can complement and extend teaching and learning contexts in new and dynamic ways, rather than be used to perpetuate existing pedagogical strategies that need to be reconceptualised in the information age (Yelland, Grieshaber & Stokes, 2000, p. 95).

For any teacher training programme, in addition to content, the pedagogical practices are vital as they optimise learning of the students, as well as ensure a proper delivery of the content. Different pedagogy proves to be fruitful in different situations as some are instrumental in incorporating children's ideas, theories, or questions more as compared to others (Pollman, 2000). Selection of strategies for delivering content is essential, as some are more suited for a particular concept, skill, field or group (Vakali & Pallis, 2002, Chalmers, 2000) as compared to others.

Thus, it becomes inevitable to emphasise both on content and pedagogy for any teacher training curriculum to be effective, as upon graduation, these teachers are expected to be able to explore new ways of working in their own ECE setting and engage in reflective thinking about children's learning.

Since this study is conducted in Botswana, it is necessary to get an overview of its scenario. In its National Development Plan, Botswana outlines strategise to produce knowledgeable, skilled, enterprising and independent individuals to face a technologically advanced environment (Republic of Botswana, 2003); and in its Revised National Policy on Education, it proposes that the society needs to be computer literate and that the work force should be prepared to make the best use of Information Technology (Republic of Botswana, 1994). The Government also plans to provide resources for the expansion of educational facilities and proposes that all schools have access to computer and Internet by 2016 (Republic of Botswana, 1997). However, such an aspiration can only be realised by adopting an effective teaching/learning practice, especially at a time of multiple effects of globalization and new technologies on identities, knowledge, practices, economies and nations. And preparing informed teachers, thus becomes most crucial.

As far as teacher training programmes are concerned, there is a dearth of degree/diploma awarding programme dedicated to produce ECE teachers in Botswana! And in the absence of such a programme, other programmes that train primary school teachers, have taken the burden of offering ECE courses, both at diploma and degree levels. However, the University of Botswana (UB), in the mean time is getting ready with a dedicated teacher training programme for ECE specialists. Therefore, under the present circumstances, it would be wise to get ready with an effective curriculum for ECE teachers in order to make them face various challenges in the classrooms efficiently. Indeed, ICT could be tied in with these efforts which contribute to the compression of time and space, as well as the creation of new identities and new cyber communities, especially for young people of school age, who are better positioned as compared to their parents' generations, in relation to such technologies (Hayes, et al. 2006). Attempts must be made to develop curriculum that empower the ECE teachers with ICT skills, so that they can utilise ICT industriously in ECE classrooms.

However, researches have shown that in Botswana, the teacher training institutions offer most basic level computer training to the student-teachers, which are not very productive both in terms of content and pedagogy (Bose, 2004). Thus, the current study was envisaged and the views of the student teachers of University of Botswana (UB), who are one of the key stakeholders in ECE, were captured regarding ICT empowerment of ECE teachers.

Research Objectives

The study intended to find out the view of the students teachers on empowerment of ECE teachers with necessary ICT skills. Thus the objectives of the study were as follows:

1. To find out the necessity of ICT in ECE
2. To establish the need to empower ECE teachers with ICT skills
3. To critically review the existing ICT curriculum and propose a way forward for ICT empowerment of ECE teachers

METHODOLOGY

This study was carried out in 2008. A survey research design was adopted for the study. The population used was the in-service participants of B.Ed primary programme who were recently teaching in primary schools spread across the country, and were being provided with in-service training at the University of Botswana. A purposive sampling technique was used, where eighty-two (82) fourth year students participated in the study. These in-service participants were selected as they were completing and getting ready to go back to their services as primary school teachers. Out of the entire sample, only seventeen (17) had opted for ECE as a second Major and were being trained to teach children in pre-primary, lower and upper primary classes. The rest of the sample was primary school teachers who were being trained to teach children in both in lower and upper primary classes only. The researcher felt that these primary school teachers would be able to provide necessary, valuable inputs regarding ICT requirements of ECE teachers. Taking cues from Gay and Airasian (2003) the most appropriate instrument to use was a questionnaire as the number of in-service teachers was big and there was not much time to individually interview these respondents. The questionnaire was semi-structured and had both open and closed questions. The instrument included questions on necessity of empowering ECE teachers with ICT skills and the kind of ICT curriculum needed. The researcher used both the quantitative and qualitative approaches to analyse the data collected. Microsoft EXCEL was used to analyse the data quantitatively, and various kinds of Charts were used to present the processed data. The response of the participants was recorded and verbatim was presented wherever necessary, in a descriptive form. Analysing data both by quantitative as well as qualitative measures were adopted so that both numbers and verbal description could help in retrieving information from the data collected.

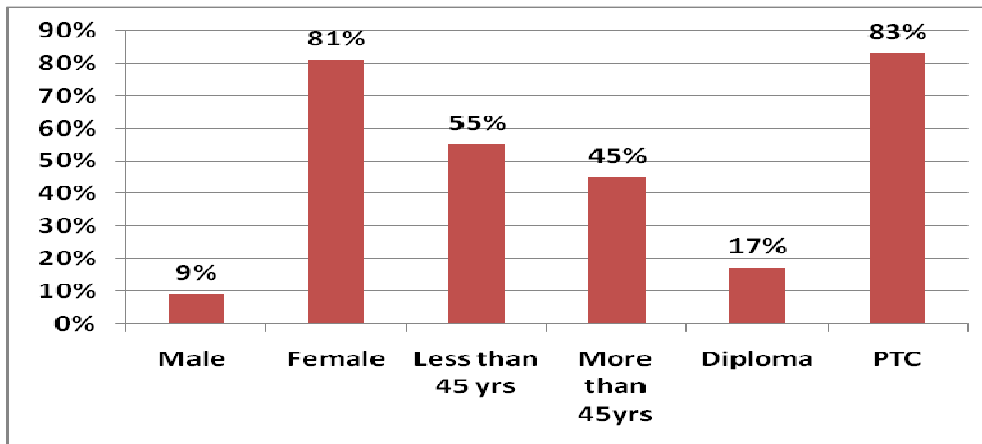
RESULTS AND DISCUSSIONS

The findings lead to a lot of introspection to the issues raised above. The results are presented as per the objectives and followed by discussions. The first part of the results deal with the demographic data of the participants (student-teacher) as that would give a fair understanding of the background of the sample selected for the study.

Demographic Data

As shown in Fig.1, the sample was heavily dominated by females as 81% comprised of females and only nine (9%) were males. This is a true reflection of the reality that most teachers at the foundation level of education are females. There is a gender bias in the teaching profession in schools and particularly in primary grades. It was also found that almost half of the students (45%) were more than 45 years old. This raises a concern because older teachers do not seem to accept any change in the teaching/learning process, and may be resistant to a new idea like the empowerment of the ECE teachers with ICT skills. Prior to joining the in-service programme in UB, 17% of students acquired diploma in Primary Education (either from UB or from the Teacher Training Colleges of Botswana), 83% had Primary Teachers Certificate (PTC); and the entire sample of participants had a minimum of two years of teaching experience. This need to be addressed as well as most of them was neither optimally qualified nor was they very experienced. So one wonders how profound would be their understanding of the empowerment of ECE teachers with ICT skills!

Fig. 1. Demographic Data

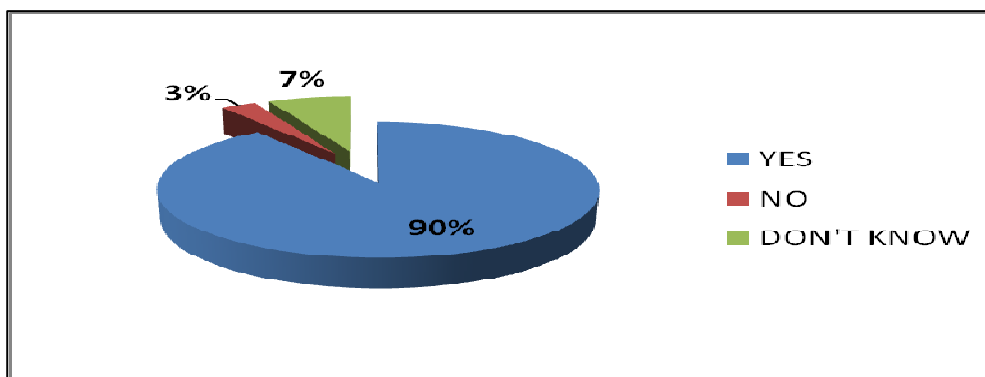


Necessity of ICT in ECE and Empowerment of ECE teachers with ICT Skills

To reflect on the issue of necessity of ICT in ECE classrooms the views of the student teachers were captured. As high as 88% of the participants felt that ICT is most essential in ECE and stressed that the ECE segment should be given top priority and allocation of computers should be granted much earlier in ECE rather than in higher stages of education, as it lays the foundation for children.

In most schools in Botswana it is found that ICT is the core business of computer teachers. Thus, while using computers for young children in the classrooms, often the computer teachers are found to take classes, and the issue of infusing computers in teaching/learning process gets lost completely, as the computer teacher does not have the content to be integrated with ICT. The current study found that nearly the entire sample (90%) (Fig.2) are in favour of empowerment of the ECE teachers with ICT skills, as they felt that it would make the ECE teachers competent, and motivated to make ICT accessible to people of varying backgrounds and ages (Sinko & Lehtinen, 1999). Incidentally, in Botswana, a lot of children come from different cultural settings.

Fig. 2 ICT Empowerment



To emphasise on the same issue, the participants went on to explain that “Computer teacher is required only for handling specialized computer courses like computer science, computer studies, etc. in higher classes, and not in ECE”. This confirms that the teachers were eager to be empowered with ICT skills as that would bridge the gap between the computer teachers and the ECE/subject teachers, and they would no longer have to depend on an outsider for using it for their own teaching/learning purposes!

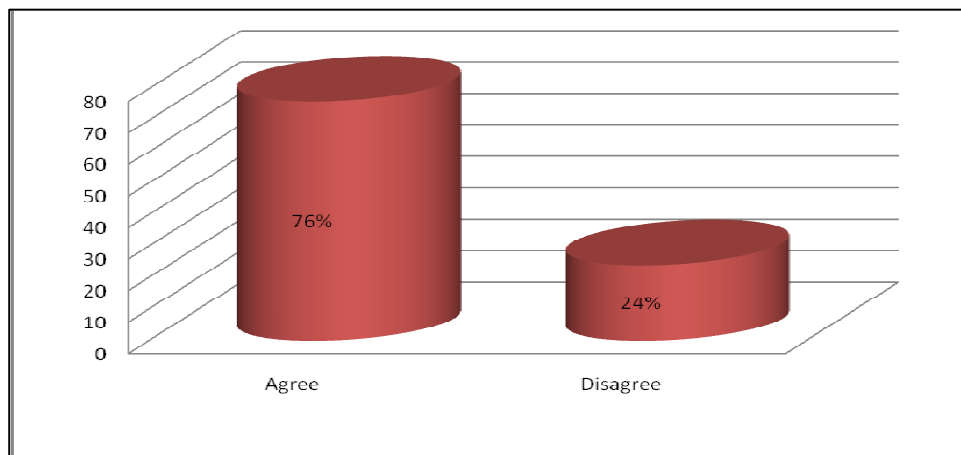
In Botswana, 50% of primary schools do not have computers (Bose & Tsayang, 2005). So the question often arises as what is the point of empowering these teachers with ICT skills? The participants felt that unavailability of computers should not influence the decision of empowerment of ECE teachers and responded positively with the following words:

Even if schools do not have computers, efforts must be made to empower the teachers with ICT skills as it would create an awareness regarding its application and necessity in ECE.

ICT Utilization in the Classroom (Efficiency)

Mere empowerment is not the solution though. It is also necessary to exploit the ICT skills competently and efficiently to yield the best results. Undeniably, an ECE teacher needs to be efficient as s/he handles quite a few things single-handedly. S/he not only teaches all the subjects as a class teacher, but also manages a large group of children. In Botswana, the teacher/student ratio is often very high in lower classes. And by using computers to develop teaching aids, to prepare teaching notes, which s/he can preserve and use recurringly on successive demands, s/he will definitely be able to utilise more time constructively, perhaps in doing research in ECE or by amalgamating ECE curriculum from other certified sources, especially in the absence of one in Botswana! In addition, an ECE teacher manages various types of class registers, records of all the students without any teaching aide, most of the times. So to make the ECE teacher efficient and to enable him/her to use computers for administrative purposes, ICT empowerment is essential. The views of the participants regarding the best utility of ICT for ECE teachers were captured, and majority of them (76%) felt that they would use ICT in performing administrative tasks as well as preparing teaching materials (Fig. 3).

Fig. 3 ICT Utilisation in the Classroom (Efficiency)

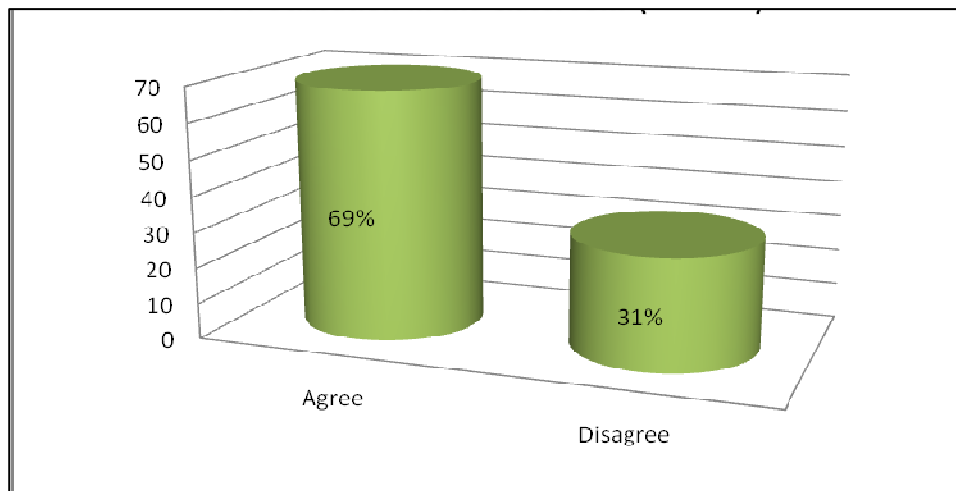


ICT Utilization in the Classroom (Infusion)

Another 69% of the participants opted for infusion and said that ICT empowerment will not only enable them to infuse subject matter with computers but would enable them deliver the content to children by making it attractive, while using the innovative multimedia features of computers (Fig. 4). Indeed, at pre-primary level, computer aided multimedia packages could prove to be ideal for such integration as it enables one to provide content and can make learning a pleasurable experience as it evokes a child’s sensory perception, and can make a child’s learning more effective as compared to posters, static photographic material and limited video clippings which are rigid and non-

interactive. Such packages make teaching/learning process flexible, diverse, user-centred, and interactive and allow an autonomous use of quantity and quality of information as per one's requirements (Bose, 2005).

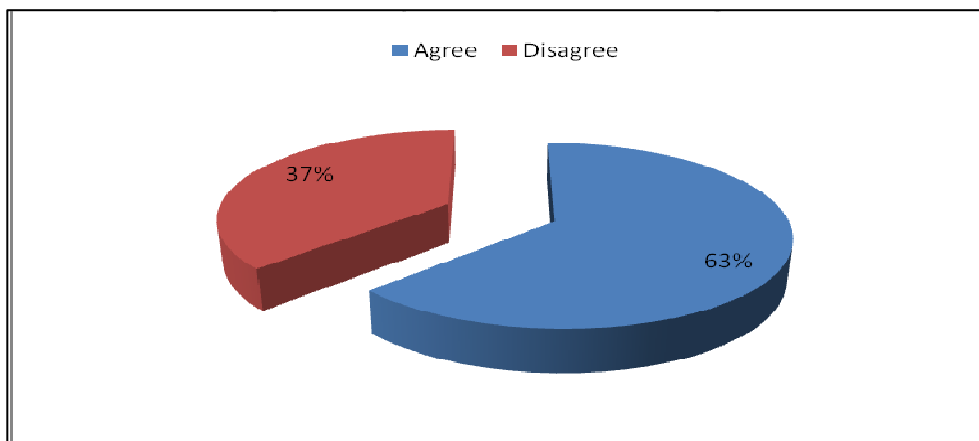
Fig. 4 ICT Utilisation in the Classroom (Infusion)



Utility of Multi-Media Packages

The participants were also asked to air their views regarding the utility of Multi-Media packages. A large number of them (63%) felt that the multimedia packages were very useful for teaching/learning purposes especially in ECE as they felt that during early years, children need to be presented with materials in a more interesting manner, perhaps with sound, graphics and animation which could only be achieved efficiently and solely with the help of a computer which is interactive, unlike other technologies used in education (Fig. 5)!

Fig. 5 Utility of Multimedia Packages



The participants also expressed their concern regarding cultural and language bias that most of the packages seemed to have! For example, the stories, pictures, games, dramas, language, music, dance, food, vegetables, animals, clothes, celebrations, beliefs and myths, customs, national days and to what have you, were specific to western culture, and not referring to Botswana at all. Some of them said that:

The packages were good but the language and the images were more appropriate to the Western countries.

This raises a concern. Children in Botswana need to be exposed to their own cultural values and customs in their own language, especially at the foundation level. The teachers can certainly use the culturally viable software in the classrooms, if only they are available. This calls for indigenous development of software for children!

The next issue was concerning content, i.e. what kind of skills should be inculcated in them so that they can perform efficiently in administrative tasks, develop teaching materials, as well as infuse content with ICT and deliver it in the ECE classrooms. In an effort, the participants were asked to list the programmes that they feel important as part of their curriculum for ECE teachers. Only 43% ranked Word Processor as an important tool and said that:

It helps the teachers to create documents, prepare teaching notes and research reports (Fig. 6).

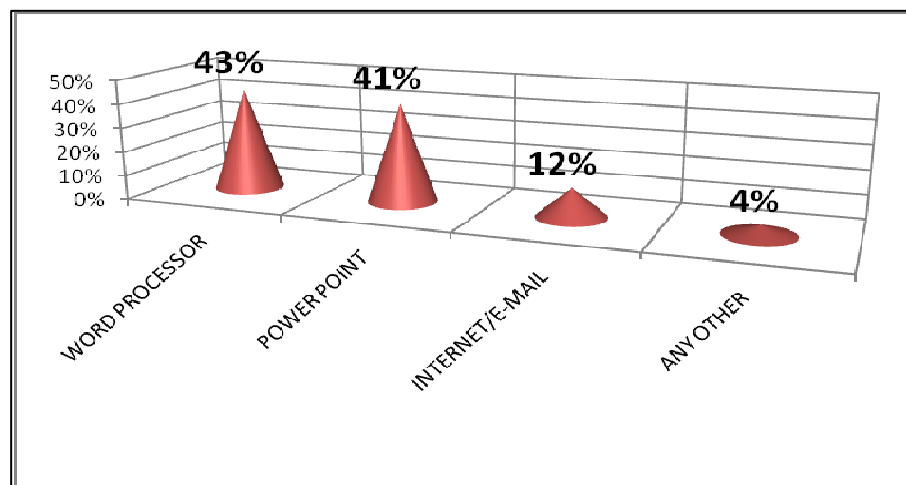
Another small section of participants (41%) chose Power Point Presentation as an important tool and mentioned that Power Point is a teacher's tool and it helps in:

Creating teaching aids for lessons presentations in classrooms and making presentations in workshops and seminars that we attend quite often (Fig. 6).

Although the rate of response is not very high, the findings somewhat support the report of the Ministry of Education (Chile, 1999) which stated that:

Student teachers use ICT in the design and organisation of their teaching activities as a tool for creating more open and flexible learning environments and for preparing teaching materials and develop a reflective stance regarding the uses of ICT in classrooms.

Fig. 6 Important ICT Programmes



Unfortunately only twelve (12%) rated Internet and E-mail important for ECE teachers. This raises a concern as the participants didn't visualize the importance of communication tool like the Internet, which could prove to be extremely valuable, both for teachers as well as children, especially in Botswana where the ECE curriculum is still not on the floor; and there is a prevalence of untrained ECE teachers (Bose, 2008), who could explore on-line to get guidance regarding curricular issues.

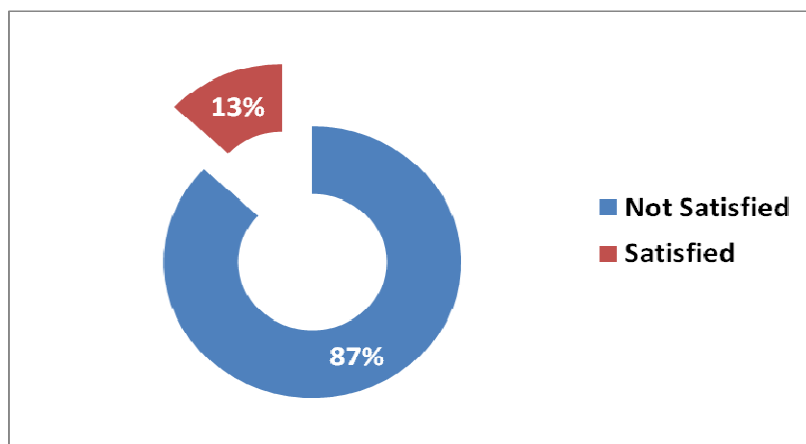
As regards the category of 'Any Other' which listed software dedicated for administrative tasks like Spreadsheets, Databases, even a smaller percentage i.e., only four percent (4%) indicated it as important. This contradicts the findings which pointed that the participants chose ICT as a useful tool for performing administrative tasks. Perhaps, the current sample had not been exposed to the popular packages like Word Processor, Power Point Presentation, Spreadsheets and Databases till they participated in the study. And thus they did not identify them as very important because the potentials of these tools were not fully realised by them. The implication is that the lack of exposure and relevant content might have caused them ignore the important tools.

Review of Existing ICT Courses and Curriculum

The participants were asked to review the curriculum, focusing on the curricular structure, the content of the current ICT courses offered to the teachers. And their views were recorded. The participants primarily indicated the shortfalls of the current curriculum and recommended an alternative viable curriculum that they thought would be appropriate in providing ICT empowerment to ECE teachers. Their focus was on providing skills and competencies to the ECE teachers so that they are able to integrate ECE content with the state of the art technology and also to perform administrative tasks efficiently.

On the question of their satisfaction with the current curricular structure, majority of the participants (87%) revealed that they were dissatisfied with it (Fig.7). The reasons given by them were the existing ICT courses prepared them partially and provided very basic and introductory skills, which may fail to make them marketable.

Fig. 7 Satisfaction with ICT



On scrutinizing the individual ICT courses that were part of their curriculum, majority (68%) of them found the General Education Courses (GEC) ineffective due to time constraint, lack of computers and lack of specialised instructors. On the other hand, a large number of them (73%) rated Computer Applications for Primary Schools (CAPS) as effective but required restructuring. They suggested that the students need to be taken through the important modules, e.g. Power Point Presentations and Graphics much leisurely, as the hurried coverage of the topics could not benefit them much. They reiterated that mastering of ICT skills requires recurring hands-on practice for a longer span of time. According to them, when a handful of ICT modules are covered over a short span of time, it becomes difficult to fully acquire the required skills.

The study found that the participants pushed for a revision of the existing ICT curriculum and proposed an alternative one that they felt would prepare the teachers better to use the technology efficiently in dealing with young children in the classrooms. While proposing an alternative curriculum, the participants reiterated that there should be no provision for any optional computer courses, as these courses are unavoidable and must be made compulsory.

The subject matter knowledge is a reservoir from which teachers draw when they prepare for teaching (Barnes, 1989). In the present study the participants emphasized that provision of two GECs and one CAPS is not adequate for any ECE teacher training programme and more core courses with strong content matter should be included in the curriculum. The participants discarded the prescription of barely three ICT courses for ECE teachers altogether, which did not provide enough on-line experiences to them as each of them carried merely two credits and persisted for one semester only. Introduction of advance ICT tools that were beyond the scope of the existing ICT curriculum was encouraged. The state of the art tools that can empower them to use advance graphics, sound and animation, in addition to acquiring basic skills were in demand. They recommended provision of skills to infuse ICT with the subject matter. Such courses, they thought would enhance their capacity to develop appropriate teaching materials for young children. The participants felt that ECE teachers need special training to develop software so that they can infuse the right content while exploiting the ICT features efficiently.

Truly the pedagogy is crucial in making any teachers/teacher educators familiar with actions and strategies of teaching, organization of classroom experiences, providing for diverse learner needs, evaluation and implementation of learner's prior notions, and transformation of ideas into understandable pieces (Enfield, 2008). The participants of the

current study also focussed on the delivery of the content. They said that an ECE teacher should be exposed to a wide range of graded, compulsory, core courses that offer hands-on-experiences. They felt that with a gradual, continuous flow of core courses covering different ICT content in each semester, from the entry point till the end of the teacher training programme, would really be able to empower an ECE teacher effectively. The current scenario where the ICT courses were offered either in the beginning of the teacher training course (first year of the study), or at the end of the programme (final year of the study) was not acceptable to the participants. They made it very clear that different modules should be offered at different levels of study, over the whole span of the programme, so that it can provide the participants with computing skills in a continuous succession and help them build up new skills on the older ones. They recommended more contact time with the ICT tools as they felt that one needs to practice more to acquire those skills. They felt that such a strategy would help the students keep the computer basics that were introduced during the first year fresh in their minds and would also save a lot of time usually required revising them. In short, they felt that there is a need to propose a new, appropriate ICT curriculum for ECE teachers, by incorporating their suggestions.

CONCLUSION

The ECE teachers in Botswana felt that ICT is necessary at ECE level, as it is effective in an overall development of young children. Those teachers, who have a key role to play in making ICT accessible to all children in the early years, also emphasized that all ECE teachers must be empowered with ICT skills, so that they can explore ICT and use it in their classrooms in a variety of ways that is expected out of them in this new information age! However, an alternative ICT Curriculum needs to be developed for witnessing the desired outcome, i.e. ECE teachers with empowered ICT skills.

The outcome of the present study makes it very clear that while developing an effective, alternative ICT curriculum for ECE teachers who are responsible for optimizing learning of young children, the content as well as the pedagogy adopted to offer it need to be revisited. Care should be taken to offer a comprehensive ICT curriculum that contains rich, relevant in-depth content that not only could give them a rich exposure, but would also enable them to be proficient with all the necessary ICT skills to perform efficiently both in their teaching/learning process as well as in administrative tasks. In addition, strategies for delivering content need to be chosen cautiously, so that the teachers do not fail to realise the power of the popular, generic programmes like Word Processor, Power Point Presentations, Databases, Spreadsheets, communication tools, and the Internet, and use them competently in classroom situations. The real challenge would be that the modules of the ICT curriculum should be spread-out over the entire span of the teacher education programme, rather than intermittently appearing here and there. The ECE teachers must master the basic skills at first, and then move on slowly, in succession, to acquire the advanced skills, instead of hurrying through the modules. The irregular, discontinued delivery of content, i.e., a few in the first year and rest in the last bout of the teacher training programme need to be substituted in favour of an incessant, continuous delivery of ICT courses.

An introduction of administrative tools will certainly ease the burden of an ECE teacher who is managing the whole show probably single-handedly, in a large class-room with no teacher aide most of the time, which is normal in Botswana! If s/he knows how to use spreadsheets for managing attendance register, and how to use Database for maintaining a student's individual record, or how to plan a daily routine by using word processor, s/he would undeniably economize on time spent to get the jobs done and devote more time on providing overall development to the young ones, which is the core business of an ECE teacher. Thus, it could be recommended that an ICT curriculum for ECE teachers should definitely include advance features of Word Processor, Spreadsheets and Databases as that would make them proficient in managing records and registers; would also exempt them from doing repetitive tasks while saving time for constructive tasks in their own area. With such an effort, the ECE teachers would certainly be better equipped!

Generally, ECE teachers devote a large chunk of their time in preparing for their classes, and develop teaching materials for delivering content to their wards. Utilisation of Power point Presentation in developing teaching aids could be an excellent idea, and ECE teachers should be encouraged profusely and empowered with such a skill. Usage of attractive graphics, appropriate and relevant text for the target group, along with some multimedia features could help an ECE teacher produce teaching aids aesthetically, without spending much time and resources. S/he can even preserve it easily in an electronic medium, as a file/folder in the computer, for futuristic, repetitive usage, without consuming much space, and use it without any delay.

While developing an alternative curriculum, the participants' apathy towards communication tools should positively be addressed as ECE teachers need to be empowered with communication skills, as that would enable them to locate appropriate materials for teaching/learning purposes. Normally, teachers do not utilise web-based resources as a result of insufficient Internet access and perhaps, lack of training to integrate ICT skills in their teaching (Girod &

Cavanaugh, 2001). But efforts need to be made to acquaint them with communication tools so that they can enrich themselves with the latest information and engage in research activities. In Botswana, communication tool like Internet would prove to be extremely valuable both for teachers as well as children, especially in the absence of a prescribed ECE curriculum and teaching/learning materials on floor; and also in a situation where majority of ECE teachers are not trained (Bose, 2008). Thus, gathering relevant information from Websites regarding issues on child protection, child advocacy and children's right, ECE policies and programmes in different countries would certainly throw light on the classroom practices.

ECE teachers in Botswana are the class teachers, who are solely responsible for delivering content of different subjects like math, science, languages, social sciences, etc. Thus, the ECE teacher can heavily rely on multi-media packages and teach topics that are interconnected in a curriculum web. An ECE teacher needs to know about safety, health and nutrition of young children. Multimedia packages with relevant content in these areas can even provide basic knowledge, primarily in the absence of ECE curriculum, which is paramount in the country.

Quite emphatically it can be said, that success of an ECE teacher training programme that intends to empower its wards with ICT skills relies on improvement in the capacity of educators to integrate ICTs into teaching; and on extending assistance to teachers in developing locally-specific learning materials (Meleisea, 2005). The utilisation of developmentally appropriate software for young Batswana's (citizens of Botswana) overall development has been a concern for the ECE teachers. Young children need to learn about their own cultural values and norms at the foundation level. Thus, efforts need to be made to build up their capacity to develop culture-specific, regional, local specific learning materials for Batswana children, with advance ICT skills and enable them to infuse content in the form stories and myths into ICT for the young ones, so that they can internalize them without a hitch. Such an empowerment would enable them to work in collaboration with the software developers so as to understand ICT related issues better. Because a software vendor often misses the intricate issues of ECE in terms of content, and the ECE teacher, due to lack of ICT skills, fails to provide required guidance to generate developmentally appropriate multimedia packages that are appropriate for young children.

To conclude, it can be envisaged that in Botswana ECE teachers need to be empowered to infuse culture-specific content with the technology and also need to be made competent to develop socio-culturally appropriate software for the young Batswana.

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The Role of Women in Sheep and Goats Production in Sub-Saharan Africa

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Abstract

Women play significant roles in the domestic and national socio-economic development of many countries in the sub-Sahara Africa. They own livestock especially sheep and goats since these animals are smaller and easier to handle compared to cattle and camels. The purpose of this study was to examine the roles women play in sheep and goat production across the 41 Sub-Saharan African countries. The study reviewed available secondary data and case studies. Content analysis procedures include identifying appropriate literature, evaluating the data, and synthesizing the information. The study found that women's roles in rearing sheep and goats were not significantly different from men's. The review also found that, a role particularly that of women is more of an inheritance and is usually acquired. Women's knowledge on various sheep and goat rearing activities were also analyzed. The study found that women were knowledgeable in rearing sheep and goats than men.

Keywords: Production, Role, Sheep and Goats, Sub-Sahara Africa, Women.

Reference to this paper should be made as follows:

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INTRODUCTION AND BACKGROUND

The sub-Saharan Africa (SSA) region is large in size, comprising of forty-one countries and it is the poorest in the world. The region extends from the bottom tip of the map of Africa up to the beginning of the Sahara desert in the northern part of the continent (figure 1). Sub-Saharan Africa is also called the "Black African" region. Development in this region is affected by cultural differences, climatic factors, civil unrests, and rapid technological changes (Chhibber & Laajaj, 2007).

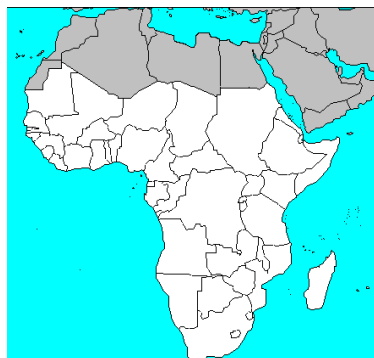


Figure 1: Sub Saharan Africa in white (www.worldmap.org)

Sheep and goats in Sub-Saharan Africa (SSA) are found in almost all countries even though they are not evenly distributed (Otte & Chilonda, 2000). There are close to 160 million sheep and slightly above 180 million goats in the SSA. The highest population of sheep is found in the eastern region (91,900), followed by the western region (57,057). In the third and fourth positions are central Africa (95,331) and southern Africa (4,385) respectively. There are close to 180 million goats in the SSA region. The East African region has the highest number of goats (91,039) followed by the western region (67,896). In the third position is the southern African region (12,054) and the central region (11,098) is in the fourth position (Otte & Chilonda, 2002).

The rearing of sheep and goats is moving from the traditional subsistence farming to business or commercial enterprises since countries in the SSA region achieved independence (Mrema and Ferris, n.d). The management has also moved from being a family activity to a national function. In some countries, these developments have led to the establishment of educational enterprises, modifying curriculum content for schools, and research programmes (International Fund for Agricultural Development (IFAD), 2007; Elliot, Stout, Dejardin & Sithole, 1998; Singh, 1998). Governments and Non-Governmental organizations such as IFAD also fund projects to support development in sheep and goats industry. The IFAD projects in the north, east and central sub-Saharan African regions are evidence of women's contribution towards fighting poverty and other socio-economic imbalances among their societies through rearing of sheep and goats.

Sheep and goats are among small livestock kept by farmers with limited financial resources for poverty alleviation in many developing countries especially in Africa. They are a unique type of animal sector and serve as a source of revenue (Panin, 1993; Degen 2006) for small holder farmers who can not afford to maintain large ruminant livestock like cattle. This is true for the disadvantaged and their families in rural areas of the sub-Saharan Africa (Nwakor, 2004; Degen, 2006). According to Elliot, Stout, Dejardin & Sithole (1998), sheep and goats are animals that are favourites for the poor because they are cheap to manage and they mature early and breed readily, therefore increase in number quickly. They have small body size, and reach slaughtering weights early. They can easily thrive under poor conditions and are more drought tolerant than animals like cattle. These characteristics make small ruminants such as sheep and goats easy to keep for many people. In the "rain-fed agro-ecosystems" of India, sheep and goats have been reported to help the management of risks incurred in growing crops during poor rainy seasons and providing income to ensure economic stability for mixed farming families as well as supporting the keeping of large ruminants (Misra, Rama, Subrahmanyam, Babu, Shivarudrappa, & Ramakrishna, 2007).

Sheep and goats are a profitable and reliable business in dry, hot, deserts and mountainous areas of sub-Saharan Africa (Panin, 1993). Their skins and hair provide valuable products (Mwandotto, Wachira, & Chemitei, 1992). They also provide meat and milk that are an alternative to beef and cow milk in today's society which carefully watch the conditions of high cholesterol and hypertension. In Kenya sheep and goats contribute close to 20% of calories and three quarters of the meat needed by people. Milk from the small ruminants provides most nutrients, containing strong flavour compared to that of cows' and camels' milk. It also tastes differently as it is more concentrated in nutrients (Nwafor, 2004).

Research Problem and Purpose of the study

Although some research work has been done on issues of women and gender in agriculture and related sciences, it has been insufficient to substantially delineate women's actual roles in sheep and goats agricultural activities. In fact, with increase in the calls for recognition of women's involvement in all sectors of economic importance very little research has been conducted in the last decades about the actual roles women play. Additionally, while women outnumber men in traditional agricultural activities their role is still under documented and recognized. The small proportion of women and girls roles recognized in agricultural disciplines such as small livestock production is striking. This study therefore was designed to examine women's roles in sheep and goats' management in the sub-Saharan African region.

The purpose of the study was to examine women's roles in sheep and goats management in the sub-Saharan African region. Specifically, the study was to:

1. Identify appropriate roles played by women in small livestock rearing and production systems.
2. Describe the roles women play when keeping sheep and goats
3. Compare the roles played by women with those played by men in small livestock rearing.
4. Describe factors influencing roles taken by women in sheep and goats production

REVIEW OF LITERATURE

Women in sheep and goats production in Sub Sahara Africa (SSA)

Women in Africa perform various functions in the livestock industry and yet there is little research about their roles. According to FAO (1998) agriculture is the leading provider of income, foreign earnings, employment, raw materials, and food in many African countries. This means, women contribute positively to economic development of many countries since they are involved in more than 80% of these agricultural activities. There may be variations in the role women play among countries in sub-Saharan Africa, but women in agriculture account for the greater proportion of economic development. Women in the small ruminants' production sector of agriculture have pertinent responsibilities and functions which have similarities and differences to specialization when compared to the roles of men.

IFAD (2004) reported that a large number of women in different countries of Sub-Saharan Africa (SSA) have been associated with small livestock roles particularly sheep and goats for many years. The cultures and socio-economic factors of the societies in the SSA region seem to have tied women with sheep and goats. On the other hand women have also shown the enthusiasm and feel attracted to sheep and goats than other types of livestock. Therefore, it is not by chance that women play a major role in sheep and goats rearing.

According to Reij, and Waters-Bayer (2001) and Moses (2006) women carry out numerous activities in livestock production including sheep and goats. For example, Ogunlela and Mukhtar (2009) alluded to the fact that in Nigeria women carry out more agricultural activities compared to men. It is also indicated that in Nigeria and Ghana projects addressing poverty and other socioeconomic challenges have been successful because of women led group work (Ogunlela & Mukhtar, 2009; IFAD, 2009). Banda (2004) has stated that in Malawi, a large number of sheep and goats are found in rural areas making it very attractive for them to keep and manage sheep and goats. Moses (2006) reported that women have that original scientific and practical knowledge which they are born with regarding the management of sheep and goats. Moses has also reported several examples of specific functions performed by women from different countries worldwide.

Among others, Moses (2006) reported that in Botswana men would frequently use their wives as reference in livestock management aspects since they work closer to animals. In Tanzania and Kenya, women utilize sheep and goats to control bush encroachment which is a grazing management strategy, while in Nigeria women process milk after their husbands had finished milking. In this regard, women provide the labour force for different activities in livestock rearing (IFAD, 2007). Depending on the country, women may or may not decide on marketing of the animal without the consent of the husband. For example, women manage livestock including sheep and goats while their husbands, sons and brothers who work in urban areas (it used to be mines in South Africa). During this period, women will not dispose of animals without the consent of the men. As indicated by IFAD (2007), "men's de-jure ownership rights over animals are guaranteed by a near universal set of inheritance rules that are gender biased and rooted in religion and patriarchal kinship". This seems to be the popular practice in countries in the south of sub-Saharan Africa.

The theoretical framework of this study was formulated around the fact that women perform different roles in sheep and goats production. A role is defined in this article as the behaviour that a person or an individual is expected to perform or display in a situation that confronts him or her or in a family or an organization (Kossylin & Rosenberg, 2000; Berth & Theron, 1999; Myers, 2004). Kossylin & Rosenberg (2000) observed that "roles are the behaviours that members on different positions in a group are expected to perform". The authors allude to the fact that roles of a person in a society are assigned authoritatively but in most cases they tend to be created and fulfilled by virtue of seniority in the group. Roles are important because they tend to define and describe duties within groups of people. Generally, women concentrate on roles not easily recognized and yet they carry out several activities just like men in the production of sheep and goats. IFAD (2007) stated that the roles of women in agriculture are many but have been "underestimated, undervalued and widely ignored." The metaphors used by IFAD provide a genuine motivation for the research and subsequent argument on the position, functions, and responsibilities played by women in the rearing of sheep and goats.

IFAD also reported that women manage animals kept mainly in homesteads. In Botswana, the traditional system of rearing animals is evidence to this. Women take care of children; provide food for the family; therefore sheep and goats are the types of ruminant animals to keep for immediate availability. In the traditional system cattle are normally kept by men and they are not readily available for sale by women. Botswana people traditionally are not known for selling cattle very easily. According to IFAD, religion such as Islam would prefer women to remain home, like the Fulani (West Africa), Somali (East Africa), the Basarwa and BaZezuru (Southern Africa).

Livestock production is a multifaceted management activity. That is, it has different activities especially meant for women like their "knowledge of gynaecology" while men are expected to make kraals and farm structures. Women

also have an opportunity to influence resources, technological changes, decision making, and management adopted for the keeping of sheep and goats. In other areas women also show their knowledge on the management of sheep and goats diseases and parasites. For instance, the knowledge on when and how to use certain parts of the grazing area to prevent parasites is an example of skilful management by women (IFAD, 2007).

The World Bank report (2000) stated that “women are one of Africa’s hidden growth reserves, providing most of the region’s labor, but their productivity is hampered by widespread inequality in education and access.” According to “Briefing notes on critical gender issues in Sub-Saharan Africa (2005) improving in the women’s acquisition of resource may improve productivity in sub-Sahara Africa by at least twenty percent. Among others, women’s education becomes important because the argument on women’s roles is not new but an enduring journey in agriculture. Tapping the knowledge that women have would mean or entail recognition of the roles they play in the production of sheep and goats sector of animal husbandry. It could also facilitate the implementation of policies and programs which countries adopted from the Beijing (China) conference on gender equality. According to Jensen, English, & Menard (2009) and Gustafon (2002) demographic characteristics in agriculture is changing and this has influence on the use of animal products thus affecting roles women play.

IFAD stated that there are four kinds of livestock systems in the traditional way of rearing livestock in sub Sahara Africa which are; the transhumant, agro pastoralist, intensive crops and livestock, and the peri-urban intensive systems. In each of these, women’s responsibilities in livestock production are categorized into: “no women involvement activities”, “processing animal products”, “managing and processing”, “managing and herding large livestock”. Based on these categories, women carry out at least more than three-quarters of the work available in livestock production.

It is also important to note that the “role” played by women in livestock keeping can be explained by sociological theories that enlighten on what people are expected to do and their attitudes towards work in livestock (Myers, 2004; Berth & Theron, 2000; Kossylin & Rosenberg, 2000). In essence, there are several theories in social psychology that may be used to understand roles of women in keeping and managing small ruminants. These may explain why women are into sheep and goats production. They are the: attribution theory, social learning theories and social schemas.

The social learning theory is based on Bandura’s understanding of how people learn through observation or role modelling (1984). Sheep and goats as a social and business enterprise can be started by women as a result of observing others in the family, paying attention to their operations, accepting and imitating the originator (Berth and Theron, 2000). There are different role models such as parents, older siblings, teachers, friends, leaders, television, movies and other things (Berth and Theron, 2000). Girls who decide to keep sheep and goats do so because of watching the television programmes and their mothers as practical and realistic models. This seems to be the tradition and culture for African women as these roles are passed on from one generation to the other. Thus, women continue to carry out or to be involved in different roles acquired through observation.

The schema theory is broad. It helps to explain that generally people have the tendency to categorize each other in social settings. In one situation of the schema theory people have their own way of thinking about themselves and about others. The self schema explains that women may think about themselves in keeping sheep and goats and see if they are motivated or not. Thus, the formation of schema is important because it influences whether or not the person can keep small ruminant animals (Berth & Theron, 1999).

The attribution theory is about the judgment people make of others, which has an influence on our own personality and hidden characters. What people perceive to be roles of women in small ruminants may be different from one’s judgment. It may also be different from one woman to the other in the same or different parts of the region. Thus the theory explains the error that may be found in people’s judgment about the bases of the roles played by women. Different African societies have different roles that they assign to women. Some societies believe that women can do light jobs while other people believe she can do any type of work.

The role a person assumes is a process which seems to be taking place gradually in stages. For example, the social learning theory assumes a role requires one to pay attention to people who are keeping sheep and goats in order to become a farmer. According to Berth and Theron (1999) this may be explained through a model called role episode which starts with mere observation followed by performing an activity.

Sheep and goats are important in the region of sub-Saharan Africa (Ademosun, 1992; Nsubuga, 1994). The population varies from one country to the other and within a country. According to Ademosun (1992) and Nwafor (2004) the variations in the population distribution of small ruminants is influenced by ecological zones, culture, religion, gender, attitudes and education level. They have influence on roles played by women. For example, with regard to ecological zones, the highest population of small ruminants seems to be in arid areas, followed by semi-arid, last being the highlands. This may be true because in Botswana, a larger number of sheep were found in the desert

environment than other areas (Nsoso & Madimabe, 2003). In Nigeria, even though small ruminants are kept by small farmers and are a secondary part of agriculture as compared to crop production, only forty percent is found in humid and semi-humid areas. This implies having a greater number of small ruminants in drier areas (Ademosun, 1992).

It is asserted that culture has a major part in influencing roles played by women in the sheep and goats sector. Culture as described by Shepard (2002) is all about people's way of living and that it can be passed from one age group to the other including "our patterns of thinking, feeling and behaving". That is, culture may hinder or enhance development depending on how it shapes our minds and thinking to believe that we have roles that we "can" and "cannot" perform in rearing sheep and goats. Shepard stated that:

Culture underlies human social behavior. What people do and don't do, what they like and dislike, what they believe and don't believe, and what they value and discount are all based, in large part, on culture. Culture provides the blue-points people in a society use to guide their relationships with others. [...] Human social behavior, then, is based on culture. And because culture is not innate, human behavior must be learned (Shepard, 2002)."

Unami (not true name) from Botswana was interviewed with regard to the traditional roles of women and this is what was recorded:

When I grew up my grand mother practiced mixed farming, growing crops and rearing livestock concentrating on the sheep and goats sector. She also kept calves transferred from the cattle post when their mothers had died. She was a farmer, with a considerable number (flock) of sheep and goats. Her flock of sheep was estimated to be slightly above sixty, and the numbers of goats were approximately half the number of sheep. My grand mother's daily activities in the home included milking goats, making sour milk, making sure sheep and goats were watered, ensuring young ones (lambs & kids) were separated from their mothers before they were sent out to graze, ear marking, dipping, and castrating the young ones. In addition she made sure the family had food and other basic necessities for living. She practiced subsistent farming and encouraged family members to go into farming. On the other hand my grand father concentrated on cattle as he spent more time at the cattle post and also managed their traditional boreholes which still exist today. Our neighbours were my mom's cousins who had a bigger flock of sheep and goats, twice the size of ours. The old woman, Mrs M (not true name) was the care taker performing all the activities similar to those conducted by my grand mother. Her husband who owned a tractor, general dealer store and Chevrolet pick-up vehicle frequently drove to the cattle post where they had a large herd of farm animals like cattle and horses. In another experience,

Mrs. John (not true name) from Ghana shared her experiences. She indicated that she grew up in urban areas where her mother was employed by the government as a teacher. Her grand mother who stayed in rural areas had five goats and is the one who provided them with milk from sheep.

Generally, women have been associated with house keeping while men were associated with the cattle post or ranch farming. As boys and girls grew, they tended to assist at home looking after small livestock with their mothers and then the boys would switch to join their fathers at the cattle post when older. In the Botswana context, roles have been defined by gender and that continues to exist in the society. The question is why is the role of a woman the rearing of sheep and goats?

Religion is another factor that influences women's roles in sheep and goats rearing. Shepard (2002) stated that there are five concepts which characterize religion. These include beliefs, ritual, intellectuality, experiences, and have consequences for roles played by women. A person who is religious sees everything in terms of the "spiritual" beliefs. In this regard, belief goes with the relationship one believes to have with God or Allah on what a person does. Such people "can forsake things and needs, but may see economic activities as service to God and acquisition of earthly things as a gift from God" (Berth & Theron, 2001 p. 196). In Botswana for example, there is a new traditional religion in Marobela village in the central district believed to originate from Zimbabwe, which preaches the theory that influences its followers not to eat goat meat. This goes with certain beliefs which followers of the religion have developed. It has influenced women not to keep and use goat products.

Gender bias is another factor associated with the roles of women in sheep and goats production. Gender roles were socially and culturally defined prescriptions and beliefs about what and how people should do things. Gender roles and stereotypes affect women in other ways. For example, in the SSA women have been judged on how well they

cut grass to feed sheep and goats at home, milk and process milk into products such as sour milk, butter and processing hides and skins. People's attitudes in terms of feelings, thinking and actions are important. There is a positive relationship between attitudes and what people value. Women seem to like their roles in sheep and goats.

Literacy has been found to influence people's perception of things and businesses they do. Sheep and goats as an enterprise in the field of animal production will require adequate education. They generate funds when required and income to sustain a family. As stated by IFAD majority of women in the region are not very educated. If they were, more would result from their activities since they would calculate their profit for livestock and employ more scientific methods in managing their stock. This will lead to poverty alleviation in the society. For example a yearling sheep costs about BWP800 in Botswana which is equivalent to US\$100. A family with 500 flock with 10.0% off-take will be marketing 50 animals annually raising BWP40, 000 (equivalent to USA5000) which is a substantial amount of money. A well managed flock will have about 50% birth-rate which implies 250 lambs yearly to this farm (Botswana Government, 2007).

METHODOLOGY AND PROCEDURES

Design of the Study

This was a descriptive desk research design. Literature review was conducted to examine the roles played by women in sheep and goats in the sub-Saharan Africa. The method used in this study to review literature was a three-stage approach suggested by Levy & Ellis (2006). The approach required the researcher to (1) identify appropriate relevant resource materials from peer reviewed journals, and recognized organizations, (2) read process and screen the literature for quality assurance, and finally, (3) produce the review. Levy & Ellis alluded to the fact that the use of peer-reviewed literature and other materials can provide reliable, consistent and valid data for use in research.

Procedures

To ease the review and analysis, the researcher considered the four regions of the sub-Saharan Africa according to the geographical location of countries on the map. These were: central, with five; east, with ten; south, with nine, and west, with sixteen countries. Data in the form of government documents, scientific papers and reports from recognized organizations such as the International Fund for Agricultural Development (IFAD), Livestock Research in Rural Development (LRRD), and the central statistics reports for Botswana government were identified and reviewed. The roles played by women were identified on the basis of systems of livestock management: the transhumant, intensive crop and livestock, peri-urban, agro-pastoral and intensive farming. The demographic characteristics of women involved in sheep and goats were also described.

Population Sampling

This was a census study where all forty one countries in the sub-Saharan Africa region were included in the studied. Secondary documents on small livestock production accessed through the internet and other sources were reviewed.

Analysis of Data

Content analysis was carried out involving summarizing, synthesizing, analysing and evaluating. The secondary data as described by Ben (1995).

RESULTS AND INTERPRETATION

Results of this study are presented in tabular forms and narrations. The results are based on content analysis and interpretations of the contents from reports, journal articles and government and non-governmental organization documents.

In table 1 the education of most women in sheep and goats was found to be moderate to low. This could be true since most of the

Table 1: Demographic characteristics of women in sheep and goat

Characteristics	Level	How achieved	Sources
Education	Moderate to low education,	Role modelled, academic and vocational trained.	Misra et.al. (2007)
Socioeconomic status	Moderate to low	Related to their needs in short and long terms; -employment -labourers -Part of their life	Antonio Rota (April 2010)
Ownership	Yes, with variations	Inherited from parents	Oladele & Monkhei (2008)
Age	Ranging from youth to adults	-	Kamel, et.al. in <i>Reij, & Waters-Bayer</i> (2001).
Family size	large	Supported through sheep and goats	
Marital status	All status		

Source: Adapted from literature on characteristics of women

Table 2 presents descriptions and interpretations of roles of women in sheep and goats for each system of keeping livestock and countries where specified as summarized from different literature and personal interaction with people of different countries in Sub-Saharan Africa. The roles were identified and specifically described as to what women do under each system of rearing sheep and goats. The results show that Botswana women are found at all systems of farming. The transhumant system being the most primitive and the peri-urban being the most advanced farming system.

Table 2: Roles of women based on farming systems practiced by countries

System	Description of roles in sheep and goats	Country
Transhumant	Herding and management; Management of small ruminants; Milking, procuring, processing of milk Slaughtering, housing, Health; Cutting feedstuff for livestock	Algeria, Niger, Mali, Botswana, Uganda, Somali, Sudan
Agro pastoral farming	Ownership of small livestock; Women work longer hours than men, Control diseases, Milk processing; Dairy production, Feeding, Serving as labourers, conduct special roles, Herding, Vetting, Shepherdess, Managing	Kenya, Nigeria, Sudan (Darfur), Niger, Uganda, Botswana, Tanzania
Intensive livestock farming	Own farms	Botswana, south Africa, Nigeria.
Peri urban	Women in urban areas engage in livestock to supplement salary, small enterprises	Zimbabwe, Botswana, South Africa

In table 2, identified roles performed by women in rearing sheep and goats were described in terms of why women perform the task during management.

Table 3: Specific women's activities in sheep and goats management

Role	Reason for carrying out the role
Housing livestock	Constructing shelter to protect livestock from predators, harsh weather, and poachers.
Feeding	Cutting plant materials to supplement where necessary to promote and support growth, multiplication, milk for family consumption, for meat production, and for ceremonial reasons.
milking	Carry out hand/machine milking of sheep and goats by hand to feed the family, process into products, to foster kids without their mothers and for marketing fresh milk
Laborers	Serve as care takers, perform special role, controlling diseases, watering, and work in the field at the same time with sheep and goats.
Processors	Process meat into biltong, milk, skins and hides, manure into energy and artefacts to preserve the product
Workers	Life activity as a family member
Managers of projects	Intuition to benefit all
Value for livestock	
Employment	
Division of labour	Employed by other women to work in sheep and goats specialization

A case of Ethiopia as described by Moses (2006) women is knowledgeable in at least 87.5% of the different tasks performed in sheep and goats production. They lack knowledge on only 12.7%. This implies that women perform similar roles to those performed by men on sheep and goats rearing.

Table 4: Women's knowledge on randomly selected management activities

✓ = Yes: ×= No

Role	Girls/women	Boys/Men
Herding	✓	✓
Hygiene	✓	✓
Doctoring and daily care	✓	✓
Gynaecology, birth, nutrition, anatomy	✓	✓
Feeding	✓	✓
Watering	✓	✓
Use of products	✓	✓
Cattle farm	✓	✓
Cattle posts	✓	✓
Breeding	×	✓
Marketing	×	✓
Daily care	✓	×
Reproduction	✓	×
Cut-and-carry pasture	✓	×
Fattening	✓	×
Milking and processing	✓	×
Fermenting milk	✓	×

Source: Moses (2006) Amarew Project, sheep and goats

Implications and Conclusions

Although the miscalculation of roles of women in the rearing of sheep and goats is noted in the agriculture sector, it is not however receiving the recognition it deserves.

It is argued that recognition of the role of women in the small ruminants sector of the animal industry is important as a way to motivate and encourage women in poverty alleviation issues. The study also suggests that the demographic characteristics of women involved in sheep and goats rearing are important. Further research may be important to describe their demographic characteristics.

Women play significant roles in domestic and national development because they own and manage livestock. Based on the review of literature, it was found that roles carried out mainly by women are more of an inherited and acquired characteristics because they tend to be modelled by other people. The roles played by women are not different from men's roles. However, women's knowledge in sheep and goats seem to compare fairly well with those of men.

Table 3 above shows that women in Ethiopia outperform men in some aspects of farming. This is important as something that can be used to encourage women in other countries like Botswana to be confident in undertaking their agricultural pursuits—they know that women elsewhere have done well so there is no reason why they should not. The results also show that women in Botswana are capable of performing positive roles at all levels of farming. The performance of women in the agricultural sub sector under consideration is evidence that women do positively contribute to the economy of the region and therefore supporting their involvement can actually improve the economic conditions of the region.

The evidence suggests that more credit is due to women and therefore there is a moral imperative to acknowledge their contribution.

Recommendations

Women's functions in this industry should equally be recognized to those performed by men in the same sector if the desire is to see reduction of poverty in the sub- Sahara Africa by 2020 and beyond. Recognition of women's involvement and contribution should include the creation of a conducive environment for the industry at this level to thrive. Women need to be supported financially, socially, politically and culturally.

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