

A PERFORMANCE ANALYSIS OF PRODUCTION UNITS FOLLOWING THEIR REINTRODUCTION IN SELECTED SECONDARY SCHOOLS OF LUSAKA

UMA ANÁLISE DE DESEMPENHO DAS UNIDADES DE PRODUÇÃO APÓS SUA REINTRODUÇÃO EM ESCOLAS SECUNDÁRIAS SELECIONADAS DE LUSAKA

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Abstract: Production units were a common feature in most schools during the United Independence Party (UNIP) Government. They were an important component of preparing learners for independent living as well as a way of making schools a second home for learners where learners could learn and eat. This study assessed the performance of Production Units in selected secondary schools in Lusaka District. The objectives of the study were; to establish how the Production Units were managed in selected schools in Lusaka District and to explore the challenges that were affecting the performance of Production Units in schools. A qualitative research approach and a descriptive design were adopted. Eighteen (18) participants in charge production units in the three selected schools were purposively selected and involved in the study. The composition of sample was Three (03) Head- teachers; Three (03) Heads of Departments; and Six (06) Science Teachers; and Six (06) General Workers, all members that were purposively selected by virtue of their involvement in production unit. The findings established that that schools had established structures that guided the management of production units. It was further established that decisions were made democratically on how production units should run in each school sampled in the study. In terms of the performance, it was revealed that the units were adding value to schools through the activities undertaken under production units. Some challenges were identified in terms of how the production units were operating in schools. These included: shortage of land, poor planning in terms of timing of activities to do with production units, lack of proper training, lack of transport and market, and inadequate financial resources for expanding production units' activities. Arising from the findings of the study, the following recommendations were made: workers under production units should be trained; schools to develop marketing strategies through working with supermarkets, hotels and lodges. Also, land to be secured through the help of Ministry of General Education and Ministry of Lands for schools to expand their ventures.

Keywords: Assessment. Challenges. School. Performance. Production Units.

Resumo: As unidades de produção foram uma característica comum na maioria das escolas durante o governo do Partido da Independência Unida (UNIP). Elas eram um componente importante na preparação dos alunos para uma vida independente, bem como uma forma de fazer das escolas uma segunda casa para os alunos, onde estes pudessem aprender e comer. Este estudo avaliou o desempenho das Unidades de Produção em escolas secundárias selecionadas no Distrito de Lusaka. Os objetivos do estudo eram: estabelecer como as Unidades de Produção eram administradas em escolas selecionadas

no Distrito de Lusaka e explorar os desafios que estavam afetando o desempenho das Unidades de Produção nas escolas. Uma abordagem de pesquisa qualitativa e um projeto descritivo foram adotados. Dezoito (18) participantes das unidades de produção responsáveis nas três escolas selecionadas foram propositalmente selecionados e envolvidos no estudo. A composição da amostra foi de Três (03) Chefes de departamento; Três (03) Chefes de departamento; e Seis (06) Professores de ciências; e Seis (06) Trabalhadores gerais, todos os membros que foram propositalmente selecionados em virtude de seu envolvimento na unidade de produção. As constatações estabeleceram que as escolas tinham estabelecido estruturas que orientavam a gestão das unidades de produção. Foi ainda estabelecido que as decisões eram tomadas democraticamente sobre como as unidades de produção deveriam funcionar em cada escola amostrada no estudo. Em termos de desempenho, foi revelado que as unidades estavam agregando valor às escolas através das atividades empreendidas sob unidades de produção. Alguns desafios foram identificados em termos de como as unidades de produção estavam operando nas escolas. Estes incluem: falta de terra, planejamento deficiente em termos de tempo de atividades relacionadas às unidades de produção, falta de treinamento adequado, falta de transporte e mercado, e recursos financeiros inadequados para expandir as atividades das unidades de produção. A partir dos resultados do estudo, foram feitas as seguintes recomendações: os trabalhadores sob unidades de produção deveriam ser treinados; as escolas deveriam desenvolver estratégias de marketing através do trabalho com supermercados, hotéis e pousadas. Além disso, os terrenos devem ser assegurados através da ajuda do Ministério da Educação Geral e do Ministério das Terras para que as escolas expandam seus empreendimentos.

Palavras-chave: Avaliação. Desafios. Escola. Desempenho. Unidades de produção.

I. Introduction

The provision of education is an exercise that requires huge resources and the participation of different stakeholders (Carmody, 2009; Ministry of Education - MoE, 1996). Schools have been urged not to just wait for government funding but also to venture into productive activities. Today, schools globally have been taking an active step to make themselves self-reliant in terms of financial resources through the introduction of Production Units (Food and Agriculture Organization, 2010). In 1981, the 38th Session of the International Conference on Education adopted the need for interaction between education and production work. As early as 1989, UNESCO's International Symposium on Innovative Methods in Technical and Vocational Education held in Hamburg, called for the need to promote interest in production-oriented learning and teaching in schools (UNESCO, 1981). Due to the dynamic world we are living in, the need to re-introduce and revamp production units has been found to be a relevant and an urgent one. This is largely due to a number of benefits associated with these units such as income generating, food security, imparting of

survival skills and research experience (FAO, 2010). It has been stated that governments and international development partners are increasingly interested in school gardens and other productive activities like fish farming and animal rearing as these activities have been key in science education, agricultural training, raising income levels, and better nutrition (FAO, 2010).

Like in the case of the United States of America, it has been learnt that the White House food garden in Washington D.C. started by children from Bancroft Elementary School is expected to provide food for the President and the family as well as to educate children across the country the importance of health garden produce and through this to educate other families to promote gardening at home (Burros, 2009). Countries like China have also combined teaching with production work in schools. It has been observed that what started as simple work- study school programmes in China today consist of factories, farms, construction companies, and a wide range of service businesses (Singh, 1998).

Zambia has joined other countries in fostering the need to combine learning with production work in schools through the re- introduction of Production Units. In Zambia, Production Units were firstly introduced in 1975 through President Kaunda's proclamation that all institutions of learning should have production units (Bwalya, 1983).

Today, it is believed that Production Units can venture into numerous lucrative activities so as to support the financial needs of the school and possibly make schools to be self-reliant (Jere, 2019). This is the stance the Zambian government has taken through the Ministry of General Education. Subsequently, schools around the country have been seen investing heavily in activities such as fish farming; vegetable gardens; chicken, pig and goat rearing; carpentry and metal works. However, it is also important for the country to pick some lessons from the failure of Production Units activities in the 1980s. Some of the key factors that relate to the failure of these units were that there was need to integrate the production activities into the school curriculum more harmoniously in terms of time allocation and lack of clear definition of the needed inputs to make production units more viable worsened things (Kelly, 1991). Also, it was observed that the aggregate value of goods and services that schools were producing was low and of less financial significance.

1.1. Statement of the Problem

A number of schools in Lusaka District and many other Districts around the country in Zambia have revamped their Production Units. This has been in line with the ministerial directive that schools should re-introduce production units in order to be self-reliant so that schools attain the ability to mobilize their own financial resources to meet their needs (Jere, 2019). Further to this, , Production Units do not only contribute to national food security but also to the impartation of of entrepreneurial skills in learners, health diet, and secure livelihood (FAO, 2010). Kelly (1999) noted that Production Units were a key aspect of the provision of education especially in the 1970s and 1980s. However, there was a disappearance of production units in the 1990s. As Achola and Kaluba (1989) put it, the production units introduced in schools in 1975 taught useful skills although they had little success in linking theory with practice, building positive values for manual work, imparting management and marketing skills in learners or producing significant income for schools. After the reintroduction of Production Units via a ministerial statement in Zambia there was need to assess the performance of the Production Units in schools, to establish their viability and the nature of support given to the reintroduced policy.

1.2. Objectives of the Study

In line with the statement of the problem, the following were the objectives of this study:

1. To establish how the Production Units were managed in selected schools in Lusaka District
2. To identify the nature of production unit activities being carried out in the selected school
3. To describe the potential threats to the performance of Production Units in schools.

1.3. Theoretical Framework

This study relates to two theories namely the Human Capital and the Systems theories. The human capital theory propounded by Schultz (1961) and later developed by Baker (Fugar,

Ashiboe- Mensah, and Adinyira, 2013), calls for the need to invest in human capital so as to increase productivity and profitability of production units. The Systems theory is the work of Ludwing Von Bertalanffy (1973) and states that the organizational management systems consist of many internal subsystems that need to be continually connected with each other for efficiency and effectiveness (Cornell and Jude, 2015). Production Units in schools, therefore, should be part of the main school organization.

2. Literature Review

Historically, it has been observed that Production Units in schools have had different goals and these have been evolving over time (FAO, 1990). These differences have been necessitated by the fact that each country has unique educational policies and priorities with the passage of time. The concept of Production Units began to acquire a global outlook in the early 1980s. It has been observed that the 38th Session of the International Conference on Education organized by UNESCO that was held in 1981 called for the need for schools to adopt Recommendation No. 37 calling for interaction between education and productive work (Singh, 1998). The idea was to ensure that member states adopted strategies that were going to relate schools more closely to the world of work. Thus, it can be said that this was one of the early attempts at global level to promote the introduction of Production Units in schools.

In the case of China, it has been observed that the work- study programmes in Chinese schools have been making a transition to a variety of school enterprises which now serve vocational needs of the learners and providing much finance to the schools for the past 40 years now (Zachariah and Hoffman, 1984). These programmes have grown in China and transformed into now farms, factories and wide range businesses. Like in the case of Jinsong Vocational Senior Middle School in Beijing, it runs a profit- based school restaurant where pupils are trained for 3 years in theory and practice until they are in their third year. They offer their services in the restaurant, making huge profits to support school finances due to poor government funding and school leavers can work in any restaurant after completion of school due to the quality of training they get. Similarly, school enterprises at Guanzhou School No.6 in China run printing factories and chemical factories that it even exports its products to the Republic of Korea. In 1994 alone, for example, it has been mentioned that the profits from the

school totaled 1,000,000 Yuan and provided 50 % of the school operating funds and which was equal to the amount provided by the government to run schools. This money, it has been indicated, was used for various activities such as staff benefits, salaries, facility repairs and upgrades, educational equipment, and reinvestment in the enterprise (Zachariah and Hoffman, 1984).

A report by FAO (2010) is important to this study. It outlines several benefits associated with the operation of production units in schools. The report highlights that this helps to promote good diets in schools, it is a way of sensitizing learners on nutrition education, development of livelihood skills thereby contributing to national and food security. This work acknowledges that production units are a global development as many countries have adopted this concept across the world. This study observes that there are challenges in the management of production units related to lack of expertise and training in production units' management; issues of curriculum integration, and how to motivate hardworking staff (FAO, 2010). This report will add value to this study in that it is key when it comes to determining the importance of production units in schools in Zambia. It will also help in terms of comparative analysis on the question of challenges affecting the management of production units in schools.

According to Nyamwega (2016), schools in Kenya raise a lot of money from production unit activities. In a study that was carried in 11 schools in Nairobi County, it was revealed that schools make in the range of KShs 680, 000 to KShs 6,000,000 annually from income generating activities. These funds have been key in raising extra financial resources to meet the financing of education and unlike waiting for government funding.

Uganda has been performing very well in the area of production units in schools. It has been noted that agriculture is part of the curriculum in that country and schools have scored a number of successes in this area. These include: Acquisition of agricultural skills for the future; selling of surplus produce to the community; reduction of cost of school meals; improvement in teachers and pupils nutrition; and pupils get practicing certificates in agriculture (FAO, 2010).

In Tanzania, Maliyamkono (1980) looked at production units in that country. His studies found that there is no relationship between academic performance and production unit in his study on the two variables. He, therefore, concluded that this is obviously due to the fact

that pupil performance is a factor of many things and cannot be interpreted only in terms of the introduction of production units in schools.

In Zambia, Sakayombo (2014) acknowledges that the UNIP government promoted the slogan of 'go back to the land' in an effort to ensure food security and affordability at the time the country was hit by rural-urban migrations in the post-independence era. At school level, the syllabus was designed in such a manner that it put into consideration the promotion of agricultural science and farmers' clubs in schools. Today, Sakayombo (2014) calls for the need to promote indigenous knowledge in agricultural science. Therefore, even if the work by Sakayombo (2014) largely deals with the need to promote indigenous knowledge in agricultural science, a lot can be learnt from this concept so as to promote the growth of production units in schools especially in the areas of gardening and agriculture in general. Indigenous knowledge in agriculture has been defined as local knowledge that is related to a given culture and upon which that culture make key decisions in the area of agricultural development. In citing Warren (1991), Sakayombo (2014) argues that the promotion of indigenous knowledge does not imply adopting it at the expense of abandoning modernity, rather, it means promoting conservation strategies and sustainable use of land resources inherent in the nature of indigenous knowledge in agricultural science.

At local level, great lessons can be picked on operation and goals of production units in schools in Zambia from the UNIP National Policies for the Decade, 1985-1995 that looked at the aims and objectives of the Third Phase of the UNIP Part programme (Achola, 1990). In the case of UNIP, these policies can be traced from the 1975 declaration on the need to introduce production units. It has been recorded that on 20th July 1975, Dr. Kenneth Kaunda of the Republic of Zambia and in his capacity as President issued a decree directing all educational institutions at different levels of learning to introduce production units (Bwalya, 1983). This policy document for 1985 - 1995 reveals that the introduction of production units in schools and subsequent combining of study with productive work is to ensure that young people learn the necessary skills that will help them after leaving their studies. In summary, it has been stated that the essence of production units in Zambia, when the president issued a decree in 1975, was to promote learners respect and love for manual work and make educational institutions self-sufficient in terms of food provisions (Achola, 1990).

Bwalya (1983) reveals that before production units were made to become compulsory in all educational institutions, schools had what were called Young Farmers Club (YFCs). However, it should be noted that these did not exist compulsorily in all schools. Also, these clubs were largely voluntary, and to larger extent, the clubs were essentially extra-curricular and mostly focusing on just agriculture. But according to the publication in the Zambia Daily Mail (1975), cited in Bwalya (1983), the Presidential directive on the creation of production units in schools decreed that:

With immediate effect, all villages, primary and secondary schools, colleges and the University of Zambia, will become food production units in a bid to make the country self-sufficient in food.

Kelly (1991) provides key insights on the operation of production units in Zambia in 1980s. He argues that production units received opposition from the parents as the government first proposed that the educational and economic objectives in schools should be of equal importance. Parents on the other hand held the view that education objectives should come first. Then production units lacked sufficient time on the timetable. This made the financial returns to be very insignificant (Kelly, 1991). Therefore, the re-introduction of production units in schools today has a lot to pick in terms of lessons from the developments in the 1980s. This piece of study is valuable to the present work in that it reveals some of the challenges that could have contributed to the collapse of production units in schools in the 1980s. Thus, there is need to avoid repeating these mistakes.

The running of production units has been faced with challenges from the first time an attempt was made to introduce these units in the schools around 1970s. Bwalya (1983) studied production units in some Zambian schools and colleges in the 1980s. The study attempted to document how production units in selected schools and colleges were organized and the challenges that they were facing. This study involved 154 participants drawn from colleges, primary and secondary schools in Luapula and Copperbelt provinces. On the question involving the challenges affecting production units, it was revealed that key challenges included: key party officials and influential leaders in the community are not part of the production units; water was a challenge too; some institutions lacked initial capital and theft was common in all schools. However, even if this study was done a long time ago, it is useful to the current work. It will help in terms of analysis purposes and comparison. It will enlighten

the researcher on whether these challenges are still prevalent today in schools running production units. Also, it should be noted that while the previous study was largely quantitative, the current study is qualitative.

Mwamba (2017) evaluated head-teachers' effectiveness in managing finances of Free Primary Education. Although this study was on Free Primary Education, it is paramount to the present study in that the way head-teachers handle finances in schools including funds raised from Production Units will determine the success of these units. However, the findings from this study revealed that head-teachers were the chief accountant in the school. Unfortunately, most of them showed lack of proper training in management of funds. Most head-teachers were ineffective and lacked the basic accounting skills. There was lack of accountability and adherence to financial guidelines. These challenges, it should be noted, poses a very serious challenge on the management of Production Units in schools by teachers as chief accountants in schools. If not well addressed, similar challenges may come to impact negatively on the effective operation of production units in schools.

Waithera (2013) studied the challenges affecting the teaching and learning of agriculture in schools. The study came up with a number of challenges. Key among these included: people lacked interest in the subject as it involved dirty work, resources like school farms agricultural tools, and classrooms were inadequate. As teachers used agriculture as a means to punish students, learners had a negative attitude towards the subject too.

According to Omukoba and Ayodo (2011), the managing of production units in schools face numerous challenges. Among the key ones, these include: lack of sufficient funds to initiate production unit programmes; land limitation; lack of transparency and accountability; and, poor records or lack of qualified personnel.

Amos and Koda (2018) studied the contribution of income-based generating activities in quality education provision in Moshi in Tanzania. In terms of the challenges affecting production units in this locality, it was revealed that these include: lack of entrepreneurship skills was the main challenge that head-teachers were facing in managing these units.

Kira (2018) discussed some challenges affecting the call to industrializing secondary schools in Tanzania through scientific innovations. One of the challenges identified was the need to persuade the people to develop positive ideas in terms of industrializing schools. There is need to develop a positive attitude in headteachers, government officials, teachers, learners,

parents and communities. Also, the physical infrastructures of the schools need to be supported in terms of space; supply of electricity; and water may be a limitation for the up scaling of projects. Again, school project management skills are required so that projects do not clash with school curricula activities.

Mavhungu (2004) studies the factors affecting the teaching of agricultural science in Limpopo province in South Africa. The study acknowledged that agricultural science was a very important subject and that there was need to improve the academic performance of the learners. The key challenges identified and affecting the teaching of Agricultural Science in this study were: the teaching skills of the teachers were below par and this was attributed to lack of teaching materials and tools. Another challenge identified was poor foundational knowledge of the learners doing agricultural science. There was lack of exposure and visitations to institutions involved in matters related to agricultural science. The findings of this study are important to the present work in that production units also involve agricultural activities. Thus, the findings affecting agriculture science will help in establishing the challenges affecting the running of production units in schools.

Furthermore, on challenges affecting the operation of production units in some schools, Pratama and Triyono (2018) found that teachers attached to production units did not have adequate time to balance between teaching in the classroom and attending to production unit activities. Another challenge that was observed is that there were few teachers under production units that were loyal to the school management and production units. This, too, was impacting negatively on the effective operation of production units due to lack of cohesiveness between the administration and those tasked to run production units on behalf of management. Therefore, the findings of this study will help to compare with what is on the ground in schools today. This will enable the researcher to establish whether or not teacher support in the running of production units is a challenge in the schools sampled in the study.

3. Methodology

The study employed a qualitative descriptive design. Qualitative research designs seek to explore meaning from in-depth descriptions of phenomena (Kumatongo & Muzata, 2021). Walliman (2011) argue that qualitative descriptive research assess situations in order to

establish the norm. Also, depending on the type of information sought, people can be interviewed, questionnaires distributed, and visual records made. Therefore, qualitative descriptive research design offered the researcher an opportunity to collect as much information as possible in line with the objectives of the study. The study sampled Eighteen (18) participants in charge of running production units from the three (03) schools. The composition of sample was Three (03) Head- teachers; Three (03) Heads of Departments; and Six (06) Science Teachers; and Six (06) General Workers, all members that were purposively selected by virtue of their involvement in production unit. Non- probability techniques like purposive sampling was used because the choice of samples was based on the researcher's biasness to provide relevant information for the study (Benard, 2000; Bryman, 2008 and Creswell, 2014, Muzata, 2020). This study used purposive sampling technique. In this study, in-depth interview guides were used. These were selected because they greatly help to collect detailed information and especially where need arises in relation to the objectives of the study. In- depth interview guides in this study used open- ended questions so as to adequately address the objectives of the study in terms of the responses that the participants will be providing (Allmark, Boote, Chambers, Clarke, McDonnell, Thompson, and Tod, 2009).

Trustworthiness in research mainly rests on four important elements. These are truthfulness, consistency, applicability and neutrality of the data collected and analyzed (Billups, 2014; Ngozwana, 2018). Anney (2014) discusses credibility, member checking, transferability, dependability and confirmability among many other techniques as the key tools of trustworthiness in qualitative research. The researcher ensured that these elements were observed. Haradhan (2018) indicate that when analyzing qualitative data, it is actually a dynamic process that synthesizes emerging themes, identification of key ideas of meaning and material acquired from literature review and participants in the study. As this study was qualitative in nature, the researcher identified similar arguments from the emerging themes and analyzed them in the context of the topic under study as well as the objectives of the study. Ethical issues were taken into consideration too (Bryman, 2006, Cohen et al., 2009; and Creswell, 2014). On confidentiality, the findings of the study did not implicate any participant in any way nor or in the future (McMillan and Schumacher, 2006). Then no coercive force was used to engage participants. Participation was open and voluntarily.

4. Findings

The findings of this study have been presented according to themes derived from verbatim excerpts of the participants that participated in the study.

4.1. How Production Units are being run in the schools

The findings reveal that Production Units in Lusaka schools were run through a committee with membership from within the school ranks demonstrating a democratic divide in the successful running of production units. Participant One (P T 01) revealed that production units had a number of members who were in charge of discharging different duties. Some selected verbatim excerpts say as follows;

There are some teachers from agricultural science, the head teacher, the deputy head teacher. Then there are many other people like teachers who come to help. One general worker has been assigned to be like the overall caretaker taking care of the production units. So there are teachers and the top management as well as care takers. But the membership keeps on changing. This is because teachers come and go. So some members who were teachers have left. Some were deployed by the government as they were on PTA.

On the same question relating to the composition of the membership of the Production Units, Participant Two (P T 2) indicated that different players were involved in the running of these units. The verbatim excerpt indicates that:

The leader of the production unit in the school is the deputy head. The deputy head is the leader and who is the chairperson of all committees in the school. Then there is also the vice for the management of the production units in the school. The production unit comprises of six members. These include the deputy- chairperson, there are also two HODs, one general worker, in charge of looking at the feeding, cleanliness, and that the gardens are clean. Then there is one agronomist engaged by the school. This person is not on government payroll. He has just being engaged by the school.

Another participant narrated that:

The leader of the production unit is the deputy head teacher. She is the chairperson of all the committees. Then there is a committee. So the chairperson oversees all the committees and including the production unit.

Then we have 10 general workers and eight teachers. Also, pupils are involved. Pupils are there to learn especially.

On the same question, the composition of the membership of the production units in schools, Participant Four (PT 04) in the in-depth interviews that were conducted in the schools targeted by the study revealed that:

The leader in charge of the production unit in our school is the deputy head who is the chairperson of all committees. So production unit is just one of the committees that fall under the deputy head teacher. For each project, let's say tomato or piggery units, so the person in charge of that unit takes care of everything. We are many and with specific duties based on which unit you are in charge of.

From the excerpts by participants in the study, it came out clearly that Production Units in schools had established structure within the school organization. The Deputy Head had the responsibility to oversee the functionality of the sector within the school. He or she worked hand in hand with other members in the school. Like it has been revealed from the excerpts by the participants in the study, membership of the Production Units comprises the Deputy Head, Heads of Departments, Teachers, and Support Staffs.

4.2. Democratic Governance in the Management of Production Units in Schools

Another emerging theme on the running of production units in schools is the democratic nature of how the units were run. Participants indicated that members had the freedom to make decisions on some aspects without interference from management. According to one of the participants in the study called Participant DG 1, a number of important sentiments on democratic governance in the management of production units in schools were shared. One of the participants reported that the unit was free to discuss and identify what projects to embark on. This is as evidenced in the excerpt by participant DG 1 below:

I feel the process of decision making is very democratic. This is because there is that freedom to make decisions by the team under Production Unit. We make decisions and recommendations. It is only that we also need to ask for permission from higher offices to spend money. Thus, in short, we can say that there is democracy. We have the freedom to make decisions we want.

The concept of democratic dispensation in the running of production units was further augmented by participant DG2 in the excerpt below:

The process of decision making is highly democratic. Nowadays in modern management, we deal with team work. If you want to do it alone as a leader you will fail. So the teachers are involved, the parents and learners are involved. Procedures are followed.

Another participant had the following to say:

I think the process of making decisions over production units is very democratic. If one is given the post to run a unit such a one is given some autonomy to make a lot of decisions. The management does not interfere in the manner the unit is being managed.

Only one slight contrary view was recorded from the interviews reporting that top management made the decisions regarding production units by participant DG 10 as follows:

When it comes to making decisions, the senior people in the school decide what should be done when it comes to the running of production unit. There is the head teacher, the deputy head teacher and the committee sits together to make decisions on what should be done. Then thereafter the general workers and other members of the production units are informed on the way forward.

From the findings, the successes of current production units in the selected schools of Lusaka were a result of democratic participation by members of the committee and the non-interference by top school management. The production units thrived on virtues such as the democratic nature in the process of decision-making, and a highly consultative and inclusive engagement of members.

4.3. Activities under the Production Unit

On activities taking place under production units, the study revealed that there were many activities. According to one of the participants; Participant Three (P T 03), it was stated that the activities under production units included rearing pigs, planting tomatoes, and fish farming. The following excerpts demonstrate the narrations of participants:

We have so many activities under the production unit in this school. We have a piggery, we grow tomatoes, and we are doing very fine in these areas. We also do fish farming. We have about 10 fish ponds in the school. We are also doing gardening. We are growing vegetables and onion. We are also into growing of maize for both the rain season and winter maize.

Another targeted participant in the study, called Participant Five (P T 05), elaborated that:

Our school has a number of activities under the production unit. We have fish pond. This is when we have gone into fish farming. Then we have a garden for vegetables and tomatoes. Also, the school has goats. We have twinned with another school in Chirundu and that is where we are keeping the goats from. When it is time to sale, these goats are brought to Lusaka.

The findings demonstrate serious production activities taking place in the selected schools of Lusaka. The activities ranged from the growing of tomatoes to onions, maize, fish farming, goat rearing and piggery. The most exciting characteristic of how the production activities are run is the twinning of schools with other schools, which allows for exchange of knowledge and skills in the running of production units among schools.

4.4. Threats to the Running of Production Units in Schools

While the findings show positive trends in the running of production units in Lusaka's selected secondary schools, likely threats to the success of such efforts were recorded. The threats, which participants called challenges included lack of materials, and poor timing in terms of activities sequencing immediately after winding up a project. The following verbatim excerpts showed participants concerns over the running of production units. Participant Seven (PT 07) narrated as follows:

Maybe I can just talk about the availability of the materials to use in carrying out the activities like the inputs. But the issue of problem can be best answered by the head teacher. Since he [head teacher] is the key decision maker in the school. Also, what I can say is that there is need for smooth running of production units. For example, when you harvest the fish there is need to put new fingerings in the fish pond. When we have sold the chickens there is need to quickly re- stock. But this is not the case. Sometimes, months pass without re- investing in the project. So we lose out in terms of making money.

Correspondingly, participant Five (PT 05) in the study mentioned time and manpower as one of the key challenges. It was brought to light that since some members are teachers and whose core business was teaching, it was difficult for them to dedicate adequate time to support the efficient running of production units in schools. According to PT 05, it was narrated that:

Time is a major challenge. I am the supervisor of production unit. But I am a teacher. I need to be in class. But right now I have to go and buy feed. So time is a very serious challenge. Apart from time, manpower is a challenge. The number of workers is limited. We have no money to pay the workers. This depends on the profits and funds available.

In addition, another participant that was sampled in the study called Participant Six (PT 06) revealed that the workforce was not adequate. There was need to recruit more support staff to help under the production unit section. This was as evidenced in the excerpt below:

Workers are not enough. Sometimes we are overwhelmed by the activities of the production unit. So there is need to get more workers so as to run the production units properly. We need to increase the workforce.

Again, on the challenges affecting the management of production units in schools, Participant Seven (PT 07), added in the verbatim excerpt below that water was a serious challenge. Another challenge was changes in the seasons. Some activities are difficult to carry out in certain seasons. It was stated that:

Fish ponds are faced with a challenge of water. Fish grows well when you are changing water. You need to change water frequently and like every after two weeks. So there is need to address the water issue. We are drilling boreholes and as a school we have asked Lusaka Water to drill a borehole this has taken long. Last time when they came to drill a borehole their equipment went down. This time they are saying there is too much water underground. So we need to wait until the end of the rain season. Theft is also challenge. People came in the night and stole some fish.

As evidenced from the excerpts above, schools were facing a number of challenges in running production units. The main ones included water, manpower, and lack of the necessary resources to efficiently support the effective running of production units in schools and including inputs.

5. Discussion of Findings

This study assessed how production units were being run in selected secondary schools of Lusaka and the likely threats to the running of production units. There is no doubt that production units add a very important component to the school curriculum that ensures that learners are taught life and survival skills through farming and other production unit activities.

Production units provide an effective avenue for the learners to apply what they learn in theory into practice. For instance, learners learning agricultural sciences should find learning not only interesting but also effective as their learning is hands on. This curriculum component provides entrepreneurial opportunities for learners and their teachers, while the same activities give the school management opportunities to mobilize resources out the sales from production unit products. In any case, an effective school should be judged from the unique initiatives it promotes especially the investments in production units. At a time when schools are supposed to be regarded or seen to be active contributors to national food basket, their response to the nutritional status of their own learners become paramount for effective learning and overcoming school dropouts. It is undoubted that a hungry learner is unlikely to stay in school longer and even if they were, they would be not attentive to learning. Schools that are self-sustaining through production units should be seen to address absenteeism by learners and improving academic performance in some domains (Elsie, Amukungo, & Gorases, 2015). Sorhaindo, & Feinstein (2006) note that Nutritional deficiencies prior to school entry have the potential to impact upon cognitive outcomes in school-aged and adolescent children and further observe that Nutrition has got an impact on individual behaviours such as concentration and activity levels subsequently influencing school performance. These studies demonstrate the significance of production units in raising the nutritional status of their learners and promoting academic progress *visa vi* performance.

In this study, the first objective aimed at establishing how production units in selected secondary schools in Lusaka District were being managed. The findings on this objective demonstrated a clear pathway to the implementation of production units through democratic practice. This was demonstrated through the representative composition of the membership of production units, which included Deputy Head as a chairperson of the Production Unit Committee, the Head of Department, Teachers and Support Staffs were members working hand in hand with the Deputy Head. This demonstrates an existing structure showing that production unit is part of the school structure in the school as an organization. The committee was given the autonomy to run the units through a consultative arrangement. This created ownership of the unit by members and their participation was overwhelmingly satisfactory because they owned the activity themselves. Although for accountability purposes, the committee reports to the head teacher, the non-interference in the activities of the committee

helped the success of the production unit. That the Head teachers' involvement came in when consulted and when approving the production unit committees proposals and budgets meant giving them power to decide on how best to develop the sector.

The variety of activities schools engaged in the running of production units responds to call for diversification of activities such as growing of tomatoes, onions, maize, fish farming, goat rearing and piggery in order to broaden the investment base and capture the market from which ever part of the investment the school engages in. For instance, tomatoes and onions can be sold out to the community to raise money for the school while goat milt would be used in the preparation of breakfast for learners. . This shows that schools have a great potential in the area of production units. There were a number of viable and productive projects taking place under these units. The idea of production units was therefore a step in the right direction. Also, some of these activities under the production units section were taking place outside the school locality. Having production activities calls for adequate space to give schools the autonomy to diversify their production unit activities. Therefore, activities like the rearing of goats in schools were carried out through the twining initiative with other schools in the outskirts of Lusaka that had more land and with favorable environment especially for goats' rearing. Arising from this discussion, it was very clear that the production units were active ventures in schools due to innumerable and viable activities that were taking place under these units. Schools should continue with these activities as they have the potential to help them address financial challenges and other educational needs required to promote quality education at secondary school level. Instead of sending grade 12 graduates to the Zambia National Service as it used to be, empowering schools would take a dual role of preparing learners academically and vocationally. In case, this responds to the 2013 curriculum framework that supports the dual pathway of vocational and academic learning modes (Ministry of Education, Vocational Training and Early Education- MESVTEE, 2013). At a time like this when white colour jobs have become a luxury, investment in vocational skills has the potential to create opportunities for both formal and self-employment.

The democratic governance practice employed by the school management in production units in schools could be said to have contributed to high productivity and satisfaction among player.. The concept of inclusiveness allows for participation by all members and this is very cardinal in the formulation and successful implementation of school objectives

and including those decisions for production units are managed in school organization. This study showed that production units in schools were run democratically by school managements through involving the participation of different stakeholders in the school. Participation is inclusive and democratic (Johnson & Muzata, 2019). Committee members were free to decide what activities to embark on under production units and to present their proposals to the Head Teacher as the final accountable officer in the school. The findings of the study agreed with those of Caria and Andrade (2016) who found that participation is key in enhancing the performance of institutional activities and that participation must be influenced by the fact that doing things with others is more effective and efficient than doing it alone. Thus, it was evident that the running of Production Units in schools was not a one man show. For instance, one would expect that the Head Teachers could be the only ones controlling the management of production units in schools as they were the overall school managers. However, this was never the case. There was delegation to the Office of the Deputy Head and the Production Unit committee in the school organization. Luck (2008), states that participation must not be just within the school, rather, the community must be engaged too. This form of participation must not just be about engaging the community in the execution of activities but also quality decision-making processes. Based on the findings of the study, this kind of communal engagement was lacking in the secondary schools that were sampled. Production units only engaged members within the school. Therefore, there is need for schools to tap into the wealth of knowledge that comes from the community when it comes to the successful management of production units. It should be noted that sometimes the community may have even people who would wish to support schools on voluntary basis.

There are several challenges affecting the operations of production units in schools elsewhere in the world. However, challenges differ according to contexts. While there is lack of manpower to run production units, this study utilised the available manpower in the schools. In this study, we did not establish the challenges affecting the teaching and learning of agriculture sciences as Waithera (2013) did giving challenges such as learners' lack of interest in the subject and a negative perception that the nature of the subject was associated with dirty work, while lack of resources like school farms, agricultural tools, and classrooms were inadequate. While this study did not establish lack of interest among learners as one of the challenges, it came out clearly that lack of resources may frustrate the efforts by teachers and

learners and actively engage in production units. Negative attitudes, if existent can be overcome by positive attitudes of the school administration to support production units. Learners can easily see the value of the venture when they observe the seriousness and investment by school authorities. According to Omukoba and Ayodo (2011), the managing of production units in schools faces numerous challenges. Among the key ones is lack of sufficient funds to initiate production unit programmes; land limitation; lack of transparency and accountability; and, poor records or lack of qualified personnel. The initiation of any project requires capital. Schools need support to initiate such projects that can turn around the face of the school.

Unique to this study were challenges such as inadequate water supply in schools, lack of adequate and appropriately trained manpower to help in carrying out the activities under the production units, and lack of the necessary resources to efficiently support the effective running of production units in schools such as funds and inputs, and lack of time among teachers under production unit as these were supposed to attend to lessons in class too. These findings are in part similar to Ayodo (2011) found especially in the area of scarcity of resources. Some challenges that affected production units a long time ago (Bwalya 1983 such as lack of water, lack of qualified personnel to run production units, poor funding and thefts are still reported today in this study. Such long standing challenges should be addressed so that production units can stand to address contemporary challenges that come with climate change.

Findings on the threats to production units which participants echoed such as lack of time among teachers to support activities under production units, lack of transport, unavailable markets for product, inadequate land space for expansion and scarcity of water among others can frustrate the gains so far in the running of production units. These findings echo Zangi's (2019) study results which showed the challenge of inadequate transport for products to markets affecting production units. Since schools have shown the will, the expert knowledge, the energy and determination to make production units successful, they need to be supported in ways that address the potential threats. For instance, the issue of transport can be sorted out by giving schools small light canter trucks for transporting their produce to markets in the border areas such as Kasumbalesa where demand for food products is high. If schools can be assisted with sinking bore holes, they would have enough water reticulation to support the activities of production units. The aspect of land scarcity for expansion of production units, a result that was also found by Waithera (2013), calls for initiatives to support schools with land

even outside their localities. There is the potential to attract local community participation in production units and the transplanting of skills to the local communities schools work with and integrate with communities if given land for production units. Schools should be satellites for providing skills to the communities but communities should be willing to provide space for schools to expand their production unit activities that aim to impart knowledge and skills for self-reliance in their children. On Water scarcity, Waithera (2013), proposes the expansion of water sources to empower not only communities but school initiatives such as production units. Waithera (2013) recognizes the importance of developing mechanisms of water supply to schools in Africa by acknowledging that it is not possible to rely on rain water due to poor pattern of rain cycle in many parts of Africa. Similarly, lack of resources like funds and inputs may seriously lead to inefficiency in the running of production units in schools. Financial resources are at the centre of any effective implementation of programmes in different organization. These resources determine an organization's ability to deliver and meet its set goals.

6. Conclusion or recommendations or final considerations

The study assessed the management of production units in selected secondary schools in Lusaka District. It was established that production units in schools were well-organized. The composition of the membership of Production Unit Committees was democratically inclusive creating the practice of active participation by members to promote the unit. However, the units faced threats of expansion due to inadequate space, water scarcity, lack of transport to market places among others. There is need for a deliberate policy to support school production units because such project have the potential to contribute to the national food basket, improving school nutrition and making schools self-reliant. Production units have the potential to inculcate entrepreneurial skills in learners, a means for creating self-employment. The democratic organization of production units should be further promoted to enhance the growth of the sector.

6.1. Recommendations

Based on the findings of this study, the following recommendations would help grow the area and complement government effort of empowering people with knowledge and skills for self-reliance:

- There is need to strengthen school twinning so that schools do not only support each other in terms of land and space but also in knowledge and skills exchange related to production units.
- There is need to support schools to have water through sinking of bore holes and providing transport to market places.
- Ongoing sensitization is required to learners and the school community to uphold the already earned positive mind set with regard to production units.
- Schools need to be linked to the Ministry of Agriculture departments so they can receive continuous capacity building in crop and animal management, activities that are prominent in school production units.

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