FACTORS INFLUENCING ACADEMIC PERFORMANCE OF PUPILS IN THE PRIMARY SCHOOL LEAVING EXAMINATION RESULTS FOR AGRICULTURE IN BOTSWANA.

BY

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the Master of Science Degree in Agricultural Education.

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APPROVAL

This dissertation has been examined and approved as meeting the required standards for partial fulfillment for the Degree of Master of Science in Agricultural Education.

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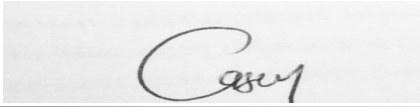
DECLARATION

I, Lydia Jele, do hereby declare that this dissertation is my original work and has never been conducted in any university for the award of Degree or Masters. All sources used have been quoted and acknowledged by means of references to avoid plagiarism.

. 

Signature

12 /05/2023

Date

DEDICATION

I dedicate this work to my sponsor because without them I would not have had an opportunity to attain this Master's degree.

ACKNOWLEDGEMENT

I would like to thank several people, who made it possible for me to complete this project: My supervisors Dr Kgomotso Mabusa and Dr Nelson Tselaesele, I would like to express my profound appreciation to them for their time, encouragement and tireless guidance. Professor Keba Hulela who encouraged me to enrol for this programme. My sponsor ABSA bank to have granted me scholarship to further my education. I will forever appreciate their valuable contribution in supporting my education.

ABSTRACT

The purpose of the study was to investigate the factors influencing performance of students in the primary school leaving examinations (PLSE) results for Agriculture in the Botswana. This national study targeted a total of 757 public primary schools in the country whereby a sample of 258 schools was obtained randomly from all primary schools in the Ministry of Education and Skills Development (MoESD). Out of a total of 416 participants from the 254 schools, 302 (73%) respondents returned the completed questionnaire which were mailed as an email attachment and also hand delivered by the researcher to gather data from teachers. The design of the study was descriptive and used a mixed methodology approach. A survey questionnaire was used to gather data through closed ended items and open-ended questions. Results found that, different factors influence the students' performance in Agriculture in primary schools. The study also found that majority (59.3%) of the respondents in the study were female, 35.3% were within the age category of 41-50 years old, close to half (49.0%) of the teacher respondents in the study held the position designated as 'teacher' which is the entrance position in the teaching cadre in primary schools, majority of whom were in the lower level of positions or category of teaching than higher positions. The study recommended further training to upgrade teachers to a higher level to enhance their opportunities for promotions to higher positions in their teaching.

Key terms: Primary Agriculture curriculum, academic performance, public primary schools, Botswana

Table of Contents

LIST OF FIGURES

LIST OF TABLES

LIST OF ACRONYMS

BGSE - Botswana General Certificate of Secondary Education

CFS - Child Friendly Schools

ETSSP - Education and Training Sector Strategic Plan

PLSE - Primary School leaving Examinations

PTA - Parent Teacher Association

UNESCO - United Nations Educational, Scientific and Cultural Organization

RNPE - Revised National Policy on Education

CHAPTER 1

INTRODUCTION

1.1. Background of the study

When Botswana gained independence in 1966, the country was one of the least developed countries in the world and its education system was not well established in terms of curriculum, teacher education, infrastructures and several other aspects that promoted teaching and learning activities (Parsons, 1999). The country then made great strides in educational development, as many teachers were trained, infrastructures were built and because of these developments the number of graduates in the country increased (Republic of Botswana, 2015). In addition, the number of schools also expanded as new schools were built countrywide and senior schools that existed at independence such as among others Mater Spei college, St Joseph's College, Gaborone secondary, Kgosi Kgari Sechele, Seepapitso, and Maun secondary school were also expanded both structurally and enrolment. Generally, the education system was improved to include new and modern structures that facilitated the education in schools (Suping, 2022). The government priority after 1966 was to reform the education system which became a reality as more have changed.

In the year 2013, the number of graduates in the country increased from 6,431 to 15,594 (Tertiary Education Statistics, 2018). This was so because the belief is that education system of any country is perceived as a tool that countries have used to bring about sustainable economic development. The understanding is that people's education capacitates them to improve their lives and contribute positively to the development of their own families, communities and the entire nation (Regier, 2011). Thus, reform in education is perceived as one of the strategies the government adopted to bring about sustainable economic development in the country.

Generally, as indicated by Claudio et al., (2013) the purpose of the educational reforms is to transform systems 1and structures with the aim of raising the quality of education. Claudio et al., (2013) further advised that reforms in education deserve a holistic review of their objectives, implementation and associated pupils' outcomes, by those within the system where they are implemented. According to Pan and Yu (1999), educational reforms could focus on factors that

make the education system to exist such as cultural and societal contexts used to describe school systems.

In addition to the aforementioned changes made in the education system, the Government of Botswana a national Commission on Education was set up, to review the education system, which gave rise to the first policy on education called the 1977 Education for Kagisano Policy. Among other things, this policy pointed to the importance of including in the curriculum, some practical based subjects such as Agriculture, Design and Technology, Home Economics and placed some emphasis on contemporary model of the Child Friendly Schools (CFS) (Bagwasi, 2018). The Education for Kagiso Policy of 1977 was followed by the 1994 Revised National Policy on Education (RNPE) which drew from the report by the 1993 National Commission on Education. The RNPE further emphasized on the importance of vocational related curriculum by aligning education to labour requirement of the economy (Bagwasi,2018). After the realization that most RNPE recommendations were surpassed by events and time, the Education and Training Sector Strategic Plan (ETSSP) (2015-2020) ETSSP was developed in 2015 to summarize most of the RNPE policies and recommendations but with improvements to align with contemporary economic systems of the country (ETSSP, 2015). Botswana has implemented a number of recommendations enshrined in the aforementioned education policies, as well as other related policies including Botswana Education for All (EFA) in 2015 and National Policy on Vocational Education and Training in 1997. The ETSSP is therefore a short-term strategy that summarize policies of the education system and guided education efforts initiated by the government making checks of implementation and achievements.

Botswana's education structure is currently made up of seven (7) years of primary education, of which this study is concerned with, three (3) years of junior secondary school education, two (2) years of senior secondary education, and two/ three/four (2/3/4) years tertiary and university education. In recent years, some efforts have been made to integrate the preschools education as indicated by Statistics Botswana (2016) that education has become an indispensable tool for measuring human and societal development over the years. Statistics Botswana (2016) further stated that provision of Early Childhood Care and Education (ECCE) program to all children is essential as a foundation for primary school education for it boosts the cognitive and motor development of children thus enhancing social skills and building on a foundation for learning

that will continue the child into their school years (Statistics Botswana, 2016). At all these levels of education learning is affected by several factors. Different subjects are offered to students. At primary schools for example, observations have been made that Agriculture is one of the subjects that most students would not do well since its assessment as a sole subject in 2008.

1.2. Primary school education

The early years of education which is primary school education in Botswana is deemed free as parents do not pay school fees in public schools for the first 10 years, but not free in private owned school since parents are required to pay school fees. The first seven (7) years of education is described as the primary school education where the medium of instruction is Setswana for the 1st four (4) years up to standard four (4). After standard four (4), the instruction is conducted in English from standard five (5) to standard seven (7) which is the primary school leaving examination (PSLE) through secondary school until tertiary education level. The pupil-teacher ratio in primary school in Botswana is approximately 25 that is twenty-five pupils are equal to one (1) teacher.

The records or document analysis have shown that performance of students in the Primary School Leaving Examination results for Agriculture from 2008 to 2019 tends to be poor compared to their performance in other subjects in the same examinations or syllabus. This observation has raised a concern among stakeholders countrywide each time PSLE results were released. Therefore, this study was designed with the intention to establish into the matter of investigating factors influencing performance of pupils in primary school leaving examination results for Agriculture nationally. The study would establish factors that influence students' performance in Agriculture in primary schools, challenges that affect the teaching and learning of Agriculture and further examine the demographic characteristics of teacher respondents in the study. Through this, the factors that lead to high failure rate of students in agriculture as a subject would be established.

1.3. Statement of the problem

How does one ensure students do not perform poorly in the subject of Agriculture in primary schools more so that majority of these kids come from families with Agriculture and farming background? Is Agriculture the most difficult subject in the Primary school leaving examination

(PSLE) syllabus? This is one of the several concerns raised by parents, guardians and families of children who write the primary school leaving examination (PSLE) Agriculture in Botswana public primary schools every year when results are released. The issue is becoming worse because of the declining number of students entering tertiary institutions for Agriculture hoping to pursue agricultural-related professions or careers not only in Botswana but across the globe (Mukembo, Edwards, Ramsey, & Henneberry, 2015). Even though students in Botswana's senior schools opt in large numbers to do Agriculture, investment into resources for the teaching and learning of Agriculture in primary schools has not been up to the level as most studies have shown inadequate resources and funding for the subject. In addition, the knowledge they acquire in primary schools do not seem to articulate well with the high level of Agriculture syllabus to do well at higher level. Their poor performance in the PSLE demotivate students from excelling at higher level and even from pursuing a career in the field.

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1.4. Purpose of the study

The purpose of the study was to explore the factors influencing academic performance of pupils in Agriculture in the primary school leaving examination (PSLE) of Botswana. Three specific objectives of the study were addressed.

Specific objectives of the study

The specific objectives of the study included;

i. Describe the factors influencing students' performance in the primary school leaning examinations Agriculture results in Botswana.

ii. Describe the demographic characteristics of respondents in the study.

iii. Identify challenges faced by teachers teaching Agriculture in teaching Agriculture in primary schools in Botswana

1.5. Aim of the study

The outcome of the study sheds light on understanding of factors influencing performance in Agriculture and the possible solutions. This study is also important to Ministry of Basic Education as it contributes towards closing the gap of lack of research-based information which could explain the teaching and learning of Agriculture in schools. The results of this study would be of help to teachers, curriculum development, policy makers and decision makers and the entire ministry of Education and Skills Development (MoSD).

1.6. Significance of the study

The outcome of the study sheds light on possible solutions of the current situation of poor Agriculture results at primary school level. This study is also important to Ministry of Basic Education as it contributes towards closing the gap of lack of research-based information which could explain the observed poor Agriculture performance at public primary school level. The results of this study are of help to teachers, curriculum development and assessment development specialists as they bring useful insights on which to build, modify or improve primary Agriculture curriculum.

1.7. Justification of the study

Previous research studies have concentrated on factors influencing the pupils' performance in the Botswana's general primary school leaving examination (Maimela and Monyatsi, 2016). This was meant to explore the same factors as they relate to Agriculture as a subject thus justified to be conducted.

Students' academic performance might be linked to the subject hence the need to explore performance of students in different subjects more so that Agriculture is practical oriented and different from others. Practical oriented subjects like Agriculture pose different learning demands compared to social science subjects (Amuriyaga et.al., 2018). Agriculture by nature is involving and broad thus standing a greater chance, compared to other subjects, of being associated with varied social and environmental factors influencing its teaching and learning which are worth exploring.

Observations and frequent interactions with stakeholders such as parents, teachers and pupils at different levels in primary, junior and senior secondary schools have anecdotally raised concerns on the failure rate of pupils of Agriculture in primary schools. The evidence is based on the low number of Agriculture pupils who obtained grade A, B and C during the previous final Primary School Leaving Examinations.

1.8. Assumptions

The study was based on the following assumptions:

i. That, participants will answer honestly, because their anonymity and confidentiality were ensured and that the respondents were volunteers who might withdraw from the study at any time, with no notifications or whatsoever.
ii. That, respondents in this study were those who had interacted with the Agriculture syllabus for primary schools when teaching hence knowledgeable with the factors influencing pupil's performance.
iii. That, the respondents in this survey were to critically examine the research problem and enable the researcher to address the research questions studied.
iv. That the respondents would cooperate and answer the questionnaires to the best of their ability.
v. That, the findings from this study would reflect the true picture of factors that contribute to academic performance of pupils in Agriculture PLSE results in both private and public schools.
vi. That, the theoretical perspective underpinning the methods and procedures of the study would adequately address a wide spectrum of issues surrounding the topic at hand.

1.9. Limitations

The potential weakness in this study which the researcher had no control over was the survey questionnaires, which were not all returned by a considerable proportion of respondents. In order to mitigate this problem, more questionnaires were hand delivered to school heads and collected by the researcher on the agreed date. This study was conducted at a time when there was a serious outbreak of Covid-19 and some of the subjects sampled for the study were not available at their

respective places. The respondents, who were mainly teachers, were on quarantines due to health reasons at the time of survey distribution and some were unwilling to answer the questionnaires due to their busy schedules and some felt they are at the risk of contracting the Covid-19 virus through the questionnaires. Therefore, participants were given a longer time to complete the questionnaires so as to cater for their busy schedules. In most schools, PTA representatives were not available in schools. Due to Covid-19 restrictions the research was not able to travel to all the regions and administer questionnaires face-to-face, therefore emails and post mails were used to mitigate this problem.

Some of the subjects of this study might have considered the study to be examining how well they do their job which is teaching, therefore, may not have provided the correct information so as to try and cover up for the anticipated difference between them and their associates. Therefore, the researcher explained the importance of the study to them thus encouraged them to provide authentic responses. Financial and time constraints were also a limiting factor for the study since the researcher was not funded to carry out the research; therefore, funds were requested from family to cover the costs of the study. A mixed method design was employed in this study; however, despite its overwhelming support from researchers, it has some shortcomings (Creswell, 2009). Mixed method research is more expensive and time consuming than any other method due to its duplication of content. Due to recurring lockdowns, the researcher was unable to complete the study within a stipulated period of time. Therefore, an extension was requested from the Dean of Research and Graduate Studies to complete the study. The researcher also had to learn about multiple methods and approaches and understand how to mix them.

1.10. Delimitations of the study

The delimitations are those that limit the scope and define the boundaries of a research study. The delimitations of the study were set by the researcher based on the researcher's decision of whom to include in the study, what to study and what and whom to exclude so as to narrow the study. The delimitations made it more manageable and relevant to what the researcher was trying to establish about student achievement or performance in Agriculture syllabus for PLE results. The delimitations also included the variable of interest which is performance, questions raised to be used to guide the study, population (subjects) being studied which cannot be changed and the objectives formulated to respond to the questions. The other delimitation is the choice of the

problem being studied which is poor performance of pupils in primary schools in the subject of Agriculture.

1.11. The scope of the study

The scope of this study was limited to factors that influence performance in Agriculture at primary school level in Botswana. The state has 826 public and private schools. The study covered public schools only in all regions in Botswana. The study population will cover Agriculture teachers, Head teachers, Parent- teacher association members (PTA), Region education officers, Agriculture officer-curriculum and Agriculture officer-examinations, since they are the most reliable groups in providing valuable information. The teachers were targeted for data on their experiences during their teaching career about what might be the cause of low performance of pupils.

1.12. Operational Terms

Academic Performance: the measurement of student achievement in the academic subject (Agriculture) in terms of classroom performance, end of year results like the PSLE, graduation rates, and results from standardized tests (Simpson & Weiner, 1989).

Primary schools: Schools that are for children who are of the ages between 5/6-11/12 years old in Botswana.

Agriculture science: the subjects/courses offered to pupils at primary school that encompasses crop and livestock production.

Primary school leaving Examination items: defined as the low-stake examination that certifies completion and attainment test items of primary education in Botswana at the end of seven years of primary school.

Syllabus: the blueprint document available from the Ministry of Basic Education containing the different topics prescribed for student learning.

CHAPTER 2 :

LITERATURE REVIEW

2.1. Chapter overview

This chapter provides literature related to the performance of students in Agriculture as a subject in primary schools. The reviewed literature was obtained from different sources such as journals of agricultural education, academic websites, research papers and text books on agricultural education. The literature that was sought specifically related to the (i) teaching and learning of Agriculture, (ii) general academic performance of students in education and Agriculture, (iii) factors influencing students' performance in general (curriculum, pupil and external factors), (iv) the importance of teaching Agriculture in primary schools and related theoretical framework and conceptual framework that guided the study.

2.2. Teaching and learning agriculture.

The first instructions in farming education started way back in the United States of America through the Smith-Hughes Act of 1917 and the George-Barden Act of 1946. In Botswana according to Hulela and Miller (2003) agriculture was first taught in schools through gardening by volunteers and missionaries. Today, agriculture in schools have advanced but performance of students in the subject has been observed to be lagging in primary schools in Botswana. According to Baliyan, Molebalwa, Keregero and Mabusa (2021) in the 2018 primary school leaving examination [PSLE] agriculture had 26.38% candidates with grade D, 11.43% with grade E and the only 5.38% of candidates with grade A implying poor performance in the subject.

2.3. Teaching and learning theories and associated concepts.

Several theories exist that guide the teaching and learning in general. Agriculture is a both a science and a practical subject. Its teaching and learning are therefore associated with being a science requiring investigations and a practical subject which requires some practices in the farm (gardening). According to Saunders and Wong (2020) in the classroom learning theories describe

the conditions and processes upon which the process of learning happens, requiring teachers with the opportunity to adopt appropriate models to develop instruction sessions that lead to better learning. The authors further stated that such theories explain the processes that learners would engage in as they make sense of information taught, and how they integrate that information into their mental models so that it becomes new knowledge. Learning theories are also used to examine what motivates people to learn, and what circumstances enable or hinder learning.

Given the context under which the study was conducted the researcher chose to be eclectic in approach. That is, adopt several conceptual models comprised of the review of some specific teaching and learning theories and associated concepts to guide the study.

2.3.1 Social learning theory

One of the theories of learning that was adopted by this study to interrogate and navigate issues of poor performance of pupils is the social learning theory. This theory is based upon the work of Bandura (1977). Social learning theory is based on the idea that people learn by observing others, then assimilate and imitate that behaviour they have observed, more especially if their observational experiences are positive or includes rewards related to the observed behaviour (Navabi, 2012).

This implies that performance of pupils in schools can be affected either positively or negatively by the interactions of learners with others (parents, teachers and other school administrators) in a social context. Learners observe their teachers (role models) as they do demonstrations of certain learning activities and learn by imitating what their models are doing, together with activities those activities which are regarded as hidden curriculum, for example if a teacher is disinterested in the Agriculture subject and focuses more on other subjects, learners may also turn to dislike the subject. Therefore, this theory can provide a useful paradigm to understand how interactions between the studied research subjects affect performance of learners in Agriculture.

2.3.2 Theory of overlapping spheres of influence

Another theoretical perspective that was adopted in this study is the theory of overlapping spheres of influence which was developed by Epstein (1995). This theory assumes that the child's achievement, development, and academic success are the main reasons for family-school partnerships or interactions. According to Epstein and Connors (1992), pupils are mainly

responsible for their own success in school, but when schools, families and communities work hand in hand, this allows for the influence of overlapping spheres. Pupils receive common messages from various people in the community about the importance of school, of working hard, of thinking creatively, of helping one another, and of staying in school. Therefore, there are more likely to perform well academically because caring people in both environments are investing in helping them to do well (Epistein *et. al*., 2002). Collaborations between family, school and community lead to improved life skills, academic skills, self-esteem, positive attitudes toward learning, independence and other behaviour characteristics of successful individuals (Epstein & Connors, 1992).

Epstein developed a framework for defining six different types of parent's involvement which are parenting, communicating, volunteering, learning at home, decision making, and collaborating with the community to focus partnerships on school improvement goals. By implementing activities for all six types of involvement, schools can help parents become more involved at school and at home in various ways that address pupil needs and family schedules (Epstein & Salinas, 2004). Increased family engagement in schools is associated with faster rates of literacy acquisition among children (Auerbach, 2016).

A school learning community includes educators, pupils, parents, and community partners who work together to improve the school and learning and teaching of pupils (Epstein &Salinas 2004). Schools must empower parents and involve them in decision making and create effective modes of school-to-home and home-to-school communications regarding school programs and child progress. Teachers should build relationships with the parents of the pupils they teach as that can lead to positive pupil outcomes.

2.3.1. Behaviorism theory

Another theory that helped this study to interrogate and navigate issues of poor performance of pupils is behaviourism theory. This theory equates learning with behaviours that can be observed and measured (Zhou & Brown, 2015). Behaviourism is based on three assumptions of Pavlov, Thorndike, Skinner and Bandura, among other theorists, as noted by Kampa (2017). Ivan Pavlov was known for his work in classical conditioning, in which a biologically potent stimulus is paired with a previously neutral stimulus. Edward Lee Thorndike was known for the theory of

connectivism that states that learning is a result of associations forming between stimuli and responses. Frederic Skinner was known for operant conditioning, which is a learning process through which the strength of behaviour is modified by reinforcement or punishment. Albert Bandura is known for his social learning theory, that most human behaviour is learned through observation, imitation and modelling.

Theorists perceived learning as a change in behaviour, secondly the environment (stimulus) shapes behaviour and thirdly the closeness in time for occurrence of the event creates a firm bond. All behaviour is determined by the environment rather than hereditary (Skinner, 1957). Behaviourism emphasizes the role of environmental factors influencing behaviour (Mcleod, 2018). Learners are not passive, they take an active role in their environment and learn by doing, experiencing and engaging in trial and error. Pupils can learn new behaviour through classical operant conditioning. Classical conditioning is when new behaviours are acquired through associations. Behaviour can also be explained in terms of operant conditioning reinforcements and punishment (Mckenna, 2015). Learning occurs because of reinforcement which is either positive or negative. Positive reinforcement means adding a nice stimulus to the situation that involves the pupil while negative reinforcement means eliminating a bad stimulus from the situation (Akdemir *et. al.,* 2016). Reinforcement increases the possibility of the behaviour to be repeated once more (Skinner 1953). Learning is also accomplished when a proper response is demonstrated following the presentation of a specific environmental stimulus (Akdemir *et. al.,* 2016).

Use of behaviourist theory can be of benefit to teachers and pupils. Teachers assess the learners to determine at what point to begin instructions as well as to determine which reinforcements are most effective for a pupil to achieve a desired behaviour. Behaviourist learning theory is not only important in achieving the desired behaviour in mainstream of education; parents can also use the same theory to reinforce behaviours they would want their children to display at home.

2.4. Conceptual framework

A conceptual framework is the researcher's understanding of how the particular variables in the study connect with each other (independent and dependent variables, both internal and external). It identifies the variables required in the research investigation. Orodho (2004) stated that a conceptual framework is a model representation where a researcher represents the relationship between variables in the study and shows the relationship graphically and diagrammatically. The conceptual framework in this study was based on representation of curriculum, pupil, external based factors that influence the performance of pupils in primary schools. Curriculum related factors included all the factors that affect planning, implementation and evaluation of teaching and learning of Agriculture in primary schools. Pupil related factors entails physical and social-economic factors that can affect academic performance of learners, while external related factors include issues pertaining to government and community that can affect performance of learners in Agriculture. The framework is presented in Figure 2.1 below.

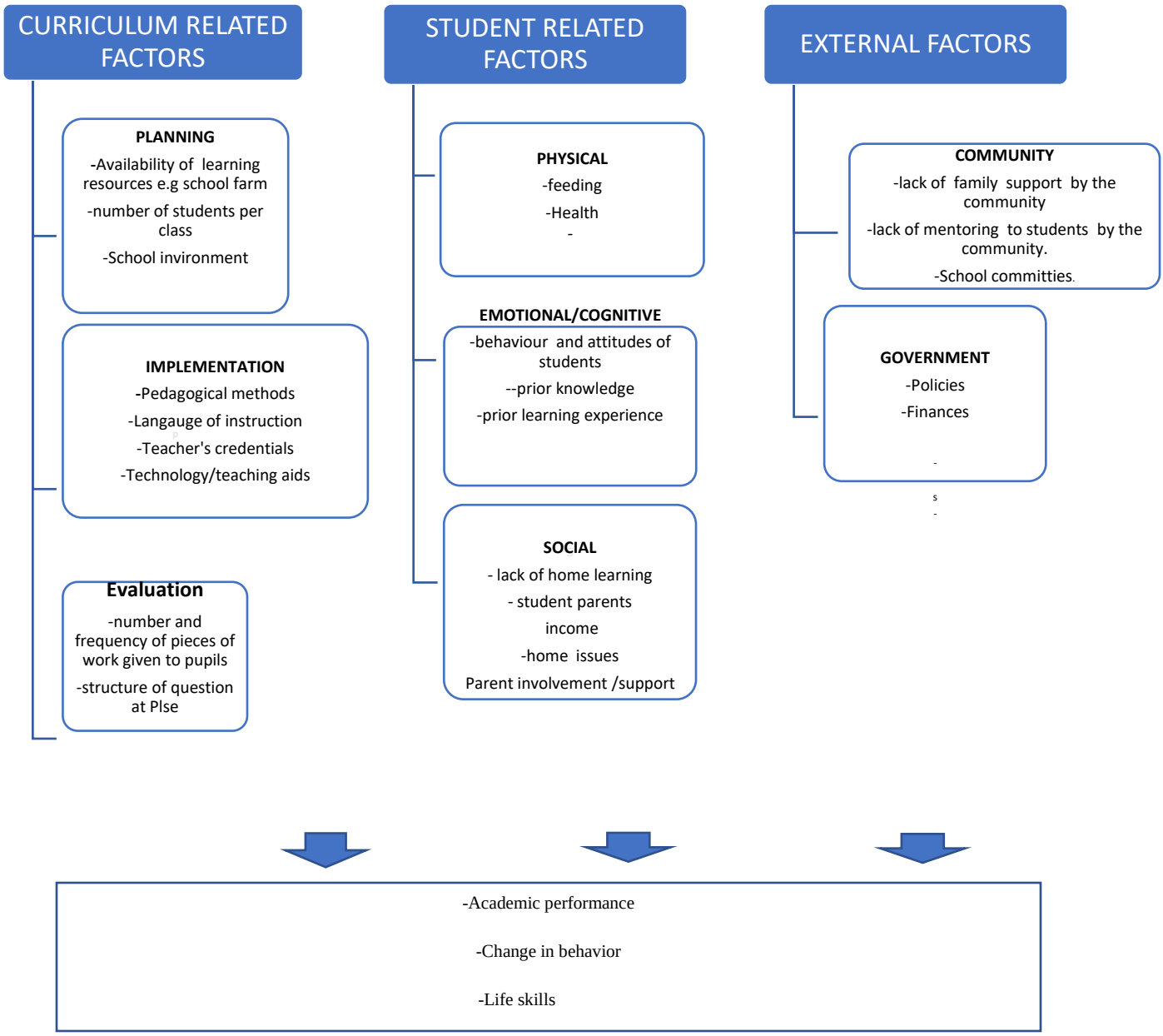

FIGURE 0.1:VARIABLES LIKELY TO INFLUENCE ACADEMIC PERFORMANCE OF PUPILS IN PRIMARY SCHOOLS.

2.5. General Academic performance of students in Agriculture and the importance of teaching Agriculture in primary schools

Academic performance is the product given by the pupils after learning process has taken place and it is usually expressed through school grades (Martinez, 2007). Academic performance also involves reaching goals, achievements and objectives set in the subject or course that a pupil attends as stated by Caballero *et. al.* (2007). Leaners who perform well tend to have higher self-esteem, have lower levels of depression and anxiety (Regier, 2011). Most learners who perform well in school grow up to be responsible and upright citizens who add value to the economy and society (Regier, 2011). It is on this note that, it is important for primary pupils to perform well in all subjects offered at school so that they grow to be academically well-rounded citizens. Studies have revealed that generally student's performance in Agriculture is unimpressive (Otekunrin 2020, Mavhungu 2004, Onwunali 2022 and Ochieng 2015).

According to Herbert (1985), several objectives are pursued wherever Agriculture is included in the school curriculum in Africa. The following are some of the reasons for teaching Agriculture in primary schools:

i) Teaching basic scientific procedures and introduction to the general methods and logic of science.
ii) Teaching practical skills and knowledge.
iii) Developing positive attitudes towards manual labour.
iv) Reducing the migration of school leavers from rural to urban areas.
v) Generating income for schools.

The income raised through agricultural school projects could be used to finance part of the recurrent expenditure of schools. Funds raised by school projects in Botswana are spent on buying raw materials so that schools can continually run school projects without having to rely on the annual government budget. By introducing Agriculture, with its partner farm work, into the syllabus, countries hope to create a positive habit towards manual work (Herbert, 1985).

Several factors within the school as well as outside the school affect academic performance of pupils. Within the school, the factors include, teachers qualifications (skills and abilities on the

part of the teachers), unavailability of learning and teaching resources (Karemera, Reuben & Sillah, 2003; Aturupane *et al.*, 2007), the use of appropriate pedagogical methods, language of instruction (Nyathi and Saleshando, 2011; Benson, 2004), pupil-teacher ratio (Yelkpieri *et al*., 2012; Bandiera, *et al.*, 2010), use of technology (Raja & Nagasubramani, 2018; Costley, 2014) and rewards (Baranek,1996). The other factors that influence the academic performance of the pupils out of the school are home environment, financial position of their families, and parental involvement in the children's education (Jeynes, 2007; Aturupane *et al.*, 2007).

2.6. Curriculum related factors

These are issues relating to the education of children in relation to planning, implementation, evaluation and resources.

2.5.1 Planning

2.6.1. 1 Availability of teaching and learning resources

The necessary resources in schools include human resources such as teachers who are responsible for functional activities (teaching and assessing pupils) and support staff who are responsible for auxiliary activities (activities that aid learning and teaching of pupils). Schools also have physical facilities such as school gardens, laboratories, libraries, classrooms and other things like equipment, chemicals, books and furniture, hand-outs and technology. The educational resources of schools play an important role in ensuring that all learners even those from poor backgrounds have access to learning resources to help them perform well academically (Havva & Ekber, 2013). According to Aturupane *et. al.* (2007) pupils who have enough learning materials like exercise books and attend schools with enough desks learn more and suggested that priority should be given to equipping schools with basic learning equipment, such as pupil desks and chairs, and ensuring that all children have basic writing materials and text books.

Physical facilities such as school gardens are important when it comes to experiential learning of animal and crop husbandry practices. Acker and Gasperini (2009) noted that experiential learning can improve the quality of education by involving the children in learning process, promote engagement and change children's attitude towards learning. Snodgress (2012) measured the impact of school garden programme on Agriculture learning of pupils leaving in a food insecure region of rural Uganda. The results showed improvement after a period of implementation of

school gardens and decrease in the school without school gardens. School gardens improve retention by providing hands-on learning environment and exposes pupils to interdisciplinary learning experiences that can show pupils how to grow crops and develop entrepreneur abilities for future use (Acker and Gasperini, 2009).

2.5.1.2 Class size

In Botswana schools, the ratio of pupil to teacher is 25:1 (Statistics Botswana, 2015). The pupil to teacher ratio is one of key indicators used as a proxy for assessing the quality of education. It is believed that a low number of pupils per teacher translates into pupils having better chance of contact with the teachers and hence a better teaching and learning process (Statistics Botswana 2015). Having large number of pupils in one class is referred to as classroom congestion (Mustafa *et al.,* 2014). Classroom congestion is considered as a disadvantage in improving academic performance. Congestion in one class affects classroom management in general and specifically classroom discipline (Mustafa *et al.,* 2014). Larger classes are noisier, and teachers may lose valuable lesson time in such circumstances, trying to control the learners. It is also difficult for teachers to give attention to all pupils. Smaller classes are often perceived as allowing teachers to focus more on the needs of individual pupils and reducing the amount of class time needed to deal with disruptions. They contribute to a better learning environment for the pupils. Teachers have more time to cover additional material and use more supplementary texts and enrichment activities. Small classes impact not only pupil achievements, but also improves pupil's social skills and relationships with their teachers. (Biddle *et al*., 2002).

The results of a study by Blatchford *et. al*., (2006), revealed that class size affected the amount of individual attention, the immediacy and responsiveness of teachers to children, the sustained and purposeful nature of interaction between teachers and children, the depth of a teachers' knowledge of children in their classes, and sensitivity to individual children's particular needs.

2.5.1.3 School environment

Children get enrolled in schools not only to learn academic concepts, but they also learn, how to interact and socialize with others. A proper and adequate environment is necessary for the productive learning of a child (Bhavana *et al.,* 2018). School environment can support learning or may have a significant barrier to learning (Freiberg 1998) such as mental health, socio-emotional

well-being, academic achievement and behavioural outcomes of pupils (Bhavana *et. al*., 2018). Pupils usually form social circles and friendships which have a positive effect on the academic outcomes. Friendships in school result in formation of study groups, where learners help each other with their studies. It also causes social satisfaction and happiness in pupil's life (Kapur, 2018). Forming a social circle proves to be beneficial to the individuals in number of ways, such as doing

assignments together, getting involved in leisure activities and sharing other life experiences together.

Kraft & Papay (2014) stated that schools with supportive professional environments retain their teachers and overtime, teachers end up improving their ability to increase pupil achievement when they work in school environments characterized by productive peer collaboration, responsive administrators, an orderly and disciplined environment. School safety also enables pupils to be able to concentrate on academics (Steinberg, Allensworth, & Johnson, 2011). Safe learning environments can be affected by internal threats such as bullying and gang recruitment. External threats such attacks on schools and natural disasters can also decrease pupils' academic performance. According to Wentzel (2002), pupils' motivation, effort, perseverance, and beliefs about their potential for academic success are also shaped directly by the academic expectations the schools set for all pupils.

2.5.2 Implementation

2.6.2. 1 Pedagogical method (Practical lessons)

According to Collins, (2011); Osborne and Collins, (2001) and Toplis, (2012), practical work (practical lesson), is the best way of learning Agriculture science make learning more enjoyable. In addition, research showed that children perceive practical Agriculture to be interesting and fascinating (Otekunrin, 2020). During practical lessons pupils physically manipulate real objects during teaching and learning process or they observe their teacher demonstrating to them by manipulating a real object for them to see and practice later. Practical lessons play a significant role in teaching and learning of Agriculture.

2.5.2.2 Language of instruction

Language is explained as a socially and culturally constructed system of communication (Oyekola, 2020). Most primary school pupils are still in their early stages of learning English as their second language. Children are approximately twelve years old before they can fully comprehend their native language and before that they are not able to pick up second language as quickly as older children or adults Elsworth (2017). Even though language serves as a means of effective teaching and learning it can also be a barrier in learning, especially if there is a difference between the language known by the leaner, and the language used for teaching and learning (Guilting, 2001).

If learners do not fully comprehend English as a medium of instruction that may lead to poor performance in subject taught in English.

2.5.2.3 Teacher quality and experiences

Holland (2011) stated that teacher quality is the first characteristic that appears when parents, teachers, school leaders and researchers examine the school to determine its quality. Teacher quality can be evaluated based on qualifications a teacher holds. Sometimes teacher quality can be related to how many years of experience a person has been teaching a certain subject (Holland, 2011). Teachers develop agricultural curriculum materials using knowledge and information based on their experiences and available resources (Trexler and Hikawa (2001). Teachers with experience have a deeper conceptual understanding and are more confident in teaching Agriculture. Pupil achievement can increase depending on the years of experience a teacher possessed (Clotfelter *et. al*., 2007). Teachers with less experience in teaching, their pupils are more likely perform poorly.

2.5.2.4 Technology

Contemporary society regard technology as imperative to enhance learning. When pupils need to improve their skills and abilities regarding academic concepts, internet serves as the source of obtaining knowledge and information. In textbooks, sometimes the knowledge is limited, hence, in order to acquire better understanding of what was taught, the pupils make use of the internet, take down notes and use available tutorials to acquire better understanding. Using projectors and visual aids to aid learning is another form of technology. The use of projectors in teaching enables teachers to save time and focus on teaching as opposed to spending more time writing on the chalkboard, which are still being used in schools in Botswana. Moreover, visual images have a strong appeal compared to words (Raja *et al*., 2018).

For agricultural teachers to adapt to an ever-changing educational environment, they must possess necessary skills to integrate technology into their classrooms. According to Williams et al. (2014), the new generation desire instructors who facilitate rather than control instruction, encourage team work and cooperative learning, give prompt feedback and provide clear expectations for success in their classroom. Pupils want a classroom experience enhanced through technologies because they are born to the digital age. To involve this new generation in learning, greater level of

technology must be incorporated in our schools (Mruno, 2012). According to Miller (2011), in 2009 a Community School (Van Meter) in Iowa adopted a one-to-one laptop initiative in grades 6-12 and a strong technology focus throughout the district was enacted. Since the launch of this program, the school reported that there was an evolving atmosphere of respect, creativity, collaboration, and connection. The program also led to independent thinking and learning at their school. Through this educational transformation, Van Meter became a place where pupils could find their passion. A study conducted by Baytak, Tarman, & Ayas (2011) also found that most pupils believe that their learning is improved by integrating technology into classroom curriculum.

Even though technology is a powerful tool in education, pupils have to be monitored; guidelines should be set for technology use by children, so as to prevent them from using it for the wrong reasons. In most countries the high cost of technology is identified as the greatest barrier to technology integration in schools (Williams *et al*., 2014).

2.5.2.5 Extra-Curricular Activities

These are the activities that pupils participate in after the normal classroom day (Cadwallader *et al.,* 2002). Pupils usually take pleasure in learning especially, when there is adequate provision of extra-curricular activities. Extra-curricular activities within the schools include artworks, debates, educational clubs (e.g., Agriculture club or Maths and Science club) handicrafts, music, singing, dancing, role playing, sports, games and others. These activities are considered as not only imperative in developing creativity among the pupils, but getting engaged in them stimulates their mind-sets and help them to improve their concentration towards learning (Kapur, 2018). Research has indicated that when pupils get actively involved in extracurricular activities, they perform well academically (Revees, 2008; Craft, 2012). To concentrate well on the studies, and enhance one's grades, it is essential that pupils get involved in extra-curricular activities. These activities allow pupils to develop leadership skills, create lasting friendships, give back to their community, belong to the school family, and find success outside of the classroom. According to Reynolds (1996), extra-mural activities can enhance a pupil's life, and they can give the pupils additional skills that they will use for the remainder of their lives (Ahmad *et al.,* 2015).

2.5.3 Evaluation

2.6.3. Number and frequency of pieces of work given to students

A range of assessment methods can be used at different frequencies. Formative assessment is done throughout the year in the form of tests, quizzes, practical and homework to prepare pupils for final examinations or summative assessment. McManus (2008) stated that formative assessment is a process in which teachers and pupils provide feedback during instruction to organise the learning and teaching process to increase pupil performance. Quizzes help pupils to retain the material for longer time and prepare them to be ready for examination (Johnsom & Kiviniemi, 2009).

Shirvani (2009) and Agarwal, *et.al* (2012) stated that frequent testing as a retrieval practice helps pupils to reduce their test taking anxiety. When pupils write quizzes and tests, they are actively involved in the process of knowledge construction rather than passively receiving information from teachers. Quizzing requires the activation of prior knowledge to construct one's own learning. Pelech (2015) stated that pupils perceive this process as aligning with the constructivist principle of making prior knowledge the starting point of new learning. The class quizzes, homework assignments and tests are regarded as aspects that can determine how well pupils understood what they were taught. Ozan and Kincal (2018) examined the effects of formative assessment practices on pupils' academic achievement, attitudes toward lessons, and self-regulation skills in the fifth-grade social studies class. The experimental group in which the formative assessment practices were performed had a significantly higher academic achievement levels and better attitudes toward the class. The pupils who were in the control group and did not receive formative assessment practices performed poorly. Formative assessment had an impact on pupils' academic achievement (Ozan and Kinca, 2018).

2.6 Pupil related factors

In this study pupil related factors means psycho social aspects of an individual that can affect their performance.

2.6.1 Health

According to Suhrcke *et al*. (2011) education and health of pupils are highly correlated. The overall health of a learner affects educational performance and attainment. Pupils with poor health have a high probability of school failure, grade retention and dropout (Shaw et al. 2015). Medical distress contributes to low academic achievement of learners (Spernak *et al*.,2006). A wide range of variables play a crucial role in the cognitive development and a child's learning abilities. Nutrition is one of those variables and it is closely linked to overall physical health of learners and is a correlate of academic performance (Hoffman *et al*., 2010). Pupils who are under or over fed are likely to have poor health hence perform poorly academically. Given the crucial role health plays in a pupil's life and educational development, it is important for teachers and parents to become responsible for leading efforts to improve students' health.

2.6.2 Emotional/ Cognitive

2.6.2.1 Attitudes and behavior of pupils

Pupils' attitude towards school and learning are associated with academic achievement. Candeias, Rebelo and Oliveira (2010) stated that pupils with poor academic performance have more negative attitude towards learning and believe that school and learning will not help them be successful in the future. Pupil attitudes on learning determine their ability and willingness to learn. According to Sejčová (2006), an important factor contributing to good results of pupils in individual subjects is their attitude towards the subjects. Kubiatko (2013) also argued that if attitudes towards a subject and school are positive, also the achievement of pupils gets better. Kapur (2018) stated that goal-oriented pupils usually possess positive feelings regarding their schooling experiences, possess the traits of discipline, diligence, and resourcefulness, and are avid readers. Rebelo and Oliveira (2010) noted that girls seem to have more positive attitudes toward school, while boys are less motivated and have more negative attitudes toward school. It is vital for the pupils to possess positive thinking in terms of their schools, teachers and academic subjects if their performance in class must improve. With positive attitude, they will be able to dedicate themselves wholeheartedly towards learning and generate the desired academic outcomes (Kapur, 2018). Within the classroom, it is vital for the teachers and the pupils to implement the traits of morality and ethics. Teachers should create an environment that is conducive for learning to prevent pupils from having negative attitude towards their subject or learning

Faaz *et. al.*, (2017) conducted a study aimed at identifying the impact of attitude towards science on the academic achievement of pupils belonging to upper primary stage. Attitude marks obtained by the pupils in the previous class were used as an indicator of their academic achievement. The results of the study revealed that there exists a moderate and positive relationship between attitude towards science and academic achievement of pupils at upper primary stage.

2.6.2.2 Prior knowledge and experiences.

Prior knowledge is defined as multidimensional and hierarchical entity that is dynamic in nature and consists of different types of knowledge and skills (Hailikari *et. al.,* 2008). Prior knowledge has always been considered the most important element that influences learning and pupil academic achievement. Pupils are likely to be influenced by pre-existing assumptions and beliefs when they are taught new information or when learning new things (Zamboanga & Thompson, 2003). Pupil's prior knowledge and experiences influences how they assimilate new information. Eklund-Myrskog (1997) is also of the notion that pupil conception of learning is shaped or moulded by their prior learning experiences. Entwistle *et al.*, (2001) noted that the meanings pupils attach to the concept of learning are derived from cumulative effects of previous educational and other experiences. Therefore, pupil's prior knowledge should be taken into consideration when planning and implementing curriculum to improve academic performance of pupils. In Botswana Agriculture is only taught from standard 5 in primary schools, and that could be contributing to the current performance of pupils, because they are not taught Agriculture in their early years of their primary education.

Although many researchers stated above support prior knowledge, David (2017) is of the view that prior knowledge may help or hinder the pupil in learning, depending on the nature of prior knowledge. It may have both negative and positive effects on pupils learning. Therefore, the nature of prior knowledge should be assessed before the start of any learning process. Via (2016) also noted that prior knowledge that is inaccurate in nature may distort the learners' view of the new information to be grasped.

2.6.3 Economic and social related home issues

There are many factors on which pupil achievement depends on, home environment is considered one of the most important factors (Ngussa, 2019). Synder *et. al.,* (2000) claimed that the family environment is the most powerful influence in determining the child's academic performance. Sandstrom and Huerta (2013) noted that in order for children to develop to their full potential, they need safe and stable housing, adequate and nutritious food, access to medical care, secure relationships with adult caregivers, nurturing and responsive parenting, and high-quality learning opportunities at home and in child care settings.

The home environment should be amiable and pleasant to generate appropriate academic outcomes. Family members should communicate with each other in an appropriate manner to minimize the occurrence of conflicts and disputes. According to Fraser, (2001), psychological home conditions arise mainly from ill-treatment of children, the label of adopted child, inadequate financial resources, broken home divorce and parental deprivation. Such abnormal conditions of the home are likely to have a detrimental effect on the school performance of the child.

Some children, irrespective of home background and their family's economic background tend to work hard and become successful in life. Morgan *et al.*, (2009) indicated that children from low socio-economic status households and communities develop academic skills more slowly compared to their counterparts from higher socio-economic status families. Bliss (2004) also affirmed that many pupils from low socio-economic homes respond incomprehensively to classroom teaching because their home environment has not exposed them to the kinds of materials used in school. If home environment is not intellectually stimulating some pupils find it difficult to cope up in school.

2.7 External related factors

In this study external factors include issues of the community and government (policies) that could influence performance of pupils.

2.7.1 Policies

Education is costly and requires adequate financial provision from all layers of the government (Federal Ministry of Education of Nigeria, 2004). Education policies should authorise schools to

make decisions on budget related issues regarding feeding of pupils, renovation of school infrastructures, academics related issues and other factors that affect learning and teaching of pupils. Hong (2015) suggested that autonomy or freedom over budget related decisions by schools, positively affects the overall performance of pupils. The government policies should favour sufficient budget for schools.

2.7.2 Mentoring by the community

According to Roberts (2000), mentoring is a process whereby a more experienced and knowledgeable person assume a supportive role of watching over and motivating reflection and learning within a less experienced and knowledgeable person. Implementation of mentoring programs for struggling pupils generally results in improvement in their academic performance (Hall & Verhaart, 2008). Gravy & Harris (2008) stated that mentoring can improve performance and productivity of employees (teachers), can lead to job satisfaction and motivation, improves empowerment and advances minority groups. If teachers or school employees are motivated and content with the job that they do, there are high chances that they may get remarkable results from teaching pupils.

Masehela and Mabika (2017), conducted a study to assess the impact of the mentoring programme on university pupils' performance. According to their findings the pass rate improved from 80% to 92% the first time the programme was implemented and it has been high ever since, while the pupils in that department have continued to embrace the programme. The study concluded that the mentoring programme contributed to improving pupil success.

2.7.3 Summary

Reviewed literature has showed how important it is to shape the interests of learners, while their minds are still impressionable which is at a younger age. It is important for learners to develop interest and pass Agriculture at a younger age, so that they will grow with a passion for it and in the future become citizens that are fully engaged in the agricultural activities. A number of factors have been found to influence the performance of pupils including school environment, technology, language of instruction, teachers' qualification, number of pupils per class, availability of learning and teaching resources, pupil's attitude and others. However, some of the factors reviewed in this literature are related to the theory of Epstein (1995). The theory addresses how the overlapping

spheres of influence can have an impact on the performance of pupils. Parents, teachers and communities should communicate or interact more to develop relationships that will help in improving the performance of pupils.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter presents the methodology of the study. The presentation includes research design, target population, sample and sampling procedures, instruments for data collection, validity and reliability, data collection procedures, data analysis and ethical considerations. Each of these subheadings are discussed in details in the chapter.

3.2 Research Design

This study used a descriptive research design which focused on describing the situation being investigated to understand factors influencing performance of pupils in Agriculture in the primary school leaving examination. The study employed a mixed methodology approach to gather both qualitative and quantitative data. According to Dulock (1993) the descriptive research describes the fact or phenomenon being studied about population or area of interest without going into why and how of the phenomenon. Dulock (1993) further explained that descriptive studies are meant to describe what exists and, in this case, with regard to the factors influencing students' performance in Agriculture. This design helps to provide answers to questions of what and not why and how, in relation to the research problem.

3.2.1 Mixed methodology technique

The descriptive design used mixed method as a technique to gather data as found suitable for this study because it used both quantitative and qualitative data in one single study which provides stronger inference than using either approach on its own. According to Wasti, Simkhada, Teijlingen, Sathian, Banerjee (2022) there is a growing need for use of mixed methods in social science studies nowadays. In this particular study the sequential explanatory method was adopted as procedure for mixing datasets in this study where collection of quantitative data was followed by that of qualitative data (Cresswell and Plano-Clark, 2007). The sequential explanatory method was adopted for the study because it allowed the researcher to explore deeper on those questions that were quantitatively rated low (negative) by the respondents thus needing accompanying explanations gathered qualitatively.

3.3 Area of study

This was a national study that targeted all teachers who teach agriculture in seven hundred and fifty-seven (757) public primary schools in Botswana located in ten education regions being, North East, North West, Chobe, South, South East, Kweneng, Kgatleng, Central, Gantsi and Kgalagadi. All public primary schools, irrespective of location were targeted in this study.

3.4 Population

Names of teachers of primary schools who have continuously taught Agriculture in the past 5 years in each of the 757 primary schools nationwide were obtained from the Ministry of Education and skills development (MoESD). Names were verified with regional education offices in each region to establish if still in their respective school selected to participate in the study. The study population is made up of 757 primary school teachers who teach agriculture from which a sample of 254 was obtained. The study population is also comprised of 76 school heads out of 254 sampled primary schools, 10 primary school Education Officers responsible for Agriculture or practical subjects (inspectorate, curriculum unit, in-service training and examination council) and 76 Parent Teacher Association (PTA) representation selected randomly from school set ups.

3.5 Sample and sampling procedure

Step 1: Determining sample size.

The Krejcie and Morgan (1970) table of sample size determination available online was used to determine the sampe size *(*Ali, Ahmad & Seman (2017*)* and Al-Eid, and Shoukri, 2019).

Twenty-five (25) public schools were then selected in all the ten educational regions using stratified random sampling technique, which is one of the different forms of probability sampling techniques. In this case, the strata were the educational regions and out of each region twenty-five schools were randomly sampled. For randomisation, the researcher used the hat or lottery method (Lavrakas, 2008), where names of schools that belonged to the same region were written on pieces of paper and placed on a hat, and then twenty-five names of the schools were randomly drawn from the hat. The process was then repeated for all the regions to sample the 25 schools for each.

Step 2: Sampling of respondents

Sampling was conducted in layers before selecting the actual respondents being primary school teachers and their administrators. The stratified random sampling was employed, for there was a possibility to establish some groups (i.e., strata) in the targeted population of teachers and school administrators. The technique ensured that the schools' Agriculture teachers and their administrators were selected across regions. One teacher was selected from each school, such that the total number of teachers targeted for this study was equal to the number of sampled schools which were 254 in total.

PTA chairperson on behalf of parents together with head teachers were selected to be part of the study as they were instrumental in advising on issues pertaining to resources and parental support in as far as teaching and learning of Agriculture content is concerned. A total of 76 PTA representatives and 76 school head teachers in selected schools were purposively sampled from the selected schools based on Krejie and Morgan' s table. Purposive sampling is a nonprobability sampling technique that the researcher uses to choose a sample of subjects from a population (Etikan 2016). Purposive sampling is useful when the researcher has limited resource, time and work force. A total of eight (8) of both PTA representatives and head teachers were selected at each of the ten (10) educational districts. Given that Education Officers in sampled regions were few, one Education Officer per region was engaged in the study hence the total of ten.

Respondents for the face-to-face interviews were purposively sampled to ensure fair representation of concerned parties. A sample of twenty respondents was selected. This number enabled the researcher to make valid judgements about the general trends emerging in the data. There is a debate regarding right sample size in qualitative research, however Manson's (2010) analysis of 560 PhD studies that adopted a qualitative interview as their main method, revealed that the most common sample size in qualitative research is between is between 15 to 50 participants, with 20 being the average sample size. Thematic saturation can be reached after 20 participants (Manson, 2010). The selection ensured representation according to gender, school location in terms of rural, peri-urban and urban, employment position to accommodate Teachers, School administrators, Education Officers and PTA representatives.

3.6 Instrumentation

The researcher designed a semi- structured questionnaire and interview schedule guided by the objectives of the study to be achieved in the study. Based on the objectives of the study the questionnaire had 4 sections. Section A of the questionnaire was designed to answer objective 3 of the study on demographic characteristics. Gender and types of school were measured on nominal scale, while age group, experience, qualification and position were measured on ordinal scale. Section B, C, D of the questionnaire was designed to answer objective 1 of the study which required respondents to provide their views about the factors influencing performance of pupils in Agriculture (curriculum, student and external factors). The variables in these sections were measured through ordinal scale as well.

The statements in section B, C and D were anchored with a 5-point Likert-type scale as follows: 4=Strongly Agree (SA), 3=Agree (A), 2=Disagree (D), 1=Strongly Disagree (SD), 0=undecided. For interpretation purposes, the lowly rated items (that is 1 or 2) were those considered responsible for the low pupil performance. The respondents who chose 0=undecided on the scale means they had no idea or were neutral regarding the written statements on the questionnaire.

Data collecting processes

To prepare for the interview, an interview guide was put together after analyzing data from the questionnaires to guide the interview process to specifically address statements that were rated low in the questionnaire. These entailed items relating to questions especially those needing scrutiny on the explanations of the why and how. The researcher used interview checks where a sample of participants was engaged in a focus group set up and have the proceedings checked by experts who advised on various issues including: posing of questions, rate of interference by the interviewer and others. The latter was to ensure that the data collected through this method was dependable. The interview questions were designed to answer objective 2 of the study.

3.7.1 Validity of the questionnaire

A team of experts including three lectures in the Department of Agricultural Education of Botswana university of Agriculture and Natural Resources (BUAN) validated the questionnaires

(content validity). They also advised on issues relating to the clarity of questions. Thereafter, their feedback and comments were used to revise the questionnaires. Validity testing involved assessing the extent to which the questionnaire measures what it was designed to measure (Robson, 2011). The content and face validity were employed to validate the questionnaires.

3.72 Reliability of the questionnaire

The piloting participants involved head teachers, PTA representatives and education officers (n=45) from schools around Gaborone which did not form part of the sample for the study. The reliability coefficient results are as shown in Table 1. To determine the reliability or consistency of the instrument, if it measures what it is meant to, a pilot study was conducted using a group of 15 primary schools who were not going to participate in the final study. Reliability is the degree to which an assessment tool produces stable (free from errors) and consistent results (Hulk, 2007). It was therefore assumed that the more consistent the responses are during piloting the higher the reliability. Based on Cronbach's alpha coefficient (Carmines & Zellers, 1979), the questionnaires were declared reliable as indicated in the table below. According to Cortina (1993) reliability coefficient of 0.70 is acceptable and 0.80 or greater is preferred. Items that seemed to lower the reliability were readjusted by being rephrased.

TABLE 0.1: RELIABILITY COEFFICIENT OF VARIABLES.

Part	Dimension	Number of items	Reliability coefficient	
B	Curriculum related variables	29	0.83	Reliable
C	Pupil related variables	13	0.88	Reliable
D	External related variables	36	0.89	Reliable

3.8 Data collection procedure

The researcher obtained a permit from the Ministry of Basic Education, granting permission to conduct the study covering all schools in the country. A letter was then written to all sampled schools introducing the researcher and the study as well as the goal to be achieved through the study. Communication to schools was made through email and postal mail to distribute questionnaires and consent forms to the participants in all the ten regions. Since it was difficult to travel between regions due to Covid-19 travel restrictions, some questionnaires were administered face-to-face to some of the sampled schools in regions close to the researcher. Face-to-face administration of questionnaires increased response rate that is why the researcher opted to use both direct administration and mail (post) to distribute questionnaires. Questionnaires were then collected by the researcher after the teachers, head teachers, PTA members and education officers had completed them and some were returned through mail.

Schools were purposively selected for piloting. Validated questionnaires by experts in the Department of Education in BUAN were administered to sample teachers, head teachers, education officers and PTA representatives (n=45).

3.9 Data analysis

Two types of data (quantitative and qualitative) were analysed through the use of Statistical Package for Social Sciences (SPSS) and manual analysis. The quantitative data were captured into SPSS software, which followed by cleaning (i.e., checking correctness of entries in the SPSS software). The frequencies and percentages and inferential statistics were computed to determine the descriptive statistics to address the objectives of the study. Some cross tabulations were computed to compare proportions of responses regarding issues studied along demographic characteristics and this helped the researcher to interrogate the data more. Median scores of the groups were compared during any comparative analysis process undertaken in the study.

A non-parametric inferential statistic (i.e., Kruskal Wallis H test and Man Witney U test) were used for comparative analysis. Mann Witney U test was employed to test for significant differences between any two compared groups ratings. On the other hand, Kruskal Wallis H test was used for testing if there were significant differences between more than two compared groups. The researcher analysed the information according to the objectives set for the study.

Data collected using open ended questions were analysed using thematic analysis. The Audio versions of the interviews from teachers were transcribed into text. From the understanding that codes are assigned to data to describe content and to draw meaning out of them (Rincon, 2018), the qualitative analysis in here involved reading through the segments of responses for a particular question and making meaning out of them as well as establishing patterns (similarities and differences among them) before assigning them to established themes. The process proved to be slow and tedious for the researcher had to go back and forth making compares between segments.

The questionnaires were coded according to the schools for easy follow up. The researcher ensured that the findings are reported as they were obtained without altering or falsifying them anyhow. Since the study is conducted during a Covid-19 pandemic, as a way of mitigating the History effect the researcher only collected data following Covid-19 protocols to avoid putting participants at risk hence affecting the outcomes of the study. The Hawthorne effect was mitigated by assuring the participants that the purpose of the study is to improve the process, not to pass judgement (Harrell et al., 2013).

3.10 Ethical Consideration

Permission to carry out the study was granted by the ministry of education and skills development. An informed consent form was given to the research participants to enable the potential research subjects to make an informed choice as to their participation in the study. In this study, the respondents did not write their names as they may experience harm if their views were known to their superiors. All the respondents were asked to participate willingly and anyone who was not interested was allowed not to participate in the study to avoid violating their rights. Furthermore, the researcher obtained a research clearance letter from the Ministry of Education and from all regions which allowed access to various schools when collecting data in primary schools in the country. During the administration of the questionnaire, the researcher first explained to the respondents, the purpose and importance of the research and why they had been selected to be part of the study. They were assured that their names and schools would not be known and whatever information they share would only be used for purpose of research.

CHAPTER 4

RESULTS OF THE STUDY

4.0 INTRODUCTION

This chapter presents both quantitative and qualitative findings of the study on factors influencing academic performance of pupils in Agriculture in public primary schools in Botswana. The results were grouped and presented based on quantitative and qualitative data gathered. The next chapter will then present the joint interpretations and discussion of findings from both quantitative and qualitative results. The chapter begins by presenting the quantitative findings followed by the qualitative findings.

4.1 QUANTITATIVE FINDINGS

The quantitative results gathered from 302 respondents who returned the questionnaires are pesented in tabular form with accompanying short discussions. In line with the study objectives, type of data and the scale of measure being ordinal, descriptive statistics including frequencies and percentages as well as medians were reported when interpreting findings sourced through the questionnaire. Median was reported whenever comparative analysis was conducted for it was observed to be stable than the arethmatic mean (Hair et al., 2017).

4.1.1 Demographic characteristics of respondents

A total of 302 participants responded to the questionnaire for this study. The 302 respondents formed 23.8% (72) of the Parents and Teachers Association (PTA) representatives, 49.0% (148) of teachers, 20.9% (63) of school head and 6.3% (19) were education officers.

Gender: Table 4.1 Shows that the majority (59.3%) of the respondents surveyed were females while 40.7% were males. These results clearly show that teaching in primary schools in Botswana is dominated by female teachers. The high number of female teachers might be a reflection that females are actually more than males in Botswana (Statistics Botswana, 2015).

Age group: According to Table 4.1. 35% of respondents were aged between 41-50 years old and this implied that most teachers, school heads and primary school education officers in Botswana are within the bracket of the early retirement age starting at 45years (Botswana Public Officers

Pension Fund, 2017) thus calling for preparations for their replacement. It can also be learnt from the table that 10% and 30% fall within the 21-30 years and 31-40 years age brackets respectively. This presents a worrisome status where a small proportion of youthful people is available to take the primary school curriculum further.

Position: Table 4.1. above shows that of the 302 respondents who responded to the questionnaire, 23.8% (72) were the Parents and Teachers Association (PTA) representatives, 49.0% (148) were teachers, 20.9% (63) were School Heads and 6.3% (19) were the Education Officers.

Experience: Table 4.1 above shows that at least 17.2% of respondents (teachers and education officers) had less than ten years of experience, while majority (21.5%) of the respondents had eleven to twenty years of experience, 13.2% had 21 to 35 years and 3.3% had 31 to 40 years of experience. Teacher's experience increases effectiveness and experience is also positively associated with pupils' achievements (Rice, 2010).

Qualification: Table 4.1. further reveals that the majority (44.4%), of respondents had Diploma qualification, 35.8% had Bachelor's degree qualification and 5.6% had a post graduate qualification. The minimum level of training acquired by respondents is JC certificate as reflected in the table. However, the teachers who still have Primary Teaching Certificate which is a basic qualification required for teaching at primary schools Constituted 4.8% of the respondents. Therefore, most respondents surveyed appeared adequately educated as more than half (80.2%) of the respondents had degree and diploma qualifications. A study by Adeogun (2001) found that when teachers have good qualification, it positively affects pupil learning and teaching. Thus, the decline in Agriculture results could not have been affected by factors such as qualification level of teachers since most respondents, majority of who were teachers appeared adequately qualified.

Table 0.1: Demographic characteristics of respondents.

Demographic Characteristics		**Frequencies**	
			%
Gender	Male	123	40.7
	Female	179	59.3
Age Categories	21-30 years old	30	9.9
	31-40 years old	90	29.8

	41-50 years old	106	35.1
	51 years and above	76	25.2
Category of respondents	PTA representation	72	23.8
	Teacher	148	49.0
	School head	63	20.9
	Education officer	19	6.3
Level of Education	Master's degree	17	5.6
	Bachelor of Agric Education Degree	108	35.8
	Diploma in Primary Education	134	44.4
	Certificate in Primary School Education	12	4.8
	JC certificate	31	10.3
Type of school	Public	300	99.3
	Owned by Mission	2	0.7
Experience	10 years and less	52	17.2
	11-20 years	65	21.5
	21-30 years	40	13.2
	31-40 years	10	3.3

4.1.2 Factors perceived to influence performance in Agriculture in the PLSE

Respondents were asked to rate along a five-point Likert- type scale (ordinal), their level of agreement with different statements to help determine the factors that adversely affect performance of pupils in Agriculture in primary schools. Table 4.2 presents statements describing various situations studied that relate to students learning in Agriculture categorized into those that related to lesson planning, implementation, classroom management, resource availability, and evaluation aspects. Results as presented in table 4.2 indicate that the majority of the respondents agreed with each of the statements regarding the planning and implementation aspects of the Agriculture syllabus.

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Table 4.2; Factors perceived to influence students' performance in Agriculture

Items	Median	Undecided	Strongly disagree	Disagree	Agree	Strongly agree	Missing	Total
Planning Aspects								
7.Teachers prepare subject matter content at the beginning of every term	4.00	5(1.7)	4(1.3)	11(3.7) **(5)**	88 (29.4) **(93.3)**	191 (63.9)	3	299
8.Teachers organize resources needed for lessons ahead of time according to the scheme of work.	3.00	3 (1.1)	3 (1.1)	19(6.7) **(7.8)**	134 (47.5) **(91.1)**	123(43.6)	2	282
9.Teachers regularly prepare lesson plans for all classes they teach.	4.00	5(1.7)	2(0.8)	8(2.7) **(3.5)**	96(32.3) **(94.9)**	186(62.6)	3	297
10. Teachers initiate procurement of teaching and learning resources needed to achieve effective Agriculture instructions	3.00	9 (3.0)	21(7.1)	45(15.3) **(22.4)**	132(44.7) **(74.5)**	88(29.8)	6	295
Implementation Aspects								
11.Teachers regularly update their record of work done fortnightly	3.00	12 (4.3)	4(1.4)	33 (11.9) **(13.3)**	132 (47.7) **(86)**	106(38.3)	5	277
12. Teachers regularly present scheme book for inspection by their supervisors	3.00	6(2.0)	4 (1.3)	17(5.7) **(7)**	125 (41.8) **(91)**	147(49.2)	3	299
13.Teachers regularly incorporate constructive suggestions from their supervisors with regards to updating teaching records.eg scheme books	4.00	2(1.4)	1(0.7)	11(7.5) **(8.2)**	57(38.8) **(90.5)**	76(51.7)	4	147
14.Teachers are involved in professional development activities organized for them in my school.	3.00	3(1.8)	3(1.8)	22(13.1) **(14.9)**	70(41.7) **(83.4)**	70(41.7)	3	168
15.Teachers are able to use internet for research purposes on Agriculture related matters.	3.00	9(3.1)	11(3.7)	52(17.6) **(21.3)**	112 (38.0) **(75.6)**	111 (37.6)	7	295
16.Teachers are able to use variety of crops to aid teaching and learning of Agriculture.	3.00	11 (4.0)	19 (6.9)	81 (29.3) **(36.2)**	101(36.6) **(59.8)**	64(23.2)	6	276

17.Teachers are able to use variety of animals to aid teaching and learning of Agriculture.	2.00	19(7.1)	35(13.1)	103(38.4) **(51.5)**	69(25.7) **(41.4)**	42(15.7)	14	268
18.Teachers are fairly guided with regard to choosing teaching methods and techniques for teaching Agriculture.	3.00	4(1.4)	13(4.4)	56(18.9) **(23.3)**	152(51.4) **(75.4)**	71(24.0)	6	296
19.Teachers are able to capture the attention of learners throughout the lesson	3.00	0	0	8(5.4) **(5.4)**	73(49.3) **(94.6)**	67(45.3)	3	148
20.Teachers can create a comfortable learning experience for learners.	4.00	1(0.4)	1(0.4)	15(5.4) **(5.8)**	118(42.3) **(83.2)**	114(40.9)	3	279
21.Teachers are confident during their lesson presentation.	4.00	0	0	2(1.3) **(1.3)**	36(24.0) **(98.7)**	112(74.7)	1	150
22. Teachers deliver their lesson in diverse styles.	4.00	0	1(0.7)	5(3.4) **(4.1)**	61(41.2) **(95.9)**	81(54.7)	3	148
23.Teachers always state the new topic and objectives of the lesson to their pupils after summarizing the previous lesson objectives.	3.00	3(2.0)	2(1.3)	8(5.3) **(6.6)**	64 (42.4) **(91.4)**	74(49.0)	2	151
24.Teachers are able to relate content taught to real life situations.	4.00	0	0	4(2.7) **(2.7)**	50(33.8) **(97.3)**	94(63.5)	3	148
25.Teachers use different learning aids when presenting their lesson.	3.00	5(1.8)	5(1.8)	16(5.7) **(7.5)**	136 (48.6) **(90.7)**	118(42.1)	2	280
26.Teachers are able to guide and counsel learners during the teaching of Agriculture.	3.00	0	2(1.3)	8(5.3) **(6.6**	68(45.3) **(93.3)**	72(48.0)	1	150
27.Teachers are able to apply mixed ability teaching strategies to cater for differences in learners.	3.00	8 (2.9)	2(0.7)	23(8.2) **(8.9)**	128 (45.7) **(88.2)**	119 (42.5)	2	280
Evaluation Aspects								
28.Teachers evaluate at the end of every lesson	4.00	1 (0.7)	0	7(4.8) **(4.8)**	63 (42.9) **(94.6)**	76 (51.7)	4	147
29. Teachers make sure items they set are in line with the objectives of the syllabus	4.00	0	1(0.8)	1(1.3) **(2.1)**	51 (34.2) **(97.9)**	95 (63.8)	2	149
30.Through the use of quizzes, teachers introduce their pupils to different types of questions.	4.00	3	1(0.7)	4 (2.7) **(3.4)**	57 (38.3) **(94.7)**	84(56.4)	2	149

31.Questions set by teachers for tests are aligned to those asked in Primary School Leaving Examination	3.00	1(0.4)	4(1.4)	9(3.2) **(4.6)**	129 (46.2) **(94.9)**	136 (48.7)	3	279
32.Teachers give learners constructive feedback for all their assignments on time	3.00	6 (2.1)	3 (1.1)	17 (6.1) **(7.2)**	138 (49.3) **(90.7)**	116 (41.4)	2	280
33.Teachers assess practical skills of pupils through observations in the garden.	3.00	22 (7.4)	33 (11.0)	72 (24.2) **(35.2)**	109 (36.6) **(57.4)**	62 (20.8)	4	298
34.Teachers questioning skills are appropriate for the level of pupils they teach.	3.00	5(1.8)	4 (1.4)	15 (5.4) **(6.8)**	142 (50.8) **(91.3)**	113 (40.5)	3	279
35.I find the current Agriculture Primary School leaving Examination structure suitable for pupils.	3.00	9 (3.0)	27 (9.0)	68 (22.6) **(31.6)**	118 (39.2) **(65.6)**	79 (26.4)	1	301

KEY: Note that **xxx[xx%]** denotes total numbers and percentages for Agree and Disagree per item (i.e., sum of Strongly Agree +Agree or Strongly Disagree and Disagree).

Respondents agreed that the teachers are able to; prepare subject matter content at the beginning of every term, organize resources needed for lessons ahead of time according to the scheme of work and regularly prepare lesson plans for all classes they teach. This implies that poor performance of learners in Agriculture is not due to lack of proper planning by respondents. However, a reasonable percentage (22.4%) of respondents disagreed with the statement: *"Teachers initiate procurement of teaching and learning resources needed to achieve effective Agriculture instructions".* Therefore, shortage of learning resources in schools may not only be due to the government not being able to meet the demands of the schools, but could be that some teachers fail to request for learning resources.

Majority of respondents also agreed with the statements about the implementation aspects regarding teaching and learning of Agriculture in schools. They agreed (86%), [of which (38.3%) strongly agreed] that teachers regularly update their record of work done fortnightly. Respondents also agreed (91%) that teachers regularly present their scheme book for inspection by their supervisors, regularly incorporate constructive suggestions from their supervisors with regards to updating teaching records.eg scheme books and are involved

in professional development activities organized for them in their schools (84%). Considerable numbers of respondents agreed that teachers are fairly guided with regard to choosing teaching methods and techniques for teaching Agriculture (75.4%), can create a comfortable learning experience for learners (83.2%), they deliver lessons in diverse styles (95.9%), always state the new topic and objectives of the lesson to pupils after summarizing the previous lesson objectives (91.4%), are able to relate content taught to real life situation and use different learning aids when presenting lessons and they are able to apply mixed ability teaching strategies to cater for differences in learners.

Majority of respondents disagreed (51.5%) with being able to use variety of animals to aid teaching and learning of Agriculture while 13.1 percent strongly disagreed and 41.4 percent agreed and 15.7 percent strongly agreed. Most respondents agreed (59.8%) and 23.2 percent strongly agreed that they are able to use variety of crops to aid teaching and learning of Agriculture, however a considerable number of respondents disagreed (36.2%) and 6.9 percent strongly disagreed to this statement. This shows that primary school teachers in Botswana generally focus more on theory or do less when it comes to practical work in teaching Agriculture in primary schools. A considerable percentage (21.3%) of respondents disagreed that they are able to use internet for research purposes on Agriculture related matters. This implies that even though most respondents (75.6%) are able to use internet in school for research purposes there is still a reasonable number of respondents who are unable to use internet in school for research purposes. However comparative analysis test showed that there was significant difference ($p<0.05$) on the views of respondents according to their age groups. The age group 21-30 years had a median value of 4 compared to other three age groups each of which has a median value of 3. This suggests that the age group 21-30 years agreed more to being able to use internet more than other ager groups. (See Table 4.2.1 below).

Table 4.2. Comparative analysis of responds being able to use internet for research purposes in school (n=302).

Items	21-30 years Median	31-40years Median	41-50 years Median	Above 50 years Median	Kw value	Sig. value
I am able to use internet for research purposes on agricultural related matters	4	3	3	3	16.795	.001*

P≥0.05

Kw values are from Kruskal- Wallis H test

ns- No significant difference, *-Significant difference

Comparative analysis test showed that the views of the males (median=3) as opposed to those of females (median of 3), regarding respondents being able to use variety of crops to aid teaching, did not significantly ($p>0.05$) vary. This suggests that the respondents' overall view of agreeing with the statements (median=3) can be relied on. (See Table 4.2.2 below). There was a significant difference($p<0.05$) on the views of both males and females being able to use variety of animals to aid teaching and learning. However, the detected difference was of no practical value as the median values of the compared groups (males and females) were the same.

Table 4.2.2 Comparative analysis of responds being able to use variety of crops and animals to aid teaching. (n=302)

Items	Male Median	Female Median	Z value	Sig. value
Teachers are able to use variety of crops to aid teaching and learning of Agriculture	3	3	-1.107	$.268^{ns}$
Teachers are able to use variety of animals to aid teaching and learning of Agriculture	2	2	-2.074	$.038^{*}$

P≥0.05

Kw values are from Kruskal- Wallis H test

ns- No significant difference, *-Significant difference

In overall most of the respondents agreed with the following statements regarding the assessment of pupils: "*They evaluate at the end of every lesson and make sure items they set are in line with the objectives of the syllabus through the use of quizzes; They introduce pupils to different types of questions; Their questions for the test are aligned to those asked in Primary School Leaving Examination; They give learners constructive feedback for all their assignments on time; I find their questioning skills appropriate for the level of pupils they teach".* Furthermore, 57.4 percent of respondents agreed that they assess practical skills of pupils through observations in the garden.

However, a considerable number of respondents disagreed (35.5%) and (11.0 %) disagreed that they assess practical skills of pupils. We can deduce from this that lack of practical lessons is one of the factors that is leading to poor performance of pupils in Agriculture. Otekunrin, (2020) asserted that practical training when teaching Agriculture is very crucial especially for young learners to increase their knowledge in Agriculture.

The results also showed that even though (65.6%) percent of respondents agreed and (26.4%) strongly agreed with the statement: *"I find the current Agriculture Primary School Leaving Examination structure suitable for pupils"* thirty one percent of respondents disagreed and nine percent strongly disagreed with the statement. This implied that a certain proportion of respondents found the learning and examination structure not favorable for pupils at primary level. However comparative analysis test showed that the views of the Teachers and Head teachers (median=3) as opposed to those of Education Officers (median of 2), regarding the items in the Table 4.2.3 below, did not significantly ($p>0.05$) vary. This suggests that the respondents' overall view of agreeing with the statements (median=3) can be relied on. (See Table 4.2.3 below)

Table 4.2.3 Perceptions of responds on assessment of primary school students (n=302)

Items	Teachers Median	Head teachers Median	Education Officers Median	Kw value	Sig. value
I assess practical skills of students through observations in the garden	**3**	**2**	**2**	**2.868**	**.412^{ns}**
I find the current Agriculture Primary School leaving Examination structure suitable for pupils	**3**	**3**	**2**	**5.145**	**.161^{ns}**

P≥0.05

Kw values are from Kruskal- Wallis H test

ns- No significant difference, *-Significant difference

4.1.3 Pupil's behavior toward learning Agriculture in schools

Table 4.3 shows variables related to pupils' behaviors that can affect their performance in Agriculture.

Items	Median	Undecided	Strongly Disagree	Disagree	Agree	Strongly Agree	Missing	Total
36. Pupils relate well with their teachers	3.00	0	3 (1.0)	10 (3.3) **(4.3)**	144(4.8) **(95.7)**	143(47.7)	2	302
37. Learners show eagerness in asking questions in class.	3.00	0	5 (3.3)	37(24.7) **(28)**	71 (47.3) **(72)**	37 (24.7)	1	150
38. Leaners pay attention during lessons	3.00	0	1 (0.7)	7 (4.7) **(5.4)**	93 (62) **(94.6)**	49 (32.6)	1	150
39. Leaners actively participate during class discussions.	3.00	0	2 (1.3)	13 (8.7) **(10)**	96 (64.0) **(90)**	39 (26.0)	1	150
40. Learners understand English well as an official medium of instruction in Agriculture.	3.00	5 (1.7)	19 (6.4)	90(30.1) **(36.5)**	129(43.1) **(61.8)**	56 (18.7)	3	299

41. Pupils obey school regulations	3.00	3 (1.0)	8 (2.7)	31 (10.5) **(13.2)**	159(53.7) **(85.8)**	95 (32.1)	6	296
42. Learners take care of their books.	3.00	0	7 (4.7)	24 (16.1) **(20.8)**	81 (54.4 **(79.2)**	37 (24.8)	2	149
43. Pupils come to class on time	3.00	1 (0.4)	3 (1.1)	17 (6.1) **(7.2)**	149(53.2) **(92.5)**	110(39.3)	2	280
44.Pupils do not resist officially recommended disciplinary measures applied to them.	3.00	5 (1.7)	7(2.4)	26 (8.8) **(11.2)**	152(51.4) **(87.2)**	106(35.8)	6	296
45. Learners seem to understand the benefits of education.	3.00	3 (1.0)	10 (3.4)	56 (18.9) **(22.3)**	144(48.4) **(76.4)**	83 (28.0)	6	296
46. Pupils show commitment in doing their homework with their parents involved.	3.00	1 (0.7)	17 (11.3)	52 (34.7) **(46)**	60 (40.0) **(53.3)**	20 (13.3)	1	150
47. Absenteeism of pupils is low in my school	3.00	8 (2.7)	8 (2.7)	30 (10.0) **(12.7)**	142(47.5) **(84.6)**	111(37.1)	3	299

KEY: Note that **xxx[xx%]** denotes total numbers and percentages for Agree and Disagree per item (i.e., sum of Strongly Agree +Agree or Strongly Disagree and Disagree).

The respondents comprised of teachers, head teachers, PTA representatives and education officers who indicated the level at which they agree or disagree to the listed characteristics. The factors that may be influencing performance of pupils in the PLSE were listed and they were; how pupils relate to their teachers, participation of pupils during classes, how well pupils understand English as a medium of communication, pupil attendance and how well they are committed to their school work. In overall, participants tended to agree with almost all statements except the following statements: *"Pupils show commitment in doing their homework with their parents involved*; *Learners understand English well as an official medium of instruction in Agriculture*". A considerable percentage of respondent disagreed (46%) and 11.3 percent strongly disagreed that pupils show commitment in doing their homework with their parents involved whereas 53.3 percent agreed with 13.3 percent strongly agreeing that pupils do their homework with their parents.

Majority of participants agreed (61.8%) with 18.7 percent strongly agreeing that learners understand English well as an official medium of instruction in Agriculture. However, 36.5 percent disagreed with 6.4 percent strongly disagreeing that students are able to understand English well as an official medium of instruction. Based on these results, generally respondents perceived that pupils might not be doing well in Agriculture because of difficulties in understanding English as a medium of communication in the teaching and learning of Agriculture and because parents do not help learners with homework. The age group that had the lowest median were aged between 21-30 years and 41-50 years. Although their median was lower, it was by chance because the comparative analysis detected no significant difference between the age groups ($p>0.05$) regarding their disagreement on the above items (see Table 4.3.1 below). The results were in line with research studies that asserted that the sooner educators establish parent engagement, the more effective they are in raising pupil performance (Hill *et. al.*, 2009 and Dearing, *et.al.*, 2006).

Table 4.3.1 Comparative analysis of perceptions of responds on student related factors

Items	**21-30 yrs Median**	**31-40 yrs Median**	**41-50 yrs Median**	**50 years and above**	**Kw value**	**Sig. value**
Students show commitment in doing their homework with their parents	2.00	3.00	2.00	3.00	2.738	.434^{ns}

Learners understand English well as an official medium of instruction.	3.00	3.00	3.00	3.00	3.339	.342^{ns}
Students relate well with their teachers	3.00	4.00	4.00	3.00	2.020	.568^{ns}

P≥0.05
Kw values are from Kruskal- Wallis H test

ns- No significant difference, *-Significant difference

The comparative analysis test also showed that there was a significant difference ($p<0.05$) on the views of respondents regarding the item stated in table 4.3.2 below. Teachers compared to other groups had a median value of 3 compared to other two groups, on the item "Absenteeism of pupils is low in my school". This means Head teachers and Education Officers tended to agree more on this item.

Table 4.3.2 Comparative analysis of responds on attendance of students.

Items	Teachers	Head Teachers	Education officers	Kw value	Sig. value
Absenteeism of pupils is low in my school	3	4	4	20.219	.000*

P≥0.05
Kw values are from Kruskal- Wallis H test
ns- No significant difference, *-Significant difference

4.1.4 External related factors

Table 4.4 below presents results on external-related factors. Majority of the respondents disagreed with most of the statements on external factors. This implies that respondents perceived external related factors to be contributing to the low performance of pupils more than curriculum and pupil related factors.

Table 4.4 below presents results on external-related factors

Item	Median	Undecided	Strongly Disagree	Disagree	Agree	Strongly Agree	Missing	Total
48. Cultural background within the society influences pupils' attitude towards Agriculture	3.00	4 (1.4)	7 (2.4)	57(19.3) **(21.7)**	144(48.8) **(76.9)**	83(28.1)	7	295
49. Members of the community actively participate in motivating teachers on academic performance of pupils.	3.00	4 (1.3)	41(13.6)	104(34.6) **(48.2)**	112(37.2) **(50.5)**	40(13.3)	1	301
50. There are good relations between parents, school and the community.	3.00	2 (0.7)	9 (3.0)	68 (22.5) **(25.5)**	168(55.6) **(73.8)**	55(18.2)	0	302
51. Parents in this community are able to pay development fees for their children	3.00	4 (1.4)	16 (5.4)	96 (32.4) **(37.8)**	152(51.4) **(60.9)**	28 (9.5)	6	296
52. Parents cooperate with teachers when there is need to discipline pupils	3.00	5(1.8)	13 (4.6)	75 (26.7) **(31.3)**	143(50.9) **(66.9)**	45(16.0)	1	281
53. Parents show willingness to participate in the school activities upon invitation.	3.00	3 (1.1)	12 (4.3)	72 (25.7) **(30)**	158(56.4) **(68.9)**	35(12.5)	2	280
54. Parents are involved in the school decision making process during PTA meetings.	3.00	4 (1.3)	6 (2.0)	32 (10.7) **(12.7)**	183(61.0) **(86)**	75(25)	2	300
55. Parents collect their children's reports as expected.	3.00	1 (0.4)	14 (5.1)	57 (20.7) **(25.8)**	158(57.2) **(73.9)**	46(16.7)	6	276
56. My school use Performance Based Reward system to reward teachers financially for their performance.	2.00	24 (8.3)	59(20.3)	112(38.6) **(58.9)**	67 (23.1) **(32.8)**	28 (9.7)	12	290
57. My school provide assistance to low performing teachers to improve their performance.	3.00	16 (5.4)	27 (9.1)	68 (22.9) **(32)**	140(47.1) **(62.6)**	46(15.5)	5	297
58. After school tutoring of low performing students is done in my school.	3.00	14 (5.0)	31(11.1)	91 (32.6) **(43.7)**	117(42.0) **(51.3)**	26 (9.3)	3	279
59. My school has adequate types of crops to aid teaching and learning of Agriculture	2.00	19 (6.4)	58(19.7)	141(47.8) **(67.5)**	61 (20.7) **(26.1)**	16 (5.4)	7	295
60. My school has adequate types of animals to aid teaching and learning of Agriculture	2.00	20 (6.7)	98(32.8)	136(45.5) **(78.3)**	29 (9.7) **(15.1)**	16 (5.4)	3	299

61. My school has adequate number of garden tools used by learners during practical lessons.	2.00	12 (4.0)	53(17.8)	99 (33.3) **(51.1)**	100(33.7) **(44.8)**	33(11.1)	4	297
62. My school has all types of garden tools required for demonstrating Agriculture skills during practical lessons.	2.00	13 (4.4)	68(22.8)	120(40.3) **(63.1)**	74 (24.8) **(32.5)**	23 (7.7)	4	298
63. The area of my school garden is currently efficiently used.	2.00	12 (4.4)	67(24.7)	99 (36.5) **(61.2)**	80 (29.5) **(37.2)**	21(7.7)	3	271
64. The existing agricultural structures in my school are currently in use. e.g poultry house.	2.00	26 (9.3)	86(30.6)	114(40.6) **(71.2)**	40 (14.2) **(19.5)**	15 (5.3)	1	281
65. In my school there is adequate space for safe keeping of tools.	2.00	7 (2.5)	49(17.6)	87 (31.2) **(48.8)**	109(39.1) **(48.8)**	27(9.7)	3	279
66. In my school there is adequate space for agricultural practical.	2.00	7 (2.5)	46(16.4)	89 (31.8) **(48.2)**	112(40.0) **(49.3)**	26 (9.3)	3	280
67. In my school pupil- teacher ratio is conducive for teaching Agriculture.	2.00	5 (1.7)	60(20.1)	97(32.4) **(52.5)**	104(34.8) **(45.8)**	33(11.0)	3	299
68. Time allocated for teaching Agriculture in my school is adequate.	3.00	1 (0.7)	20(13.6)	36 (24.5) **(38.1)**	71 (48.3) **(61.2)**	19(12.9)	4	147
69. My school is normally visited by successful agriculturalist from the community to motivate pupils.	2.00	35(11.6)	105(34.9)	114(37.9) **(72.8)**	35 (11.6) **(15.6)**	12 (4.0)	1	301
70. My school regularly organizes professional development activities for teachers.	2.00	15(5.4)	49 (17.6)	85 (30.5) **(48.1)**	115(41.2) **(46.6)**	15 (5.4)	3	279
71. My school organizes trips for pupils to visit agricultural enterprises.	2.00	29 (9.7)	59 (19.8)	109(36.6) **(56.4)**	83 (27.9) **(33.9)**	18 (6.0)	4	298
72. Internet connectivity is adequate in my school.	2.00	14 (4.7)	57 (19.1)	104(34.9) **(54)**	76 (25.5) **(41.3)**	47(15.8)	4	298
73. School feeding policy ensures provision of nutritionally adequate meals to pupils.	3.00	9 (3.0)	18 (6.0)	63 (21.4) **(27.4)**	138(46.3) **(69.8)**	70(23.5)	4	298
74. There are Agriculture subject matter specialist teachers in primary schools.	2.00	15(5.0)	53 (17.9)	106(35.8) **(53.7)**	87 (29.4) **(41.2)**	35(11.8)	6	296
75. The language used by most Agriculture textbooks is understandable to learners at primary level	3.00	7 (2.3)	18 (6.0)	75 (25.2) **(31.2)**	157(52.7) **(66.5)**	41(13.8)	4	298
76. Learning objectives are clearly stated in the Agriculture syllabus	3.00	1 (0.5)	6 (3.3)	32 (17.5) **(20.8)**	98 (53.8) **(78.5)**	45(24.7)	1	182

77. The learning content in Agriculture syllabus is consistent with the learning objectives.	3.00	2 (1.2)	5 (2.7)	24 (13.2) **(15.9)**	107(58.8) **(76.4)**	32(17.6)	1	170
78. There is adequate balance of theory and practical aspects of teaching Agriculture in the syllabus	2.00	3 (1.8)	37 (22.3)	48 (28.9) **(51.2)**	61 (36.7) **(46.9)**	17(10.2)	5	166
79. I find the funds allocated by the government to run school agricultural projects are adequate.	2.00	36(12.8)	92 (32.6)	97 (34.4) **(67)**	30 (10.6) **(20.2)**	27(9.6)	8	282
80. learners attend preschool before they start primary school	3.00	12 (4.0)	21 (7.0)	52 (17.4) **(24.4)**	141(47.3) **(71.5)**	72(24.2)	4	298
81. Agriculture learning activities in the syllabus are up to date with the current industry practices.	3.00	6 (3.6)	17 (10.1)	54 (32.0) **(42.1)**	75 (44.4) **(54.4)**	17(10.0)	2	169
82. The school Agriculture curriculum is relevant for primary school pupils.	3.00	6 (2.0)	32 (10.7)	58 (19.5) **(30.2)**	154(51.7) **(67.8)**	48 (16.1)	4	298
83. 1. As a teacher I am satisfied with my conditions of service	2.00	3 (2.0)	32 (21.2)	56 (37.1) **(58.3)**	44 (29.1) **(39.7)**	16 (10.6)	0	151
84. As teacher I find my school administration adequately supporting my efforts in teaching Agriculture.	3.00	5 (3.4)	20 (13.5)	48 (32.4) **(45.9)**	54 (36.5) **(50.7)**	21(14.2)	3	148
85. As a school head I am satisfied with my conditions of service	3.00	1 (1.7)	6 (10.0)	15 (25.0) **(35)**	30 (50.0) **(63.3)**	8 (13.3)	1	60
86. As a school head I find my school administration adequately supporting teachers' efforts in teaching Agriculture.	3.00	1 (1.7)	4 (6.7)	9 (15.0) **(21.7)**	33 (55.0) **(76.6)**	13(21.6)	1	60
87. As an education officer I am satisfied with my conditions of service.	2.00	0	2 (10.0)	8 (40.0) **(50)**	8 (40.0) **(50)**	2 (10.0)	0	20

KEY: Note that **xxx[xx%]** denotes total numbers and percentages for Agree and Disagree per item (i.e., sum of Strongly Agree +Agree or Strongly Disagree and Disagree). Likert-type scale**: 0**=Undecided**, 1**=Strongly disagree**, 2**=Disagree**, 3**=Agree, **4=**Strongly Agree

Majority of the respondents agreed with the statements that read: "*Cultural background within the society influences pupils' attitude towards Agriculture* (76.9%), *Parents are involved in the school decision making process during PTA meetings (86%).* This shows that participants agreed that parents are involved in school decision making process through involvement in PTA meetings and that our cultural background has an impact on pupils' attitude towards Agriculture. Most respondents also agreed that learning objectives are clearly stated in the agriculture syllabus (78.5%) and also that the learning content in Agriculture syllabus is consistent with the learning objectives (76.4%). A considerable number of respondents disagreed with the statements that; members of the community actively participate in motivating teachers on academic performance of pupils (48.2%), parents in this community are able to pay development fees for their children (37.8%), parents cooperate with teachers when there is need to discipline pupils (31.3%), parents show willingness to participate in the school activities upon invitation (30%) parents collect their children's reports as expected (25.8). This implies that even though most of respondents agreed that the community and parents support schools, there is still a reasonable number of those that disagreed that the community and parents are not actively participating in school activities to help improve performance of pupils.

Majority of the respondents disagreed that schools have adequate resources for teaching and learning of Agriculture. Seventy-eight (78 %) participants disagreed that schools have adequate types of animals and to aid teaching and learning of Agriculture whereas sixty-seven percent (67%) of respondents also disagreed that schools have adequate types of crops to aid teaching and learning of Agriculture. Sixty-three percent of participants disagreed that schools have adequate number of garden tools to be used by learners during practical lessons and seventy one percent (71%) of respondents disagreed that the existing agricultural structures in schools are currently in use. e.g poultry house. The results also showed that majority of participants (67%) disagreed that funds allocated by the government to run agricultural projects in schools are adequate. However, the comparative analysis test revealed that all four groups had a median of 2.00 and there was no significant difference between the groups ($p>0.05$) regarding their disagreement on the above item. Generally, this implies that funds allocated for agricultural projects used for teaching and learning purposes are not enough, therefore schools are not able to maintain agricultural structures in schools.

The results also showed that respondents disagreed with the statement that the number of pupils per teacher is conducive for teaching and learning Agriculture, these therefore means teachers are not able to teach pupils effectively due to the large groups of pupils and insufficient time allocated for teaching Agriculture. This outcome is against the government's commitment of intending to lower pupil-teacher ratios in schools (RNPE,1994). The participants also revealed that there are less subject matter specialist teachers in primary and that can hinder the performance of pupils since the teachers will be less knowledgeable regarding the subject content and effective methods of teaching and learning Agriculture.

Teachers and education officers disagreed with the statement: *"As a teacher I am satisfied with my conditions of service"* (58.3%), *As an education officer I am satisfied with my conditions of service* (50%)", whereas only thirty five percent (35%) of head teachers disagreed that *t*hey are satisfied with their conditions of service. In general respondents showed that they were not satisfied with their service of work. This might have a negative impact on the performance of learners since teachers, headteachers and education officers contribute more to the performance of

learners. Therefore, it is important for them to be provided with all the resources they need to be able carryout their duties well as that will have a positive impact on the performance of learners.

Table 4.4.1 Comparative analysis of respondents on their satisfaction level with the funds allocated to schools for Agriculture projects (n=302).

Items	Teachers	School head	Education officer	PTA representative	Kw value	Sig. value
Funds allocated to run school Agricultural projects are adequate	2.00	2.00	2.00	2.00	.887	.829^{ns}

P≥0.05
Kw values are from Kruskal- Wallis H test
ns- No significant difference, *-Significant difference

The comparative analysis test showed that there was a significant difference ($p<0.05$) on the views of respondents regarding the external related items stated in table 4.4.2 below. However, the detected difference was of no practical value as the median values (3) of the compared groups (Teachers, Head Teachers and Education officers) were the same. The views of respondents on student-teacher ratio tended to be significantly different ($p<0.05$) with PTA representatives and Head teachers disagreeing with a median of 2 and other groups (teachers and Education officers) with medians of 3 and 1 respectively.

Table 4.4.2 Comparative analysis of perception of respondents on some of the external factors (N=302).

Items	PTA Representatives Median	Teachers Median	Head teachers Median	Education officers Median	Kw value	Sig. value
The school Agriculture curriculum is relevant for primary school pupils.	3	3	3	3	11.028	.012*
There are good relations between parents, school and the community.	3	3	3	3	8.066	.045*

Cultural background within the society influences pupils' attitude towards Agriculture	3	3	3	3	10.869	.012*
In my school pupil-teacher ratio is conducive for teaching Agriculture.	2	3	2	1	27.058	.000*

P≥0.05
Kw values are from Kruskal- Wallis H test
ns- No significant difference, *-Significant difference

4.2 RESULTS FROM QUALITATIVE DATA

4.2.1 Introduction

This section provides the qualitative results of the study on factors percieved to influence academic perfomance of pupils in the PSLE Agriculture results for the period between 2008 and 2022 in public primary schools in Botswana. These qualitative findings were from 20 conducted interviews. After analysing quantitative data from questionnaires, the lowly rated questions and those that were interesting were further followed up through face to face interviews to get richer understanding on the how and why dimensions. This allowed the researcher to gather accompanying explanations for the items that were quantitatively rated low by the respondents (Cresswell,2014). Twenty respondents were purposively sampled from all the ten educational regions and two participants were selected for interviews from each region. A sample size of more than thirteen (13) was recommended for qualitative studies, to attain data saturation (Clarke & Bruan, 2013; Guest, Bunce &Johnson, 2006). Therefore, a sample size of twenty (20) was deemed enough for the study.

The items that a considerable number of participants disagreed on are listed below.

Curriculum related items

a. I am able to use variety of crops to aid teaching and learning of Agriculture.

b. I am able to use variety of animals to aid teaching and learning of Agriculture.

c. I am fairly guided with regard to choosing teaching methods and techniques for teaching Agriculture

d. I assess practical skills of pupils through observations in the garden.

e. I find the current Agriculture Primary School leaving Examination structure suitable for pupils.

Pupil related items

a. Learners understand English well as an official medium of instruction in Agriculture

b. Pupils show commitment in doing their homework with their parents involved

c. Leaners actively participate during class discussions.

External related items

a. Members of the community actively participate in motivating teachers on academic performance of pupils.

b. There are good relations between parents, school and the community.

c. The existing agricultural structures in my school are currently in use. e.g. Orchard house.

d. I find the funds allocated by the government to run school agricultural projects adequate.

e. Agriculture learning activities in the syllabus are up to date with the current industry practices.

f. The school Agriculture curriculum is relevant for primary school pupils.

g. In my school pupil teacher ratio is conducive for teaching Agriculture.

h. As a teacher I am satisfied with my conditions of service

i. As a school head I am satisfied with my conditions of service

j. As an education officer I am satisfied with my conditions of service.

4.2.2 Views of respondents on curriculum related questions

The respondents were asked why teachers are unable to use variety of crops and animals to aid teaching and learning of Agriculture and they stated that;

> *Agriculture in primary [schools] is unlike in secondary schools because in secondary schools the Agriculture department is provided with everything (crops and animals) whereas in primary [schools] you are given the syllabus and teaching aids(pictures) and we are expected to teach. Where are we going to get those things? Teachers are expected to improvise. Even a simple thing like fertilizers is not there [made available]*
>
> *(P1, LL11-15).*
>
> *The main reason many teachers are not able to use crops and animals as teaching aids is because of time, time is disadvantaging us, we are given a short time to cover both theory and practical, the curriculum has lot objectives to be covered, so we focus more on finishing the syllabus and preparing pupils for exams (P19, LL7-10).*
>
> *Teachers are unable to use variety of crops to teach learners in [primary] school because of the climatic conditions in some regions. E.g., in Kgalagadi it is difficult to grow crops because of the sandy soil that has low water holding capacity (P13, LL7-9).*
>
> *In Chobe, as teachers in primary schools we are not able to use variety of crops because the way the [primary] schools are designed, there is limited space for the gardens and also the wild animals destroy the garden time and again hence that demoralizes teachers to do practical (P18, LL7-9).*

The qualitative data above suggest that teachers were unable to use a variety of crops and animals to aid teaching and learning of Agriculture because primary schools are not provided with resources (crops and animals, seeds, fertilizes etc.) or budget to buy them. Teachers are expected to improvise and bring crops from their own homes for practical (P5, LL12), whereas secondary schools are provided with funds to buy materials that are needed for practical. Teachers depend on funds from PTA to get resources needed for practical. Another factor that contributes to teachers not doing practical with pupils is lack of space in schools for plots. Whereas other respondents stated that in other school they have enough space for the garden, but it has a lot of turf grass, so even when they grow crops, they are unable to produce anything, with goats and wild animals also adding to their difficulty by destroying crops in gardens (P1, LL7-8) & (P18, LL7-8). Shortage of water especially in rural areas is another factor that discourages teachers from growing crops for learning purposes. Respondents also stated that teachers might be neglecting practical because pupils are not assessed practically, it is done for the sake of practice unlike in secondary school where practical marks contribute to their final exam mark.

Teachers are allocated a short time to cover both theory and practical, but the curriculum has a lot of objectives to be covered. As a result, teachers focus more on finishing the syllabus and preparing pupils for exam and neglect practical. According to Toplis (2011) Practical work is seen to provide opportunities for pupils to engage more and influence their own learning. Students use their own hands to manipulate real objects during teaching and learning process and observe their teacher demonstrating to them by manipulating a real object (e.g., fertilizers) for them to see and practice. Practical work plays a significant role in teaching and learning of Agriculture therefore primary schools should be provided with resources to be able do practical lessons with pupils just like in secondary schools as that can help to improve their performance in Agriculture.

The following are some of the views of the participants when they were asked why they feel they are not fairly guided about choosing teaching methods and techniques for teaching Agriculture;

> *It depends, as teachers we have different qualifications, I have studied up to degree level, others up to diploma, the methods of teaching that I have been taught up to degree are better than of those who have done at diploma. I have done certificate first then continued up to degree while others just did diploma right away then stopped there so there is a gap. Other teachers have not studied Agriculture and their first encounter with the subject was at work only (P1, LL31-35).*
>
> *A few teachers are only Agriculture specialists and the rest specialized in other subjects. This results in poor performance because some teachers do not have the necessary skills for teaching Agriculture (P12, LL36-38).*
>
> *Yeah, I think this one is also true, teachers are not fairly guided because most teachers don't train to teach Agriculture. So those who were specializing in Agriculture had unlimited time to learn about it and learn different methods and techniques of teaching of teaching it while others spent lot of time learning about other subjects. So, when we get to the workplace people are more focused on the classes, there's no time to be learn all those methods and techniques that they didn't learn during when they were trained at college (P2, LL25-33).*

Primary school teachers have different qualifications and teach all the subjects regardless of their qualification. Some have first degree qualification in Agriculture education, others have Masters qualification and some were majoring in Agriculture for their diplomas at college. There are those teachers who both their minor and major subject was not Agriculture at college, their first encounter with the subject was at work. Since there is no subject specialization in primary education, those that did not study Agriculture revealed that they are not fairly guided when it

comes to choosing the right teaching and learning methods of Agriculture, as such they find it difficult to come up with the right teaching and learning methods for learners.

Teachers that have gone up to a high level of education are more knowledgeable when it comes to different methods of teaching and learning Agriculture. According to Trexler and Hikawa (2001) teachers develop agricultural curriculum content using knowledge and information based on their experiences and available resources and further stated that teachers with agricultural experiences had deeper conceptual understanding and are more confident in teaching Agriculture. Therefore, government should consider implementing subject specialization in primary schools so that teachers can choose the subject they are knowledgeable in and teach it better. Regular workshops should be held to keep updating teachers on the current methods and techniques of teaching and learning Agriculture.

The following are some of the responses of participants when they were asked why the primary school leaving examination structure is not suitable for pupils:

> *Yes, it's true because the whole exam is structured questions and leaners find it difficult to express themselves and also Agriculture has terminology that is difficult for pupils especially slow learners (P6, LL15-17).*
>
> *I teach standard 7 and when I look at the previous exams, when they set the exam, they focus more on form one content not primary content that is why nowadays when we tech we use form one text books, even the terminology they use is above primary pupils' level, they set beyond the primary syllabus (P5, LL22-25).*
>
> *I think I will differ with them, we teach the kids Agriculture like we are supposed to, following the syllabus but the problem people who set Agriculture especially PLSE, they set the exam including the content that is taught at form one level, I heard that the exam is set mostly by junior school teachers and that demoralizes kids since they are examined on the material that they were not taught (P4, LL28-32)*
>
> *PLSE structure is not suitable for learners because they only write Agric as structure questions, and they do not understand or are able to differentiate some words like discuss, explain, analyze, describe. These young ones are used to drilling methods when it comes to tests (P18, LL12-14).*

The Agriculture Primary School Leaving Examination is the only structured examination. Pupils face difficulties when it comes to spelling and sentence construction when attempting the examination. Another issue that has come to light that affects performance of learners in the final

examination was that, the examination questions are set by secondary school teachers hence they end up setting the content that is beyond the primary syllabus and even the terminology used is difficult for pupils and that demoralizes them. Another issue that was raised is that there is no standardization in terms of the language that is used to teach Agriculture, in some textbooks they may use English names others use Setswana names, others use scientific names, therefore when it comes to marking it is not fair or unfavorable to pupils because they may have been taught in a certain language and then the marking key will be different from what pupils were taught. In CRT there are different method of testing, that is, multiple choice, matching, true or false and teachers feel that all these methods should be included in the examination. The examiners should examine pupils on what they were taught and use content from standard 5 ,6 and 7 syllabus and not be biased by setting more questions from either one of the three years.

The data has shown that the Agriculture primary curriculum is relevant for primary school pupils, and it could be more useful, if there were resources to teach it practically in schools. Other respondents feel that the curriculum is loaded hence teachers focus more on trying to finish the theory and neglect practical. Learners are introduced to the subject at standard five, even though some of the things taught pupils learn about them at a younger age, they are unable to connect what they learnt with what they are being introduced to at standard five. The transition is difficult for pupils because they are also introduced to other new subjects like religious education, so it is too much for them to comprehend all of them. The following are some of the views of participants when they were asked during interviews about their thoughts on Botswana Agriculture curriculum.

> *Botswana curriculum for it to be effective it should start at standard three so that learners, get used to these jargons and acquire skill on how to do things. The activities are okay the problem is that as teachers we are unable to do them effectively because of time constraints (P18, LL21-23).*
>
> *The Agriculture syllabus is relevant but the content is above the level of primary school pupils (P14, LL35).*
>
> *Well, considering that pupils are taught different aspects of Agriculture like farm tools, farm implements, direct and indirect sowing, ways of preventing soil erosion and so on... I would say it is still very much relevant (P7, LL44-46).*
>
> *The Botswana primary Agriculture curriculum is not suitable for learners and not relevant for primary learners, most of the activities that are taught in the syllabus are not*

practiced here in Botswana. The objectives do not in cooperate the cultural and lifestyle that we know off, activities like the use of fertilizers, we have our own fertilizers that we used before the artificial fertilizers were introduced, we focus more on teaching learners about artificial things (P19LL38-42).

It could be useful, if everything was provided for it, if there were resources for it, it could be useful, but right now it is just there, it doesn't have resources to teach it, so it is not beneficial, but the content was ok if everything was provided (P1, LL159-161).

While there seem to be less contention with respect to the relevance of the current Agriculture curriculum most of the respondents appear to question the appropriateness and suitability of the Agriculture curriculum to primary pupils in Botswana. The general view is that the curriculum is complex for pupils at primary school level who only get introduced to the subject in Standard 5, which most respondents believed to be too late. In line with results of the quantitative data analysis, respondents are of the view that it is such inappropriateness of the syllabus which makes it difficult for primary school pupils to perform well in the subject. Further compounding the poor academic performance is the lack of resources such as time and agricultural equipment which makes conducting practical lessons problematic.

Studies by scholars such Otekunrin, (2020), Collins (2011) and Toplis (2012) have shown that pupils perform well in Agriculture when they are practically involved in different aspects of Agriculture. Their studies showed that practical lessons make the learning of the subject enjoyable for learners thereby increasing their interest in the subject and ultimately resulting in good academic performance in the subject. Results from the interviews further highlight the need to ensure that the level of complexity of the subject is line with primary school level. As suggested by some of the respondents there should a consideration to introduce the subject at lower grades to ensure sufficient coverage of the syllabus, thereby boosting academic performance in the subject. Therefore, it can be concluded that curriculum related factors are contributing to the poor performance of pupils in the Agriculture subject in Botswana at primary school level.

4.2.3 Views of respondents on pupil related questions

The following are some of the responses of the participants when they we asked why learners participate less during Agriculture lessons:

Participation of learners is low because some of the materials covered are above their level (P16, LL12)

Learners basically have a bad/ negative attitude towards Agriculture. They believe it is a difficult subject so they end up hating it. To overcome this, teachers need to make it more interesting (P7, LL28-29).

Pupils are introduced to Agriculture at standard 5 whereas they are introduced to other subjects from standard one, so they usually do Agriculture from standard 5 up to 7 so in these other subjects they usually participate better because the subject are introduced to them earlier so they are more knowledgeable on those subjects and participate better (P2,67-70).

And another problem is lack of interest, we cannot build interest within three years while you started building interest for other subjects from standard one. And another thing is that Agriculture is taught in English and in government schools more pupils have a problem of communicating in English therefore even when you ask them questions, they will not confidently answer and not participate. (P2, LL70-74).

Normally learners who have articulation skills are capable of speaking easily and clearly and that results in low participation because the remaining percentage is left behind. English should be made a medium of instruction in all levels and not only at upper class (P12, LL17-19).

Agriculture is a practical subject, in order for pupils to do well it has to be taught practically. Pupils usually participate more during practical, than when they are asked questions in class (P13, LL9-10).

Learners participate less during Agriculture lessons, especially when they do not know what is being taught. To have exciting and engaging lessons, teachers must bring pictures to class and show pupils and teach through demonstrations. Agriculture is taught in English and pupils have a problem of communicating in English. So, for them to understand teachers must explain again in Setswana, bring visuals and show them what they are talking about. Parents should contribute to their children's learning by teaching them English at home and help them to develop high self-efficacy. High self-efficacy in pupils creates a responsive classroom environment that involves a two-way interaction between pupils and instructors. According to Pajares (1996), pupils with high self-efficacy showed better academic achievement and participated more in classroom.

4.2.4 Views of respondents on external related questions

Some of the responses of the participants are presented below when they were asked why the existing agricultural structures in schools are not put in use;

We don't have orchard... it is only the garden. It is not in use, the problem is water supply, there is no water, there is inadequate water supply, but that does not stop us from trying,

so the major problem are goats, but we are trying even though it is not up to the standard to teach pupils like in secondary schools where everything is there (P1, LL124-127).

The blame lies solely with the teachers... they only confine Agriculture to the classroom because they believe they have a syllabus to cover. I think maybe, just maybe.... it should be done like in Junior Schools to remedy this. For example.... standard 5 has a topic on vegetable production... I believe there should be a practical exam whereby plots are made and marked during the term and the marks become part of the pupils' final average mark for the term (P7, LL36-40).

It depends on the management. The system killed all potential initiatives that were existing before. Since the depletion of 4B clubs, no garden showed life. This was done in collaboration with Village Extension Team (field workers and teachers). Nowadays, it is the responsibility of individual teacher not as a school. No one follows whether some teachers do practical or not (P15, LL19-22).

It is because of lack of resources, like tools that can be used in the garden and seeds. And also, there are Agriculture teachers who oversees all the Agriculture activities in school but in primary we teach all subjects and there are no specific teachers to manage all agricultural activities in school (P4, LL49-51).

The existing agricultural structures are not in use because of lack of workers who are hired specifically to manage them on day-to-day basis (P12, LL30-31). Teachers are more focused on theory and making sure they cover all the objectives stated in the syllabus. On the other hand, they must create time for other subjects which makes it difficult to create time agricultural projects in schools for educational purposes. Lack of resources such as tools is one of the reasons why the agricultural structures are abandoned.

The following are some of the responses of the interviewees when they were asked why they think the pupil-teacher ratio was not conducive for teaching Agriculture;

It is because we have less classes and also there is a smaller number of teachers. And it is difficult to manage a class with a lot of pupils because we have different learners, we have those who are slow learners and they require more attention (P3, LL70-72).

Agriculture is a practical subject and has lot of work and you will find that one teacher has 40 pupils, and it is difficult to teach theory and practical to all of them unless you have an assistant (P4, LL53-55).

The normal pupil teacher ratio is 1:40, and due to COVID-19 it has been reduced to 1:30 and it is very difficult to teach practical subjects to such numbers of pupils and cater for leaners with different abilities, wish even after Covid-19 the number of pupils per teacher can still be reduced (P5, LL48-50).

> *Pupil teacher ratio is not conducive for teaching Agriculture, especially during practical lessons where demonstrations and experiments are to be done. This is because a smaller group is manageable compared to a large group (P12, LL33-35).*

Pupil-teacher ratio in Botswana is debatable because school sizes are different (P7, LL60). Schools in settlement areas have around ten pupils or less and then there are those areas whereby a class has 35 plus pupils which can be too much for one teacher to handle. Teachers have revealed that the normal pupil teacher ratio is around 1:40, because of shortage of teachers and there is shortage of classrooms to have pupils divided into smaller numbers per teacher. Classroom congestion is considered as a disadvantage in improving academic performance because it affects classroom management in general (Mustafa *et. al.* 2014). Agriculture is a practical subject and has lot of work, with many pupils per teacher as such it is difficult to teach theory and practical to all pupils in a class unless there are assistants to assist in teaching. It is difficult for teachers to manage pupils and not all of them will be able to participate due to the allocated time. That is why teachers resort to demonstrating only in class and neglecting practical work in the field. Koca and Celika (2014) revealed that classes with greater number of pupils per teacher tend to have low achievement.

Good relationship among parents, teachers and the community must be ensured for learners to do well academically. Teachers stated that few parents relate well with teachers. Even PTA meetings, only few parents attend, and those are the ones who usually contribute development fee which is used to buy resources that are needed by the school including agricultural projects such as fencing of school garden.

The following are the views of participants regarding why there is no relations between parents, teachers and the community;

> *It is true, only few parents relate well with teachers, a pupil can start from standard 1 up to 7 with us not knowing their parents, what confirms that is report collection, there is lot of reports for pupils who have completed primary schooling but their reports have not been collected. They also don't attend PTA meetings and that also demoralize pupils (P1, LL102-105).*
>
> *Most parents don't have time to help their children with school work, they don't check if their children have done school work (P14, LL30-31).*
>
> *In areas like Palapye, parents work and they don't have time to help their children with school work and if parents don't encourage their kids they also relax and don't put effort in doing their school work. In rural areas most parents are uneducated and they find it*

difficult to help learners with schoolwork, so pupils get discouraged when they are not helped with homework and some do it with their colleagues in school (P5, LL34-39).

Parents are unable to help pupils with homework due to lack of knowledge, some feel that content that is taught to primary kids is too broad, so what I have decided to do with my kids is that I teach and give them notes first and then I give them homework on what I have taught, that way they are able to do their homework and they pass Agric (P4, LL34-38).

There is a gap between parents, school and community. The education system should be structured in such a way that the gap between parents, the school as well as the community is closed. Everyone should know what is expected from them and the role they should play (P12, LL26-28).

Teachers, head teachers as well as education officers are not satisfied with their conditions of work, service delivery becomes easier and effective when employees needs and welfare are considered (P12, LL40-42). Participants revealed that they are not satisfied with their condition of service because of lack of accommodation near their area of service or work. The available houses are not renovated regularly and could be hazardous to people. Lack of progression was another factor that leads to participants not to enjoy their profession as they can work for about 10 years without being promoted. Lack of facilities like classrooms and teaching resources such textbooks, chairs and tables, hinders their efforts to help learners perform well. Primary teachers teach all nine subjects, even those that they don't have a lot of knowledge on and have high work load every day, their profession becomes difficult and less interesting. Subject specialization should be adopted in primary schools as that will reduce the workload of teachers and they will be able to prepare better for the subjects they teach.

The following are some of the responses of the participants when they were asked why they are not satisfied with their condition of service;

We cannot be satisfied, like right now I am resuming duty from Gaborone even when I work at Gamodubu because there is no accommodation and also there are no facilities that are relevant for the job that we do, every time we are told to improvise, we are going to improvise up to when, so nobody can be happy (P1, LL163-166).

We have a problem of accommodation and then another issue is progression, some of us we have 10 years working without even being promoted. Sometimes you are posted to a place very far from your family so in that way how can you be happy (P2, LL177-179).

We are expected to teach all 9 subjects, even those that we don't have knowledge on, so they should consider specialization in primary schools, they once tried piloting on this issue and the project failed because of shortage of teachers. Another thing is salaries,

> *senior teachers of primary and H.ODS are not paid like secondary senior teachers and HODs because their scale have been improved but they do the same job (P5, LL52-56).*
>
> *As a teacher I don't like the admin work we are forced to do with little time. I don't like taking attendance, lesson plans, scheme of work, reports, results analysis and the preparation book (P17, LL21-22).*

The above interview excerpts show that teachers are not happy with their conditions of service as they cite poor living conditions and working conditions. Teachers seem to not have convenient accommodation, experience slow career progression, and have unsustainable workloads. There is correlation between the satisfaction of teachers with their conditions of service and the job performance. For instance, a recent empirical study on how pupils' academic performance is affected by the teachers' motivation in Kenya's public schools by Kerubo (2020) revealed that a significant positive relationship exists between the two variables. Therefore, it can be concluded that the poor performance of pupils in the Agriculture subject in Botswana's primary schools is linked to the poor motivation of the teachers. Among other things, there is an urgent need for the government to provide accommodation to all teachers which is near the schools where teachers are stationed while also introducing performance-based remuneration systems and clear promotion requirements. This will likely have a positive effect on their job performance and the academic performance of pupils in the subject.

The next chapter now seeks to link the quantitative and qualitative findings to get a combined picture of the factors influencing academic performance of primary school pupils in Botswana in the Agriculture subject.

CHAPTER 5: DISSCUSSION OF KEY FINDINGS

5.1 Introduction

The aim of this study was to investigate the factors influencing the academic performance of pupils in Agriculture in the primary schools of Botswana. The study was not only prompted by the poor performance of primary school learners in Botswana, especially in the Agriculture subject, but also the scantiness of research in the topic area. Among other things, the study endeavoured to identify curriculum, pupil and external related factors leading to poor performance of pupils in Agriculture in public primary schools in Botswana. In addition, the study proposed ways of addressing this problem. This chapter provides joint discussions of the key findings of the study.

5.2 Key findings on curriculum related factors

The analysis of the quantitative data set showed low scores with respect to the following: the use of a variety of crops and animals to aid teaching and learning of Agriculture, teachers not being fairly guided with regard to choosing teaching methods and techniques for teaching Agriculture, suitability of the current Agriculture Primary School leaving examination structure for pupils and assessing practical skills of pupils through observations in the garden. The four factors are individually analysed in the upcoming text.

Firstly, the reasons given by teachers for the lack of variety of crops and animals to aid teaching and learning of Agriculture included lack of financial resources to acquire crops and animals, shortage or unavailability of suitable land for agricultural activities, shortage of water for crops and animals. Havva and Ekber (2013) explained that educational resources in schools play an important role in the academic performance of pupils because adequate and appropriate resources enable all learners, even those who come from poor backgrounds, to have access to vital learning resources. This implies that in the absence of such resources, pupils' performance will be negatively affected. This suggests that the absence of requisite learning resources in Agriculture, especially for the practical component of the subject is impeding the academic performance of pupils in Botswana's primary schools.

Secondly, teachers stated that they are not fairly guided with regard to choosing teaching methods and techniques for teaching Agriculture because they did not either specialise or never studied Agriculture during their tertiary training prior to their employment. According to Trexler and Hikawa (2001), teachers develop agricultural curriculum materials using knowledge and information based on their experiences and available resources. Therefore, teachers with agricultural experiences have deeper conceptual understandings of the subject and are more confident in teaching Agriculture. This means that if teachers do not have sufficient knowledge and/or experience of the subject, it becomes difficult to effectively instruct learners in such way that they can produce superior academic performance in the subject. Hence, poor performance of primary schools in the Agriculture subject in Botswana is closely linked to the quality of the teachers in the subject.

Thirdly, the suitability of the current Agriculture Primary School leaving examination structure for pupils was lowly rated because the exam is in English and has structured questions which makes it difficult for most leaners since they are unable to articulate themselves in English. This affects the pupils' ability to articulate their answers in the exam thereby leading to poor academic performance. In study of the impact of language of learning and teaching in South African primary schools by Mogashoa (2014), results showed that African learners' performance was lower than that of their white counterparts. The main reason for the difference was the fact that most African learners were being instructed and examined in English or Afrikaans which would be either their second or third language while for white learners these languages will be mostly their first language. Since Agriculture is taught and examined in English, instead of Setswana which is the first language of the majority of the learners, it therefore follows those leaners would struggle to achieve satisfactory academic performance. Furthermore, it was also highlighted that the level of difficult of the exam was too high for primary learners since it was being set by teachers in secondary schools.

Lastly, teachers highlighted that there is poor assessment of practical skills of pupils through observations in the garden because the practical component of the subject does not form part of the examination which leaves teachers on concentrating on completing the syllabus. Teachers also highlighted that the fact that Agriculture is introduced at Grade 5 also adds more pressure on them to cover the theoretical components of the module which are examinable while neglecting the time-

consuming practical component which is non-examinable. Scholars such as Toplis (2012) and Collins (2011) have shown that practical lessons offer the most effective way of learning agricultural science by stimulating all the learning faculties of the pupils and making learning more enjoyable. This view is also supported by Otekunrin (2020) whose research showed that children perceive practical Agriculture to be interesting and fascinating thereby leading to above average academic performance in the subject. Therefore, the neglect of practical lessons in Agriculture is depriving primary school learners the extra motivation and inspiration that might help them to perform well in the subject.

5.3 Key findings on pupil related factors

In terms of pupil-related factors, an analysis of the quantitative data showed low scores with respect to learners exhibiting eagerness in asking questions in class and learners understanding English adequately as the official medium of instruction in Agriculture. Respondents explained that a lack of proficiency in English among learners negatively affects their performance in Agriculture since the subject is taught and assessed in English. Without a proper mastery of English, pupils will not have confidence to ask questions in class, struggle to learn the subject and answer assessment questions (Mogashoa, 2014). Respondents indicated that the PLSE Agriculture exam comprises of structured questions, thus further disadvantaging pupils whose English skills are poor. The result is high failure rates in the subject.

Studies by, Mogashoa (2014) and Alimi *et al.,* (2020) have demonstrated that in the majority of African communities, English is the learners' second or third language although it is the medium of instruction in primary schools. Lack of proficiency in the subject was shown to have significant negative effect on the performance of learners in these studies. The study by Alimi *et al.,* (2020) in Nigeria in Osun State showed that primary school learners performed well in Mathematics when taught and examined in their native language. Therefore, findings from this study indicate that poor performance of pupils in Agriculture in Botswana's primary schools stems from the fact that learners are not proficient in English – the language of instruction.

5.4 Key findings on external related factors

Majority of respondents disagreed on most of the statements on external factors. The discussion in this section will focus on only three factors that were prominent in the interviews, namely the non-use of existing agricultural structures in schools, unfavourable pupil-teacher ratio and the non-existence of relations among teachers, parents and the community and teachers' lack of satisfaction with their conditions of service. Each of these factors will now be analysed below.

Firstly, respondents have observed that existing physical agricultural structures in schools are not being utilised because of lack of skilled labour to take care of them, lack of appropriate tools, teachers focusing on theory and time constraints posed by the fact they still need to teach other subjects besides Agriculture. Experiential learning has the potential to improve the quality of education by involving the learners in the learning process, promoting engagement and change learner's attitude towards learning (Acker & Gasperini, 2009). This means that physical facilities such as school gardens are important when it comes to the teaching of Agriculture as they will allow practical lessons to be delivered by the teachers. However, as the findings of this study highlight, availability without usage does not benefit the pupils.

Snodgress (2012) measured the impact of school garden program on Agriculture learning of pupils leaving in a food insecure region of rural Uganda. The results showed improvement after a period of implementation of school gardens and decrease in the school without school gardens. School gardens improve retention by providing hands on learning environment and exposes pupils to interdisciplinary learning experiences that can show pupils how to grow crops and develop entrepreneur abilities for future use (Acker & Gasperini, 2009). This means the lack of utilisation of available agricultural structures in schools is affecting performance in the subject since the teaching of theory alone does not provide the learners with the complete learning tools they need to excel.

Secondly, the observed unfavourable pupil-teacher ratio in primary schools in Botswana due to shortage of teachers and classrooms to have pupils divided into smaller numbers per teacher., thus leading to classroom congestion. Such congestion has been found to negatively affect classroom management in general and specifically classroom discipline, and ultimately academic performance (Mustafa *et al.*, 2014). Koca and Celika (2014) revealed that classes with greater

number of pupils per teacher tend to have low academic achievement and vice-versa. Therefore, since primary schools in Botswana seem to have high pupil-teacher ratios, this is affecting the ability of the teachers to effectively teach the subject and attend to the heterogeneous needs of each pupil. Consequently, this negatively impacts academic performance of pupils in Agriculture and the rest of the subjects.

Thirdly, the non-existence of relations among teachers, parents and the community is due to lack of education on the part of parents or guardians and community members who end up alienating themselves from their children's school-related activities such as helping with homework, attending PTA meetings and report collection. Other parents, do not have time to participate in the education of their children as they have to devote most of their time working in order to meet the economic needs of their families. According to Epistein *et al.,* (2002), and in line with theory of overlapping spheres of influence, pupils are more likely to perform well academically when parents or guardians, the community and teachers speak with one voice about the importance of school, of working hard, of thinking creatively, of helping one another, and of staying in school. Findings from this study show that parents and the community were not playing their part in providing positive influence on children. Thereby negatively impacting their academic performance in Agriculture. This implies that there are no overlapping spheres of influence since the efforts of the teachers to encourage them to do well in their studies is negated by the lukewarm response of parents.

Lastly, teachers' lack of satisfaction with their conditions of service stems from a plethora of reasons such as lack of accommodation, lack of career progression, shortage of teaching facilities and teaching resources and high workloads. When teachers are not satisfied with their conditions of service, this negatively affects their motivation to conduct their duties and consequently, this negatively influences the academic performance of pupils. Kerubo (2020) in study of the influence of teacher motivation on pupils' academic performance in public schools in Kenya showed that a significant positive relationship exists between the two variables. Among other things, teachers' motivation was found to be improved by in-service training, working conditions, promotions and remuneration. These factors are similar to the ones that this study in Botswana cited as lacking. Therefore, teachers in primary schools in Botswana are poorly motivated to teach pupils and this is negatively affecting performance in subjects such as Agriculture.

5.5 Summary of findings

The present chapter together with the two preceding chapters discussed the findings of this study. Data from mixed method approach from the respondents was analysed. The quantitative data was analyzed using SPSS. The qualitative data was collected in order to get a deeper insight into those statements which had low scores. The study revealed that the major factors that affect performance of pupils in Agriculture in primary schools include lack of resources in schools (animals, crops, books, seeds, fertilizers etc.), inadequately qualified teachers due to lack of subject specialisation in primary schools, congested Agriculture syllabus, form one level questions in the PLSE exams, lack of funds for agricultural projects in primary schools, lack of commitment by parents in their children's education , lack of accommodation for teachers and low promotion rate, *inter alia*.

The next chapter provided the conclusions and recommendations for the study.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

The conclusion point to the fact that the poor academic performance in the subject of Agriculture in primary schools in Botswana is caused by a plethora of curriculum related factors, pupil related factors and external factors. Conclusions with respect to each of these three factors have been drawn as reflected in this chapter. The conclusions in here are based on the discussed data sets presented in Chapter 6 in the immediate previous chapter.

6.2 Conclusions

6.2.1 Demographic findings

A total of 302 participants responded to the questionnaire for this study and 20 participants were interviewed. The respondents were made up of the Parents and Teachers Association representatives, teachers, school head and education officers. Most respondents surveyed being females. Results show that teaching in Primary schools in Botswana is dominated by female teachers. The high number of female teachers may be a mere reflection of the fact that females in Botswana are more than men as per the recent report by Statistics of Botswana (2021) and that they are attracted to the profession of teaching.

6.2.2Curriculum related factors

Based on the discussions above curriculum related factors negatively affect the delivery of the subject by the teachers and learning of the subject by the pupils, and lead to poor performance of learners in the subject. Due to the unavailability or shortage of essential resources needed to effectively teach the subject, pupils are not able to perform well in the subject. These resources include land for gardens, water for watering crops and for drinking by animals, funds to buy seeds and tools, and acquiring relevant teaching aids. The shortage of these resources means that the practical components of the subjects are not properly conducted, and this is a major drawback considering that Agriculture is largely a practical subject. It is also concluded that the syllabus for Agriculture is too long for it to be covered with the last three years of primary school. This suggests

that poor coverage might be resulting to the examinable content which leads to poor performance of pupils. Conclusions were also drawn that the PLSE Agriculture examination has a high complexity which is not at the Grade 7 level. This further contributes to poor performance.

6.2.3 Pupil related factors

On the other hand, pupil related factors also negatively affect performance because the leaner plays an important role in his/her own learning. The conclusion was that pupils who were not proficient in English and displayed little commitment to the subject did not perform well in the subject. This is so, because the level of proficiency in English greatly determines the pupil's ability to participate in class, comprehend and answer questions during assessments, and the overall acquisition of knowledge of the subject. With regards to commitment, pupils who are likely to perform well in the subject typically perform well in the subject because they have the drive to do the work needed to excel in the subject, and the opposite scenario could be true.

6.2.4 External related factors

Since most of the questions under external related factors had low ratings, it is concluded that external factors have a bigger negative impact on academic performance as opposed to curriculum and related factors. These factors include poorly trained and motivated teachers, weak teacher-parent relations and poor involvement of community members in the education of their children together with lack of finance as well as resources in schools. When teachers do not have adequate training in a subject, it means they are not well-versed with the subject and will likely not teach the subject properly. Similarly, poorly motivated teachers are as good as inadequately qualified teachers because they will not put their best efforts to educate the pupils. This may lead to poor academic performance of the pupils. Furthermore, weak teacher-parent relationships mean that there will be no synergy in the efforts of these two groups to help pupils leading to poor performance. Resources (financial and material) play a key role in the proper delivery of Agriculture as a subject. Funds are needed to buy gardening tools, inputs (e.g., land, water, seeds, fertilisers, pesticides, etc.), which means that when schools have insufficient funds, as was the case with most schools in this study, it was difficult to conduct practical lessons in Agriculture. This then affected the ability of the pupils to grasp the subject to eventually produce good academic results.

The findings from this study largely corroborate with existing literature with respect to the factors that affect the academic performance of pupils.

6.3 Recommendations for action

The conclusions above suggest something can be done by the Ministry of Basic Education and Skill Development, schools, parents and society at large to improve the academic performance of pupils in Agriculture in primary schools in Botswana. The study's recommendations are as follows:

6.3.1 Recommendations on curriculum related factors

Considering that most teachers thought that the Agriculture syllabus at primary school level was too long, the Department of Curriculum Development and Evaluation should work towards prioritising the needed content in order to shorten the Agriculture syllabus. This will create enough time for teachers to teach practical lessons and allow adequate coverage of the syllabus. Moreover, a shorter syllabus will increase the chances of the pupils to grasp the subject. Shortening the syllabus will have a positive effect on the performance of pupils in the subject. Secondly, the Ministry should consider introducing Agriculture at lower primary level as that might assist in building interest of the pupils while they are still much younger. This will also help with the spreading out of the syllabus so that it does not have to be completed in space of only three years (i.e., Standard 5 to Standard 7).

6.3.2 Recommendations on pupil related factors

The Ministry in collaboration with schools should come up with ways of exposing pupils to commercial agricultural activities and interactions with agriculturalists to mentor and inspire them with regard to Agriculture. Activities such as visits to successful commercial farms, field trips, involvement in agricultural shows and tours, among others should be encouraged and supporting financial resources availed. These activities will help pupils to have a positive attitude towards Agriculture and improve their performance in the subject in line with the social learning theory of Bandura (1977).

6.3.3 Recommendations on external related factors

Schools should educate parents on the critical role played by their participation and involvement in the schooling and academic performance of their children. With that knowledge parents will improve their attendance of PTA meetings, assist leaners in their learning activities, and provide financial support to pupils' learning activities, among other things. As posited by theory of overlapping spheres of influence of Epstein (1995), participation and involvement of parents has a direct impact on the performance of pupils.

The Ministry also need to motivate the teachers so that they can be more effective in their teaching of the subject. Motivation of teachers can be achieved through provision of sufficient resources for teaching the subject, in-service training, promotion of those deserving, employing a sufficient number of teachers so as to have sustainable pupil-teacher ratio and introduction of a performance-based remuneration system. Highly motivated teachers will be able to improve the pass rates of pupils since they tend to put more effort in their work.

Furthermore, the Ministry should also provide schools with a budget that is specifically targeted to cater for the resources needed to teach Agriculture since a lack of adequate resources was found to be one of the prominent reasons for poor performance in the subject. Liaising with the Ministry of Land Management, Water and Sanitation Services for help with the acquiring suitable land and water needed for practical lessons in Agriculture is also recommended in order to solve the resource availability problem. With adequate resources at their disposal, pupils' performance is expected to improve since they will find enjoyment in conducting practical lessons (Collins, 2011; Toplis, 2012).

Lastly and from a human resource perspective, the Ministry should only hire teachers who are specialists in Agriculture to teach the subject or offer in-service training to those teachers already teaching the subject who are not adequately qualified to teach the subject. If teachers are adequately qualified, they will be more competent in teaching the subject and may inspire the pupils to perform well in the subject and take Agriculture as a profession later in their lives.

6.3.4 Recommendations for further research

Since this study, due to limited time, focussed on collection of data from primary school teachers, school administrators and other stakeholders such as Agriculture Education Officers, the learners and, future studies can focus on collecting data from the pupils and parents for they also stand a better chance of advising on the factors that affect performance of pupils in Agriculture in primary schools in Botswana. The learners and parents are key role players in the improvement of academic performance; therefore, their perceptions and suggested solutions are indispensable in the quest to improve performance. Focus group discussions can be conducted to collect data from different stakeholders (parents, teachers, headteachers and education officers) to get their views at the same time as opposed to one-on one interviews, to save on time.

6.4 Reflective account

6.4.1 Introduction

This section draws my writeup to a close by presenting critical reflections for this research. It shares reflections on my roles as a researcher and any other possible influences I might have brought at various stages of the study. Thereafter I reflect on the significance and contribution of the study to knowledge, as well as to education policy and practice in the context of Agriculture teaching and learning at primary schools of Botswana. The section will then offer a statement on the originality of the study as well as an appraisal of the identified limitations of the study and their implication for future research. Thereafter I report on how I perceive my development as a young researcher in my M.Sc. in Agricultural Education research journey.

6.4.2 Reflections

The researcher's choice of methodology especially on elements such as research design, research method and data collection instrument might have had an influence on the study leading to a bias in the results. For instance, questionnaire surveys tend to provide limited responses and respondents may not be able to fully express themselves. While this was largely compensated for by the follow-up interviews, interviews tend to take away the anonymity aspect which might lead respondents to hide their true perceptions if they fear that expression of such views might have negative consequences on their part. Therefore, the choice of the methodology can potentially lead to bias in the study's findings. However, the fact that qualitative findings supported the quantitative findings likely entail the absence of bias in the findings. As opposed to contradictions, qualitative and quantitative results complemented each other in spelling out the causes of the poor academic performance in Agriculture. In the nutshell, no contradiction between the data sets were discovered.

By exploring factors influencing the academic performance of pupils in Agriculture in public primary schools in Botswana, this study distinguishes itself from existing studies (e.g., Monyaku & Mmereki 2012; Monyatsi & Maimela, 2013) which mainly explored the factors that influence the general performance of primary school pupils. Other few studies which are available on Botswana such as UNESCO (2013) have only attempted to explore poor academic performance in Mathematics and Science. This study contributes to existing literature by providing evidence on

the causes of poor performance in the Agriculture subject in primary schools in Botswana by surveying key stakeholders such as primary school teachers, PTA representatives, primary school administrators and Agriculture education officers. Results from the study can be used by the Ministry of Basic Education and Skills development, schools, parents, and society at large to improve the academic performance of pupils in Agriculture in primary schools in the country. More specifically, unlike previous studies on poor performance in primary schools, this study shows that there are crippling curriculum related issues which needs to be addressed. These issues include the unsuitability of the Agriculture curriculum, inappropriate setting of examinations and the teaching of the subject using differing learning resources across schools, and the late introduction of the subject at primary level. Another significant contribution is the use of a large sample which drew from schools in all the districts of the country. This study's sample is, therefore, representative of Botswana which increases the generalisability of the study results.

Results from this study contribute to the education policy and practice with respect to teaching and learning of Agriculture in Botswana's primary schools. The Department to come up with policies that are geared towards the motivation of teachers so that they can be more productive in their teaching of the subject. Motivation of teachers can be achieved through policies that make it mandatory that teachers are provided with sufficient resources for teaching the subject, further training, promotion of those deserving, employing enough teachers to have sustainable pupil-teacher ratio and introduction of a performance-based remuneration system. Highly motivated teachers will be able to improve the pass rates of pupils since they tend to put more effort in their work.

Furthermore, the Department should also come up with policies that ensure that each primary school has enough agricultural land and water sources to enable the carrying out of the practical component of the subject. This will solve the resource availability problem. As demonstrated in the studies by Collins (2011) and Toplis (2012), when schools are provided with adequate resources, pupils' performance improves since both pupils and teachers will find enjoyment in conducting practical lessons.

The Department should also come up with policies that will make it compulsory to only hire teachers who are specialists in Agriculture to teach the subject or offer training to those teachers

already teaching the subject who are not adequately qualified to teach the subject. If teachers are adequately qualified, they will be more competent in teaching the subject and will likely possess the necessary passion to inspire the pupils to perform well in the subject and take Agriculture as a profession later in their lives.

While the study endeavoured to cover the gap relating to the lack of studies investigating causes of poor performance in Agriculture in Botswana's public primary schools, there are other gaps it could not close. For instance, the fact that this this study focused on the collection of data from primary school teachers, school administrators and other stakeholders such as Agriculture education officers, means the learners and parents were excluded. Further studies on the topic should consider surveying pupils and parents as well can be conducted to get a complete perspective on the issue. The views of pupils and teachers will ensure a more complete understanding of the factors that affect performance of pupils in the subject. Parents and pupils are key role players in the improvement of academic performance; therefore, their perceptions on causes of poor academic performance and suggested solutions need to be considered to improve performance in the subject. Furthermore, other research methods such as focus groups can also be considered to see whether the results of this study will still stand.

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APPENDICES

Appendix 1: Teacher's questionnaire

Topic: **Investigating factors influencing academic performance of pupils in Agriculture in public primary schools in Botswana.**

Part A: Background Information

Tick where appropriate in the box.

1. Gender

Male	1
Female	2

2. Age group

Between 21 and 30 years old	1
Between 31 and 40 years old	2
Between 41 and 50 years old	3

3. Position

Parent representative at PTA	1
Teacher	2
School Head	3
Education Officer	4

4. What is your highest academic qualification?

Masters degree qualification	1

Degree qualification	2
Diploma qualification	3
Primary teaching certificate qualification	4
Other – specify	5

5. Type of school

Public (government school)	1
Mission owned school	3

6. Teaching experience

Less than ten years	1
between 11 and 20 years	2
between 21 and 30 years	3
between 31 and 40 years	4
41 and above	5

SECTION B: CURRICULUM RELATED FACTORS.

Rate the following statements by ticking in the appropriate box, about some of the curriculum related factors that affect agriculture performance of students in primary schools.

4=Strongly Agree (SA), 3=Agree(A), 2=Disagree(D),1=Strongly Disagree(SD),0=undecided

	Statement	**Level of agreement**				
	Indicate the level of agreement with the following statements.	**U**	**SD**	**D**	**A**	**SA**
7	I prepare subject matter content at the beginning of every term.	**0**	**1**	**2**	**3**	**4**

8	I organise resources needed for lessons ahead of time according to the scheme of work.	**0**	**1**	**2**	**3**	**4**
9	I regularly prepare lesson plans for all classes I teach.	**0**	**1**	**2**	**3**	**4**
10	I initiate procurement of teaching and learning resources needed to achieve effective agriculture instructions.	**0**	**1**	**2**	**3**	**4**
11	I regularly update my record of work done fortnightly.	**0**	**1**	**2**	**3**	**4**
12	I regularly present my scheme book for inspection by my supervisors.	**0**	**1**	**2**	**3**	**4**
13	I regularly incorporate constructive suggestions from my supervisors with regards to updating teaching records.eg scheme books.	**0**	**1**	**2**	**3**	**4**
14	I am involved in professional development activities organised for teachers in my school.	**0**	**1**	**2**	**3**	**4**
15	I am able to use internet for research purposes on agriculture related matters.	**0**	**1**	**2**	**3**	**4**
16	I am able to use variety of crops to aid teaching and learning of agriculture.	**0**	**1**	**2**	**3**	**4**
17	I am able to use variety of animals to aid teaching and learning of agriculture.	**0**	**1**	**2**	**3**	**4**
18	I am fairly guided with regard to choosing teaching methods and techniques for teaching agriculture.	**0**	**1**	**2**	**3**	**4**
19	I am able to capture the attention of learners throughout the lesson.	**0**	**1**	**2**	**3**	**4**
20	I can create a comfortable learning experience for learners.	**0**	**1**	**2**	**3**	**4**
21	I am confident during my lesson presentation.	**0**	**1**	**2**	**3**	**4**
22	I deliver my lesson in diverse styles.	**0**	**1**	**2**	**3**	**4**

23	I always state the new topic and objectives of the lesson to my students after summarising the previous lesson objectives.	**0**	**1**	**2**	**3**	**4**
24	I am able to relate content taught to real life situations.	**0**	**1**	**2**	**3**	**4**
25	I use different learning aids when presenting my lessons.	**0**	**1**	**2**	**3**	**4**
26	I can guide and counsel learners during the teaching of agriculture.	**0**	**1**	**2**	**3**	**4**
27	I am able to apply mixed ability teaching strategies to cater for differences in learners.	**0**	**1**	**2**	**3**	**4**
28	I evaluate at the end of every lesson.	**0**	**1**	**2**	**3**	**4**
29	I make sure items I set are in line with the objectives of the syllabus.	**0**	**1**	**2**	**3**	**4**
30	Through the use of quizzes, I introduce my students to different types of questions.	**0**	**1**	**2**	**3**	**4**
31	My questions for test are aligned to those asked in Primary School leaving Examinations.	**0**	**1**	**2**	**3**	**4**
32	I give learners constructive feedback for all their assignments on time.	**0**	**1**	**2**	**3**	**4**
33	I assess practical skills of students through observations in the garden.	**0**	**1**	**2**	**3**	**4**
34	I find my questioning skills appropriate for the level of students I teach.	**0**	**1**	**2**	**3**	**4**
35	I find the current agriculture Primary School leaving Examination structure to be suitable for pupils.	**0**	**1**	**2**	**3**	**4**

SECTION C: STUDENT RELATED CHARACTERISTICS AFFECTING PERFOMANCE

Rate the following statements by ticking in the appropriate box.

4=Strongly Agree (SA), 3=Agree(A), 2=Disagree(D),1=Strongly Disagree(SD), 0=undecided(U)

	Statement	Level of agreement				
	In my view as a teacher:	**U**	**SD**	**D**	**A**	**SA**
36	Students relate well with me as their teacher.	**0**	**1**	**2**	**3**	**4**
37	Learners show eagerness in asking questions in class.	**0**	**1**	**2**	**3**	**4**
38	My learners pay attention during lessons.	**0**	**1**	**2**	**3**	**4**
39	My learners actively participate during class discussions.	**0**	**1**	**2**	**3**	**4**
40	My learners understand English well as an official medium of instruction in agriculture.	**0**	**1**	**2**	**3**	**4**
41	My students obey school regulations.	**0**	**1**	**2**	**3**	**4**
42	My learners take care of their books.	**0**	**1**	**2**	**3**	**4**
43	My students normally come to class on time.	**0**	**1**	**2**	**3**	**4**
44	My students do not resist officially recommended disciplinary measures applied to them.	**0**	**1**	**2**	**3**	**4**
45	Leaners seem to understand the benefits of education.	**0**	**1**	**2**	**3**	**4**
46	Students show commitment in doing their homework with their parents involved.	**0**	**1**	**2**	**3**	**4**
47	My students never fail to attend class.	**0**	**1**	**2**	**3**	**4**

SECTION D: COMMUNITY AND POLICY RELATED FACTORS

Rate the following statements by ticking in the appropriate box, about some of the external related factors that affect agriculture performance of students in primary schools.

4=Strongly Agree (SA), 3=Agree(A), 2=Disagree(D),1=Strongly Disagree(SD), 0=Undecided(U)

	Statement	**Level of agreement**				
	In my view as a teacher:	**U**	**SD**	**D**	**A**	**SA**
48	Cultural background within the society influences students' attitudes towards agriculture.	**0**	**1**	**2**	**3**	**4**
49	Members of the community actively participate in motivating teachers on academic performance of students.	**0**	**1**	**2**	**3**	**4**
50	There are good relations between parents, school and the community.	**0**	**1**	**2**	**3**	**4**
51	Parents in this community are able to pay development fees for their children.	**0**	**1**	**2**	**3**	**4**
52	Parents cooperate with teachers when there is need to discipline students.	**0**	**1**	**2**	**3**	**4**
53	Parents show willingness to participate in the school activities upon invitation.	**0**	**1**	**2**	**3**	**4**
54	Parents are involved in school decision making process during PTA meetings.	**0**	**1**	**2**	**3**	**4**
55	Parents collect their children's report as expected.	**0**	**1**	**2**	**3**	**4**
56	My school use Performance Based Reward System to reward teachers financially for their performance.	**0**	**1**	**2**	**3**	**4**
57	My school provide assistance to low performing teachers to improve their performance.	**0**	**1**	**2**	**3**	**4**
58	After school tutoring of low performing students is done in my school.	**0**	**1**	**2**	**3**	**4**
59	My school has adequate variety of crops to aid teaching and learning of agriculture.	**0**	**1**	**2**	**3**	**4**

60	My school has adequate variety of animals to aid teaching and learning of agriculture.	**0**	**1**	**2**	**3**	**4**
61	My school has adequate number of garden tools used by learners during practical lessons.	**0**	**1**	**2**	**3**	**4**
62	My school has all types of garden tools required for demonstrating agriculture skills during practical lessons.	**0**	**1**	**2**	**3**	**4**
63	The area of my school garden is currently efficiently used.	**0**	**1**	**2**	**3**	**4**
64	The existing agricultural structures in my school are currently in use e.g. poultry house	**0**	**1**	**2**	**3**	**4**
65	In my school there is adequate space for safe keeping of tools.	**0**	**1**	**2**	**3**	**4**
66	In my school there is adequate space for agricultural practical.	**0**	**1**	**2**	**3**	**4**
67	In my school student teacher ratio is conducive for teaching agriculture.	**0**	**1**	**2**	**3**	**4**
68	Time allocated for teaching agriculture in my school is adequate.	**0**	**1**	**2**	**3**	**4**
69	My school is normally visited by successful agriculturalist from the community to motivate students.	**0**	**1**	**2**	**3**	**4**
70	My school regularly organises professional development activities for teachers.	**0**	**1**	**2**	**3**	**4**
71	My school organises trips for students to visit agricultural enterprises.	**0**	**1**	**2**	**3**	**4**
72	Internet connectivity is adequate in my school.	**0**	**1**	**2**	**3**	**4**
73	School feeding policy ensures provision of nutritionally adequate meals to students.	**0**	**1**	**2**	**3**	**4**
74	There are agriculture subject matter specialist teachers in primary schools.	**0**	**1**	**2**	**3**	**4**

75	The language used by most agriculture textbooks is understandable to learners at primary level.	**0**	**1**	**2**	**3**	**4**
76	Learning objectives are clearly stated in the agriculture syllabus.	**0**	**1**	**2**	**3**	**4**
77	The learning content in agriculture syllabus is consistent with the learning objectives.	**0**	**1**	**2**	**3**	**4**
78	There is adequate balance of theory and practical aspects of teaching agriculture in the syllabus.	**0**	**1**	**2**	**3**	**4**
79	I find funds allocated by the government to run school agricultural projects adequate.	**0**	**1**	**2**	**3**	**4**
80	Learners attend preschool before they start primary school.	**0**	**1**	**2**	**3**	**4**
81	Agriculture learning activities in the syllabus are up to date with the current industry practices.	**0**	**1**	**2**	**3**	**4**
82	The school agriculture curriculum is relevant for primary school students.	**0**	**1**	**2**	**3**	**4**
83	As a teacher am satisfied with my conditions of service.	**0**	**1**	**2**	**3**	**4**
84	As a teacher I find my school administration adequately supporting my efforts in teaching agriculture.	**0**	**1**	**2**	**3**	**4**

Appendix 2: Questionnaire for education officers

Topic: Investigating factors influencing academic performance of pupils in Agriculture in public primary schools in Botswana.

Part A: Background Information

Tick where appropriate in the box.

1. Gender

Male	1.
Female	2.

3. Age group

Between 22 and 30 years old	1.
Between 31 and 40 years old	2.
Between 41 and 50 years old	3.
Between 51 and above	4.

4. Position

Parent representative at PTA	1
Teacher	2
School Head	3
Education Officer	4

5. What is your highest academic qualification?

Masters degree qualification	1.
Degree qualification	2.
Diploma qualification	3.
Primary teaching certificate qualification	4.
Other – specify	5.

6. Type of school

Public (government school)	1.
Mission owned school	2.

7. How long have you been working?

10 years and less	1.
between 11 and 20 years	2.
between 21 and 30 years	3.
between 31 and 40 years	4.
41 and above	5.

SECTION B: CURRICULUM RELATED FACTORS.

Rate the following statements by ticking in the appropriate box, about some of the curriculum related factors that affect agriculture performance of students in primary schools.

4=Strongly Agree (SA), 3=Agree(A), 2=Disagree(D),1=Strongly Disagree(SD), 0=Undecided(U).

	Statement	**Level of agreement**				
	Indicate the level of agreement with the following statements.	**U**	**SD**	**D**	**A**	**SA**

7	Teachers prepare subject matter content at the beginning of every term.	**0**	**1**	**2**	**3**	**4**
8	Teachers prepare lesson plans for all classes they teach.	**0**	**1**	**2**	**3**	**4**
9	Teachers initiate procurement of teaching and learning resources needed to achieve effective agriculture instructions.	**0**	**1**	**2**	**3**	**4**
10	Teachers regularly present their scheme books for inspection by their supervisors.	**0**	**1**	**2**	**3**	**4**
11	Professional development activities are organised for teachers in schools.	**0**	**1**	**2**	**3**	**4**
12	Teachers are able to use internet for research purposes on agriculture related matters.	**0**	**1**	**2**	**3**	**4**
13	Teachers are fairly guided with regard to choosing teaching methods and techniques for teaching agriculture.	**0**	**1**	**2**	**3**	**4**
14	Teachers assess practical skills of students through observations in the garden.	**0**	**1**	**2**	**3**	**4**
15	I find the current agriculture Primary School leaving Examination structure to be suitable for pupils.	**0**	**1**	**2**	**3**	**4**

SECTION C: STUDENT RELATED CHARACTERISTICS AFFECTING PERFOMANCE

Rate the following statements by ticking in the appropriate box, about some of the student related factors that affect agriculture performance of students in primary schools.

4=Strongly Agree (SA), 3=Agree(A), 2=Disagree(D),1=Strongly Disagree(SD), 0=Undecided(U)

	Statement	**Level of agreement**				
	In my view:	**U**	**SD**	**D**	**A**	**SA**

16	Students relate well with their teachers.	**0**	**1**	**2**	**3**	**4**
17	Learners understand English well as an official medium of instruction in agriculture.	**0**	**1**	**2**	**3**	**4**
18	Students obeys school regulations	**0**	**1**	**2**	**3**	**4**
19	Students do not resist officially recommended disciplinary measures applied to them.	**0**	**1**	**2**	**3**	**4**
20	Leaners seem to understand the benefits of education.	**0**	**1**	**2**	**3**	**4**
21	Absenteeism of students is low in schools.	**0**	**1**	**2**	**3**	**4**

SECTION D: COMMUNITY AND POLICY RELATED FACTORS.

Rate the following statements by ticking in the appropriate box, about some of the external related factors that affect agriculture performance of students in primary schools.

4=Strongly Agree (SA), 3=Agree(A), 2=Disagree(D),1=Strongly Disagree(SD), 0=Undecided(U)

	Statement	**Level of agreement**				
	In my view:	**U**	**SD**	**D**	**A**	**SA**
22	Cultural background within the society influences students' attitudes towards agriculture.	**0**	**1**	**2**	**3**	**4**
23	Members of the community actively participate in motivating teachers on academic performance of students.	**0**	**1**	**2**	**3**	**4**
24	There are good relations between parents, school and the community.	**0**	**1**	**2**	**3**	**4**
25	Parents in this community are able to pay development fees for their children.	**0**	**1**	**2**	**3**	**4**
26	Parents are involved in school decision making process during PTA meetings.	**0**	**1**	**2**	**3**	**4**
27	Schools use Performance Based Reward System to reward teachers financially for their performance.	**0**	**1**	**2**	**3**	**4**

28	Schools provide assistance to low performing teachers to improve their performance.	**0**	**1**	**2**	**3**	**4**
29	Schools have adequate variety of crops to aid teaching and learning of agriculture.	**0**	**1**	**2**	**3**	**4**
30	Schools have adequate variety of animals to aid teaching and learning of agriculture.	**0**	**1**	**2**	**3**	**4**
31	Schools have adequate number of garden tools to be used by learners during practical lessons.	**0**	**1**	**2**	**3**	**4**
32	Schools have all types of garden tools required for demonstrating agriculture skills during practical lessons.	**0**	**1**	**2**	**3**	**4**
33	Student teacher ratio in schools is conducive for teaching agriculture.	**0**	**1**	**2**	**3**	**4**
34	Schools are normally visited by successful agriculturalist from the community to motivate students.	**0**	**1**	**2**	**3**	**4**
35	Schools organises trips for students to visit agricultural enterprises.	**0**	**1**	**2**	**3**	**4**
36	Internet connectivity is adequate in schools.	**0**	**1**	**2**	**3**	**4**
37	School feeding policy ensures provision of nutritionally adequate meals to students.	**0**	**1**	**2**	**3**	**4**
38	There are agriculture subject matter specialist teachers in primary schools.	**0**	**1**	**2**	**3**	**4**
39	The language used by most agriculture textbooks is understandable to learners at primary level.	**0**	**1**	**2**	**3**	**4**
40	Learning objectives are clearly stated in the agriculture syllabus.	**0**	**1**	**2**	**3**	**4**
41	The learning content in agriculture syllabus is consistent with the learning objectives.	**0**	**1**	**2**	**3**	**4**
42	There is adequate balance of theory and practical aspects of teaching agriculture in the syllabus.	**0**	**1**	**2**	**3**	**4**

43	I find funds allocated by the government to run school agricultural projects adequate.	**0**	**1**	**2**	**3**	**4**
44	Learners attend preschool before they start primary school.	**0**	**1**	**2**	**3**	**4**
45	Agriculture learning activities in the syllabus are up to date with the current industry practices.	**0**	**1**	**2**	**3**	**4**
46	The school agriculture curriculum is relevant for primary school students.	**0**	**1**	**2**	**3**	**4**
47	As an education officer I am satisfied with my conditions of service	**0**	**1**	**2**	**3**	**4**

Appendix 3: Questionnaire for PTA representatives and Head teachers.

Topic: **Investigating factors influencing academic performance of pupils in Agriculture in primary schools in Botswana.**

Part A: Background Information

Tick where appropriate in the box.

1. Gender

Male	6.
Female	7.

2. Age group

Between 21 and 30 years old	5.
Between 31 and 40 years old	6.
Between 41 and 50 years old	7.
51 years and above	8.

3. Position

Parent representative at PTA	1
Teacher	2
School Head	3
Education Officer	4

4. What is your highest academic qualification?

Masters degree qualification	8.
Degree qualification	9.
Diploma qualification	10.

Primary teaching certificate qualification	11.
Other – specify	12.

5. Type of school

Public (government school)	3.
Private owned school	4.
Mission owned school	5.

SECTION B: CURRICULUM RELATED FACTORS.

Rate the following statements by ticking in the appropriate box, about some of the curriculum related factors that affect agriculture performance of students in primary schools. 4=Strongly Agree (SA), 3=Agree(A), 2=Disagree(D),1=Strongly Disagree(SD),0=Undecided(U)

	Statement	**Level of agreement**				
	Indicate the level of agreement with the following statements.	**U**	**SD**	**D**	**A**	**SA**
6	Teachers prepares subject matter content at the beginning of every term.	**0**	**1**	**2**	**3**	**4**
7	Teachers organises resources needed for lessons ahead of time according to the scheme of work.	**0**	**1**	**2**	**3**	**4**
8	Teachers regularly prepares lesson plans for all classes they teach.	**0**	**1**	**2**	**3**	**4**
9	Teachers' initiate procurement of teaching and learning resources needed to achieve effective agriculture instructions.	**0**	**1**	**2**	**3**	**4**
10	Teachers regularly updates record of work done fortnightly.	**0**	**1**	**2**	**3**	**4**

11	Teachers regularly present scheme books for inspection by their supervisors.	**0**	**1**	**2**	**3**	**4**
12	Teachers are able to use internet for research purposes on agriculture related matters.	**0**	**1**	**2**	**3**	**4**
13	Teachers are able to use variety of crops to aid teaching and learning of agriculture.	**0**	**1**	**2**	**3**	**4**
14	Teachers are able to use variety of animals to aid teaching and learning of agriculture.	**0**	**1**	**2**	**3**	**4**
15	Teachers are fairly guided with regard to choosing teaching methods and techniques for teaching agriculture.	**0**	**1**	**2**	**3**	**4**
16	Teachers are able to create a comfortable learning experience for learners.	**0**	**1**	**2**	**3**	**4**
17	Teachers use different learning aids when presenting their lessons.	**0**	**1**	**2**	**3**	**4**
18	Teachers are able to apply mixed ability teaching strategies to cater for differences in learners.	**0**	**1**	**2**	**3**	**4**
19	Teachers questions in test are aligned to those asked in Primary School leaving Examinations.	**0**	**1**	**2**	**3**	**4**
20	Teachers gives learners constructive feedback for all their assignments on time.	**0**	**1**	**2**	**3**	**4**
21	Teachers assess practical skills of students through observations in the garden.	**0**	**1**	**2**	**3**	**4**
22	I find questioning skills of teachers appropriate for the level of students they teach.	**0**	**1**	**2**	**3**	**4**
23	I find the current agriculture Primary School leaving Examination structure to be suitable for pupils.	**0**	**1**	**2**	**3**	**4**

SECTION C: STUDENT RELATED CHARACTERISTICS AFFECTING PERFOMANCE

Rate the following statements by ticking in the appropriate box.

4=Strongly Agree (SA), 3=Agree(A), 2=Disagree(D),1=Strongly Disagree(SD),0=Undecided(U).

	Statement	**Level of agreement**				
	In my view:	**U**	**SD**	**D**	**A**	**SA**
24	Students relate well with their teachers.	**0**	**1**	**2**	**3**	**4**
25	Learners understand English well as an official medium of instruction in agriculture.	**0**	**1**	**2**	**3**	**4**
26	Students obey school regulations.	**0**	**1**	**2**	**3**	**4**
27	Students normally come to school on time.	**0**	**1**	**2**	**3**	**4**
28	Students do not resist officially recommended disciplinary measures applied to them.	**0**	**1**	**2**	**3**	**4**
29	Leaners seem to understand the benefits of education.	**0**	**1**	**2**	**3**	**4**
30	Absenteeism of students is low in my school.	**0**	**1**	**2**	**3**	**4**

SECTION D: COMMUNITY, POLICY AND GOVERNMENT RELATED FACTORS

Rate the following statements by ticking in the appropriate box, about some of the external factors that affect agriculture performance of students in primary schools.

4=Strongly Agree (SA), 3=Agree(A), 2=Disagree(D),1=Strongly Disagree(SD), 0=Undecided(U).

	In my view:	**U**	**SD**	**D**	**A**	**SA**
31	Cultural background within the society influences students' attitudes towards agriculture.	**0**	**1**	**2**	**3**	**4**
32	Members of the community actively participate in motivating teachers on academic performance of students.	**0**	**1**	**2**	**3**	**4**

33	There are good relations between parents, school and the community.	**0**	**1**	**2**	**3**	**4**
34	Parents in this community are able to pay development fees for their children.	**0**	**1**	**2**	**3**	**4**
35	Parents cooperate with teachers when there is need to discipline students.	**0**	**1**	**2**	**3**	**4**
36	Parents show willingness to participate in the school activities upon invitation.	**0**	**1**	**2**	**3**	**4**
37	Parents are involved in school decision making process during PTA meetings.	**0**	**1**	**2**	**3**	**4**
38	Parents collect their children's report as expected.	**0**	**1**	**2**	**3**	**4**
39	My school use Performance Based Reward System to reward teachers financially for their performance.	**0**	**1**	**2**	**3**	**4**
40	My school provide assistance to low performing teachers to improve their performance.	**0**	**1**	**2**	**3**	**4**
41	After school tutoring of low performing students is done in my school.	**0**	**1**	**2**	**3**	**4**
42	My school has adequate variety of crops to aid teaching and learning of agriculture.	**0**	**1**	**2**	**3**	**4**
43	My school has adequate variety of animals to aid teaching and learning of agriculture.	**0**	**1**	**2**	**3**	**4**
44	My school has adequate number of garden tools used by learners during practical lessons.	**0**	**1**	**2**	**3**	**4**
45	My school has all types of garden tools required for demonstrating agriculture skills during practical lessons.	**0**	**1**	**2**	**3**	**4**
46	The area of my school garden is currently efficiently used.	**0**	**1**	**2**	**3**	**4**
47	The existing agricultural structures in my school are currently in use e.g. poultry house	**0**	**1**	**2**	**3**	**4**
48	In my school there is adequate space for safe keeping of tools.	**0**	**1**	**2**	**3**	**4**

49	In my school there is adequate space for agricultural practical.	**0**	**1**	**2**	**3**	**4**
50	In my school student teacher ratio is conducive for teaching agriculture.	**0**	**1**	**2**	**3**	**4**
51	My school is normally visited by successful agriculturalist from the community to motivate students.	**0**	**1**	**2**	**3**	**4**
52	My school regularly organises professional development activities for teachers.	**0**	**1**	**2**	**3**	**4**
53	My school organises trips for students to visit agricultural enterprises.	**0**	**1**	**2**	**3**	**4**
54	Internet connectivity is adequate in my school.	**0**	**1**	**2**	**3**	**4**
55	School feeding policy ensures provision of nutritionally adequate meals to students.	**0**	**1**	**2**	**3**	**4**
56	There are agriculture subject matter specialist teachers in primary schools.	**0**	**1**	**2**	**3**	**4**
57	The language used by most agriculture textbooks is understandable to learners at primary level.	**0**	**1**	**2**	**3**	**4**
58	I find funds allocated by the government to run school agricultural projects adequate.	**0**	**1**	**2**	**3**	**4**
59	Learners attend preschool before they start primary school.	**0**	**1**	**2**	**3**	**4**
60	The school agriculture curriculum is relevant for primary school students.	**0**	**1**	**2**	**3**	**4**
61	As a head teacher I am satisfied with my conditions of service.	**0**	**1**	**2**	**3**	**4**
62	As a Head teacher I find my school administration adequately supporting teachers' efforts in teaching agriculture.	**0**	**1**	**2**	**3**	**4**

Appendix 4: Interview guide

The quantitative data that has been collected revealed that students perform poorly in Agriculture because of the following factors. What are your thoughts about the following and what can be done to solve these issues?

- Respondents revealed that teachers are unable to use variety of crops and animals to aid teaching and learning of agriculture.
- Teachers are not fairly guided with regard to choosing teaching methods and techniques for teaching agriculture.
- Teachers do not assess practical skills of students through observations in the garden.
- Respondents find the current Agriculture Primary School leaving Examination structure NOT suitable for pupils.
- There is low participation of learners in class. (Agriculture lessons).
- Learners do not understand English well as an official medium of instruction in Agriculture.
- Students show less commitment in doing their homework with their parents involved.
- Members of the community do not actively participate in motivating teachers on academic performance of students.
- Schools does not use Performance Based Reward system to reward teachers financially for their performance
- There are no good relations between parents, school and the community.
- Parents show less willingness to participate in the school activities upon invitation (report collection).
- Schools does not provide assistance to low performing teachers to improve their performance.
- Schools does not have variety of crops and animas to aid teaching and learning of agriculture
- Schools has a smaller number of garden tools used by learners during practical lessons.
- Schools does not have all types of garden tools required for demonstrating agriculture skills during practical lessons.
- Why is it that the existing agricultural structures in schools are currently NOT in use. e.g Orchard
- Student teacher ratio is not conducive for teaching agriculture in schools.

- Schools are not normally visited by successful agriculturalist from the community to motivate students.
- School does not organize trips for students to visit agricultural enterprises
- Internet connectivity is inadequate in schools.
- There are no agriculture subject matter specialist teachers in primary schools.
- Funds allocated by the government to run school agricultural projects are inadequate.
- What do you think of the Botswana Agriculture primary school curriculum? Is it relevant for primary school students? Are the learning activities in the syllabus are up to date with the current industry practices? Is the adequate balance of theory and practical aspects of teaching agriculture in the syllabus
- Teachers, Head teachers and education officers are not satisfied with their conditions of service.

Appendix 5: Consent form

Dear respondent,

The purpose of this study is to Investigate factors influencing academic performance of Pupils in Agriculture at primary schools in Botswana.

Please read the following information.

- You are not expected to write your name, contact or any personal information during this exercise.
- Your responses will be kept strictly confidential and anonymous.
- You may decide to withdraw your participation in this exercise at any time If you want to do so.
- You are at liberty to answer questions you only feel comfortable with.
- This is not an examination; there is no right or wrong answer and that is why you are encouraged to answer all questions.
- The data collection exercise will take more than 15 minutes.

By signing this consent form, I confirm that I have read and understood the information which I agreed to and have had the opportunity to ask questions where necessary.

I …….. would like to participate in the study whose purpose is mentioned above.

Participant Signature..... Date.....

Appendix 6: Invitation for participation in the study

Botswana University of Agriculture And Natural resources

Private bag 0027

Gaborone

21 September 2020

_____

_____

_____

Dear Sir/Madam

RE: INVITATION FOR PARTICIPATION IN THE STUDY

This letter serves to invite you to participate in the study entitled **"Investigating factors influencing academic performance of pupils in Agriculture at primary schools in Botswana.** The research is being conducted to fulfil the requirement of my Masters degree in Agricultural education course at Botswana University of Agriculture and Natural Resources. It is also intended by the study to make recommendations on how performance of pupils in Agriculture at primary school can be improved. You have been selected on the basis that you work with students, hence you are in a better position to advice on issues relating to performance of students. The data collected will be helpful for professionals like you who provide direct services to students.

In this study, may I request you to note the following:

1. As stated in the consent form research is completely voluntary and you may withdraw at any stage without suffering the consequences.

2. Data provided by you will be solely treated with complete anonymity. Findings will be only generally reported in my Masters Degree research project which may be ultimately made

available for public consumption. An effort will be made to prevent identification of the participants and their direct input they made into the study.

3. Data collected will be accessible only to researcher and supervisors for the purpose of this study. After successful completion of this study, all materials containing data will be safely disposed.

You may contact the researcher or her supervisors, if you require information about the researcher.

Contact details:

Researcher: Lydia Jele

Mobile: 76398691

Email address: lydiamashila@yahoo.com

Supervisor Kgomotso Mabusa

Mobile: 71676773

Email address: kmabusa@buan.ac.bw

Appendix 7: Research permit

TELEPHONE: 3655400/3655483
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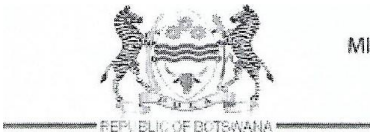

MINISTRY OF BASIC EDUCATION
PRIVATE BAG 005
GABORONEf BOTSWANA

REF: DPRS 7/1/5 (82) PAO- Research

15th September 2020

Ms Lydia C.Jele
PO Box 901292
Gaborone

Dear Madam

RE: PERMIT TO CONDUCT A RESEARCH STUDY

This serves to grant you permission to conduct your study in the sampled areas in Botswana to address the following research objectives/questions /topic:

Investigating factors influencing academic performance of Pupils in Agriculture at Primary schools in Botswana: National study

It is of paramount importance to liaise with the regional Directors, School Heads, Education Officers and Agriculture teachers of the sampled Schools from which you are going to collect data from. We hope that you will conduct your study as stated in your proposal and that you will adhere to research ethics. Failure to comply with the above stated, will result in immediate termination of the research permit.

The validity of the permit is from 15th September 2020 to 14th September 20201. You are requested to submit a copy of your final report of the study as stated in the Research Guidelines (para 4.5 - 4.6, 2007) to the Ministry of Basic Education, Department of Educational Planning and Research Services, Botswana.

Thank you.

Yours faithfully

Sir Wonder M sebola
For/Permanent Secretary