



UNDERSTANDING SCHOOL SIZE, TYPE, PERFORMANCE

IN THE RANKING OF SECONDARY SCHOOLS IN LUSAKA

PROVINCE

By

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A dissertation submitted to the University of Zambia and Zimbabwe Open University in Partial Fulfilment of the Requirements for the Award of the Degree of Master of Education in Educational Management.

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DECLARATION

I, Titus Hara, solemnly declare that this dissertation is my own work and that it has never been previously submitted for a degree at this or any other University.

Signed.....
Date....

CERTIFICATE OF APPROVAL

This dissertation of Titus Hara is approved as fulfilling part of the requirements of the award of the degree of Master of Education in Educational Management by the University of Zambia and Zimbabwe Open University.

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DEDICATION

This research report is dedicated to my wife, Lucy Kaira Hara, my sons Moses and Elisha Hara, my daughters, Abigail and Cheris Hara. I dedicate this research to them due to their continued encouragements and support throughout my course work and their endurance during financial crisis period as a result of my being at school.

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ACRONYMS

ANOVA	Analysis of Variance
DEBS	District Education Board Secretary
ECZ	Examination Council of Zambia
PEO	Provincial Education Officer
SESO	Senior Standard Officers
SPSS	Statistical Package for Social Science
ТОР	Theory of Performance

ABSTRACT

This study aimed at understanding school type, school size, performance in the ranking of secondary schools in Lusaka province for the purpose of fair ranking of academic performance of schools. The study sought to explore the extent to which school type and size interaction, school type and school size relate with academic performance. This was with the view that factor(s) with significant relationship with academic performance be considered when ranking school academic performance in the province otherwise ranking not to be based on such factor(s). The study also compared academic performances of different school types (grant aided, private and public schools) and school sizes (small, medium and large schools). The study was informed by the theory of performance (TOP) by McGillivray Elger. The theory considers performance to be affected by altered and non-altered factors and that increase in performance is shown by some indicators. Mean school certificate pass for each of the school type and size were analysed. All the 58 secondary schools that wrote Grade twelve final examination in the period 2012 to 2016 were considered. To establish the extent of the relationship, a correlation design was engaged and data analysed using two way ANOVA in SPSS. To aid understanding on how exact school type and size influence academic performance, unstandardized coefficients were obtained using regression analysis. The results showed that school type and size interaction and school size had no significant relationship with academic performance while school type had. Best performance was observed in grant aided school and least in private school for school type. With school size, small schools showed best performance followed by medium and last were large schools. It was concluded that fair ranking of secondary schools in Lusaka province should be based on school type. The study made the following major recommendations among many others:

- a) Government to ensure that secondary schools in Lusaka province are of reasonable size.
 The population of each school should be within what was defined as small school in this research. Therefore, more schools should be built to achieve this.
- b) Schools of different sizes to be availed with resource and infrastructure proportionate to their sizes.
- c) Enrolment marks in all the types of schools to be regulated.

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1.0 CHAPTER 1: INTRODUCTION

1.1 Overview

Chapter one of the study outlines the background to the study, statement of the problem, purpose of the study, objectives, hypothesis, research questions, significant of the study, assumptions, delimitations, limitations, theoretical framework, conceptual framework and definition of terms. The background to the study established the context of the study and clearly indicated the felt need. Statement of the problem indicated what the study was all about, the discrepancy that led to the study, problem that needed to be addressed, solutions to the problem, implications and how the research addressed some national goals. The purpose of the study was a summary of why the study was conducted while the objectives indicated exactly what needed to be answered. Tentative relationship of the variables were shown by the hypothesis and research questions outlined the constituency of the research problem. In order to justify why it was worth to conduct the research, the value of the research was outlined through the significance of the study. The delimitations were the boundaries of the research while limitations were factors that were beyond the research control. The theoretical framework indicated the theory that informed the study, conceptual framework showed the relationship between variables and definition of terms explained how certain terms were viewed in the study.

1.2 Background to the Study

Academic performance ranking of a school relates to perception and market of the institution to the public. It is a common occurrence that most parents send their children to well performing schools (Wu, Chen and Zhuo, 2012). Academic performance ranking and reputation of a school are among the key factors that influences parents' school choice (West, 2001; Bosetti, 2004; Jackson, and Bisset, 2005).

A well performing (high ranking) school has the ability to attract resources necessary to build an academic environment. Good performance of a school results in good school reputation which in turn results in research support, more student recruitment, business engagement and massive donations as everyone wants to be attached to a winning team (Torrillo, 2014). There is more hope of excelling in life for learners who are at a well performing school (Bratti and Staffolani, 2002). As opposed to poor performing schools (low ranking schools), teachers from well performing schools stand higher chance of promotion, recognition, high remuneration, profession advancement, more responsibility and job satisfaction (Mugweru, 2013).

In Pakistan, student communication skills, availability of learning facilities and proper guidance are among the factors that affect academic performance (Mushtaq and Khan, 2012). Other factors that affect student academic performance in Pakistan are social economic factors, gender and parents' education (Berhanu, Shafig, Chaudhry and Farooq, 2011). Similar to findings in Pakistan, social economic factors affect student academic performance in Nigeria (Ogunshola and Adewale, 2012). Whereas in South Africa, student attitude towards the subject and student study habits are key to student academic performance (Kyei and Nemaorani, 2014). Teachers' comments on student academic achievement affects academic performance in the United States of America (Cavanaugh and Liu, 2012). In addition, student characteristics (psychological needs, attitude, social skill, motivation, communication skills, collaboration, behaviour, academic competence, and cooperation), family characteristics (family income levels, family support and education expectation), teacher expectation and support, college environment and peer relationship. Availability of teaching and learning materials, homework policy, teacher continuous development, teacher monitoring, enrolment levels, teacher

commitment to duty, pupil absenteeism rate, school academic policy, pupil discipline and administration effectiveness are among the factors that affect academic performance in Zambia (Malambo, 2012).

Although it is very clear that there are many factors that relate to academic performance of a school, school size (small, medium and large schools), school type (grant aided, private and public schools) and their relationship with academic performance are of contentious debate in Lusaka Province. Currently, academic performance ranking of schools in the province is done based on the overall school certificate pass regardless of the size and type of the school. The Provincial Education Officer admonished Headteachers during the 2016 performance review held at Nkhwazi Primary School in Lusaka. He indicated that he expected all schools to have performed very well with minimum school certificate pass percentage of eighty (80), yet some schools performed very poorly. According to the Provincial Education Officer, among the strategies for improving results were massive transfer of Headteachers, Headteachers accounting for the poor results before the provincial management team, and visiting Eastern province to learn good practices that made Eastern province perform better for a number of years then. To this effect, sampled Headteachers from all the districts of Lusaka province, all District Board Secretaries, and some senior officers from Provincial Education Office under took a tour to Eastern province from 19th March to 25th March 2017.

Emanating from the strategies put in place by the provincial office, there has been serious debate among Headteachers and District Education Board Secretaries. They argued that size and type of school needed to be considered when comparing results of different schools in the province. They also argued that Eastern province which was a point of reference had most of its schools very small.

Academic performance is explained using various indicators which include procedural and declarative knowledge acquired, achievement tests and general degree or certificates. A research in Washington and paper reviews showed that academic performance is better in smaller schools (Cotton, 1996). This is consistent with a research carried out in Zambia (Malambo, 2012). In another research in Washington on School Size and its Relationship to School outcome and School Climate, large schools perform better than small schools (Stevenson, 2006). Contrary views on research conducted in America were that there was no clear relationship between school size and academic performance (James, 2010).

Regarding school type, research in Ondo State of Nigeria revealed that there was no difference in academic performance of private and public schools (Sabitu, Babatunde and Oluwole, 2012). Other research outcome in Nigeria proved that private schools perform better than public schools (Archibong and Okon, 2015). In Zambia, findings on school type are contradictory. One study revealed that performance is best in private schools, followed by grant-aided, public and community schools as least (Ministry of Education, 2015). Whereas 2015 and 2016 analysis showed that its grant-aided schools with best performance then private, public and community schools (Examination Council of Zambia, 2015 and 2016). A study in Indonesia concluded that performance in public schools was better than private schools (World Bank, 2005).

Findings by various scholars on school size, school type and their relationship with academic performance are not consistent. Based on these findings most administrators at District and Provincial levels feel strongly that there is no relationship between school size, school type and academic performance. Their expectation is that all schools should perform better regardless

of size and type and thus school academic ranking should not to be based on such factors. On the contrary, Headteachers have continued to argue during performance review meetings that the findings by some scholars indicates that school size, school type and academic performance relate. In this regard, Headteachers have consistently advocated that ranking of academic performance should consider size and type of a school. A question therefore, remains as to whether there is a relationship and to what extent between school size, school type and academic performance and whether such factors should be considered in school academic ranking.

1.3 Statement of the Problem

Understanding school size, school type, performances in the ranking of secondary schools in Lusaka province is an issue which is not yet concluded. Studies by some scholars have indicated that school ranking defines school reputation (Torrillo, 2014), help determine staff promotion (Mugweru, 2013) and influence parental school choice (West, 2001; Bosetti, 2004; Jackson. and Bisset, 2005). Overall academic performances of schools have continued to be ranked regardless of school type and size with no justification at all. Grade twelve (12) results highlights for 2013, 2014, 2015 and 2016 indicated that from twenty (20) schools with best academic performance, only very few were public schools while the majority were grant-aided or private schools. All the best twenty (20) performing schools were small in size with Grade twelve candidates of not more than 120 (Examination Council of Zambia, 2013, 2014, 2015 and 2016). This is an indicator that school size and type may matter in academic performance and consequently in ranking. Although Examinations Council of Zambia analysis and few other studies done in Zambia showed a signal of school size and school type playing a role in academic performance, results of the analysis and studies did not show the extent of the relationship. Examinations Council of Zambia, not proving a role in academic performance, results of the analysis were not pronounced on size, not in

conformity with few other studies on school type and only Mathematics, Science, Biology and English were compared for school type. Against this background, there was need to understand the extent to which school size and school type related to academic performances and whether such factors were to be considered in the ranking of secondary schools in Lusaka province. This would help in providing a fair basis on academic performance ranking of schools in Lusaka province for correct information about school reputation. By establishing fair ranking, this would help in addressing some of the national goals of equality, equity and accountability (Ministry of Education, 1996).

1.4 Purpose of the Study

The purpose of the study was to understand school size, school type, performance in the ranking of secondary schools in Lusaka province.

1.5 Study Objectives

The study aimed at achieving the following objectives:

- 1.5.1 To test the extent to which school type and school size interaction affect Grade twelve final academic performance for fair ranking of secondary schools in Lusaka province.
- 1.5.2 To analyse the extent to which school size relates with Grade twelve final academic performance for fair ranking of secondary schools in Lusaka province.
- 1.5.3 To assess the extent to which school type relates with Grade twelve final academic performance for fair ranking of secondary schools in Lusaka province.
- 1.5.4 To compare academic performances of different school types and sizes so as to understand the limitation in performance for some schools in Lusaka province.
- 1.5.5 To establish a fair criterion of ranking overall school academic performance in Lusaka province.

1.6 Hypothesis

The research was guided by the following null hypothesis:

- 1.6.1 H₀ School type and school size interaction has no statistical significant effect on
 Grade 12 final examination performance and ranking of secondary schools in
 Lusaka province.
- 1.6.2 H0School size has no statistical significant relationship on Grade 12 finalexamination performance and ranking of secondary schools in Lusaka province.
- 1.6.3 H₀ School type has no statistical significant relationship with Grade 12 final examination performance and ranking of secondary schools in Lusaka province.
- 1.6.4 H₀ Academic performances of different school types and sizes don't differ and thus school type and size does not limit the performances of schools.
- 1.6.5 H_0 Fair criterion of ranking overall school academic performance in Lusaka province should not be based on school type and size interaction, school type and school size.

1.7 Research Questions

The research questions in the study were as follows:

- 1.7.1 Has school type and school size interaction have a statistical significant effect on Grade12 final examination performance and ranking of secondary schools in Lusaka province?
- 1.7.2 Has school size have a statistical significant relationship with academic performance of Grade 12 final examinations performance and ranking of secondary schools in Lusaka Province?

- 1.7.3 Has school type have a statistical significant relationship with academic performance of Grade 12 final examinations performance and ranking in Lusaka province?
- 1.7.4 Does academic performances of different school types and sizes differ and does school type and size limit performances of some school?
- 1.7.5 What is the fair criteria of ranking overall school academic performance in Lusaka province?

1.8 Significance of the Study

The study is useful to school administrators at all levels and all teaching staff in Lusaka province in knowing the extent of the relationship between school type and size interaction, type, size and academic performance. The results would help in coming up with a fair way of ranking overall school academic performance in Lusaka province. Establishing a fair criteria of ranking schools would be important as ranking of schools relate to school reputation which in turn determines parent school choice, research support, funding, student recruitment, student confidence in good performance and staff promotion and advancement (Wu, Chen and Zhuo, 2012; West, 2001; Bosetti, 2004; Jackson. and Bisset, 2005; Torrillo, 2014 and Mugweru, 2013)

1.9 Delimitation of the Study

The study on how school size and type relates to academic performance in the ranking of secondary schools in Lusaka Province was limited to performance at Grade twelve final examination based on Examinations Council of Zambia (ECZ) results analysis. This is because there was need to use standardised student assessment results when ranking school academic performances (Heck, 2009). Tracking performance from Grade eight or ten was constrained with poor record keeping of results in schools (Akoroda and Okboh, 2012) as well as unreliable

and invalid continuous examination offered by most schools (Fasasi, 2006). The research only considered Grade twelve results for five (5) years stating from 2012 to 2016. Such latest information was readily available and easily accessible at the provincial office.

1.10 Limitations of the Study

The academic performance of student was confined to Grade 12 final examination yet continuous assessment takes place at all levels of grade ten, eleven and twelve. This was due to non-availability of continuous assessment records in some schools. Size of the school was limited to a number of Grade twelve that sat for examination yet academic performance would have been affected by the actual class size during teaching. The class size would have changed by exam time due to transfer of learners, both in and out cases and the number of students suspended or expelled from school. Furthermore, the research was limited to one province as national data was difficult to access. This lead to a problem of limited number of grant-aided schools in found in one province, Lusaka province in particular.

1.11 Theoretical Framework

The study was informed by the theory of performance by McGillivray Elger (2000). Dr, Donald McGillivray Elger developed the Theory of Performance (TOP) in 2000 from the background that human beings have the ability to perform extremely well by using a combination of skills and knowledge to produce an acceptable product. In this theory, performance was defined as the interaction of knowledge and skill to come up with a desired product. The theory advocates that performance has levels which can be improved on and that the improvement in the levels of performance can be seen through indicators like: increase in quality, capability, capacity, knowledge and skills as well as decrease in cost. Dr. Donald observed that there are several factors that contribute to performance. He wrote that among the factors that affect performance,

some cannot be altered while others can be altered to improve performance. Dr. Donald pointed out the factors that can be altered to be: performer's mind set (actions that leads to positive emotions), immersion (the social, intellectual and physical environment in which an individual is found during performance) and reflective practice (paying attention to and learning from past experience). He further indicated the factors that ought to interact to establish level of performance as: level of identity (individuals uniqueness in doing things and organisation own mission statement), level of skill (specific action by individuals, groups and organisation in performance), level of knowledge (facts, information, concepts and theories acquired by individuals or groups through education or experience), context of performance (environment in which individuals and groups perform from), personal factors (personal conditions such as health and home conditions) and fixed factors (factors unique to individuals and groups which cannot be altered such as genetic factors in academic performance) (Elger, 2007)

Academic performance in Lusaka Province greatly vary from other provinces as well as within the province (Examination Council of Zambia, 2015). Among many factors that may relate to variation in academic performance are school type and school size (Fleming, 2011). From the explanation of Elger, School size and type are part of the immersion factors and form the context of performance. Going by the theory of performance by Elger, School size and type are among factors that relate to academic performance. It is expected therefore, that schools of different sizes and types would perform differently in terms of academic. It would be prudent then, to group schools according to size, and type when ranking their academic performances for fairness.

1.12 Conceptual Framework



Among the various factors that affect academic performance are school size and school type. Size of the school has a bearing on student academic performance. Cost of running the school, communication with students and parents, availability of teaching resources, teacher attention to students, student attitude towards school, student social behaviour, levels of extracurricular activities, student class attendance, student teacher ratio and variety of curriculum are all influenced by the size of the school and these outcome of size of the school affect academic performance (Stevenson, 2006; James, 2010; Cotton, 1996). Based on this information, school size affects academic performance and thus should be considered when ranking schools. School type determines school climate, composition and structure (Korir and Kipkemboi, 2014). School type define what sort of programmes and policies exist in a school. This has ultimate effect on academic performance (Crosnoe, Monica and Glen, 2004). School type determines both human and material facilities available at a school (Sabitu, Babatunde and Oluwole, 2012). Private schools assume advantages in academic performance over public schools owing to better funding and smaller class size. Better funding results in adequate teaching and learning materials such as computers (Eamon, 2005). Thus school type determines school academic performance and consequently academic performance ranking. The type of a school also determines how large or small a school would be.

Academic performance of the school forms the basis for which a school is evaluated and ranked (Heck, 2009). Emanating from the importance of academic performance in evaluating and ranking, there is need to use standardised student assessment results when ranking school academic performances (Heck, 2009). As such school ranking should be based on academic performance of standardised academic results (Borhan and Jemain, 2011). Since school size and type relate to academic performance and academic performance form a basis for ranking, school size and type form a basis for ranking of school too.

1.13 Definition of Terms

1.13.1 Academic Performance

Academic performance looks at how far an individual has achieved set goals that were a target in a school, college or university. Academic performance is explained using various indicators which include procedural and declarative knowledge acquired, achievement tests and general degree or certificates. It is the percentage of enrolled students completing a particular stage of education (Steinmayr at el, 2014). In this research, Academic performance was looked at as the percentage of Grade 12s with full certificate in 2012 to 2016 Grade 12 examinations.

1.13.2 School

A school as an institution designed to provide learning spaces and learning environments for the teaching of students under the direction of teachers (Dodge, 1962).

1.13.3 School Size

School size is the numbers of students in a given school (Fleming, 2011). A small school is one with 245 learners or less, medium sized schools with learners between 246 and 420 while larger schools with learners above 420 students (Ezeife and Jones, 2011). In this research, school size was considered to be the number of grade 12s in a particular school. A small school as one with Grade 12 student population of 150 or less, medium sized schools with Grade 12 population from 151 to 400 while larger schools with Grade 12 student population above 400.

1.13.4 School Type

School type is defined in terms of who owns, funds and operates the school (Sabitu, Babatunde and Oluwole, 2012). In this research, school type was looked at in terms of Private, Public and grant-aided schools.

1.13.5 School Academic Ranking

Academic ranking is a list of the best colleges, universities, or departments in a field of study, in numerical order according to their supposed quality, with each school or department having its own individual rank, not just lumped together with other schools into a handful of quality classes, groups, or levels (Clarke, 2002).

1.13.6 Certificate Pass

A candidate is considered to have a certificate pass at Grade twelve level if they pass in at least six subjects (including English language) with credit in at least one of them or Pass in at least five subjects (including English language) with credit in at least two of them (Examination Council of Zambia, 2016). Therefore, school certificate pass in this research was looked at as a percentage of the total learners who sat for Grade twelve examination with full certificates.

2.0 CHAPTER 2: LITERATURE REVIEW

2.1 Overviews

The purpose of this chapter was to highlight what other researcher have understood regarding school size, school type and their relationship with academic performance. Information concerning academic performance ranking were also highlighted. This helped in contextualisation of the research problem and avoided unnecessary duplication of the research questions. This was achieved by looking at the gist, methodology, findings, conclusions and gaps in past research.

2.2 Studies on School Size and Academic Performance

Studies done by many scholars have indicated that school size affects academic performance. Different scholars however, have different views and explanation in the way school size affect academic performance.

The effect of school size on academic performance depends on student economic background, location of a school and state policy. Mostly, students from disadvantaged background perform better in smaller schools while those students with a better economic background perform better in larger schools. Good schools differ considerably in size (Howley, 2001). Howley made his conclusion in a research on "Smaller Schools, what Education Leaders need to Know to Make Better Decisions", conducted in America. Howley's research did not look at the extent to which size affect academic performance. Ranking of school based on academic performance was not among the issues addressed.

School Size as a Factor in the Academic Achievement of Elementary School Students in Canada has no statistical significant relationship with overall academic performance. However, there is significant relationship between school size and academic performance of different grade levels. As a grade level goes up, academic performance are highest in larger schools followed by medium sized schools (Ezeife and Jones, 2011). The study was based on grade three (3) and six (6) assessment for one year. The sample size was 48, 482 students sample from 541 schools using clustered sampling. Students from different school sizes were subjected to an assessment in three categories: reading and writing using reading magazine, reading answer booklet and writing answer booklets. Data was analysed using Analysis of variance (ANOVA). Their recommendations included further research on relationship between school size and academic performance since results were not so consistent with other researchers. Since results of Ezeife and Jones were not consistent with other researchers, assessment results used were only for year and confined to reading only with no consideration on school ranking based on academic results, there is need to carry out a research based on standardised assessment results for five years, covering all aspects of student learning and relate school size, performance and ranking.

On the other hand, the relationship between school size and academic performance cannot be concluded (Stevenson, 2006). Stevenson made this conclusion in his paper on school size and its relationship to student outcome and school climate. The paper was based on review of several researches in South Carolina of United States of America. The opinion of Stevenson was that school size triggered many more factors that were responsible for academic performance. He proposed more studies to understand how school size affects academic performance. The other gap in Stevenson research is that school ranking based on academic performance in relationship to school size was not considered.

There is no statistical relationship between school size and academic achievement. However, larger schools are seen to perform better than smaller schools. The performance of larger schools is attributed to the amount of state funds received by such schools which facilitates smooth operations. This is because extra funds received by larger schools help in buying additional instructional materials. In this way, larger schools are in position of offering specialised Education programs with specific education and developmental needs. Also, with extra funding from state, larger schools are in position to offer wide range of curricular through a number of classes. There also exists a link between performance for larger schools and facilities which such schools are in position to buy. On the other hand the relationship between school size and academic performance is complex and contradictory (James, 2010). James carried out his research in America on school size and student academic achievement. The research involved results in mathematics for 115 high schools for a tenth grade. In the study, correlation design was used. The research by James had a limitation of focusing on one variable. James recommended for further research which should include a number of variables. The major gaps were limiting performance to mathematics and no consideration on school ranking.

A study in Californian schools on "School Size: Which Works Best and for whom"? proved that academic performance of larger schools is better than that of smaller schools. Better performance of larger schools is due to more resources which results in better facilities and specialised services (Gardner, Ritblatt and Beaty, 2000). The research was on academic achievement, absenteeism, dropout rate and parental school involvement as a function of high school size. It involved 67 large public school with population over 2000 and 60 small public school with population 200 to 600 students which were randomly selected. Aptitude tests, parental membership in parent teachers association and data form Californian department of

Education was used to measure academic performance, parental involvement and absenteeism and dropout rate respectively. Data was analyzed using Analysis of Covariance and t-test. Furthermore research was recommended both in size and scope. The researchers did not use standard procedure in reporting absenteeism and parental involvement. The results of the research did not show the extent to which school size affect academic performance and ranking was not among the subjects addressed.

Academic performance is better in larger schools since larger schools are not expensive to operate and have rich curricular (Cotton, 1996). She made this deduction in her research School size, School Climate and Student performance carried out in Chicago, America. The research involve a review of 103 papers on relationship between school size and schooling. From 103 papers, Cotton concentrated on 69 well informing documents. The 69 documents comprised 49 primary source and 14 secondary source. The documents reviewed focused on secondary students, elementary students and both secondary and elementary students. The reviewed documents further focused on effects of school size, outcome produced by alternative schools and effects of school within a school. The major gap in the findings of Cotton was that size of a school is determined by such factors as political, social economic and demographic and not research. The research did not bring out information the extent to which school size relates with academic performance and whether school size should be considered when ranking academic performance or not.

Student academic performance is best in medium size school of population 600 to 900. Academic performance is poor in smaller schools and in schools with population above 2100. Relatively larger school performed better because creation of specialised program in such schools is easy, which in turn easily meet student education goals since most students in such school have similar instructional needs. It is therefore, important that high schools should not be too large nor too small. Ideal size of the school does not vary by the type of student who attend school and that size of a school is more important for disadvantaged children (Lee and Smith, 1997). These findings were from an article, "School Size: Which Works Best and for whom?" researched in America. Lee and Smith investigated on how student's reading and mathematics achievement are influenced by high school size. They used three waves of data and hierarchical linear modelling (HLM) methods to understand how student progress is affected by the high school they attended. A total of 9, 812 students were used as sample. These were selected from 789 schools comprising public, catholic and private schools. Selection of students was done at grade eight and student performance monitored until grade twelve. The research by Lee and Smith only took into account two aspects of learning: reading and mathematics. Extent by which school size affect academic performance and school ranking were to among issue addressed. This creates a gap for further research.

Other studies on school size and academic performance support the view that academic performance is better in smaller schools. Smaller schools are likely to perform better academically than larger school because of effectiveness in the way classes are managed. Furthermore, social needs of learner in smaller schools are easily met (Maxner, 2005). Maxner brought these observation in a study, School climate and school size: implications for the role of School Psychologist. Extent to which school size affects academic performance and school ranking are the gaps requiring more research.

Academic performance is better in smaller schools followed by medium sized schools and least in larger schools (Department of Public Instructions 2000). Department of Public Instructions carried out their research in North Carolina using End of Grade and End of Course results. Data was analysed using correlation analysis. A further research was recommended on relationship between school size and academic performance with specific focus on how school size affect day to day activities of teachers and students and how schools can achieve student's positive outcomes while maintaining economic efficiency. Extent to which school size affects academic performance and school ranking are the gaps requiring more research.

Furthermore, smaller schools are cited for better academic performance especially for students from low social class owing to better relationship between students and staff or peers, enhanced participation of parents in school activities, ability to master school curriculum by students, better management due to less bureaucratic structure and enhanced safety due to easy spotting of strangers (Great School Staff, 2016).

Grants given to schools are significant to academic performance. It is found out that over enrolment (large school size) causes poor academic performance in non-grant aided schools and controls enrolment (smaller school size) aids good academic performance in grant aided schools. It is therefore recommended that over enrolment should be avoided in schools and that further study on the topic is conducted using different institution to come up with more conclusive remarks (Malambo, 2012). Malambo conducted his study in Western province of Zambia. The study focused on Factors affecting performance in selected grant aided and nongrant aided schools. The investigation was based on two secondary schools, one grant aided and one non-grant aided. The sample from the targeted schools was made up of pupils, teachers and administrators. Additionally, Senior Standard Officers (SESO) from provincial office were engaged to obtain information. The study employed case study design using both qualitative and quantitative analysis.
2.3. Studies on School Type and Academic Performance

Several studies have been conducted on school type and academic performance. The results vary from one research to another.

Academic performance is better in private schools than public schools. However, the difference in academic performance between the two types of schools is not of statistical significant different. What counts in academic performance of a student is the facilities present in a school and not the type of a school (Sabitu, Babatunde and Oluwole, 2012). The research was about School Type, Facilities and Academic Performance in Ondo state in Nigeria based on 50 high schools selected using proportionate random sampling. Descriptive survey design was employed and data collected using facility descriptive and student academic performance questionnaire. They used t-test to analyse data. According to the findings of Sabitu, Babatunde and Oluwole, it means that private, public or grant aided schools can perform equally well give similar facilities. It was concluded that government should ensure that public schools receive adequate facilities to cope with private schools in their performance. The relationship between school type and academic performance was based on English, Mathematics and Biology and not all the subjects offered in school. The role of school type in academic performance ranking was not a subject as such are a gap for further research.

Students from public schools have better academic performance than those from private schools. Better performance in public schools is as a results of higher quality inputs. However, it is not explained why most parents preferred to take their children to private school than public schools despite private schools performing worse than public schools (Beengle and Newhouse, 2005). This view is from a study conducted in Indonesia on the effect of school type on academic achievement. The study involved final examination performance of 4 383 grade 7 to

9 between the year 1990 and 2000. Data was analysing using Ordinary Least Squares (OLS). The results of the study did not show the extent to which school type affects academic performance and how school type can be applied to academic performance ranking.

School type has no significant influence on academic performance. Private and public schools performed equally well because they are both controlled, supervised, financed and maintained by the government. Factors other than school type, location and sex are responsible for variation in academic performance of different students. Furthermore, academic performance can be improved through monitoring activities of the head teacher, teachers and students as well as involving parents and guidance and counselling in the management of students (Adigun and Yusuf, 2010). These findings are from a study carried out in Nigeria about the influence of school sex, location and type on academic performance. The study involved senior school certificate examination results over a period of four (4) years for forty (40) secondary schools. Thirty six (36) public schools were randomly selected whereas four (4) private schools were purposively selected. Data was analysed using percentage scores and t- test statistics. One major weakness in the study was variation in the method of sampling for private and public schools. The study was not concerned with school type and ranking.

There is a statistical significant difference in performance of different types of schools, with private schools performing better than public schools. Adequate teachers, availability of basic facilities, appropriate teachers to pupil ratio, well trained and qualified teachers are among the reasons for better academic performance in private schools. Good physical school environment, adequate teaching and learning resources, adequate and well trained teacher makes a school perform better academically (Archibong and Okon, 2015). Archibong and Okon made these remarks in a research carried out in Nigeria on School Type and Students' Academic

Performance in Social Studies. They used 940 respondents to determine students' performance in social studies in Junior Secondary Certificate Examination over a period of three (3) years. Equal number of students were selected from both private and public schools using stratified and simple random sampling. The study used ex-post facto design and data analysed using ttest. The major setback on the findings were that conclusion were based on performance of one subject; Social Studies. School type and academic performance ranking were not part of the subject in the research.

Academic performance is best in private schools followed by grant aided schools, then community schools and least in public schools (Ministry of General Education, 2015). Ministry of General Education made these revelations in a study on Learner Achievement at Primary School level done in Zambia. The study was done as a survey by assessing grade five national wide in English, Mathematics, life skill and Zambia language only. The research did not consider all the subjects, extents of the effect of school type on academic performance as well as school type and ranking, thus creating a gap for further research.

Grant aided schools out perform all other types of schools in the mean score of English, Mathematics, Biology and Science. Private schools are second, then public schools and least, community schools (Examination Council of Zambia, 2015). On the contrary, grant aided schools are on first position, followed by public schools, then community and least, private schools in the mean score of English, Mathematics, Biology and Science (Examination Council of Zambia, 2016). These deductions are from analysis of grade twelve final examinations for 2015 and 2016. The analysis by Examination Council of Zambia did not take into consideration all subjects and did not indicate whether the difference in performance was significant or not. Furthermore, the analysis was confined to a particular year and not over a period of years.

2.4 Studies on School Academic Ranking

School ranking is significant to academics. School ranking enable parents administrators, students and taxpayers to compare schools. Information from school rankings helps parents to choose a school for their children. Comparing school performance enables one to identify schools that are doing fine and that such schools should be used to draw lessons from. It is argued that school ranking should not be based on one factor. As such, only those schools with similar student characteristics should be compared (Cowley & Easton, 2015).

School ranking has a serious bearing on parents. Some parents relocate to stay near a place which is easily accessible to schools that have been ranked as best. Examples of school ranking in America ranking are ones based on how good or how challenged a school is; a ranking based on one factor and ranking based on status of student body. Such school ranking is meaningless and harmful. A number of reasons for describing such school ranking as meaningless and harmful are advanced. These include the inability to measure the quality of a school, focusing on few indicators and encouraging particular trends in schools that favour ranking (Tierney, 2013)

Ranking of law schools in United States of America is based on empirical data, subjective qualitative data or a combination of the two as well as reputation of the institution. Such rankings has been criticised as been arbitrary in the characteristics they measure and the value they assign, lack of "one size fit all" ranking and for having different geographical and demographic trends. The association of American Law School described the rankings of law schools as misleading and deceptive. Other rankings that have been criticised in America are rankings based on number of graduates that get employed after school and based on number of scholarship offered for students enrolled in a particular college and field (Wikipedia, 2017).

Instead, school academic ranking should consider school reputation, faculty award, prize and honour, counts of faculty citations in index citations, graduates achievement after graduating, scores of incoming students on standardised tests and education expenditure per student (Clarke, 2002).

Accountability Performance Index (API) is one of the school ranking system in California. Among the features of this system of ranking academic performance of schools are: comparing school academic performance with that of the previous year, demanding for student group accountability to explain the performance gap between high and low scoring groups. Comparing school performance from one year to another, comparing school performance for schools which are of the same type and have similar opportunities and challenges (Department of Education, 2017).

Three other methods of school ranking are based of academic results, gender of the student and based on number of former students who receive top ten honours (Better Education, 2017).

2.6. Summary

Literature review showed that the findings on relationship between school size, school type and academic performances as well as school ranking are not consistent among various scholars. Some researchers have indicated existence of a significant relationship between school type, school size and academic performance while others have pointed out that the relationship that exist is not significant. Literature review from different scholars also differ on which school size and type records better academic performance. For academic performance ranking, studies have concluded that ranking is important for various reason such as parental school choice, staff promotion, funding, school reputation and learner confidence. From various studies, it was noted that ranking should consider learners of similar characteristics and used standardised examinations.

3.0 CHAPTER 3: METHODOLOGY

3.1 Overview

This chapter highlights information on research design, study population, sample size and sample distribution, sampling techniques, data collection methods and instrument, quality control, research procedure, data analysis and ethical considerations. The population was looked at in terms of target and accessible population. How validity and reliability of the research was achieved is also explained.

3.2. Research Approach and Design

In this study, a quantitative, non- experimental, correlational type of research design was employed. Quantitative research is the inquiry of deductions emanating from numerical, mathematical or statistical examination of all types of data set ranging from psychological and sociological to market and economic driven (Christensen and Johnson, 2008)). None experimental design is a research design used when variables in question cannot be manipulated because they are naturally existing attributes (Belli, 2008) while correlational design are those design that established the relationship between or among variables (Mhlanga and Nchube, 2003). The study was quantitative as it involved numerical figures, nonexperimental since there was no manipulation of variable and no causality was established. The research involved answering certain questions that were hypothesised and involved more than one variable of different complexity. The type of non-experimental was correlational since the research sought to establish the relation between school size, school type, academic performance and school rankings.

3.3. Study Population

A study population is a group of either people, objects or things under investigation. The study population can be divided into target population and accessible population (Kombo and Trump, 2006).

3.3.1 Target population

Target population is the total number of subjects or environment of interest to the researcher (Kazerooni, 2001). In this research, the target population was all secondary school in Lusaka Province that that had grade twelves. The total number was 104 secondary schools.

3.3.2 Accessible Population

Accessible population is part of the target population that a researcher can reach out to draw a sample from (Mulenga, 2017). According to this study, the accessible population was secondary schools in Lusaka province that had candidate sitting for grade twelve (12) examination for the past five years; 2012 to 2016. This was a total of 58 secondary schools. The interest in the accessible population was the certificate pass percentage of the school as a whole.

3.4 Sample and Sampling Procedure

A sample is part of a population that is used to represent the entire population. It is a set of data or elements drawn from a larger population and analyzed to estimate the characteristics of that population (Trochim, 2006). Research sample is used because it cuts on costa, reduce on time, makes population manageable, improves accuracy and quality of data, and reduces problems of hiring staff for data collection (Mutinta, 2013). A non-probability, purposive, total population sampling technic was engaged in the research. Non-probability sampling is a type

of sampling procedure that allow a researcher to select units from a population for which they are interested to study (Laerd Dissertation, 2012). Whereas purposive sampling is a nonprobability sampling technique that ensures that units selected depends on the judgement of the researcher (Tashakkori and Teddlie, 2003). Total Population Sampling is a purposive sampling technique that involves choosing the whole population where the population is relatively small with uncommon characteristics (Alkassim, Etikan, and Musa, 2016).

The sample in the research was equal to size of accessible population; 58, because the population was very small and specific features were required in the research which were: Schools that has had grade twelves sitting for certificate examination for five years, from 2012 to 2016. The sample size was the same (58) for each group (school size and school type) and each group (school size and school type) samples were drawn from the same schools. Within group category consisted of different sample size as that was the maximum number of existing schools in the accessible population of Lusaka province. Regarding size, the sample was made up of 31 small, 19 large and 8 medium schools. For type of schools, it was 26 public, 26 private and 6 grant aided schools. Unequal sample size may occurs when a sample size is confounded to two or more factors (Karen, 2014). In this two way ANOVA, the sample size under school type was confounded to three factors namely: public schools, private schools and grant aided schools. For school size the sample size was confounded into three factors as well. The three factors were small, medium and large schools. Below is a table of sample summary.

Table 1.Summary of the sample size

SN	SCHOOL TYPE		SCHOOL SIZE		
	CATEGORY	NUMBER	CATEGORY	NUMBER	
1	Public	26	Small	31	
2	Private	26	Large	19	
3	Grant Aided	6	Medium	8	
4	TOTAL	58	TOTAL	58	

3.5 Data Collection methods

Data was collected using documentary analysis. Documentary Analysis is a method of data collection whereby data is collected from public records, media, private newspaper, biography, visual documents, and minutes from meetings and from strategies, policies and action plan by public bodies or organisations (Bowen, 2009). For this research, data was collected from records of Examination Council of Zambia for the years 2012 to 2016.

3.6 Data Collection Instruments

Data compilation forms were used to collect data. A data compilation form is a detailed template that allows compilation of specific categories of the information required by the research for analysis to answer the research objectives (Bowen, 2009). The instrument used were of two types. One compilation form specified the following details of a school: type, size, grade twelve certificate pass percentage for the years 2012 to 2016 and the mean performance of each school in the period of five years. The other data compilation form indicated the schools that fell under a similar category such as small school, private schools and so on with the mean grade twelve certificate pass of each school.

3.7 Reliability and Validity

Reliability in research looks at the ability of the instruments to collect the same data consistently under similar conditions (Moskal and Leydens, 2000). Validity in research refers to the extent to which research instruments measures what is intended to be measured (Shafie et'al, 2011). To ensure reliability and validity, internal consistency for academic performance 2012 to 2016 was determined using Cronbach's alpha in SPSS for performance. Alpha is a reliability coefficient with values ranging from zero (0) to one (1) such that zero indicates no reliability and one, absolute reliability. In SPSS, acceptable reliability should have alpha value 0.7 and above (Tavakol and Dennick, 2011). The results of Cronbach's alpha are shown in table 2 and 3 below:

Table 2Reliability Statistics

Cronbach's	Cronbach's	N of Items
Alpha	Alpha Based	
	on	
	Standardized	
	Items	
.965	.965	5

Reliability Statistics

From table 2, Cronbach's alpha (α) was 0.956 which indicated high level of internal consistence for academic performance for the period of five years (2012 to 2016). This showed that academic results for the year 2012 to 2016 were very reliable to be used to understand school size, school type, performances in the ranking of secondary schools in Lusaka province.

Table 3	Item Total Statistics	
Table 5	item Total Statistics	

Year	Scale Mean if	Scale Variance if	Corrected Item-	Squared Multiple	Cronbach's Alpha if
	Item Deleted	Item Deleted	Total Correlation	Correlation	Item Deleted
2012	290,7841	5481.908	.887	.821	.958
2013	291,2647	5221.907	.910	.856	.955
2014	291,3538	5420.986	.915	.858	.954
2015	289,3281	5546.371	.890	.804	.958
2016	290,2755	5551.288	.898	.820	.956

Table 3 showed that removing results for any of the years 2012 to 2016 could still maintain high Cronbach's alpha (α). This meant that even results for four years could give good reliability of at least 0.954. This was confirmed by high corrected item total correlation for each of the years of at least 0.887.

3.8 Data Collection

Data was collected from records of Examination Council of Zambia, Senior Education Standard Officer for examination at provincial office and planning section at Ministry of Education heard quarters. This required an introduction letter to the relevant offices where data was obtained from. The data obtained was sorted into correct sections of the Data Compilation Forms. The exercise took place between 1st May and 15th May, 2017.

3.9 Variable Description

The study employed four variables namely school size, school type, academic performance and ranking. School type and school size were independent variables that affected Academic performance and ranking. Academic performance was both a dependent and independent variable. As a dependent variable, academic performance was affected by school type and school size while as an independent variable, academic performance influenced ranking. Ranking was a dependent variable that dependent on academic performance, school size and school type.

3.10 Data Analysis

The final grade twelve (12) school certificate pass percentage presented in the data compilation form was arranged in the Microsoft Excel spreadsheet table for each school. Each school raw was divided into school type, school size, school certificate pass percentage for each of the years 2012 to 2016 and the mean performance of each school in the period of five years was calculated in the excel spread sheet. The schools were further sorted into various categories of school type (grant aided, private and public schools) and school size (small, medium and large schools). In order to establish the relationship between school types, school size and grade twelve academic performance, Statistical Package for Social Science (SPSS) was used to conduct a two way Analysis of Variance (ANOVA) by inputting mean performances for the period of five years for each type and size of a school. Analysis of Variance is a statistical tool used to compare the relationship between three or more groups (Mhlanga and Ncube. 2003). Analysis of Variance was used since the study was dealing with relationship and three groups were involved in the relation. For school types, the groups were grant aided, private and public schools. School size involved small, medium and large schools. Two way ANOVA is the type of ANOVA used when the study involve two independent variables (Seltman, 2015). The independent variables were school type and school size while the dependent variable was grade twelve academic performance. F-values were obtained by carrying out statistical analysis for the variation both between and within groups. The null hypothesis on the effect of school type and size interaction on academic performance as well as relationship between school type, school size and grade twelve academic performance were tested at 0.05 significance level. Using mean performance of each category of the schools, the academic performance of grant aided, private and public schools were compared. Similarly, the performances of small, medium and large school were compared. For further understanding the extent to which school type and size relate with academic performance, a regression analysis was conducted for the purpose of obtaining unstandardized coefficients. Regression analysis helps to deduce the impact of the independent variables on the dependent variable. It helps to indicate which of the independent factor matter a lot (Gallo, 2015).

3.11 Ethical Considerations

The researcher obtained an introductory letters from the coordinator of Post graduate studies, Masters of Education in Education Management to the Provincial Education Officer, Lusaka Province. It was clearly indicated in the letter that the researcher was a master's student at University of Zambia and Zimbabwe Open Universities whose interest was to collect data for an academic research. The letter helped in ascertain the need for data from Ministry of Education provincial office. This made it possible for data to be easily released. In order to maintain confidentiality and privacy of the performance of each school in the period 2012 to 2016, school were identified by codes and not names.

3.12 Summary.

The research design, accessible population, sample and sampling procedure, data collection methods, data collection instrument, quality control, data collection plan and data analysis plan described in chapter three were followed as such meaningful results that can addressed the research objectives were obtained.

4.0 CHAPTER 4 PRESENTATION OF RESEARCH RESULTS

4.1 Overview

In this chapter, demographic results are presented first followed by results on objectives 1, 2, 3, 4 and 5. Hypotheses 1, 2 and 3 were addressed through test results of two way ANOVA and unstandardized values of the regression analysis while Objective 4 was answered based on ANOVA results only. Objective 5 was looked at using results of objectives 1, 2 and 3. Results for hypothesis/objectives 1, 2 and 3 are supported using tables for test between subject's effects form ANOVA and unstandardized coefficients from regression analysis. Results for objective 4 are supported by tables of mean performance from two way ANOVA analysis.

4.2 Demographic Results



Graph 1: Frequency for School Type and Size





The demographic data for school type and size were as follows: grant-aided schools 6(10.3%), private schools 26 (44.9%), public schools 26 (44.9%), small schools 31 (53.4%), medium school 8 (13.8%), large schools 19 (32.8%), small grant-aided schools 6 (10.3%), medium grantaided schools 0 (0%), large grant-aided schools 0(0%), small private schools 23 (39.7%), medium private schools 3 (5.2%), large private school 0 (0%), small public schools 2 (3.4%), medium public schools 5 (8.6%) and large public schools 19 (32.8%) (Graph 1 and 2).

4.3 Interaction of School Type and Size and Performances

The results from two way ANOVA on the interaction of school type and size in relation to performance addressed objective number one (1) which aimed at scrutinising the extent to which school type and school size interaction affected Grade twelve (12) final academic performance for fair ranking of secondary schools in Lusaka province. In order to address this objective, it was hypothesised that School type and school size interaction had no statistical significant effect on Grade 12 final examination performance and ranking of secondary schools in Lusaka province. The results are shown in table 4, graph 3 and table 5 below.

Table 4: School Type and School Size Interaction and Academic Performance

Dependent	Variable: Academic Performance	
-		

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	8931.914ª	5	1786.383	9.023	.000
Intercept	163365.657	1	163365.657	825.141	.000
TYPE	3130.043	2	1565.021	7.905	.001
SIZE	754.786	2	377.393	1.906	.159
TYPE * SIZE	769.026	1	769.026	3.884	.054
Error	10295.231	52	197.985		
Total	325352.450	58			
(Corrected Total	19227.145	57			

a. R Squared = ,465 (Adjusted R Squared = ,413)

Graph 3: Critical Area for School Type and Size Interaction in Relationship with Academic Performance



F Distribution F (1, 52) = 3.88 p<0.05

Table 5: Regression Analysis Model Summary

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.588ª	.346	.322	15,12276

a. Predictors: (Constant), School Size, School Type

b. Dependent Variable: Academic Performance

Results showed that interaction of school type and school size had no statistical significant effect on the Grade 12 academic performance in Lusaka Province since $F_{table}(4.03) > F_{calculated}$ (3.884) and $P_{value}(0.054) > Sig$ level (0.05). It is by low margin that school type and school size interaction had no effect on academic performance as indicated by small difference between F_{table} (4.03) and $F_{calculated}$ (3.884) in Table 4 and Graph 3 above. Therefore, with 95% level of confidence, the null hypothesis is accepted and research hypothesis rejected. School academic ranking not to be based on school type and size interaction.

The value of R squared of 0.346 indicated that 34.6 % variation in Grade 12 academic performance in Lusaka Province was due to the independent variable school type and school size (Table 5 above).

4.4 School Size and Performance

Objective number two (2) analysed the extent to which school size related with Grade twelve (12) final academic performance for fair ranking of secondary schools in Lusaka province. It was statistically predicted that School size has no statistical significant relationship on Grade 12 final examination performance and ranking of secondary schools in Lusaka province. The results are as shown in Table 6, graph 4 and table 7.

Table 6:School Size and Academic Performance

Source	Type III Sum	df	Mean Square	F	Sig.
	of Squares				
Corrected Model	8931.914 ^a	5	1786.383	9.023	.000
Intercept	163365.657	1	163365.657	825.141	.000
TYPE	3130.043	2	1565.021	7.905	.001
SIZE	754.786	2	377.393	1.906	.159
TYPE * SIZE	769.026	1	769.026	3.884	.054
Error	10295.231	52	197.985		
Total	325352.450	58			
(Corrected Total	19227.145	57			

Dependent Variable: Academic Performance

a. R Squared = ,465 (Adjusted R Squared = ,413)





F Distribution F (2, 52) = 1.91 p<0.05

Table 7: Regression Analysis - Unstandardized and standardised

Coefficients	for	School	Size
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	Model	Unstand Coeffi	lardized icients	Standardized Coefficients	t	Sig.
		В	Std. Error	Beta		
	(Constant)	105.430	7.807		13.504	.000
	SCHOOL	0.053	1 880	360	2 040	046
1	TYPE	-9.933	4.000	500	-2.0+0	.040
	SCHOOL	5 266	3 5 4 7	262	1 495	143
	SIZE	-5.266	3.347	202	-1.405	.143

a. Dependent Variable: Academic Performance

Results showed that school size had no statistical significant relationship with G12 academic performance in Lusaka Province since $F_{tabular}$ (3.18) > $F_{calculated}$ (1.906) and P_{value} (0.159) > Significant level (0.05). It is by far that school size had no statistical significant relationship with Grade 12 academic performance as indicated by a larger difference between $F_{tabular}$ (3.18) and $F_{calculated}$ (1.906) in Table 6 and Graph 4 above. With 95% level of confidence, the null hypothesis is therefore, rejected. School academic ranking not to be based on school size.

The unstandardized beta coefficient of -5.266 indicated that school size caused 5.27% variation in Grade 12 academic performance in Lusaka province. The relationship is however, negative such that when school, size increased from either small to medium or medium to large, academic performance reduced by 5.27%.

4.5 School Type in Relation to Performance

In order to establish fair academic performance ranking based on school type, the extent to which school type related with Grade twelve academic performance was assessed. The assessment was based on the hypothesis that school type had no statistical significance relationship with Grade 12 final examination performance and ranking of secondary schools in Lusaka province. The results are as indicated in table 8, graph 5 and table 9 below.

Table 8: School Type and Academic Performance

Source	Type III Sum	df	Mean Square	F	Sig.
	of Squares				
Corrected	2031 01/l ^a	5	1786 282	0.023	000
Model	8931.914	5	1780.385	9.023	.000
Intercept	163365.657	1	163365.657	825.141	.000
TYPE	3130.043	2	1565.021	7.905	.001
SIZE	754.786	2	377.393	1.906	.159
TYPE * SIZE	769.026	1	769.026	3.884	.054
Error	10295.231	52	197.985		
Total	325352.450	58			
(Corrected Total	19227.145	57			

Dependent Variable: Academic Performance

a. R Squared = ,465 (Adjusted R Squared = ,413)



Graph 5: Critical Area for School Type in Relationship with Academic Performance

Table 9: Regression Analysis - Unstandardized and Standardised

Coefficients for school type

	Model	Unstand Coeff	Unstandardized S Coefficients		t	Sig.
		В	Std. Error	Beta		
	(Constant)	105.430	7.807		13.504	.000
1	SCHOOL TYPE	-9.953	4.880	360	-2.040	.046
	SCHOOL SIZE	-5.266	3.547	262	-1.485	.143

a. Dependent Variable: Academic Performance

Results showed that school type had statistical significance relationship with G12 academic performance in Lusaka Province since $F_{tabular}$ (3.18) < $F_{calculated}$ (7.905) and P_{value} (0.001) < Significant level (0.05). School type statistical significance relationship with Grade 12 academic performance was to a larger extent since the difference between $F_{calculated}$ (7.905) and $F_{tabular}$ (3.18) was big as shown in Table 8 and Graph 5 above. Therefore, with 95% level of confidence, the null hypothesis is rejected. School Academic ranking to be based on school type.

The unstandardized coefficient of -9.953 form regression analysis indicated that school type accounts for 9.95% variation in grade 12 academic performance for Lusaka province. The relation is however, negative (Table, 9 above).

4.6 Comparison for Academic Performances of Different School Types and Sizes in Five Years

In this research, academic performances of different school types and sizes were compared so as to understand the limitation in performance for some schools in Lusaka province. It was predicted that academic performances of different school types and sizes din not differ and thus school type and size did not limit the performances of schools. The results are as shown in table 10 and 11 below.

Table 10:	Mean Acader	nic Performanc	e of Different	School	types in	5 years
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SCHOOL TYPE	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
GRANT	99.128 ^a	5.744	87.601	110.655
PRIVAT	66.533 ^a	4.319	57.867	75.199
PUBLIC	68.188	4.069	60.023	76.353

Dependent Variable: Academic Performance

a. Based on modified population marginal mean.

Table 11: Mean Academic Performance of Different School Sizes in 5 years

SCHOOL SIZE	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
LARGE	60.064 ^a	3.228	53.586	66.541
MEDIUM	64.883 ^a	5.138	54.573	75.193
SMALL	82.310	3.952	74.378	90.241

Dependent Variable: Academic Performance

a. Based on Modified Population Marginal Mean.

For school type, results showed highest performance in Grant-aided (99.13%), then public (68.19%) and lowest in private schools (66.53%) as indicated in Table 10 above. While for school size, highest performance was in small (82.30%), then medium (64. 86%) and least in large schools (60.06%) as shown in Table 11 above. With 95% level of confidence, the null hypothesis was therefore, rejected. The results showed that academic performances of different school types and sizes differed and thus school type and size limited the performances of some schools.

4.7 Fair Criteria for Ranking Overall School Academic Performances

To establish a far criteria of ranking overall school academic performances in Lusaka Province, it was predicted that fair criteria of ranking overall school academic performances in Lusaka province should not be based on school type and size interaction, school type and school size. Based on the results for objectives 1, 2 and 3, the extent to which school type and size interaction, school type and size shown in table 12 below.

Table 12Status of Significance for each School type, school size and School Typeand Size Interaction

Independent Factors	School type and Size interaction	School Type	School Size
Status of Significance	Not Significant	Significant	Not Significant

The results showed that academic performance of schools in Lusaka province should be ranked based on school type (Grant-aided, Private and Public schools). This is because school type showed a significant relationship with academic performance. Schools of different sizes to be lamped together when ranking, as well as type and size interaction because these did not show a significant relationship with academic performance (Table 12 above).

4.8 Summary of the Presentations of the Research Results

Results were presented by looking at how significant the relation was between school type and school size interaction, school size and school type and academic performance. This was achieved by comparing F- calculated with F- critical and P- value with significant level of 0.05. The mean performances of each of the school type (grant aided, private and public) and size (small, medium and large) were compared and also presented. The basis of the presentation was table for test between subjects' effects from ANOVA analysis, graphs for critical areas based on ANOVA analysis, model summary from regression analysis, unstandardized coefficient from regression analysis and mean performances of each of the categories for the independent variables.

CHAPTER 5 DISCUSSION OF THE RESEARCH FINDINGS

5.1 Overview

The study was conducted to understand school type, school size, performance in the ranking of secondary schools in Lusaka province. To acquire an insight on this, research was conducted on grant-aided, private, public, small, medium and large schools of Lusaka province. Three hypothesis were used to understand the relationship between school type, school size and academic performance. The fourth hypothesis was used to compare the performance of different school types and sizes for the purpose of understanding possible school limitation in performances. The fifth hypothesis helped to establish fair criteria for ranking school academic performances. The research results were discussed based on what emerged from the study by looking at what the study had established in relation to the objectives of the study, how the results of the study related with the results of other researchers, theoretical support of the results and own comment.

5.2 Insignificant Relationship with Academic Performance of School Size, School Type and Size Interaction

By using two way ANOVA in SPSS, it was established that school Size, School type and size interaction had no significant relationship with academic performance in Lusaka Province. The results thus indicated that academic performances of schools did not have significant variation based on different sizes of a particular type of a school. This meant that school types of different sizes should not be differentiated when ranking. Since the results showed that school type and size interaction does affect academic performance to some extent despite not having significant relationship, staff and school management at various levels should bear in mind that school types of various size can never perform the same. The R squared from regression analysis established that school type and size interaction account for 36.6% variation in

academic performance. It should be expected that school types of different sizes can vary in their performance up to 36.6%.

Similarly, large, medium and small schools academic performances did not vary significantly. In this regard, academic performances of various schools should be ranked regardless of school sizes. However, staff and management at various levels should bear in mind that schools of different size can never perform the same. Variation in performance of up to 5.27% is expected as established by the unstandardized coefficient from regression analysis.

The results were consistent with some researchers. School size only matters for different Grade levels and when it interacts with funding which ultimate determines availability of instruction materials (James, 2010, Ezeife and Jones 2011). The effect of school size also depends on student economic background, location of a school and state policy (Howley, 2001). School size relate to many other factors that are responsible for academic performance (Stevenson 2006). There is high possibility that if the school size is proportionate to availability of staff and teaching and learning materials, academic performance of different school sizes cannot vary with a bigger margin.

The results were consistent with the theory of performance. Although school types of different sizes as well as school of different sizes did not show significant relation with performance, schools of different sizes and types of schools of different sizes indicated a variation in performance to some extent. According to the theory of performance, school size causes variation in performance since it defines the context of an environment in which a student performs. The size of a school determines pupil to teacher ratio, availability of teaching and learning materials and physical learning space.

However, school type and size interaction as well as school size did not show significant relationship with academic performance. According to the theory of performance, School size is an immerse factor that form part of the school environment and thus affect academic performance. As immerse factors, the effect of school size depended on how far the factor is altered. The environment of medium size school could be altered to suit that of smaller schools and that of larger schools to suit medium and small schools. For example, if there was equity in the deployment of teachers as well as distribution of teaching and learning materials in schools of varying sizes, there could be almost equal performance among schools of various sizes. This could had significantly equalised the learning environment which would in turn lead to academic performance of schools of varying sizes to be of no significant difference.

5.3 Significant Relationship of School Type and Academic Performance

The results indicated that a significant relationship existed between school type and academic performance in Lusaka province. This meant that academic performance of grant-aided, private and public schools differed significantly. Thus academic performances of grant-aided, private and public schools should be compared and ranked separately.

Different types of schools had significant difference in their academic performance due to difference in the number of trained and qualified personnel (Archibong and Okon, 2015). The variation in academic performance of different types of schools was also caused by the variation in amount money school owner invest in acquiring teaching facilities (Fullarton, 2002). School type defined an environment and teacher to learner's ratio which ultimately affect performance (Okon and Archibong, 2014).

Contrary to these findings, school type does not significantly affect academic performance. Any school type can either perform better or poorly depending on availability of facilities (Babatunde, Oluwole and Sabitu, 2012). Whether grant-aided, private or public school, they are all controlled and supervised by the same government as such their academic performance is expected not to differ significantly (Adigun and Yusuf, 2010).

The results on school type and the relationship with academic performance agreed with theory of performance. According to the theory of performance, performance is enhanced by level of identity, level of skill, level of knowledge and context of performance. Grant aided schools had special identity with individuals uniqueness of doing things and organisation own mission statement, highly skilled and well knowledgeable in the way they managed the schools. That made performance in grant-aided schools far better. As a context of performance, school type defined availability of teaching and learning materials, level of discipline existing in schools, nature of physical building in which learners learn from, attitude of teachers and type of management found in school. As an immerse factor, the effect of school type also depended on how far that factor was altered. Public schools had failed to alter their environment such as pupil and teacher discipline and enrolment marks at both Grade eight and ten to the standard of grant-aided schools. That had led to significant difference in the performance of public and grant-aided schools. Most upcoming private schools had also failed to alter their environment such as good infrastructure and employment of quality teachers. That had led to significant difference in their performance as compared to public and grant aided schools.

5.4 Best Performance of Small schools, Average Performance of Medium Schools and Least Performance of Large Schools.

The results further established that although size did not significantly relate with academic performance, smaller schools performed better than medium and large. Small schools performed better due to effective management of classes (Maxner, 2005).

However, these findings were at variance with some researchers who concluded that academic performance was best in large and medium schools. Larger schools performed better because of more funding and adequate facilities (Gardner, Ritblatt and Beaty, 2000 and James, 2010). Large schools had rich curricular and were easy to operate (Cotton, 1996). An opposing view looked at academic performance to be better in medium size schools and that size mattered for disadvantaged children (Lee and Smith, 1997).

It seemed schools of different sizes were not availed with resources proportionate to their sizes hence variation in performance.

5.5 Best Performance of Grant-aided Schools, Medium Performance of Public Schools and Least Performance of Private Schools

The results also established that for school type, performance was best in grant-aided schools and least in private schools. Grant-aided school performed better due to controlled enrolment (Malambo, 2012). The other probable reasons for better performance in grant-aided schools was availability of teaching and learning materials, correct teacher to learner ratio, high level of discipline both teachers and learners and good social-economic background of learners. Private schools performance was least likely due to a number of private schools which were not established. Such institutions employed less qualified teachers and sometimes teachers who had been dismissed from government for lack of discipline. Different types of schools differed in enrolment marks and student background.

These results were contrary with other researchers. Public schools performed better owing to higher quality inputs in schools (Beengle and Newhouse, 2005).

5.7 Summary of Discussions

The findings of the research that significant relationship did not exist between school type and school size interaction as well as school size and academic performance was in agreement with James (2010) and Ezeife and Jones (2011). Among other scholars, Howley (2001) and Stevenson (2006) explained the reasons for non-existence of a significant relationship while Maxner (2005) explained why small schools performed better. Archibong and Okon (2015), Fullarton (2002) and Okon and Archibong (2014) were in tandem with the findings of the research and gave elaborate explanation for significant relationship between school type and academic performance. Only school type ought to be considered when ranking academic performance of secondary schools in Lusaka province and not size and school type and size interaction. The findings agreed with the theory of performance by Donald McGillivray Elder.

6.0 CHAPTER 6: SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Overview

In this chapter, a summary of research problem, purpose of the study, research design and methodology, population, sample, instruments used, data analysis, challenges faced, and results of the study are presented as well conclusion and recommendations.

6.2 Summary

The study was concerned with academic performance ranking of secondary schools in Lusaka province which did not take into account the size and type of a school. This led to a need to understand school size, school type, performance in the ranking of secondary schools in Lusaka province. The major findings of the study were that school type and school size interaction and school size had no significant relationship with academic performance. However, small schools had best performance while large schools had least performance. Regarding school type, it was found that there was significant relationship between school type and academic performance in secondary schools of Lusaka province. Best performance was observed in grant aided schools and least performance in private schools. To come up with these results, , Chapter one of the study highlighted a detailed background, purpose, objectives, hypotheses, research questions, significance of the study, delimitation of the study, limitations of the study, theoretical framework, conceptual framework and definition of terms. Chapter two looked at Literature review. The review focused on studies that looked at academic performance in relationship with school size and school type as well as how schools are ranked. Chapter three (3) of the study focused on research design, research population, sample, data collection methods, validity and reliability, variable descriptions, data analysis and ethical considerations among others. In Chapter four, results were presented under the following themes: demographic data and how academic performance related with school type and size interaction,
school size and school type. The results also compared how schools of different types and sizes compared in performance and showed what should be a fair criteria in ranking schools. In chapter six (6), conclusions were drawn and recommendations made. Chapter seven brought out implications of the study.

The major setback faced during the research was correct classification of secondary schools in Lusaka province into various sizes and types. This problem was resolved using information from Ministry of General Education planning section at the province and headquarters.

6.3 Conclusion

From the findings and discussions of the research on Understanding School Size, School Type, Performances in the Ranking of Secondary Schools in Lusaka Province, it clear that school size, type and school type and size interaction relates with academic performance to a different extent.

School type and school size interaction has no significant relationship with academic performance. This shows that school type and size interaction effect on academic performance should be ignored when it comes to ranking of schools in Lusaka province. All school in Lusaka province are expected to perform equally well with only small variation with regard to school type and size interaction.

School Size has no significant relationship with academic performance. School ranking therefore should not be based on school size. In this regard, all schools in Lusaka province are expected to perform within the same range with only very insignificant difference. No Headteacher is expected to attribute poor performance of the schools they lead to large size. In the same vein, no Headteacher is expected to attribute good performance of school lead by others to small size. However, a variation which is insignificant is expected among schools of varying sizes with smaller schools performing better followed by medium and the larger schools.

School type has a significant relationship with academic performance in Lusaka province. Academic performance ranking of schools in Lusaka province should therefore, be based on school type. This means that grant-aided, private and public schools should be ranked separately. This is because schools of different types have extremely different environment in which they operate from. By ranking academic performances of different schools based on school type, fairness is achieved. It is important to rank schools fairly because of the many advantages that accrue to best ranked schools which include reputation, funding, parent school choice, promotion of staff and learner confidence.

For school sizes in Lusaka province, academic performance is best in small schools, followed by medium schools and least in large schools. Among many factors, smaller schools as opposed to medium and large schools provides better learning environment for learning such pupil to teacher ratio, pupil to book ratio and learner identity. For school type, academic performance is best in grant aided schools, followed by public schools and least in private schools. Best performance in grant aided schools can be attributed to conducive learning environment such as low enrolment levels, learner discipline and good management. Poor performance in private schools can be attributed to poor physical structure for upcoming private schools and employment of less qualified teachers in case of upcoming private schools. From the findings, fair ranking of secondary schools in Lusaka province should be based on school type.

6.4 **Recommendations**

- 6.4.1 It is important that the following are taken into consideration: Government should ensure that secondary schools in Lusaka province are of reasonable sizes. The population of each Grade to be within what was defined as small school in this research. More schools should be built to achieve this.
- 6.4.2 Schools of different sizes to be availed with resource and infrastructure proportionate to their sizes. Public and private school management teams to regularly interact with management for grant-aided schools and learn good practices that trigger better academic performance in grant-aided schools.
- 6.4.3 Enrolment marks in all the types of schools to be regulated.
- 6.4.4 Further research to be carried out should include investigation on relation between school location and academic performance. The research to focus on the nation as a whole.

7.0 Implications

The results of this research will help in:

- 7.1 Lessen arguments on school size and academic performance. Headteachers of various schools will strive for better performance regardless of their school size since the relationship between school size and academic performance has no significant difference.
- 7.2 According to unstandardized coefficient from regression analysis, school size caused 5.27 % variation in academic performance. This means that all schools in the province regardless of their size must perform within plus or minus 5.27 provincial mean holding all other factors constant. Headteachers whose schools perform more than 5.27 below the provincial mean to be reprimanded while performance more than 5.27 above the provincial mean to be awarded.
- 7.3 Similarly with school type, performance more than 9.95 below the provincial mean to attract a reprimand while performance more than 9.95 above the provincial mean to be rewarded. This is because school type causes 9.95 variation in performance according to unstandardized coefficients.
- 7.4 By ranking school academic performance according to school type, fairness will be established and equitable distribution of rewards for administrators and teachers in best performing schools will be achieved.
- 7.5 Variation in academic performance of different school types and sizes provided understanding about the limitation of some schools in academic performance.

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APPENDICES

Appendix 1 Data Compilation Form

DATA COMPILATION FORM

LIST OF SCHOOLS IN LUSAKA PROVINCE, THEIR CERTIFICATE PASS PERCENTAGE AND THEIR CATEGORIES IN TERMS OF SCHOOL TYPE AND SCHOOL SIZE

NAME OF		SIZE G12 SCHOOL CERTICATE PASS PERCENTAGE		TAGE					
_		NO OF					_	-	
SCHOOL	ТҮРЕ	G12	CLASSIFICATION	2012	2013	2014	2015	2016	MEAN
1	GRANT AIDED	117	SMALL	98,53	98,46	99,24	98,46	99,15	98,77
2	GRANT AIDED	88	SMALL	98 <i>,</i> 85	100	98,55	100	100	99,48
3	GRANT AIDED	74	SMALL	98,25	100	100	100	100	99,65
4	GRANT AIDED	87	SMALL	100	95,88	96,97	100	100	98,57
5	PRIVATE	36	SMALL	100	100	100	100	100	100,00
6	GRANT AIDED	35	SMALL	100	100	100	100	100	100,00
7	PRIVATE	38	SMALL	100	98,18	97,5	100	100	99,14
8	PRIVATE	32	SMALL	98,18	96,92	100	100	100	99,02
9	PRIVATE	19	SMALL	82,14	100	100	100	100	96,43
10	GRANT AIDED	104	SMALL	96,63	97,37	97,48	100	100	98,30
11	PRIVATE	96	SMALL	97,3	97,7	97,06	98,1	100	98,03
12	PRIVATE	71	SMALL	98,51	95,65	97,22	98,21	94,37	96,79
13	PRIVATE	29	SMALL	91,67	96	100	96,43	96 <i>,</i> 55	96,13
14	PRIVATE	29	SMALL	88	100	95,65	81,82	96 <i>,</i> 55	92,40
15	PRIVATE	21	SMALL	88,57	94,55	95,56	100	95,24	94,78
16	PRIVATE	61	SMALL	94,12	93,88	92,86	93,73	91,8	93,28
17	PUBLIC	174	MEDIUM	62,9	75,58	72,66	85,46	82,18	75,76
18	PUBLIC	88	SMALL	66,67	81,48	76,67	60,71	85 <i>,</i> 23	74,15
19	PRIVATE	42	SMALL	97,01	92,59	93 <i>,</i> 33	91,49	77,27	90,34
20	PUBLIC	273	MEDIUM	80,63	81,74	78,49	86,23	73,99	80,22
21	PUBLIC	313	MEDIUM	76,25	74,11	66,67	61,58	80,94	71,91
22	PRIVATE	24	SMALL	80,21	94,52	90,48	81,25	87 <i>,</i> 5	86,79
23	PUBLIC	116	SMALL	58,9	57,75	59,72	61,46	87,07	64,98
24	PUBLIC	1421	LARGE	51,04	47,08	54,24	57,57	51,68	52,32
25	PRIVATE	45	SMALL	84,62	78,57	65,79	90,48	77,78	79,45
26	PUBLIC	689	LARGE	62,55	69,38	61,36	60,32	61,59	63,04
27	PRIVATE	92	SMALL	67,27	37,1	43,5	55,28	77,11	56,05
28	PUBLIC	1191	LARGE	65,24	62,16	54,01	55,02	56,69	58,62
29	PUBLIC	833	LARGE	69,78	67,29	73,12	67,34	59 <i>,</i> 38	67,38
30	PUBLIC	1142	LARGE	63,08	64,54	72,04	67,48	69,61	67,35
31	PUBLIC	424	LARGE	61,41	62,4	54,92	61,9	62,22	60,57
32	PUBLIC	978	LARGE	61,63	56,09	61,45	53,28	56,39	57,77
33	PUBLIC	506	LARGE	64,53	64,8	60,56	64,54	61,76	63,24
s									

NAME			SIZE	G12 SCHOOL CERTICATE PASS PERCENTAGE					
OF	ТҮРЕ	NUMBER	CLASSFICATION	2012	2013	2014	2015	2016	MEAN
34	PUBLIC	280	MEDIUM	77,07	58,99	72,62	79,41	71,99	72,02
35	PUBLIC	765	LARGE	59,47	61,98	58,68	56,27	59,34	59,15
36	PUBLIC	702	LARGE	60,73	64,52	58,82	59 <i>,</i> 82	50,63	58,90
37	PRIVATE	172	MEDIUM	92	84,93	53 <i>,</i> 5	56,03	56,9	68,67
38	PUBLIC	729	LARGE	66,06	54,74	58,93	63,06	67,28	62,01
39	PRIVATE	46	SMALL	90,74	65,83	90,32	97,78	80,43	85,02
40	PUBLIC	830	LARGE	61,63	70,51	64,86	66,31	55,82	63,83
41	PUBLIC	665	LARGE	58,04	59,9	58,95	57 <i>,</i> 34	62,37	59,32
42	PUBLIC	830	LARGE	48,83	42,71	48,31	49,67	53,31	48,57
43	PRIVATE	35	SMALL	47,06	42,47	51,16	56,86	62,86	52,08
44	PUBLIC	175	MEDIUM	73,55	77,27	77,17	84,62	61,24	74,77
45	PUBLIC	929	LARGE	50,52	49,52	51,8	58,4	57 <i>,</i> 83	53,61
46	PUBLIC	500	LARGE	65,95	72,61	66,04	66,05	64,36	67,00
47	PUBLIC	447	LARGE	40,62	63,24	56,54	65,77	63,25	57,88
48	PUBLIC	676	LARGE	58,7	55,89	59,78	63,17	56,47	58,80
49	PUBLIC	869	LARGE	64,32	60,89	59,67	62 <i>,</i> 98	61,4	61,85
50	PRIVATE	343	MEDIUM	38,76	45,85	49,69	38,54	46,36	43,84
51	PRIVATE	91	SMALL	45	44,29	51,67	51,72	57,14	49,96
52	PRIVATE	89	SMALL	37,73	24,14	50	69,62	52,75	46,85
53	PRIVATE	172	MEDIUM	48,35	47,96	52 <i>,</i> 5	54,69	56,4	51,98
54	PRIVATE	99	SMALL	50	44,93	39,33	61,82	36,36	46,49
55	PRIVATE	90	SMALL	49,44	33,8	47,84	56 <i>,</i> 8	44,54	46,48
56	PRIVATE	95	SMALL	48,28	53,33	78,57	36,92	47,37	52,89
57	PRIVATE	38	SMALL	65,79	84	57,69	87,1	63,16	71,55
58	PRIVATE	80	SMALL	100	79,17	48,53	58,67	61	69,47

Appendix 2 Work Schedule

SN	NAME OF ACTIVITY	PERIOD
1	Proposal Writing	1 st January to 30 th April 2017
2	Data Collection	1 st May to 15 th May 2017
3	Data Analysis	16 th May to 30 th May 2017
4	Report Compilation	1 st June to 22 nd July 2017
5	Presentation of the Report	24 th July to 28 th July 2017
6	Correction of the Report	1 st August to 31 st August 2017
7	Printing and Binding of final Report	1 st September to 10 th September 2017

Appendix 3 Budget for the research

SN	NAME OF ACTIVITY	COST OF ACTIVITY (K)
1	Transport for Data collection (Fuel)	3, 000 = 00
2	Accommodation during Data Collection	1, 800 = 00
3	Preliminary printing (3 copies)	468 = 00
4	Final Report Printing (5 copies)	780 = 00
5	Binding of the Reports	750 = 00

Total 6,798 = 00