



Re-Engineering the Teaching and Learning of Geography in Six Selected Secondary Schools of Livingstone District, Southern Province, Zambia

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ABSTRACT

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The teaching and learning of Geography in Zambian senior secondary schools should be re - engineered if high academic performance should be attained. Academic performance in Geography at School Certificate level, consistently for some time now is neither impressive nor competitive with other subjects at all. The question is how should geography be taught to make it a must do subject by many senior secondary school learners? There is a need therefore, to remodel or restructure how geography content should be taught and learned. The main objective of this study was to explore how best geography could be taught and learned in selected Schools of Livingstone District. This study is anchored on descriptive design, of the qualitative approach. Operant conditioning by Skinner (1971), who believed that ‘changes in behaviour are a result of an individual’s response to events (stimuli) that occur in the environment’. The study used heterogeneous purposive sampling technique to select schools and participants respectively. A total of six heterogeneous schools, 30 learners and 18 teachers of Geography were sampled bringing the total number to 48 participants. The selection criteria included schools with diverse range of pupil populations and geography teachers with varying levels of experience. Data was collected using Focus Group Discussion (FGD) administered to learners of Geography, and semi – structured interview schedule administered to selected learners and teachers. The qualitative data collected from both learners and teachers of geography were analysed thematically by identifying patterns and themes in the data. Teachers and learners experienced challenges/problems, such as inadequate or lack of teaching and learning resources, absenteeism from both teachers and learners, and inadequate or lack of teachers. The main findings were that teachers and learners of geography needed well organised field work excursions; learners wished to be in a driving seat of learning through presentations, discussions, hands - on experiences, continuous assessment, and ‘equal opportunity’ provision from their teachers. The study recommends that learners need to experience ‘equal opportunity provision from their teachers in the way they are taught. The study also recommends removing sub – regional geography from the curriculum and intensify well organised and sponsored field work excursions. Also, that the Ministry of Education should provide adequate teaching and learning resources such as textbooks, models, and Maps.

Keywords:

Geography, Re-Engineering, Teaching, Learning, Performance, Equal Opportunity

INTRODUCTION

Geography as a cross - cutting discipline seeks to focus on location processes, the flows of people, ideas and goods also on the differentiation and similarities that are on Earth (Rediscovering Geography Committee, National Research Council, 1997).

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According to Holt - Jensen (2009:8) “Geography is ‘a mother discipline’ from which other specialised disciplines, like geodesy...,soil sciences and plant ecology, have emerged”. He further said, “...no other discipline concerns itself with the earth’s surface and its spatial parts in their totality.”

‘Methods of teaching geography help the development of didactics, and didactics help the development of principles and new methods and techniques on which the methodology of geography is based upon’ (Ilić, 2013).

Performance in Geography at School Certificate level in Zambian Schools has not been impressive at all, because what

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is observed in Table 1, is a representative of many Schools in the Country. For instance, Mundende and Namafe (2019), carried out a study in Kabwe District, Zambia, which covered eight years, consecutively (2010 to 2017), and what is

depicted in Table 1 was observed some four or so years ago. The reason why, the current study of re-engineering the teaching and learning of geography should be done as soon as possible.

Table 1: 2022 Grade 12 Results Analysis for Selected Livingstone District Schools

Schools	Grd 1	Grd 2	Grd 3	Grd 4	Grd 5	Grd 6	Grd 7	Grd 8	Grd 9	Absent
1	0	0	1	6	8	4	7	7	0	0
2	0	1	5	5	11	30	38	49	16	13
3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	0	3	12	2	4	2	1	1	0	3
5	0	0	9	2	6	11	3	10	1	0
6	0	34	12	17	1	1	0	2	0	0
Totals	0	38	39	32	30	48	49	69	17	16

(Source: Field Data, 2023)

Findings from Table 1 show that high numbers in terms of totals are on the lower side of academic performance, from Grade (Grd) 5 to Grade 9). Scrutinising the scores further, the higher figures observed between Grd 1 and Grd 4 which are (Distinctions and Merits respectively) are influenced by School 6 scores, otherwise even in this category, the performance may be termed poor. In the Zambian context the grading system is: Grds. 1 & 2 (Distinctions); Grds. 3 & 4 (Merits); Grds. 5 & 6 (Credits); Grds. 7 & 8 (Satisfactory/Pass); and Grd. 9 (Fail). Apparently, absenteeism is also recorded.

Problem Statement

The teaching and learning of geography in Zambian Schools is neither impressive nor competitive, subjecting the discipline to being infamous and a no deliberate choice for many school learners. This ‘ugly’ picture painted above does not only affect academic performance at School Certificate level, but also leaves the discipline not marketable. There are studies done by Mundende and Namafe, (2019); Mundende (2015); Mundende et al., 2022; Yli-Panula et al., (2019) Mubita et al., (2023) and many others, on the teaching and learning of Geography but little or scanty information in them could be attributed to wholly ‘re-engineering the teaching and learning of geography in secondary schools’, especially in Zambian Livingstone District Schools landscape, thus, this study. The question to be addressed is how should geography be taught and learned to give it a different high academic sound and present it as a discipline of choice and not where prospecting candidates are forced to take it?

Aim

The aim of this study was to re-engineer the teaching and learning of geography in order to bring about high academic performance at school certificate level in Zambian Secondary Schools.

Objectives

The specific objectives of this study were to:

- explore the challenges teachers and learners consistently experienced in teaching and learning geography respectively, in selected Secondary schools of Livingstone District.
- describe the ways geography should be taught and learned in selected Secondary Schools of Livingstone District
- propose ways of improving the teaching and learning of geography in selected Secondary Schools of Livingstone District

Significance of the study

The findings of the study may help the Ministry of Education to implement the best practices in the teaching and learning of geography in Zambian Secondary Schools. The Ministry of Education may also be helped to re – engineer the design of the geography curriculum to bring about acquisition of knowledge, skills, and attitudes in learners. The findings may also assist teachers of geography to re-work their teaching approaches and practices of the subject.

LITERATURE REVIEW

Geography education is a critical component of a well-rounded education. It equips learners with the necessary skills to understand and interpret the world around them, as well as to engage in meaningful citizenship. This literature review aims to explore the research on re -engineering the teaching and learning geography in senior Secondary Schools.

In the teaching and learning of Geography, Mundende and Namafe (2019) recommended the provision of ‘equal opportunity’ where you leave no learner behind. The emphasis in this work was to ensure that teachers teach each individual child and attend to their specific needs.

On the effective teaching and learning of geography even for sustainable development, Yli - Panula, Jeronen, and

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Lemmetty (2019) advanced that it did not only rely on the knowledge acquisition but also on how it was delivered and studied.

In geography education, children's learning of geography should be based on their geographical knowledge and active role that they play as they learn (Catling, 2011). Ballantyne and Packer (2006) in promoting outdoor learning argued that learning in natural environment develops learner's environmental sensitivity, promote their concrete assimilation of environmental issues, and engages them effectively with ecological issues.

Importance of Geography Education

Geography education helps learners to develop the skills, knowledge and attitudes needed for job opportunities, which includes but not limited to tourism and teaching (American Association of Geographers, 2021).

According to Benjamin and Nato (2014: 236) "the importance of Geography in secondary school curriculum cannot be over - emphasised. It trains the learners to manage their environment for the good of the society as a whole."

Geography promotes world-wide awareness and cultural discernment. Studying geography therefore, unmask different cultural attributes around the world, and such helps learners to acknowledge and uphold in high esteem differences in people's beliefs, values, and traditions.(National Council for Geographic Education, 2018).

Further, Geography promotes environmental awareness and sustainability. Geography encourages learners to understand the relationship between humanity and the environment they live in, and such develops a sense of responsibility to bring about sustainability. This can help to promote greater environmental awareness and action (UNESCO, 2019 & Mundende, 2015).

Challenges Faced in Teaching and Learning of Geography

Despite many benefits that geography offers, such as job opportunities, appreciation of cultural diversity, research knowledge and skills acquisition, children's understanding of the complex relationships between humans and the environment, the aspect that may help them to address world-wide issues such as drought floods and simply how to manage the environment the discipline is characterised by a lot of problems or challenges. Such challenges include but not limited to bulkiness of geography content, inadequate or lack of teaching and learning resources, reference books and materials such as text-books, maps, models, insufficient teachers (Mundende et al., (2022), Mundende (2015), Maantay (2010), Standish (2009), de Guzman, (2017), Gökçé, 2009),

Geography teaching and learning in Zambian schools requires access to appropriate resources, and such includes but not limited to specific maps, globes and reference textbooks. Apparently, many Zambian schools may not have the resources probably due to poor funding, and that in no doubt may affect the delivery of geography content (Mubita *et al.*, 2022, National Council for Geographic Education, 2018, Mubita, Mundende, Milupi and Kalimaposo, 2023).

The other challenge is that, many teachers may not have received adequate training in geography education, which can make it difficult for them to effectively teach the subject, and the quality of the teacher depend on a good knowledge of the teacher as well as on the quality use of the best modern methods ever. If not done properly, this can lead to a lack of confidence and competence in delivering geography content, which can in turn impact pupil learning (Mundende *et al.*, 2022, Ilić, 2013 and UNESCO, 2019).

Learners of geography are also a challenge. To some, Geography may not be seen as an exciting subject as such, they may not objectively study its content with the intention to score highly. Others are just lazy and absent themselves from classes. Such attitudes may affect the learning outcomes (National Research Council, 2006 & Mundende and Namafe, 2019).

The other challenge is many assessment items in the teaching and learning of geography are examination result oriented and not knowledge, skills and attitudes acquisition, even for life long. This is why learners end up with rote memory which is a temporal achievement. Learning should lead a learner to critical thinking (National Council for Geographic Education, 2018, Mubita *et al.*, 2023).

Solutions to the Challenges in the Teaching and Learning of Geography

Despite multiple challenges that geography discipline is faced with, not all hope is lost because teaching and learning of geography can be restructured to bring about desired and expected results, especially in favour of learners. According to Plotrowska *et al.*, (2019), conducting field classes should be promoted because it brings about high levels of skills acquisition, development of research attitudes of learners and high academic performance. Strong emphasis should be made on reflective thinking which should trigger intellectual manipulation of materials, using various teaching and learning resources such as models, computer - aided instructions and involve learners in active learning practices.

The other method is to conduct drill and practice exercises as well as engage learners to do things as individuals or in groups, have map rooms and equipment, suitable learner - centred strategies and test methods (Gökçé, 2009, de Guzman *et al.*, 2017)

According to Mubita *et al.*, (2023), Mundende and Namafe, 2019 and National Council for Geographic Education, 2016),

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there is a need to increase access to various resources, such as maps, atlases, models and textbooks for both teachers and learners. This can also include providing access to digital resources and online databases.

The need for more experiential and place-based learning should be experienced. Experiential learning and place-based education help learners to understand their environment and develop and geography makes sense. Experiential learning includes field trips and computer - based ((Mubita *et al.*, 2022; Mundende *et al.*, 2022 and Cobb, 2017).

In order to improve the learning and teaching of geography in schools, Chirwa and Mubita (2021) proposed the use of technology through the use of Information and communication Technologies (ICT). According to Chirwa and Mubita (2021) geography often involves the use of geographic information systems (GIS) and other digital technologies and Information and Communication Technologies (ICTs) to analyse and interpret spatial data. This can help to improve pupils' digital literacy and prepare them for a variety of 21st century careers.

Teaching and learning of geography should also happen in safe and health environments (Mubita and Namafe, 2016; Mubita *et al.* 2016). This will help pupils feel confident to share their ideas, values and attitudes without fear of negative feedback from their peers. A safe learning environment with clear boundaries also helps teachers to manage discussions on sensitive issues with greater confidence.

METHODOLOGY

Research Design: this study was anchored on descriptive research design of the qualitative nature. It meant delving into extracting teachers' and learners', views and experiences in the teaching and learning of Geography in Zambian schools (Kothari, 2004).

Sampling: The study used heterogeneous purposive sampling to select schools and participants for the study. Heterogeneous sampling because the nature of the schools was different, one from the other. A total of six schools were sampled one Technical; one boys'; two (one girls' and the other co-education) mission schools; one combined secondary school and one co – education secondary school, and all from the urban setting of Livingstone District. The initial plan was to sample five teachers and five learners respectively from each school, but this could not materialise with teachers because some schools did not have five teachers due to under establishment, thus, having 18 teachers instead of 30. The short fall however, does not affect the outcomes of this study.

Data Collection: Two methods were used for data collection, namely, Focused Group Discussion (FGD) and semi – structured interview schedule. The FGD guide (administered to pupils) included structured questions meant to get more insights from selected pupils. Semi – structured interview schedule (with open and closed questions) were administered

to both selected teachers and learners of geography purposively.

Data Analysis: Thematic analysis which was used to identify patterns and themes in the data was implored to analyse data.

Ethical Considerations: The researchers obtained authority from the MoE through Livingstone District Education Board Secretary (DEBS) and School Administrators. Researchers ensured that confidentiality and anonymity of the participants were adhered to. Informed consent was obtained from all participants, and they were free to withdraw from the study at any time. As for the FGD, the researchers repeated the responses given by participants to confirm the true reflection of what they submitted, and if proved not correctly captured or recorded, amendments were effected.

DATA PRESENTATION

Demographic Data Findings

Geography Teacher Participants

Researchers administered their research instruments to 18 teachers (13 males and 5 females) of varying academic qualifications, who taught geography at selected Senior Secondary School level of Livingstone District. Such composed of 5 Diploma holders, 8 first degree holders, 4 second degree holders and 1 Doctor of philosophy (PhD) holder. These participants obtained their qualifications from various institutions of learning which included The University of Zambia (UNZA) (7); David Livingstone College of Education (DALICE) (3); Rusangu University (RU) (2); Solusi University (SU), Zimbabwe (1); Australia (1); Kwame Nkrumah University (KNU) (1); DMI (1) Zambian Open University (ZAOU) (1) and ICU (1).

Participants teaching experience at senior secondary school level ranged from seven Months to 24 years, with an average number of teaching experience being 20 years. The range of learners in various classes was between 33 and 55, with the lowest numbers being from Schools 3, 4 and 5 Schools.

Teaching and Learning Data Findings

Question 14 asked teachers to state whether their learners liked geography or not. 16 (89 %) responded in affirmative, teacher (Tr) 3 (6 %) said NO, learners did not like the subject and, teacher 5 (6 %) did not give his position.

On the provision of 'equal opportunity' given to learners, 5 (28 %) teachers (from schools 1 and 4) stated that they did not provide it, whilst 13 (72 %) (from schools 2,3,5 and 6) stated that they provided 'equal opportunity' to their learners.

As regards how teachers rated the academic performance at school certificate level, the rating ranged from satisfactory to excellent. Ironically, teachers from same school, rated the performance differently. For instance, five teachers from School 6 had the following rating. 1 (20 %) said Excellent, 3 (60 %) said very good, and 1 (20 %) said Good. On average from all the six schools, 3 (16.7 %) teachers rated the

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performance as excellent; 7 (38.9 %) as very good; 7 (38.9 %) as Good and 1 (5.5) as satisfactory.

One question sought to find out why teachers liked geography. Teacher (Tr.) Participants were given a leverage to give as many reasons as possible. The majority dwelt on having the passion for the subject whilst others advanced the human - environmental relations. This is confirmed by the following selected verbatims:

Tr. 11 from Sch. 4 said, *“It is a living and practical subject, real issues are tackled”*; Tr. 14 from Sch. 6 said, *“It is good to know about the world and the environment around us”*; Tr. 15 from Sch. 6 said, *“The interest comes in as it is the subject I love and knowledgeable about”*; Tr. 16. From sch. 6 had this to say, *“A very interesting subject with wide range of topics which are relevant to our community”*. He further said, *“Because it’s the most important subject dealing with understand of earth and environment”*. Tr. 18 from sch. 6 said, *“I have passion for the environment and nature”*.

Emerging themes from this question had to do with (a) passion for the subject and, (b) dynamism of geography, which includes the importance of the subject in terms of solving environmental issues and its career prospects.

Researchers further sought to establish the challenges teachers faced in teaching geography. Teacher participants were not limited to the number of challenges they could give out. The three emerging themes were: Inadequate or lack of teaching and learning resources; insufficient or no field work excursions; and Less or no interest at all in Geography subject by both teachers and learners. The major challenge cited by majority participants had to do with the inadequate or lack of teaching and learning resources, such as text books, models, charts, and maps.

One question required teachers to indicate the topics in geography which they were not comfortable to teach, and the majority 12(66.7 %) stated the following: **Physical Geography Topics** especially, volcanism; mass wasting, weathering, time calculation, earthquakes, Earth’s crust, weather and climate, **For Human Geography**; sub – region (especially, mining, world agriculture, forestry, tourism), and economic geography. As for **practical geography**, field work component was indicated by all teachers, except one school. Nonetheless, the majority made an emphasis on Earthquake, volcanism, sub – Region, and mass wasting topics

One more questions required teachers to state how they should teach geography for high academic performance and

skills acquisition. Again teachers were not limited to the number of suggestions they could propose. The responses from majority of teachers generated three major themes, **provision of teaching and learning materials**; sponsored and well organised **field work excursions**; and **learner – centred approach** (giving learners topics to research and present before their peers). At least some teachers from each school suggested all of these ways.

Learner Participant Findings:

The majority, 17 (56.7 %) of the learner participants (Grade 12s) had been at the same school for 5 years, 2 (6.7%) had been at the same school for 4 years and, 9(30 %) had been at the same school for 3 years and 2(6.7 %) had been at the same school for 2 years. In terms of gender, there were 21 boys and 9 girl participants

One question sought to find out if learners learnt geography with interest. 28 (93.3 %) of them said Yes, and only 2 (6.7 %) said No. The ones who said Yes, advanced reasons such as geography was a passing subject, they paid attention when the teachers were teaching and it taught them about the environment.

Lnr. 1 from Sch. 1 said “I love the environment, and geography is aimed at improving the ways in which all features that make up environment can be preserved”; Lnr. 6 from Sch. 2 said that *“I learn geography with interest because it is a passing subject”*; Lnr. 16 from sch. 4 said *“It helps to know more about our environment”*; Lnr. 21 from sch. 4 said, *“I have been passing it from grade 8”*; Lnr. 26 from sch. 5 had this to say *“I have interest in learning geography in order to acquire knowledge on the environment and economy in order to better my country and the world at large”*; Lnr. 30, from sch. 6 said *“It is in line with the course /job I want”*.

Those who said No, had the following reasons:

Lrn. 27 from Sch. 6 said “No field trips, and “Poor introduction to the subject”. As for Lnr. 28 sch. 6, he said “I was not properly introduced to the subject and there are a lot of irrelevant topics that deal with other countries such as Zimbabwe, Angola, and South Africa” (the sub - region).

Learners were further asked to state challenges they faced challenges in learning geography. They were not restricted to the number of challenges they could state. Table 1 displays the responses.

Table 2: Challenges Faced by Learners in Learning Geography in Selected Livingstone District Schools

S/#	Challenges Faced by Learners in Learning Geography	Absolute (out of 65)	Relative (%)
1	Learning Materials	24	36.9
2	Lack of field work excursions	12	18.5
3	Inadequate Teachers	10	15.4
4	Learners lack of interest in Geography	09	13.8
4	Learning of Map work	05	7.7
5	Bulkiness of Geography content	04	6.2
6	Subject Poorly Taught	01	1.5
	Total	65	100

Source: Field Data (2023)

Findings from Table 2 show that the majority, 24 (36.9 %) faced a challenge of availability of learning materials; This was followed by lack of fieldwork excursions, 12 (18.5 %). The least 1 (1.5 %) indicated that the subject was poorly taught. For the verbatims:

Ln. 4 from sch. 2 said “Lack of materials e.g. shortage of books for geography”; Lnr. 3 from sch. 3 indicated “Lack of text books”; Lnr. 20 from Sch. 5 said “Resources as we do not go out for tours”; Learner 10 from school 2 /3 said “Funds whenever there is a tour (field trip)”; Other responses included; Lrns. 6 and 7 from

Sch. 2 said “Lack of understanding in some topics”; Lnr. 5 from Sch. 3 said “The teacher is not always present in class”; Lnr. 14 from Sch. 3 said “Geography is a bulky subject”; Lnr. 29 from Sch. 6 had this to say “The subject is poorly taught in terms of information exhausted”; Lnr. 28 Sch. 6 said “Lack of a main geography text book”.

In another question, researchers sought to establish topics which learners found difficult to learn. Participants were not restricted how many topics they should list. Table 3 shows difficult topics.

Table 3: Topics Learners found Difficult to Learn in Selected Livingstone District Schools

S/#	Difficult Topics Faced by Learners	Absolute (# - 65)	Relative (%)
1	Physical Geography	20	30.8
2	Map work	13	20.0
3	Fuel and Energy	07	10.8
4	Mining (Sub – Region)	07	10.8
4	Weather and Climate	05	7.7
5	Agriculture/Farming	05	7.7
6	Natural Vegetation	05	7.7
7	Forestry (Sub – Region)	02	3.1
8	Climatic Regions	01	1.5
	Total	65	100.1

Source: Field data (2023)

Findings in Table 3 show that the majority, 20 (30.8 %) found Physical Geography to be difficult. This was followed by Map work 13 (20.0 %) and the least 1 (1.5 %) found climatic Regions to be difficult.

On ‘equal opportunity’ provision to them, learners understood it in various ways which included;

By asking questions to individuals during class (Lnr. 1); By testing us at the end of each topic; He gives opportunity to every learner to answer (Lnr. 2); He treats us equally; He makes sure each one understands before another topic (Lnr. 3); He gives chance to each learner time to ask any question; He will make sure that

every pupil pays attention; All questions from any pupil are answered; Always pointing at random, so that everyone pays attention; Because the teacher tells those students that did not understand the lesson to go see him so that he can help them understand (Lnr. 8); She gives us equal punishment if we fail; She helps me in one on one lessons to help me understand a complex question or topic (Lnr. 16); She provides support to each one of us (Lnr. 20); She provides parental support emotionally and physically (Lnr. 20). Two learners indicated No, to their teachers providing ‘equal

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opportunity to them; (Learners 14 and 24') the other two left the question blank

Further, researchers asked learners how they wished to be taught geography, and they were not limited to the number of responses they could propose. Table 4 gives the responses:

Table 4: Learners’ Best Proposed Ways to Learn Geography for High Academic Performance in selected Livingstone District Schools

S/#	Proposed Best Way Learners Should Be Taught Geography	Absolute (#=90)	Relative (5)
1	Provision of Learning Resources (Teaching And learning Resources)	21	23.3
2	Group Discussions (past papers review/extra lessons	20	22.2
3	Giving Topical tests (Class Exercises; discussion;)	18	20.0
4	Undertaking Field Trips	16	17.8
5	Provision of Individual Attention	15	16.7
	TOTALS	90	100

Source: Field data (2023)

Findings from Table 4 show that the Majority, 21 (23.3%) proposed the provision of learning resources - Books, models, maps, etc). This was followed by the group discussion methods, 20 (22.2 %). The least, 15(16.7%) proposed the provision of individual attention. As for the verbatims, individual learners had this to say:

Learner 30 had this submission,” *Exchange teachers when it comes to certain topics to suit their strengths in that topic*”.

Lnr. 29 said “To be more interested and have fun while teaching”; Lnr. 23 said, “Expose us to the practical topics more”; Lnr. 20, stated, “Giving us extra individual assessment to underperforming pupils”; Lnr. 18 proposed the following “By undertaking field trip to have an idea”; “By making study material

available”; “By asking those pupils who have challenges”; Lnr. 12 proposed “Involvement of more textbooks”; “More individual attention”; “Giving us the scheme of work in advance” ; “Organising more educational tours”; Lnr 13 said “Giving us more tests in order to see how much we understand”; Lnr 2 proposed the following “To explain very well in every topic”; “Attend the class in time”; and “Reduce absenteeism”.

One of the methods used to collect data was through FGD, and Table 5 shows how learners wished they could be taught geography to enhance their performance and acquisition of skills.

Table 5:How Learners wish to be Taught Geography for high Academic Performance in Selected Livingstone District Schools

School	Challenges in Learning Geography	Difficult Topics in Geography	How they wish to be taught Geography
1	-Theoretical Teaching - Few Teachers - No text books - Teacher Absenteeism	-Physical geography - sub - region - Field work - Map work	-We have to be taken for field trips - Need for a teacher who is passionate for geography - Need for text – books”
2	-No Geography books - No Field excursions - No IT devices for research - Some topics not taught	- Map work (Time calculations, bearing) - Climatic Conditions - Earth Movements -sub – Region topics	- Teachers to explain things in as simple way not using bombastic words - Teachers should give Topic tests - Teachers to teach progressively moving from known to unknown and series was of progressive; Not jumping from one topic to the other - Teachers should not miss classes - Teachers to discuss question papers in class. - Teachers to teach life skills which will help us after School

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3	<ul style="list-style-type: none"> - Learners' lack of interest/lazy 	<ul style="list-style-type: none"> -Physical Geography in general (especially, Mass wasting - sub – Region - Map work (bearing) 	<ul style="list-style-type: none"> - Use of photos and videos of places where we can't reach - We need constant hands- on activities - Teachers should force us to read and research very widely -Schools should provide adequate text books - Teachers should expose us to current things and allow us to access computer labs to browse on geography matters - Teachers should come up with one common resource geography text-book which covers everything - Physical geography to be the last component to be taught - Teachers to summarise long topics - Teachers should use different ways to conduct assessment (such as quizzes, assignment, and inter-school should be encouraged) - Teachers to teach us based on past papers
	<ul style="list-style-type: none"> - No recommended text -book - Subject bulky -No IT devices for research - No learning Aids like models, maps, charts 		
4	<ul style="list-style-type: none"> - Map reading (Majority) (No enough time to learn it) - No access to maps (Just notes given) - No field work trips - Information scattered in several text books - sub – regions topics -Geography content,too bulky - Physical Geography topics (Weather & Climate; Vulcanism; Mass movements; River processes) 	<ul style="list-style-type: none"> -Physical Geography (especially, mass wasting) - sub - region Map reading (especially bearing) 	<ul style="list-style-type: none"> - teachers should teach through, exercises, then notes - Teachers should be explaining well what the pupils did not understand - Teachers should be summarising notes - Teachers should teach with concrete models like globes, etc. - Teachers should be conducting fieldwork trips - Teachers should teach with Illustrations and activities - Learners had never been for fieldwork since Grade 10.
5	<ul style="list-style-type: none"> - Lack of field excursions - No frequent assessment to prepare us on how the questions come on the exam - No syllabus given to us - No recommended text-book - No concrete models only text – books - Geography has bulky materials 	<ul style="list-style-type: none"> - Map work - Sub – Region (Energy) - Physical Geography in general (Weather & climate, earth movements) 	<ul style="list-style-type: none"> - Teachers should use concrete models to teach - Teachers should recommend some text-books and not just any text – book - Teach should assess us frequently - Teachers should expose us to more fieldwork trips (To include even sub – regions) - Rotation of teachers from other schools who can teach some topics - Teacher to expose us to geography past papers to be exposed to us

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6	<ul style="list-style-type: none"> - Map work not well taught - No field work - Sub-region maps and graphs are confusing because they look to be similar - Study skills are a problem – Just how to study - Lack of a recommended text – book (self-contained with all geography content there - Geography content is bulky, too wide - Most teachers seem uninterested In the subject 	<ul style="list-style-type: none"> - Sub – Region (Mining, Agriculture, maps/graphs, etc) - Map work (Time calculation) 	<ul style="list-style-type: none"> - Teacher should make the subject more interesting - Teachers should properly introduce the subject of geography. - Teachers should explain and teach geography with passion - Teachers should teach to instill reasoning in learners - Teachers should help learners know the prospects expected in learning geography
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(Source: Field Data, 2023)

Findings from Table 5 show common challenges and difficult topics faced by learners, such as Map work, physical geography and field work excursions. It also shows common

ways how they wish to learn geography which include availability of text-books, topic test assessments, basically learner - centred driven (e.g. discussions).

Table 6: How Learners Found themselves in a Geography Class in Selected Livingstone District Schools

Schools	Willingly	Forced	Just Found myself in Geography Class
1	13	4	3
2	11	4	5
3	14	5	1
4	20	0	0
5	9	11	6
6	9	0	11
TOTALS	77	24	26

(Source: Field data, 2023)

Findings from Table 6 show that 77 learners entered into geography class willingly and 24 where forced. Some candidates from School 2 indicated that they had a choice between Geography and Religious Education. They opted for Geography because they did not want the former. As for 26 candidates, though not forced, they had no choice but to be in a geography class because that was where space was found, either they reported late or joined the school on transfer.

DISCUSSION OF FINDINGS

Demographic Data

Gender: The researchers through the Heads of Departments purposively guided which teachers should participate in the study. Five teachers from each school were targeted and this number was met, except for three schools which had less than five teachers due to staff establishment’ challenges. The short fall in those schools did not affect the outcome of the collected data. In terms of the number of years teacher participants taught at senior level, except for one teacher, 17

of them had vast experience of teaching at senior level a good reason why School Certificate level results should have been competitive and not what was currently obtaining in most schools under study, even as shown in Table 1.

Qualifications: As regards professional qualification, apart from 5 teachers with Secondary School Diploma (Who did not qualify to teach at senior secondary school level), 13 teachers had at least first degree qualifications, thus, qualified to teach at Senior Secondary School level as guided by the Zambian Educational Policy, Educating our Future (MoE, 1996). By implication, selected Schools on average had more qualified man power to teach Senior Secondary School learners, and expected to have their learners perform highly as compared to the results as shown in Table 1. What is ironical is that even where teachers with second degree qualifications, underachievement was recorded. Further, apart from three teachers who obtained their qualifications from one teachers’ college of education, 17 teachers obtained their qualifications from well renowned institutions of

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learning within and outside Zambia. Questions of interest can be asked; Does qualification have influence on academic performance? Could it be that learners are too weak for the teachers/instructors? Going through findings from both teachers and learners: some teachers and learners missed classes, they had challenges to teach and learn some geography topics, and also some topics were not taught and learnt. This being true, learners became vulnerable, thus, poor performance. One case in point is the field work excursions where only Sch, 3 took their learners at least once every year, and Sch 2 had taken their learners only once in Grade 10, the rest had never done it, yet learners were expected to submit Geography Field Project, worth 12 percent, on 31st March, 2023. Further both teachers and learners had challenges with Map Work, whose first 10 questions of Geography Paper 1 are based on this topic. How does one expect learners to perform highly when they never saw any map (as a reference resource) for map work, they had difficulties with time calculation, bearing, angle of elevation, to mention but a few challenges? These challenges are consistent with the works of Mundende and Namafe (2019) and Mundende, (2015), that Map work and fieldwork were poorly delivered, one reason why learners are proposing that they do physical geography as their last component.

All 18 teachers affirmed that they taught geography with interest, an indication that they put in their best to attain even high academic output. But perhaps this may not resonate well with the actual findings from both teacher and learner participants on one hand and the result analysis on the other hand. In addition, on average all schools had manageable numbers for learners to deserve individual attention, but this was not the case. Some learners felt, they were sidelined by their teachers, and some teachers confirmed that they did not provide 'equal opportunity' to all learners, a recipe for poor performance (Mundende and Namafe, 2019)

Geography Teaching and Learning Materials

Generally, from the findings, the teaching and learning of geography proved to be challenging. As observed from learners, teachers, FGDs and the result analysis forms obtained from schools under study, there is something that should be done to re-engineer the same. For instance all the findings pointed out that they faced challenges to do with inadequate or lack of teaching and learning resources such as textbooks, and lack of field work excursions. There was no way learners would perform highly when they had no text books, models, maps, to mention but a few. This is consistent with the works of Maantay (2010), Standish (2009), de Guzman (2017), and Gokce, (2009), that textbooks were either in short supply or were not even available. Learner participants' lamentation that they were exposed to so many text - books with no recommended one(s), with all the geography content, and some of them foreign based cannot be ignored. Failure by teachers to recommend some specific

text books for their learners was not helpful to them. There is a need for prescribed or recommended text-books to guide the learners. Learners felt they needed one book that could contain all the topics be it physical and human so that they get focused, otherwise they had been confused enough. There is a need therefore for the Ministry of Education to consider recommending some text-books for both teachers and learners. Teachers and learners from the findings liked geography, the reason why all efforts should be made to get them focused and directed by providing appropriate teaching and learning materials.

As for geography field work, the component which carries 12 percent mark towards the final score of geography subject is haphazardly conducted. At the time of the data collection for this study, learners had remained with about three weeks to turn in their Geography Field Project Reports, and yet they had not yet gone out not for field excursions, not even once. It was further reported to the researchers that the Reports were to be handed in on 31st March, 2023 for marking. Some of the learners lamented that though they were assisted by their teachers, they did not even know what to write about. The challenges of field work excursions and report writing are consistent with what Mundende (2015) stated that learners were left alone to write and at times they just dubbed what their previous colleagues had written about, which defeats the whole purpose of this component of geography.

As for learners, the majority had been at the same school for a larger portion (5 years) of their secondary life, insinuating that they understood their school systems to be earmarked to perform well, despite anticipated challenges. Apart from few learner participants, the majority liked Geography because of job prospects and its nature of equipping them with knowledge, skills and attitudes of taking care of the environment. Generally, Since Grade 10, learners performed well their marks ranging from 72 percent to 95 percent, despite the challenges they had been facing. This is indicative enough that the learners worked hard to obtain such better grades are rated as merits and better.

From three schools under study (Sch. 3, 4 and 6), it came out strongly that teachers should start with physical geography and end with human and economic geography. Reasons advanced by learners were that physical geography had some topics which were difficult to understand because they were boring and the other reason was that some geographical concepts were similar, thus, confusing. Further, learners felt, teachers should spend more time on Physical Geography because its examination component came in Geography Paper 1, and Multiple Choice in nature. If they learnt it towards the end of their academic year, they would remember most of the things. This comes out strongly in their affirmation that geography is a wide and bulky subject. The researchers who are geography lectures tend to agree with learners observation, especially in that some findings show

that some teachers were not up to date in teaching the subject, and some of them did not teach with passion and others were absent some times.

Handling of Difficult/Challenging Geography Topics

The findings also from all three research instruments administered to participants indicated that teachers and learners found certain geography topics too difficult to teach and learn respectively. Physical Geography topics like mass wasting, weathering, volcanism, earth's crust, sub – regions, Map work, agriculture, tourism as well as field work component. If teachers found these topics to be difficult, how did they make their learners understand them? The reason why one learner suggested that teachers should be giving way to other teachers (resource teachers) who may confidently handle certain topics on their behalf as they watched and learned. Consequences of failure to deliver certain topics in geography are grave because they border on learners' academic performance. Failure by teachers to confidently teach some geography topics is consistent with the works of Ilić (2013) and UNESCO, (2019), that it could be attributed to inadequate professional training and failure to apply appropriate methods. There is a need therefore, to intensify Continuous Professional Development (CPD) to refresh teachers who may not be comfortable with certain topics, especially physical geography topics. CPD intensification is consistent with the works of Mubita *et al.*, (2023) and Mundende and Namafe (2019) that teachers who are well vested in some topics where others have/had challenges should present such before their colleagues for them to learn. As for human and economic geography, majority of learners argued that there was no need any more to learn about the sub – Regions. They wondered whether such sub – regional countries also deliberately learned about Zambia. They went further to suggest that if Zambian learners continued learning about them, they needed field trips to such countries so that they physically confirm what they learned about. What learners observed using semi - structured interview schedule was amplified during FGD. Learners strongly opposed the learning of sub – regions arguing that the content was so similar yet confusing especially the graphs. They felt they needed to concentrate on Zambia, which was so bulky too, but at least they were familiar with their country. They felt pity for their counter parts in rural Zambia, if themselves in urban had challenges. On the other hand, researchers felt learners needed to be exposed to the sub – region for comparative advantage and also one day, some of them may go and work from such countries. What was needed was their more efforts because it came out that some of them were not serious with their studies especially in that a good number claimed they were forced to do geography and others just had no option but to do geography, especially that the option given was 'worse' than geography.

What is needed to be done to Re - Engineer the Teaching and Learning of Geography?

To re – engineer the teaching and learning of geography, the proposals made by teachers and learners should be seriously considered. If the affected schools had to implement what teachers and learners proposed, there could be positive changes in the academic performance. Serious consideration should be made in the way Map work, field work, and physical geography are taught. Availability of text – books, frequent fieldwork excursions (Hands on), frequent or topic test assessments should not be an option. Carrying out these features effectively is consistent with the works of Plotrowska *et al.*, (2019), Di Maggio, (2018), Mubita *et al.*, 2023 and Mundende (2015) that teachers needed to understand and provide what was needed. Teachers should be available as and when their presence was required. Failure to which low performance would be experienced year in and year out. This is where every after a topic, a test should be given. Researchers support 'topic' test assessment because it worked well for them when they were active Secondary School teachers. If anything, after teaching a topic, they could use final examination question papers and extract questions pertaining to the topic they cover(ed). This may be tried by teachers of geography. Learner centred techniques where learners are given topics to research on and present before their peers, and where teachers provide 'equal opportunity' to their learners. From what learners presented, they appeared to have understood what 'equal opportunity' was, but when they presented what they felt their teachers should do, it leaves a dark cloud whether, and the majority of learners received individual attention from their teachers. Mundende and Namafe (2019) posit that no learner should be left behind. They further advanced that learners should equitably and equally treated if they were to perform highly or even acquire knowledge, skills, and attitudes. In line with the theory by Skinner (1971), unless the Ministry of Education provides adequate and necessary teaching and learning resources (stimulus), schools take their learners for frequent and relevant field excursions (Stimulus), and they are always available to facilitate learning (stimulus) learners may not respond to high academic performance, because there is nothing that propel them to learn. Therefore, the change in the behaviour in the academic performance of learners may only be attained if stimuli - response is appropriate. You cannot expect a high performance where you have not provide Maps, yet the first 10 questions or so are based on Maps; you cannot expect learners to perform highly in Geography Field Project, worth 12 % when since Grade 10 till they submit their project they have never been taken out for field excursions.

Geological field trips should be emphasised a lot in teaching and learning of geography in schools. They play a critical role in the education of all geoscientists, as they introduce learners to independent research and continued professional development in academia and industry. More so, they provide

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a way to physically explore the results of ancient processes and understand the scale and interactions of concepts, and allow a picture of the geological evolution of a region to be determined (Gill and Lynn, 2015). According to Gill and Lynn (2015) fieldwork gives the geoscientist evidence that can then be used to understand an area or process or as an analogue. Therefore, field trip safety is of increasing importance, considerations that should be taken in order to keep learners safe in the field and practical guidance on how to enable planning for safe field trips in the future. This was also observed by Mubita and Namafe (2016), stating that safety of learning spaces is of paramount importance if pupils were to achieve the much needed educational goals. More so, Mubita *et. al.* (2016) noted that meaningful learning can take place only in safe learning environments.

CONCLUSION

In conclusion, re – engineering the teaching and learning of geography in Zambian Senior Secondary Schools is the way to go. Geography cannot be taught as a recycled subject. Its nature is unique and dynamic as it holds the humanities and social sciences and the natural sciences. Despite various challenges that are at play in the teaching and learning of geography, such as inadequate teaching and learning materials, inadequate teachers of geography, disinterested learners, learner centred approach, experiential learning (Hands on); continuous assessing learners and allowing learners to construct their own knowledge as teachers largely facilitate should be implemented. This is only possible if teaching and learning materials are readily available and qualified teachers to facilitate learning. The role geography plays in education cannot be underplayed to thwart the efforts teachers and learners of geography are putting in to have the subject afloat. There is no doubt, the Ministry of Education and other stake holders will do what is humanly and economically possible to sustain the subject that bridges humanities and social sciences and Natural sciences (Mundende and Namafe, 2019).

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