

**AN EXAMINATION OF THE RESEARCH ENGAGEMENTS OF TEACHERS OF
GEOGRAPHY IN SELECTED SECONDARY SCHOOLS IN SERENJE DISTRICT IN
CENTRAL PROVINCE, ZAMBIA**

BY

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**A research dissertation submitted to the University of Zambia in fulfilment of the
requirements for the award of the degree of Master of Education in Geography Education**

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AUTHOR'S DECLARATION

I, **Patricia Lako**, do hereby solemnly declare that this dissertation represents my own work, except where otherwise acknowledged, and that it has never been previously submitted for a degree at the University of Zambia or any other University or institution.

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APPROVAL

This dissertation of **Patricia Lako** is hereby approved as partial fulfilment of the requirements for the degree of Master of Education in Geography Education by the University of Zambia.

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DEDICATION

To my loving husband Ian Mbakaya Mzumara for the love, encouragement and support he gave me in both good and bad times and to my children, Temwika, Taonga, Mwewa and Kondwani who have sacrificed a lot to see me this far.

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ABSTRACT

This dissertation was about research conducted into the research engagements of teachers of Geography in selected secondary schools in Serenje District of Central Province, Zambia. The aim of the study was to determine how best teacher research engagement could be established and or enhanced among teachers of Geography in selected secondary schools in Serenje district. The research was guided by the following objectives: to find out the views which teachers of Geography have on ‘research’ and research engagement in selected secondary schools in Serenje district; to ascertain whether or not teachers of Geography were research engaged in selected secondary schools of Serenje district; to establish the existing barriers to research engagement experienced by teachers of Geography in selected secondary schools of Serenje district; and to suggest ways in which teachers of Geography in selected secondary schools of Serenje district could be motivated to be research engaged. This study was a qualitative study which made use of a descriptive design. Interviews were conducted with fourteen teachers of Geography, two Heads of Social Sciences Departments, one officer from Provincial Resource Centre (PRC) and one officer from District Resource Centre (DRC). Two focus group discussions were also conducted with teachers of Geography. Data was analysed thematically.

The study showed that teachers viewed research as a complex and involving process. They also viewed research engagement as cardinal to the teaching and learning of Geography. Apart from that, teachers were of the view that research should be made mandatory for teachers of Geography. They had a positive view of teaching and research integration. However, engagement in research was low while engagement with research was moderate among teachers of Geography. The barriers to research engagement identified were lack of time, lack of support from administrators, financial constraints, lack of incentives, lack of access to relevant research literature, lack of research knowledge and skills, lack of recognition and expectation, lack of publishing opportunities and societal and organizational culture. These issues needed to be addressed if research engagement had to be established and sustained.

Teachers had a positive view of teaching and research integration and there was a possibility that they could be receptive to the idea of being research engaged. However, if current situations in the education system and in secondary schools remained unchanged, it would not be possible to establish and sustain a culture of research among teachers of Geography in selected secondary

schools of Serenje district. Based on these findings, the study recommends that research should be made mandatory for Geography teachers, that the Ministry of General Education (MOGE) should fund teacher research engagement, that schools and resource centres should have comprehensive library facilities and that comprehensive research training and retraining programmes should be initiated for teachers of Geography in the district. This study has contributed to a body of knowledge in education regarding teacher research engagement in Zambian secondary schools by establishing: the views which teachers of Geography have on 'research', the research engagements of teachers of Geography, the barriers and facilitators to research engagements of teachers of Geography in selected secondary schools of Serenje district. However, there is need to carry out a similar study using quantitative or mixed method approaches. There is also need to carry out similar studies in other districts and provinces. Apart from that, a study on whether teacher research engagement could bring about better fieldwork implementation in secondary schools is suggested.

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LIST OF ACRONYMS AND ABBREVIATIONS

SOSTAZ	Social Sciences Teachers' Association of Zambia
PRC	Provincial Resource Centre
DRC	District Resource Centre
UNESCO	United Nation Education Scientific and Cultural Organisations
CPD	Continuing Professional Development
MOE	Ministry of Education
MOGE	Ministry of General Education
MOESVTEE	Ministry of Education, Science, Vocational, Technology and Early Education
HOD	Head of Department
CDC	Curriculum Development Centre
ECZ	Examinations Council of Zambia
FGD	Focus Group Discussion
HSSREC	Humanities and Social Sciences Research Ethics Committee
UNZA	The University of Zambia
COVID	Corona Virus Disease
DEBS	District Education Board Secretary
PSMD	Public Service Management Division
APAS	Annual Performance Appraisal System

CHAPTER ONE: INTRODUCTION

1.1 Overview

This chapter introduces the study. It consists of the background to the study, statement of the problem, aim of the study, research objectives and research questions. The chapter further explains the significance of the study, delimitation and limitations of the study. Furthermore, the chapter includes the theoretical framework and the organisational structure of the study.

1.2 Background

In order to survive in this century of knowledge explosion, one needs to have higher order thinking skills and competencies such as: academic mastery, critical thinking and creativity, awareness of global issues, metacognition, communication skills, collaboration, leadership, endurance, self-confidence and self-regulation (The Ontario Public Service, 2016). In addition, society and the corporate world need people with research and consultancy skills and who are able to make use of subject based knowledge to solve real life problems (Khan, 2017). To have quality education, we need teachers who are critical and have high order thinking skills necessary in the creation of knowledge, problem solving and dealing with information bombardment (UNESCO, 2005). In line with this, Mayne (2014:48) states that “improving all aspects of quality of education is dependent on preparing teachers to become critical citizens.” Researchers have confirmed that researching helps teachers to become competent in that it builds and rebuild skills as well as improve cognitive capabilities, critical and logical thinking which teachers can transmit to their learners (Elton, 2008; Khan, 2017). Apart from that, Biesta (2007) revealed the potential of research to improve and inform practice in that it presents to the teacher the different ways in which educational activities can be interpreted and understood.

Every organization, government inclusive, wants skilled, productive and competent work force that is why vocational training is considered in human resource management to build and rebuild skills in professionals (Guy, 2017). Competence is not attained in a single training but requires lifelong learning. Teachers should not take the preservice training they had undergone at colleges and universities as full package. For teachers, learning and researching should continue for the benefit of themselves, learners and their profession. Research engagement is especially important for Geography teachers to perfect their research skills, improve their practice and keep up to date with current methodologies in research since they now teach field project.

The Zambian curriculum has shifted from content based to competency-based so that learners can develop higher order thinking skills such as application, analysis, synthesis and evaluation (Mulenga and Kabombwe, 2019). This becomes imperative for teachers to be creative and innovative when teaching (MOGE, 2013). Teachers who do not read extensively and do not have an inquiring mind cannot effectively run a competency-based curriculum (Mulenga and Kabombwe, 2019).

The nation's overall vision for education enshrined in vision 2030, is "innovative and productive lifelong education and training for all by 2030" (Ministry of National Development and Planning 2006: 38). The Educational reforms of 1977 posits that, teachers should continually update themselves with developments in their subjects and in the objectives and methods of teaching and should have adequate knowledge of those subjects for good teaching to happen (MOE, 1977). The educational policy document echoed this adding that it was the teachers' responsibility to themselves and their profession to deepen and extend their knowledge and professional skills and attend to their own personal development in chosen areas of specialization in addition to ongoing professional development (MOE, 1996). The rationale for this is: that knowledge is not static and is ever increasing; that each of the learners that teachers handle is unique and the learners develop in a dynamic social environment; that initial teacher training, sound though it might be, is not sufficient for life; that the education system changes with change in societal needs and expectations; and that because 'teaching is a learned and a learning profession' teachers should be lifelong learners (MOE, 1996). Institutions of learning from preschool up to university, therefore, should be places where research take place so as to have quality education (MOE, 1996).

Research engagement for teachers of Geography is particularly important because the Senior Secondary School Geography Curriculum has included field work following its revision in 2000. The aim of including field work was to promote learning through experience and doing (CDC, 2000; Ntalasha et al., 2004). This is in line with Grave's (1980) view that Geography curriculum should be proactive in influencing experiment and practice. For this to be achieved properly, teachers should possess research skills as well as theoretical knowledge about research. The teachers' research skills and competencies such as awareness, perception and analysis should be enhanced and perfected first before teachers can hope to give support to their learners who are trying to do the same (Lambert & Balderstone, 2000). Research engagement, therefore, is in line

with the idea of lifelong learning for teachers which is always available to them (MOE, 1996). In addition, Geography is not a static subject. Therefore, teachers should continuously research and should help create Geographical knowledge because as Long & Robertson (1966:128) explain, “Geographies are written records of original field investigations.” Teachers should not be mere consumers but co-creators of research evidence (Firth, 2016).

Despite the benefits of research to Geography teaching and learning, there seemed to be lack of study on research engagements of teachers of Geography in selected secondary schools in Serenje district of Central Province, Zambia. Research on whether teachers of Geography in selected secondary schools in Serenje district in central Zambia were research engaged or not was lacking.

1.3 Statement of the problem

MOGE wishes to attain innovative and productive lifelong education and training for all by 2030 (Vision 2030). The policy document ‘Educating Our Future’ states that teacher research engagement is in line with the idea of lifelong learning and that to have quality education, institutions of learning from preschool up to university should be places where research take place (MOE,1996). The teacher’s job is to impart relevant knowledge and skills. Researching helps teachers to become competent in that it builds and rebuild skills as well as improve critical thinking skills which teachers can transmit to their learners (Elton, 2008; Khan, 2017). Teachers of Geography teach about the dynamic earth and human interactions with it. They also teach field research to learners which requires that they perfect their research skills (Lambert & Balderstone, 2000). Therefore, teachers of Geography should be research engaged to effectively impart relevant knowledge and skills. While issues of reading culture among learners had been studied (Hachintu, 2017; Ronnås, 2009), no research so far had been done on the research engagements of Geography teachers, how it could be established, fostered and sustained in Zambian secondary schools let alone in Serenje district. Without this knowledge, the idea of having innovative and productive life-long learners and quality education might not be realized. Against this background, this study examined the research engagements of teachers of Geography in selected secondary schools in Serenje district.

1.4 Aim of the study

The aim of this study was to determine how best research engagement could be established and or enhanced among Geography teachers in selected secondary schools in Serenje district.

1.5 Research objectives

The study was guided by the following objectives:

1. to find out the views which teachers of Geography have on ‘research’ and research engagement in selected secondary schools in Serenje District.
2. to ascertain whether or not teachers of Geography were ‘research engaged’ in selected secondary schools in Serenje District.
3. to establish the existing barriers to research engagement experienced by teachers of Geography in selected secondary schools in Serenje District.
4. to suggest ways in which teachers of Geography in selected secondary schools in Serenje District can be motivated to be research engaged.

1.6 Research questions

The following were research questions that informed the study:

1. what are the views of teachers of Geography on ‘research’ and teacher research engagement in selected secondary schools in Serenje District?
2. what culture of research existed among teachers of Geography in selected secondary schools in Serenje District?
3. what are the existing barriers to ‘research-engagement’ experienced by teachers of Geography in selected secondary schools in Serenje District?
4. how can teachers of Geography in selected secondary schools in Serenje District be motivated to become research engaged?

1.7 Significance of the study

It is hoped that the findings of this study would be of help to the Teaching Service in making decisions regarding the job description of teachers if need be. It might also help the curriculum developers and teacher educators in planning for teacher training. It is also hoped that the findings of this study would be of help to teachers of Geography in Serenje district as they develop a research culture, thus hopefully improving their practice, their status as innovators and their relevance in this dynamic world.

It is further hoped that the findings of this research could be made use of by the Ministry of Education in modifying the educational policy. MOGE and Ministry of Higher Education might make use of it to make evidence based decisions and policies that could inform practice in the

education sector. It is also hoped that the two ministries might make use of findings in this research to develop better teacher professional development and learning programmes and redesigning, organizing and equipping schools thereby enabling them to support teacher, student and pupil learning. It might pave way for evaluating educational policy and also making reforms in the education sector.

Furthermore, the researcher hoped that the findings could help bridge the knowledge gap in education regarding teacher research engagement in Zambian secondary schools by establishing: the views which teachers of Geography have on ‘research’ and ‘teacher research engagement’, the research engagements of teachers of Geography, the barriers and facilitators to research engagements of teachers of Geography in selected secondary schools in Serenje district. It could also serve as a basis for further research not only in Geography but also in other subject areas in Zambian secondary schools. That being the case, eventually there might be enough data regarding teacher research in Zambia unlike the current situation where there is seemingly very limited and scanty information on teacher research engagement.

1.8 Delimitation

This study was limited to the examination of the research engagement of teachers of Geography in selected secondary schools in Serenje district. Therefore, research engagements of teachers of other disciplines as well as that of teachers of Geography elsewhere were beyond the scope of this study. The areas of interest were Geography teachers’ views on research, whether or not they were research engaged, their views on teaching and research integration, and how they could be encouraged to be research engaged.

1.9 Limitations

Since the research was qualitative and data was collected using interviews, the data collection was subject to the researcher’s perceptions and views. To reduce subjectivity, informant feedback was used to check if the data collected reflected what participants had said and meant. Furthermore, the use of interviews, focus discussions and document analysis provided some triangulation. This study was a qualitative one and was limited to the examination of the research engagement of teachers of Geography in selected secondary schools in Serenje district. Therefore, its findings cannot be generalized to teachers of other disciplines as well as teachers of Geography elsewhere. The thought of being interviewed create a feeling that one is being scrutinized and this feeling may make participants nervous to the point of not giving true information. Had this study included all

the teachers of Geography and all the schools offering Geography in the district, it would have been more complete. However, due to limited time and resources, the researcher did not embark on a study of that magnitude. Nevertheless, the researcher collected data until saturation was attained.

1.10 Theoretical framework

This study made use of the Deliberate Practice Theory Framework (DPTF) propounded by Ericsson, Krampe and Tesch-Rome (1993). This theory posits that the rarity of excellence is due to optional training environments and the years needed to develop the complex mediating mechanism that support expertise. Expertise is gradually attained through engaging in extended amounts of designed deliberate practice over time. Deliberate practice may be described as domain specific activities that gives optimal opportunity for acquiring skills and knowledge and therefore are highly necessary to improving performance despite that they may require significant effort on the part of an individual to initiate and sustain them overtime. These tasks may not be enjoyable but if performed frequently, they can enable one adapt and restructure their performance for the better. It is therefore important that these tasks are recognized by the performers as highly relevant to improving performance.

Becoming an expert involves prolonged efforts to improve performance while negotiating motivational and external constraints. The maximal level of performance for individuals in a given domain is not attained automatically as a function of extended experience, but the level of performance can be increased even by highly experienced individuals as a result of deliberate effort to improve. Even Highly experienced individuals, through deliberate efforts to improve practice can further increase their performance. Optimizing practice requires that the individual have resources such as good teachers and suitable facilities.

This study aimed at determining how best research engagement could be established and or enhanced among Geography teachers in selected secondary schools in Serenje district. The researcher therefore, found this framework useful to the research in explaining the need to establish and or enhance Geography teacher research engagement in secondary schools. It helped to explain the importance of research engagement for Geography teachers. Furthermore, it was of help in explaining how teachers of Geography should sharpen and perfect skills for them to attain high levels of expertise in their field and profession thus improving their performance.

It was also useful in explaining the idea of life-long learning for Geography teachers. Continued professional development for Geography teachers could be explained using this theory. It could be argued that research engagement is a domain specific task teachers should engage in to improve practice. However, as the theory posits, one needed resources, good facilities and good teachers to engage in deliberate practice. Optional training environments are important for deliberate practice. In this case Geography teachers needed comprehensive library facilities within and outside schools and also a school culture that supported research engagement so as to engage in extended amounts of research. This theory helped explain whether Geography teachers in selected secondary schools of Serenje district had access to suitable facilities and resources required for them to be research engaged. It also helped explain whether teachers viewed research as deliberate practice and also their willingness or lack of it to be research engaged.

1.12 Organization structure of the study

This chapter presents the background of the study. It has presented several issues that have contextualized this study. The need for teachers, especially those teaching Geography to be research engaged has been discussed. In addition, the Ministry of General Education's stance on teacher research engagement as stipulated in the education policy document of 1996 has also been stated. Presented and explained here in this chapter also is the theoretical approach that was adopted in the study as well as the significance of the study. Chapter 2 presents the review of relevant literature on the views of teachers on research and research engagement, teacher research engagement levels and factors of teacher research engagement. The research approach, design, sampling procedures, data collection instruments and procedures that were used in this study are explained and justified in chapter 3. Consideration of ethical issues is also presented in this chapter. Chapter 4 presents the findings of the study according to themes generated from findings of each research question. Chapter 5 deals with discussion of findings and their implications to Geography teacher research engagements. Conclusion and recommendations based on the findings of the study are provided in chapter 6.

CHAPTER 2: LITERATURE REVIEW

2.1 Overview

This section presents a review of literature related to this study. Areas focused on were: the idea of integrating research and teaching, factors of teacher research engagement, importance of teacher research engagement and why research engagement is important for teachers of Geography. The review also covered the reasons why teachers of Geography in Zambia should be research engaged.

2.2. Meaning of research

Knowledge is a vital aspect of human success. Knowledge is acquired in different ways which include inquiry, transcendental realization, vicarious, and reasoning. Of these methods, the most reliable is scientific inquiry. Socrates (469-399BC) stated that it is not worthwhile to live an inquiry-free life (Naidoo, 2011:47). Research therefore is important in all aspects of life especially in education. Research is a process of inquiring systematically into nature and society so as to test, prove and refine already existing knowledge as well as creating new knowledge (Naidoo (2011:47). Research is a systematic inquiry into a problem which is done to find solutions to that problem. However, it is important to note that it is not necessarily the large-scale studies involving large samples and vast quantity data that constitute good research (Borg, 2007).

2.3 Meaning of research engagement

Research engagement involves engagement with research and engagement in research (Borg, 2009). Engagement with research means reading research articles and publications as well as making use of research outcomes to inform practice and making informed decisions. Engagement in research means carrying out research (Borg, 2009). Teachers with a good research culture take research engagement as part of their job. Teachers are being urged to embrace evidence based practice (Fawcett et al., 2003). This requires that they should be research engaged.

2.4 Views of teachers on research engagement

The qualitative study done by Drill et al. (2012) in Chicago established that Teachers who had positive attitude towards research viewed it as a way of validating the strategies and practices they were effecting in their classrooms thus assuring themselves that the strategies they were effecting worked. Soe's (2014) questionnaire survey investigated Myanmar Higher Education English language teachers' perspectives on research, how often they engaged in research and reasons for engagement or non-engagement in research. He established that teachers viewed research from a scientific or quantitative perspective (large sample size, statistics and objectivity). This posed a

challenge to teacher engagement in research as quantitative research involving large samples and statistical analysis was a challenge to those who lacked research skills (Kutlay, 2012; Soe, 2014). Earlier studies done by Shkedi (1998), McNamara (2002), Borg (2009) and Kutlay (2012) on teachers' attitude towards research had also established that teachers associated research with quantitative tools, objectivity, hypothesis and generalizations. Borg & Alshumaimeri (2012) established that university teachers at a leading university in Saudi Arabia viewed research largely from a technical point of view.

Teachers also viewed research as something to be undertaken by academics, not teachers (McNamara, 2002; Borg, 2006). According to Borg (2006:25), "research is often seen by employers, parents, learners and even by teachers as an activity that lies outside the scope of the teacher's work." A study by Drill et al. (2012:5) revealed that in some teachers' view, research environment did not accurately represent classroom situations and that research "seems removed from everyday classroom realities." This negative perception did not encourage teacher research engagement. What teachers understood about research, their role and the importance of research determined their engagement or lack of it in research (Soe, 2014; Borg, 2007). Teachers could be motivated to do research if they viewed it positively according to Soe (2014).

2.5 Teacher research engagement levels

A study by Mehrani & Behzadnia (2013) on the extent to which Iranian High School English teachers were research engaged and the barriers to research engagement, revealed low levels of research engagement. Mehrani's (2015) quantitative study investigated the extent of Iranian English teachers' engagement in research as well as motivations that could promote teacher research engagement. The study established that teacher research engagement levels were moderate. The earlier study by Kutlay (2012) which investigated how English language teaching instructors in a public university in Turkey perceived research as well as their level of research engagement established that teacher research engagement was low. Most teachers only referred to the research projects they did as the requirement for award of various qualifications when they said they did research. According to Mehrani (2015:93), "this substantiates the idea that for many teachers, university graduation marks the end of their research engagement period." Earlier, Borg (2006) researched on conditions for teacher research and concluded that most of the professionals in not only English language but also in other fields were not involved in research. He established that in English language teaching, much of the teacher research occurred in formal programs of

study such as degree programmes i.e. for examination and certification. According to him, research should transcend certification and examination for it to become an integral part of the teachers' professional practice. Hancock (2001) investigated the reasons for teachers' reluctance to become researchers and established that majority of class teachers were uninvolved in research despite the teacher-as-researcher movement having existed for many years.

Borg & Alshumaimeri (2012) examined University teacher educators' research engagement at a leading university in Saudi Arabia and found that research engagement levels were moderate. They also established that the participants viewed research from a technical point of view.

2.6 Benefits of teacher research engagement

Many studies have been conducted on the importance of teacher engagement in research. One of the benefits of teacher involvement in research was that making use of research findings enabled teachers to make decisions that were evidence based (Borg, 2010; 2009; 2007). The other benefit was that reading and doing research made teachers critical, analytical and reflective on their practice (Atay, 2008). Apart from that, it enhanced teachers' ability to make sound professional judgement on their own (Lankshear & Knobel, 2004).

Hanover Research Report (2014) documented some benefits of teacher research engagement. Among the advantages was that students benefited from the culture of research of their educators through being mentored and just through being immersed therein. Mentoring by teachers or instructors helped students complete their research reports with relative ease. If students were introduced to research practices early they had no difficulties writing reports (Hanover Report, 2014). Student involvement in research projects done by their lecturers enabled them gain research experience, skills and knowledge. Alpay & Jones (2012) as well as Durning & Jenkins (2005) were of the view that new knowledge could be created through researching and that could help deepen the curriculum. They therefore advocated for research and teaching integration.

Bilgili's (2005) qualitative study revealed that doing action research increased the knowledge base of teaching, made teachers better at teaching, and helped teachers reflect on their instructional practices during the inquiry. Action research benefited teachers professionally and personally. The study revealed that doing action research considerably enhanced the teacher's personal and professional growth leading to improvements in teaching practice and school progress.

Khan's (2017) study analysed theories of teaching and research integration with a view to identifying the challenges and opportunities for teaching and research integration in institutions of higher learning. He posited that though research and teaching activities were different, they were dependent on each other. His findings suggested that striking an appropriate balance between research and teaching activities would increase the overall education quality and standards. Therefore, institutions of higher learning were likely to yield quality teacher and learner researchers according to him. The balance as he observed could only be possible if institutions of higher learning demonstrated a strong academic and research leadership, allocated necessary resources to research and build a flexible and supportive institutional culture. Although his study focused on institutions of higher learning, it could also apply to secondary schools especially those that have Geography as part of their curriculum. Geography has a research component called field work. A strong research and teaching integration could benefit the teaching and learning in institutions of learning.

Hilton & Hilton (2017) did a pilot study that indicated that practitioner research resulted in professional growth as it enhanced research skills and improved classroom or school-wide practice. The investigation by Palali et al. (2017) also established that being taught by teachers with high quality publications led to better performance of master students.

The exploratory study done by Campbell & Jacques (2004) showed that engagement with and in research had several positive influences on the professional development of teachers notably on teaching planning, teaching methods and strategies, teachers' knowledge base, reflective abilities and educational objectives. Teachers reported improvement in these areas as a result of research engagement (Campbell & Jacques, 2004). This was confirmed by other researchers who posited that researching helped teachers to become competent in that it builds and rebuild skills as well as improve cognitive abilities, critical and logical thinking which teachers could pass on to their learners (Elton, 2008; Khan, 2017). The research conducted by

Doğan (2014) also indicated that reading improves language skills. Other researches have shown that teachers' perspectives on teaching improved as they engaged with research in that research improved their views about teaching and also enabled them question and confirm their views (Everton et al., 2000). Apart from that, Biesta (2007) revealed that research had the potential to

improve and inform practice in that it presented to the teacher the diverse ways of interpreting and understanding educational activities (Biesta, 2007).

Research skills are becoming increasingly important in this era of rapidly changing knowledge base. Khan (2017) also posits that society and the corporate world needed people with research and consultancy skills and who were able to make use of subject based knowledge to solve real life problems. Khan (2017) was therefore of the view that research skills should be embedded in learners as early as possible. Earlier, Jenkins et al. (2003) had stated that research skills and abilities were important in decision making and problem-solving. It is for this reason that Jenkins et al. (2003) and later Deakin (2006) felt that it was the teachers' duty to transfer research skills and abilities to their learners. According to Khan (2017:344), "Integrating teaching with research helps to embed these core skills."

2.7. Importance of research engagement for teachers of Geography

According to Long & Roberson (1966:128), "Much if not most raw material of Geography is the surface of the land" and therefore these should be studied through field research and not theoretically. Mulemi (2011) viewed Geography as an important subject in preparing and executing projects that could drive socio-economic growth. Mulemi (2011) cited Holly & Harvey's (1981) contention that Geography is pragmatic and should be proactive in addressing practical issues or problems societies face. Fieldwork or field research is a vital component of the Geography curriculum because the subject's nature requires so (UNESCO, 1965). Field work is therefore, taught in both secondary and higher education. UNESCO (1995) regarded research as a powerful tool in the generation of knowledge. Sauer (1965) also viewed doing field work as an essential aspect in the training of a geographer. If pupils should be inquiring learners, they have to be imparted with inquiry skills. Therefore, it is important for teachers of Geography to engage in and with research. According to Lambert & Balderstone (2000), the teachers' research skills and competencies such as awareness, perception, and analysis should be enhanced and perfected first before teachers can hope to give support to their learners who are trying to develop these skills. Perfecting skills require experience and deliberate practice (Ericsson et al., 1993) hence the need for Geography teachers to be research engaged.

According to Cornali (2012:255), "It is widely believed that countries' social and economic wellbeing will depend to an ever greater extent on the quality of their citizens' education..." In

this century of knowledge explosion for one to survive, one needs to have high skill profiles. To have quality education we need to have quality teachers. Preparing teachers to be critical thinkers is a determining factor in improving the quality of education (Mayne,2014). For this to be achieved, teachers should have high profile skills and be lifelong learners as posited in the nation's overall vision for education enshrined in Vision 2030, "innovative and productive lifelong education and training for all by 2030" (Ministry of National Development and Planning, 2006: 38). The idea of lifelong learning and higher order thinking skills require that teachers be readers and researchers.

The Ministry of General Education (MOGE) recognizes that quality education depended heavily on teacher competence, innovativeness and resourcefulness (MOE, 1996). The Educational reforms of 1977 state that, "Good teaching demands the teacher to possess correct attitude and adequate knowledge of the subjects he teaches, keep abreast with developments in those subjects and in the objectives and methods of teaching" (MOE, 1977:61). This supports the view that teachers should be lifelong learners. The rationale for this is: that knowledge is dynamic and is ever increasing; that each of the learners teachers handle is different and the learners develop in an ever changing social environment; that initial teacher training, sound though it might be, is not sufficient for life; that the education system changes with change in societal needs and expectations ; and that because teaching is a learned and a learning profession, teachers should have a sound knowledge base and be lifelong learners (MOE, 1996). MOE (1996:115) therefore stated, "Teachers have a responsibility to themselves and to their profession, to deepen their knowledge, extend their professional skills, and to keep themselves up-to-date on major developments affecting their profession [and that] in addition to ongoing professional development, teachers need to attend to their own personal development in chosen areas of specialization."

One of the goals of the Zambian education system as stipulated by MOE (1996:4) is "producing a learner capable of developing an analytical, innovative, creative and constructive mind." In the policy document on education, MOGE expressed the need for teachers to extend their professional skills, deepen their knowledge and be up to date with major development that affected their profession (MOE,1996).

On the issue of quality education, the policy document, 'Educating our Future' states:

All learners should be facilitated in the attainment of the highest standards of learning through teaching of excellent quality. Quality is brought about by maximizing the efforts of all those responsible for the education of learners and by coordinating all the structure of the system so that centres of education, from pre-school to university, are places where effective teaching, learning and research take place and where the highest standard of achievement, in accordance with ability, are obtained by every student (MOE, 1996:4).

The above statements show that the ministry recognizes the need for research in all institutions of learning regardless of the level.

The need for adequate Geography text books and other necessary study materials in Zambian secondary schools is another reason teachers of Geography should be research engaged. According to Mundende (2015:51), “Zambian Secondary Schools were not fully stocked with the relevant literature on Geography field project to facilitate the successful implementation of the field projects.” Mulemi’s (2011) study also brought to light the teachers’ and pupils’ complaint that the available books on the sub-region could not provide enough information. This shows that it was not only literature on fieldwork that was lacking but also books on different topics. On this issue, Mulemi (2011) recommended that Geography teachers should as much as possible take part in writing books that could provide detailed information about Zambia and the sub-region. He however did not explain how teachers could do that. It is however important that teachers should participate in such activities. Writing books requires an inquiring and critical mind, extensive reading as well as researching because ‘geographies are written records of field investigations’ (Long & Robertson, 1966). Researching could empower Geography teachers with professional knowledge and skills and provide them opportunities to write local text books (Ntalasha et al., 2004)

The other reason for Zambian teachers of Geography to be research engaged is that the senior secondary school Geography curriculum has included field work following its revision in 2000. The aim of including field work was to promote learning through experience and by doing (CDC, 2000; Ntalasha et al., 2004). This is in line with Grave’s (1980) view that Geography curriculum should be proactive in influencing experiment and practice. The teachers’ research skills and competencies such as awareness, perception, and analysis should be enhanced and perfected first before teachers can hope to give support to their learners who are trying to develop research skills (Lambert & Balderstone, 2000). Teachers of Geography were aware that effective teaching of field

work “demands much careful study and even research on their part...” (Assistant Masters in Secondary Schools (AMSS), 1967:212).

Although Lambert & Balderstone (2000) had explained that teachers needed to heighten and sharpen research skills before hoping to support learners in doing research, they did not provide ways in which teachers could do that. Engagement in and with research, as literature has shown, could help to build, rebuild, enhance, and sharpen research skills and thus could help teachers teach research effectively (Elton, 2009; Khan, 2017). Ericsson et al. (1993) explained that for one to become an expert, they needed extended amounts of deliberate practice and that if those that were highly experienced engaged in deliberate effort to improve practice, they could improve their performance further.

Some Universities such as The University of Zambia do offer field work training as part of the Geography course but that is not enough for life. Initial training is not sufficient as studies by Nakazwe (2011) and Mundende (2007) indicated that pupils were not receiving the necessary guidance and skills to research and write reports. One of the challenges identified was that the pupils were not adequately prepared to do research and write reports and because of that pupils ended up paying people to write reports for them or simply duplicating other people’s reports (Nakazwe,2011; Mundende,2007). Findings in Mulemi’s research also show that learners were having challenges in dealing with field project. The reason the learners gave for the challenges according to Mulemi (2011:88), was that “... they were not given enough skills to enable them collect and analyse data.” Mulemi (2011:88) pointed out that the lack of understanding of the essence of field project was such that the pupils “... ended up paying people to write the project for them.” Initial teacher training is not enough, it just lay a foundation for teaching and thus MOE (1996) recognizes the need for a lifelong professional development for teacher because of the ever increasing and changing knowledge teachers’ professional life revolve around. Research engagement therefore is in line with the idea of lifelong learning for teachers which is always available to them (MOE, 1996).

2.8 How teacher research engagement can be facilitated

Teacher research engagement could be facilitated if the factors of research engagement were known. Several researchers independently came up with factors of teacher research engagement (Firth, 2016; Ellis & Longhand, 2016; Soe, 2014). They have offered ways of improving research

engagement based on the identified factors. Hindrances and facilitators of teacher research engagement hinge on these factors.

2.8.1 Factors of teacher research engagement

Many of the scholars seem to agree with the factors that Borg (2006) had raised on teacher research engagement. Borg (2006) identified awareness, motivation, knowledge and skills, choice, mentoring, time, recognition, expectations, community, and dissemination potential.

a) Awareness

What teachers understood about research, their role and the role of research would determine their engagement with and in research (Soe, 2014; Borg, 2007; 2006; Brew, 2010). According to Borg (2006), most teachers associated research with academics, not themselves. McNamara's (2002) research also established that teachers of English thought research involved quantitative methods and was done by academics. This according to Soe (2014), was likely to pose a challenge to teacher research engagement because the need for large samples and the use of statistics could be problematic for teachers who lacked research experience. To increase teacher motivation to engage in research, Soe (2014:9) proposed encouraging teachers to have broader view on research and to focus "on small scale studies which were more feasible for teachers." Borg (2007) stated that it was not necessarily the large-scale studies involving large samples and vast quantity data that constituted good research. According to Soe (2014:10), "without positive perception of research, teachers would be unmotivated to engage in research and publishing."

b) Motivation

On the issue of motivation, researchers had established that teachers were likely to engage in research if they perceived it to be worthwhile (Soe, 2014; Borg, 2006; Mehrani, 2015; Carlile, 2004). When teachers believed that research would benefit their work they were likely to engage in it (Ebbut, 2002; Borg, 2006; Mehrani & Behzadnia, 2013; Mehrani, 2015). Ebbut (2002) studied the development of a research culture in secondary schools in the United Kingdom. The common reason advanced by the sampled schools for wanting to engage in the research project, was to "...foster school improvement through the professional development that is believed to accrue from staff and student engagement in research, and especially from classroom research which focusses upon teaching and enhancement of learning" (Ebbut, 2002: 124). Borg (2006) and Soe (2014) identified obtaining a qualification as motivation for teachers to engage in research. Studies

show that some teachers engaged in research because of the opportunities to have their manuscripts published and also to participate in educational meetings (Mehrani, 2015; Carlile, 2004; Borg, 2006). In line with that, Firth's (2016) article on whether teacher professionalism could and should include research proposed establishing a peer reviewed journal specifically for research by teachers so as to motivate teachers to do research and publish. Financial motivation could also help promote a culture of research (Mehrani, 2015). To increase teacher motivation to do research, Soe (2014) proposed encouraging teachers to have a broader view of research and to focus on small scale studies.

c) Knowledge and skills

Besides other factors, research related knowledge and skills are cardinal for one to engage fruitfully in research (Borg, 2003; Mehrani & Behzadnia, 2013; Soe, 2014; Ellis & Longhand, 2016). Borg (2006) observed that many teachers had not gone through what he called 'research education' for them to conceptualize and conduct a research. The teachers lacked knowledge and skills in research and therefore failed to venture into research. Hanover Report (2014) explained that where members did not have sufficient research skills and or lacked motivation to research and publish, it was difficult to establish a research culture. If teachers lacked research knowledge and skills, mentorship could help (Borg, 2006; Ellis & Longhand, 2016) "especially where a research culture is non-existent" (Soe, 2014: 10). However, Ellis & Longhand (2016) stated that finding a good one was a challenge as some were not willing, others might not be cooperative, while others might try to hijack the research project.

Ellis & Longhand (2016) after identifying that skill deficit hindered teacher involvement in research recommended that teacher educators should adequately, through research training equip teachers with research related theoretical knowledge and practical skills needed for them to be able to venture into research. This was also recommended by Soe (2014). Training and retraining is important in building and rebuilding of theoretical knowledge and practical skills (Guy, 2017). However, training and retraining on their own are not sufficient enough to perfect skills and theoretical knowledge. Donaldson (2011) noted that the impact of one-off training, stimulating though it might be, could not be sustained in that it tended to dissipate when one returned to classroom realities. Teachers need to continually practice research to perfect their skills, thus being better equipped to teach competently because as MOE (1996) posits, it is their duty to continually update themselves with current knowledge and skills.

d) Mentoring

If teachers lack research knowledge and skills, mentorship could help especially where a research culture is non-existent (Borg, 2006; Soe,2014). Soe (2014:10) recommended “systematic supervision by qualified academics” as one way of increasing teacher research engagement. That meant that academics and teachers should work in collaboration. These mentors could act as scaffolds helping teachers to fruitfully engage in research (Borg, 2006). Although Ellis & Longhand (2016) were of the view that working with an academic partner would help teacher–researchers to do good researches, they noted that finding a good one could be a challenge since some would not be willing, others might not be cooperative, while others might try to hijack the research project.

e) Choice

Adults learn well when they are in charge of their own learning. Engagement in research could be fostered and sustained if teachers were the ones choosing what to study and how to do it (Borg, 2006; Anwaruddin, 2015; Firth, 2016). Borg (2006:24) posits that “sustained teacher research is an element in self-directed professional development...” According to Klein (2014), it is easier to remember things or items that relate to our own actions and interests, especially what relates to our future plans.

f) Time

In most of the studies that have been conducted on teacher engagement in research, time had been found to be one of the major factors of teacher research engagement (Drill et al., 2012; Bilgili, 2005; Ellis & Longhand, 2016: Soe, 2014; Borg, 2006; Firth, 2016). Doing research competes for time with teaching and therefore, research is given low priority (Drill et al., 2012). Often teachers complained that time was lacking due to the teaching load they had and the pressure of completing the syllabus (Ellis & Longhand, 2016: Soe, 2014; Bilgili, 2005). Hanover research report (2014) identified striking a balance between research and teaching in terms of resources and time as a challenge in teacher research engagement. The view is that teaching would suffer if more attention was paid to research than to teaching (Hanover Report, 2014).

For a research project to be completed, sustained commitment is needed and this requires time and energy as well as passion and deliberate effort on the part of the teacher researcher (Ellis & Longhand, 2016). Firth (2016) and Ellis & Longhand (2016) suggested that there be flexibility in timetabling when a staff is committed to a project and that such a teacher be relieved of some duties such as administrative duties. In the study conducted by Drill et al. (2012), majority of the teachers suggested that if research findings were to be presented briefly such as in bulleted point, in form of a brief synopsis, or in audio-visual media form they could be more easily accessed by teachers, thus leaving them with enough time to attend to their learners' needs. The teachers also expressed willingness to engage in and with research if the administrators sanctioned some time for research (Drill et al., 2012).

g) Recognition and expectations

Some scholars are of the view that stakeholders needed to recognize and appreciate the value of teacher engagement in research for it to be established as a culture (Mehrani & Behzadnia, 2013; Firth, 2016; Borg, 2006). For this reason, Borg (2006) expressed the need for stakeholders and teachers themselves to start seeing the classroom as a place of knowledge creation and innovation rather than merely a place of knowledge implementation. This according to him would enable teacher research engagement to be implemented and sustained. Researchers have also suggested that expectation and demand for teachers to do research by employers and policy makers could push teachers towards research. If it was enshrined in policy, job description and schedule that teachers were expected to do research, then they would do so (Borg, 2006; Mehrani & Behzadnia, 2013; Mehrani, 2015). Research has shown that many teachers did not engage in research because they felt it was not expected of them (Drill et al., 2012; Borg, 2006; Mehrani, 2015). They felt that doing and reading research was not part of their job as teachers (Mehrani & Behzadnia, 2013).

The study by Mehrani & Behzadnia (2013) seemed to suggest that the educational system through teacher training programs, teachers' evaluation system, and the job description of teachers could help teachers view teaching and research integration positively. Mehrani (2015:94) therefore, suggested that "Given the roles that such institutional motives could play in promoting teachers' research engagement, it seems necessary that policy makers implement a set of supportive educational policies to push teachers further toward research." This statement seemingly suggest that teacher research engagement should be explicitly enshrined in educational policy and also as

one of the expectations in the job description of teachers. Drill et al. (2012) stated that administrators should advocate for teacher research engagement

h) Dissemination potential

Teacher engagement according to some researchers could be fostered if mechanisms to make their research public were put in place (Borg, 2006; Mehrani, 2015; Carlile, 2004; Firth, 2016). According to Borg (2006:26), "...most academic researchers acknowledge [that], the prospect of publication is a major incentive for conducting a study." Studies show that some teachers engaged in research because of the opportunities to have their manuscripts published and also to participate in educational meetings (Mehrani, 2015; Carlile, 2004; Borg, 2006). Suggested research dissemination mechanisms included newsletters, websites, professional development events, presentation at conferences and written reports submitted to Journals of professional associations (Borg, 2006). In line with this, Firth (2016) proposed establishing a peer reviewed Journal specifically for research by teachers so as to motivate teachers to do research and to publish.

i) Community

In school environments where collaboration is present and teachers can share knowledge obtained from research and the leadership is supportive of research, teachers are more likely to engage in research according to Borg (2006). In environments that provides opportunities for teachers to do research in collaboration with other teachers to discuss and share knowledge obtained from research, teachers are more likely to engage in research (Borg, 2006).

j) Financial resources

Drill et al. (2012) and Firth (2016) identified financial resources as one of the factors of teacher research engagement. Since Journal subscriptions, books, and workshops come at a cost, teacher engagement with research is hindered (Drill et al., 2012). Though Firth (2016) acknowledged that teacher research engagement was costly on schools and the government, he saw the cost as worthwhile and justified in that it could result in highly skilled teachers and hence quality education. He recommended that a small scale research funding be established to fund teacher research activities. Drill et al. (2012) called on Local and state-level policymakers to find ways and means of reducing or eliminating the financial cost associated with teacher research

engagement so as to promote teachers' access to knowledge that is vital to improving student learning.

k) Complex discourse of research and availability of research documents

The other factors of teacher research engagement identified were lack of research literature and the complex discourse of academic research reports (Burkhardt & Schoenfeld, 2003; Mehrani & Behzadnia, 2013; Mehrani, 2015). Mehrani's (2015) qualitative study on the extent to which Iranian English teachers engaged in doing and reading research established that the complex discourse of research as well as lack of research documents hindered teachers from engaging with research. Teachers were not using academic research Journals because these were lengthy, technical and the language used was difficult especially for teachers who lacked specialized research skills. Teachers therefore preferred web-based materials because these were brief, non-technical and were written in plain language. This was earlier established by Mehrani & Behzadnia (2013). Burkhardt & Schoenfeld (2003) suggested reducing academic jargons in research as a way of facilitating teacher research engagement. According to Drill et al. (2012), teachers expressed willingness to engage with research if research findings were presented in brief synopsis, as a bulleted list, or even as audio-visual media.

Teacher research engagement was hindered by lack of research literature (Mehrani, 2015; Drill et al., 2012). Lack comprehensive library facilities as is the case in Zambia, hinders access to research literature. MOE (1996:86) posits that "library facilities in Zambia are scarce, at both institutional and public levels: ...Most secondary schools have no libraries, and very few have trained librarians." The Zambia Library Service which runs most of the public libraries has the task of establishing and supporting school libraries. It offers support in terms of donation of books, training library assistants and providing advice (Ronnås, 2009). However, its operation is hindered by poor funding (Ronnås, 2009).

The poor stocking of libraries could be attributed to the lack of viable publishing companies in the country as many publishing companies lacked capital and the expertise to compete and meet the demands for books (Ronnås, 2009). Lack of paper mills and local pulp coupled with lack of printing and production materials made it cheaper to import books than to produce them locally, hence the poorly stocked libraries (Ronnås, 2009). Apart from that, poor reading culture of potential buyers hinders the production of books (MOE, 1996; Ronnås, 2009). Ronnås (2009)

identified poor access to information, poor resource mobilization, lack of value and appreciation of information at all levels in society and poor regional and international cooperation as the problems with library services in Zambia. She further explained that those services were mainly in urban areas and the stock was not up to standards because of high costs and poor funding.

On the issue of availability of research materials, Mehrani's (2015) study revealed that teachers' tendencies towards web-based sources such as weblogs and forums was because web-based sources were more available than published printed Journals. Earlier research by Drill et al. (2012) recommended that policy makers and administrators should consider setting up research libraries in districts. According to Drill et al. (2012), if a section of the school library was to be set apart and stocked with relevant research articles, books and digital media that were useful to teachers, it could make research more easily accessible to busy teachers.

1) Gap between theory and practice

Some Researchers criticized academic research as not being relevant to the teachers' interest. They were of the view that the problems many academics studied were not significant and could not be placed in context of teachers (Block, 2000; Nasaji, 2012). Hancock's (1997) study which investigated the reasons for teachers' reluctance to become researchers explained that the mismatch between many available research methodologies and teachers' professional ways of working in classrooms was one of the barriers to teacher research engagement. This gap hindered teacher engagement with research because teachers would only engage with something they perceived to be useful or relating to their work (Mehrani, 2015).

Hancock (1997) however argued that regardless of these challenges, teachers could become more engaged in research if given appropriate support. Examples of such support included helping teachers cultivate personalised styles of writing that were more consistent with their professional ways of operating in classrooms and their school work nature (Hancock, 1997). According to Gore & Giltin (2004), since teachers were viewed as mere consumers of research while academics were producers of research knowledge it brought about the issue of power relations where teachers' voices were not valued. Teacher engagement in research is therefore negatively affected. Working in collaboration with academics might assist in bridging the gap between theory and practice and change the power relations between academics and researchers thus promoting teacher research engagement (Mehrani, 2015).

m) Societal culture

Another factor of research and teaching integration is the culture of society. Societies that embraced innovation and are long-term oriented would more likely be receptive to the integration of research and teaching than those who are not (Brew, 2010 in Khan, 2017). African societies are not reading societies. They are rather a chatting or narrating societies that lack a culture of reading (Mulindwa, 2001; Sangkeo, 1999. In Nalusiba, 2010). Oral literature is therefore more dominant than written forms in African societies and this explains why African learners fail to engage in reading (Nalusiba, 2010). In African societies, therefore, reading stops upon completion of formal education because people find more pleasure in oral traditions and practices rather than from written forms (Toteimeyer, 1999). The minority who can read are influenced to remain in the oral traditions and practices because majority of Africans are illiterate, thus compounding the non-reading culture (Toteimeyer, 1999).

Elley (2001) also linked reading culture to the attitude of society towards reading and the availability of what to read. To explain this point, he drew the readers' attention to the Nordic countries which had high levels of reading competencies because they had adequate libraries, bookshops and role models to ensure that good reading habits were supported and transmitted in the next generation.

Ronnås (2009) investigated three different reading projects which were set up to promote reading in Zambia with the aim of drawing some lessons from the obstacles and challenges in relating literacy to culture among young people in Zambia. According to Ronnås (2009), reading was related to the culture of the people. In Zambia, because the issues of literature and reading were alien to the culture and were just brought into the country through a foreign language medium, it had been difficult to develop a good reading culture. Ronnås (2009) went on to state that many within the educated elite were non-readers.

According to Sturges & Neill (1998:135), "The colonial education system inherited by Africa and expanded since independence, presented reading as something to be learned, rather than a means of enjoyment. Books are often associated with study and you read to pass your exams." Hachintu (2017) studied the effects of poor reading culture on distance education student at Nkrumah University in Zambia. Hachintu's work brought to light the effects of poor reading culture such as corruption and sexual immorality among others. According to his findings students with poor

reading culture tended to buy marks from lecturers using nepotism, money or sexual favours, a vice which he said had marred many institutions of higher learning in Zambia. He further stated that some students resorted to hiring people to write assignments and research reports for them. This means that the students were not reading and researching but were graduating with good grades, a situation Hachintu (2017:61) referred to as ‘a celebration of mediocrity.’ Hachintu (2017) expressed the need to move beyond mere imparting of reading skills to inculcating the reading and research culture in learners. Aina et al. (2011) were of the view that teachers must read and research even if it is under duress because their job demanded that they do so. Much of the work on reading and research culture focused on the learner and not on the educator.

2.9 Research gaps addressed

No research so far had been done in Zambia regarding the research engagements of Geography teachers although issues of reading culture had been researched on. This research is the first of its kind in Serenje district and the whole country. This research therefore might be used as reference for other researches to be conducted. While other researches focused on English language teacher research engagements, this research looked at the research engagements of teachers of Geography in selected secondary schools in Serenje district. It has come at a right time when field work which was removed due to challenges in its implementation has been re-introduced in the Zambian secondary school Geography curriculum. The precondition for teaching field research is perfecting and enhancing the teacher’s research skills and knowledge and this can be done through being research engaged. In addition, the subject Geography by nature requires field research. While other studies done in Zambia have dwelt on the reading culture, this study focused on research and how Geography teacher research engagement could be established, fostered and sustained.

2.10 Summary

This chapter has presented a review of literature related to the study. It began by reviewing what research means according to literature and then defined research engagement. The importance of research for teachers has also been given. In addition, views that teachers had regarding research, levels of research engagements of teachers as well as factors of teacher research engagement have also been discussed according to literature reviewed. Most of the studies on teacher research engagements involved English language teachers as participants and others dealt with teachers in general. There seemed to be lack of study involving teachers of Geography especially in Zambia.

Among the few studies that had attempted to address this knowledge gap are those that have been presented in this chapter. However, even these have not dealt with Geography teacher research engagements in Zambian secondary schools. Presented here in this chapter are the knowledge gaps which this study attempted to address. The following chapter presents the methodology used in this study.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Overview

This chapter presents methods and procedures which were used to collect and analyse data for this study. It also describes, how the data was analysed and interpreted. The format that this chapter takes is as follows: research paradigm, research approach, description of the research design, a description of the target population, the sample size, sampling and sampling procedures, data collection methods, data collection instruments, data analysis, trustworthiness, ethical considerations and chapter summary.

3.2 Research paradigm

Creswell & Plano Clark (2011:21) define paradigm as “assumptions a researcher makes about reality, how knowledge is obtained and the methods of gaining knowledge.” This study was informed by constructivism paradigm because it sought the subjective views of participants regarding teacher research engagement. Constructivism views reality as a social construct and that realities are multiple (Morgan, 2007; Creswell, 2014). Different human beings view things differently. Therefore, different views of participants regarding research engagement were sought to avoid **over simplification** of reality. The study relied on multiple perspectives of participants to better understand Geography teacher research engagement and how it could be facilitated.

3.3 Research approach

Grower (2015:1) defines an approach as “plans and the procedure for research that encompass the steps from broad assumptions to detailed methods of data collection, analysis and interpretation.” The approach used in this study was qualitative approach. It was qualitative because it sought to describe how best research engagement could be established and or fostered from the perspectives of participants. In addition, research questions were used instead of hypothesis. Creswell (2014: 32) defines qualitative approach as “an approach for exploring and understanding the meaning individuals or groups ascribe to a social or human problem.”

3.4 Research design

Kombo & Tromp (2006:70) define a research design as “the “glue” that holds all the elements in a research project together. A design is used to structure the study to show how all of the major parts of the research project work together to try to address the central research questions.” According to Grower (2015:1), “Research design refers to the overall strategy that one chooses to

attack the problem which requires integration of different components of the study in a coherent and logical way, thereby, ensuring to solve the problem in efficient way.” The study employed a qualitative descriptive study design. Descriptive design was chosen so as to get different views, beliefs, attitudes and perception of participants regarding research engagement of teachers of Geography in selected secondary schools in Serenje district. The choice of qualitative descriptive design was because it enabled the researcher to deeply probe, make a thorough analysis and get a deeper and detailed understanding of the phenomena under study (Creswell, 2017; Manion & Morrison; 2006) from the perspectives of participants (Bradshaw et al.,2017). The choice of this design also offered the researcher the opportunity to gain inside knowledge and see the world from the participants’ point of view because it focused on producing thick description of the phenomenon or process under study (Bradshaw et al., 2017). Qualitative descriptive design has the advantage of increasing the likelihood of data analysis being true or as close as possible to the participants’ accounts and also ensuring the transparency of the researcher’s own interpretations of the data (Clancy, 2013; Sandelowski, 2000).

3.5 Target population

“Target population refers to all the members who meet the particular criterion specified for a research investigation” (Alvi, 2016:10). The total number of schools that were offering geography in the district were 7 at the time data was being collected. For this study, the target population included: Senior secondary school teachers of Geography in Serenje district, Heads of Social Sciences Department at secondary schools that offer Geography, District Resource Centre (DRC) and Provincial Resource Centre (PRC) personnel in Serenje district of Central Province. Senior secondary school Teachers of Geography were targeted because they were the ones teaching Geography. PRC officials were helpful in establishing how often teachers were engaged with research publications and what sort of research materials teachers read. Heads of Social Sciences Department were targeted to get their views on the research cultures of their teachers.

Serenje district was chosen for the study because the district houses both the DRC and PRC and therefore making it easy for the researcher to access information as well as ascertaining whether teachers go there to request for research publications. Apart from that, that was where the researcher as a practitioner had observed some aspects of the problem under study.

3.6 Study sample, sampling and sampling procedures

Alvi (2016:11) defines a sample as “a group of relatively smaller number of people selected from a population for investigation purpose.” Alvi (2016:11) further defines sampling as “The process through which a sample is extracted from a population.” The sampling design for this study was non-probability sampling since the researcher wanted to explain or illustrate how Geography teachers in Serenje district were doing in terms of research engagement. According to Kombo & Tromp (2006:81), non-probability sampling is mainly used “to find out how a small group, or a representative group is doing for purposes of illustration or explanation.” The sampling procedure was purposeful sampling. Purposeful sampling was used because it provided the researcher with an opportunity to pick the people with the characteristics or information she was looking for and these warranted the inclusion (Taherdoost, 2016; Alvi, 2016).

To select four secondary schools, homogeneous purposeful sampling was used because only those schools which were offering Geography were required. Homogeneous purposeful sampling was used to select four teachers of Geography from each of the four selected secondary schools. Homogeneous purposeful sampling was used because it enabled the researcher “pick a sample with similar characteristics to describe a particular subgroup in depth” (Kombo & Tromp, 2006:83). Expert purposeful sampling was used to select one official each from DRC and PRC and four heads of social sciences department in Serenje district. The sample, therefore, included one official each from district resource centre (DRC) and the Provincial resource centre (PRC) both female, fourteen teachers of Geography, four of which were female.

It should be pointed out that the district had few female teachers of Geography and in all the schools that were eligible for inclusion in this study the ratio of males to females was not 1:1. In fact, two of the sampled schools only had male teachers of Geography. The other two schools only had two female teachers each and these were all included. In addition, the Social Sciences Departments in the selected schools were all headed by male teachers and all these were teachers of Geography.

The researcher only found two teachers of Geography at school D, four at school A, five at school B and four at school C. However, at school B, one teacher could not participate because he was on leave at the time of data collection. Similarly heads of Social Sciences Department from both

school B and D were too busy to participate during the period of data collection. However, saturation had already been reached before teachers at the last school were interviewed. The total number of participants was therefore, eighteen, six of which were female.

3.7 Data collection methods

Data was collected through unstructured interviews, focus group discussions and document analysis such as the policy document on education “Educating Our Future. Unstructured interviews were chosen because they were flexible and allowed the researcher to probe further, thus getting more information. Unstructured Interviews were conducted with PRC, DRC personnel, teachers and Heads of Social Sciences departments. In order to have better access to participants’ views, understanding and interpretations of phenomenon, experiences and opinions, open-ended and flexible questioning were used during interviews (Shaw & Hoerber, 2016). Apart from that, focus group discussions were used to collect data from teachers. Furthermore, document analysis was also done to collect data from both PRC and DRC. The documents analysed were visitors’ books and records of lending out books at PRC and DRC.

3.8 Data collection instruments

Unstructured interview guides and focus group discussion guides were used as data collection instruments. The researcher was asking questions as well as moderating the interview proceedings. The researcher was also writing and recording what the participants were saying. The researcher asked questions requiring participants to express their views and discuss them with others. In addition, the researcher was the moderator and the recorder of the proceedings in the focus discussion. Apart from that, document analysis was also done, for example, the education policy document was analysed.

a) Unstructured interview guides

These were used on teachers of Geography, Heads of Social sciences departments, PRC and DRC personnel. The choice of using unstructured interview guides was that they were flexible enough to allow participants to express themselves without being restricted to confirming to what the literature has identified (Shaw & Hoerber, 2016). The interview guides had a list of questions to help maintain focus and to ensure there was consistency across different sessions of interviews. However, participants’ narrations were followed and further question spontaneously generated based on what those narrations brought out. Care was taken not to allow the participants to drift

off topic by politely interrupting them at an appropriate point so as to return to issues relating to the research questions.

The challenge encountered using this instrument was gaining access to some participants. Some participants expressed that they did not have enough time and therefore, the researcher had to tailor the interview to suit the time limit stated by those participants.

b) Focus discussion guide

This was only used on teachers of Geography in selected secondary schools of the district. The researcher followed a list of questions but also asked questions based on what was coming out of the discussions. The researcher allowed participants to discuss issues but ensured they did not drift off topic. The researcher moderated the discussion ensuring that all members of the group had a fair chance of expressing their views. This was done by exercising a bit of control over those who seemed to dominate the discussion as well as those who seemed to be shy. Focus discussion guide enabled the researcher to gain insights into the participants' understanding of the situation in that it allowed participants to express their views in-depth in their own words. The discussions were recorded with permission from participants. However, it was a challenge to find a common time suitable for all the group members. The researcher ended up conducting only two focus group discussions instead of three. The ideal size of a focus discussion was also impossible because of the small numbers of teachers of Geography that were available at each school. The other challenge encountered was that the researcher could not guarantee that the information given by participants could remain a secret because as Macleod (2014:3) puts it, keeping participants' details confidential is difficult because "for example, the researcher cannot guarantee that the other people in the group will keep information private." However, the researcher implored all the participants not to disclose what transpired during the discussions.

c) Document analysis

The policy document "Educating our Future" was analysed to find out what it said about teacher research engagement. Quotes were made on anything to do with teacher research engagement. Visitor's books as well as borrowing records of books were also reviewed to check whether teachers of Geography were visiting PRC and DRC to borrow research materials. The policy document was obtained from Malcolm Moffatt College of Education Library while the other

documents were obtained from PRC and DRC. Permission was sought from relevant authorities to use the said documents for research purposes. The challenge faced when analysing documents from resource centres was that some information might not have been recorded since the documents showed no record of teachers borrowing research materials although PRC officer said they sometimes borrowed research journals for English. However, DRC and PRC officers indicated that research materials in Geography were absent.

3.9 Data analysis

Because of the massive data qualitative interviews yielded, thematic analysis was used to analyse the data. Thematic analysis involves going through the qualitative data to identify, analyse, and report themes or patterns that are of interest or importance to a researcher (Braun & Clarke, 2006; Maguire & Delahunt, 2017). This kind of analysis is not restricted or tied to a particular epistemological or theoretical perspective (Maguire & Delahunt, 2017) and therefore could be used within different frame works (Braun & Clarke, 2006). The choice of thematic analysis at a latent level was to enable the researcher identify or examine the underlying ideas, assumptions and conceptualizations and ideologies beyond the content of the data, and to identify the features that gave it a particular form and meaning (Braun & Clarke, 2006). Development of themes involved interpretive work and thus making the analysis not to be just descriptive but already theorized (Braun & Clarke, 2006; Maguire & Delahunt, 2017). The researcher followed Braun and Clarke’s six- phase framework for doing a thematic analysis shown in Table 1 to analyse the data.

Table 1: Braun and Clarke’s six- phase framework for doing a thematic analysis

Step 1: Become familiar with the data, Step 2: Generate initial codes, Step 3: Search for themes among codes	Step 4: Review themes, Step 5: Define themes, Step 6: Write-up.
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Source: Maguire & Delahunt, 2017: 3354)

Firstly, the researcher started by transcribing the data from interviews and focus discussions. This was the starting point in the familiarization process. The researcher had to go through the whole data set several times after transcribing it to fully understand it, search for meaning and issues of potential interest and to come up with the initial list of ideas.

Secondly, initial codes were generated manually by going through the transcribed data identifying interesting aspects in the data items that seemed to form the basis of repeated patterns.

The researcher then searched for themes among the codes by analysing the codes to see how they might be collated to form potential themes. At the end different codes were sorted into potential themes.

Themes were then reviewed by checking whether or not each potential theme had enough data to support it, whether or not the data within themes flowed coherently, and whether or not the themes were mutually exclusive. The process also involved identifying which themes needed to be combined into one theme and which themes needed to be broken down to form different themes.

The naming and defining of themes came next. The collated data within each theme was reviewed and organized coherently after identifying what aspects of the data each theme captured and what each theme was about. Finally, the write up was done.

3.10 Trust worthiness of the study

Virtual University for Small States of the Colon wealth (VUSSC) (2013: 34) defines truth value or credibility as, “the accurate representation of information from the researcher’s perspective and substantiating evidence.” Valid data in qualitative research is that which tackles the purposes or the aims for which it was collected (Lankshear & Knobel, 2004). It should deal with the aim of collecting the data. To ensure that the data collected was comprehensive, appropriate and credible the researcher piloted the instruments after subjecting them to expert scrutiny. The expert in this case was the supervisor.

Credible research is that whose data other researchers can have confidence in and be able to use it (Lankshear & Knobel, 2004). According to Anol (2012:110):

The credibility of interpretive research can be improved by providing evidence of the researcher’s extended engagement in the field, by demonstrating data triangulation across subjects or data collection techniques, and by maintaining meticulous data management and analytic procedures, such as verbatim transcription of interviews, accurate records of contacts and interviews, and clear notes on theoretical and methodological decisions, that can allow an independent audit of data collection and analysis if needed.

The researcher strived to ensure that the integrity of the data that was collected would not be doubted by other researchers. For this reason, the researcher used informant feedback whereby the data collected was discussed with participants from whom the data was collected to confirm with them. In other words, the data collected was subjected to participant checking by showing it to them so that they verify whether what was recorded was what they had meant. Where any participant rejected the data, the corrections and clarifications they made replaced the misconstrued

information from the data. This ensured confirmability of the data which according to Anol (2012:110) is "... the extent to which the findings reported in interpretive research can be independently confirmed by others (typically, participants)."

The researcher also strived to ensure that the instruments of research addressed similar issues by trying to minimize variation amounts in the instruments. Methodological triangulation which involved using different methods to collect the same data was used to ensure trustworthiness. Interview guides and focus discussion guides were used. Document analysis was also done.

In qualitative research, reliability involves collecting data from different participants while ensuring that they all understand the intended meaning of each of the researcher's questions in the same way (Lankshear & Knobel, 2004). To ensure this the researcher explained to participants what each question was addressing and made clarifications where participants seemed not to understand the questions. Apart from that, the participants were asked to be free to seek clarification from the researcher where they did not understand the question.

Anol (2012:111) defines transferability as "... the extent to which the findings can be generalized to other settings." For this reason, the researcher provided rich thick and detailed description of the research context as well as an adequate description of the structures, assumptions, and processes that the data revealed thus enabling readers to determine whether the research findings could be generalized to other settings or social contexts.

To ensure dependability the researcher collected data on the same phenomenon twice at different points in time. Some participants were interviewed twice. In addition to that, the researcher also described in details the phenomenon under study and its social context to enable other researchers or readers to determine the authenticity of the findings of the study on their own (Anol, 2012).

Trustworthiness and credibility therefore were ensured by addressing aspects such as credibility, dependability, transferability and confirmability. Method triangulation which entailed converging different data sources, in this case interviews, focus discussion and document analysis was used to ensure credibility. Informant feedback or member checking was used to ensure confirmability. Transferability was addressed by providing a rich thick and detailed description of the research context as well as an adequate description of the structures, assumptions, and processes that the data revealed. Dependability issues were ensured by interviewing some participants twice at

different periods in times and by describing in details the phenomenon under study and its social context to enable other researchers or readers to determine the authenticity of the findings of this study on their own (Anol, 2012). Ethical clearance was sought from The University of Zambia Humanities and Social Sciences Research Ethics Committee (HSSREC) (appendix 7).

3.11 Ethical considerations

The researcher sought ethical clearance from UNZA–HSSREC (appendix 7). The researcher also obtained permission from Districts Education Board Secretary (DEBS) (appendix 8) and from head teachers of the selected schools. Apart from that, the researcher got permission from the participants to interview them and record the conversations. Participants were assured of anonymity and pseudo names were used instead of real names. Interviews and focus group discussions were held at the respondent’s convenient time and place and the participants were informed the duration of both the interview and focus discussion. Since participation was voluntary, participants were informed of their right to withdraw should they feel like and that they were not under any pressure to respond to any question they didn’t feel like answering. Participants were also assured that their participation in the research would have no effect on their relationship with their employer. They were assured of confidentiality and that whatever responses they made would not be shared with their employers or friends. They were also informed that the research was purely for academic purposes. Furthermore, this research did not warrant financial or material cost on the part of the participants. All the expenses were borne by the researcher.

3.12 Summary

This study employed a qualitative descriptive design. Qualitative procedures, data collection and analysis frameworks that were used constituted the methodology of this study. The various tools used (unstructured interview guides and focus discussion guides as well as document analysis) supplemented each other and also enhanced reliability. Trustworthiness and reliability were dealt with by addressing transferability, confirmability and dependability issues. Ethical consideration adhered to in the study have also been presented in this chapter. The following chapter presents findings of the research.

CHAPTER FOUR: PRESENTATION OF FINDINGS

4.1 Overview

This chapter presents the research findings. The aim of this study was to establish how best research engagement could be established and or enhanced among teachers of geography in selected secondary schools of Serenje district. The findings are based on the data collected through interviews and focus group discussions and have been presented in verbatim according to themes generated.

4.2 Demographics of participants

Table 2 shows the characteristics of teachers who participated in the study. In terms of qualifications, all the teachers who participated were university graduates. length in service ranged from two (2) to 30 years. Apart from teachers, PRC and DRC officers in charge of in service training were also interview. The total number of female teachers who participated in the study was four (4) while male participants were twelve (12).

Table 2: Characteristics of teacher participants

School	Participant	Gender	Length in service	Highest qualification	Institution from which qualification was obtained
A	HOD	M	20	BA.ED	UNZA
	A1	M	23	BA.ED	UNZA
	A2	F	15	BA.ED	UNZA
	A3	F	5	BA.ED	Nkrumah
	A4	M	10	MA.ED	UNZA
B	B1	M	7	BA.ED	UNZA
	B2	M	3	BA.ED	Nkrumah
	B3	M	10	BA.ED	UNZA
	B4	M	20	BA.ED	UNZA
C	HOD	M	30	BA.ED	ZAOU
	C1	M	8	BA.ED	Rusangu
	C2	F	7	BA.ED	Nkrumah
	C3	F	4	BA.ED	Nkrumah
	C4	M	9	BA.ED	UNZA
D	D1	M	20	BA.ED	UNZA
	D2	M	2	BA.ED	Nkrumah

Source: Field data, 2020

Therefore, this study included eighteen participants of which six were female and twelve were male. Although the researcher did not interview the intended number of participants, data collection was done until saturation was reached.

4.3. Findings of research questions

This study was qualitative. Therefore, all the questions elicited qualitative data. All the data obtained from interviews and focus group discussions was transcribed and reported in verbatim form. Nevertheless, the researcher had to punctuate most of what the participants said to make the responses easy to read and comprehend and to ensure coherence in the work. Much as the data sets were presented separately according to their respective research questions, reference was continually made to other questions and the data they yielded wherever the conclusions their data suggested were similar.

4.3.1 Views of teachers of Geography in selected secondary schools in Serenje regarding ‘research’ and research engagement

The first research question elicited the views that Geography teachers had regarding research. This was important for the study because the views one holds on a given activity determines their attitude towards that activity and therefore, their involvement in it. Questions 1 through to 4 on the unstructured interview guide (appendix 1) and questions 1 through to 5 on the Focus Group Discussion guide (FGD) for teachers of Geography (appendix 2) dealt with research question 1.

Meaning of research

Several definitions were given by teachers but what was common about the definitions given was that research involved looking at a problem in details so as to understand it and that research was aimed at finding solutions to a problem. Some of the definitions were as follows:

Research is: Looking for more details about a certain subject area or something (FGD2: 14/08/2020)

A scientific method of finding facts about certain problems and it requires a lot of stages to be done. (FGD 1: 14/08/2020)

When asked what those stages were, one teacher in the group explained:

Research involves identifying areas with a problem, how that problem is affecting the community and why it is affecting the community so that when you find out why the problem occurs you can find ways of proposing possible solutions to end that particular problem (FGD 1:11/08/2020)

The teachers said that once knowledge gaps were identified new ideas and knowledge could be brought in to bridge the gaps. The other definitions of interest were as follows:

Looking for more information, trying to understand and get more information from many sources, it is the search for knowledge (B4, school B:22/07/2020)

Research is the systematic process of collecting and analysing and interpreting data so that you make meaning out of it either to contribute to a body of knowledge or to find solutions to problems (B1: School B: 21/07/2020)

Investigating a phenomenon to find answers to a problem (C3, school C: 23/07/2020).

What one does to solve a problem (D2, School D: 10/08/2020).

Teachers viewed research as a way of finding solutions to a problem. They also viewed research as a systematic process that involved identifying a problem and finding solutions to that problem. Some teachers also said that research was also about adding to the body of knowledge. They saw research as a rigorous and very demanding process.

4.3.2 Views of teachers of Geography on the importance of teacher research engagement

On the issue of whether teacher research engagement was important to both the teaching and learning of Geography, all the teachers of Geography agreed that it was very important.

Research according to participants helped a teacher to be critical and up to date with information. However, one teacher (B1) stated that active research for Geography teachers could be detrimental to the teaching and learning of Geography because it could make it difficult to complete the syllabus and that if what was researched on was different from what was in the syllabus, then it would not benefit the teaching and learning of Geography. He explained:

When we engage so much in research it will be detrimental to the teaching and learning of Geography since we are given a syllabus to teach and the expected content we are supposed to finish. So when you go into research you might create a mismatch between what you teach and what comes in the exams. You might be teaching learners content that is too advanced for learners and out of exam context. We are told that after teaching, pupils should pass the exams. (B1, school B, 21/07/2020).

The teacher however, agreed that if the research was aligned to what was prescribed in the syllabus then it would be very beneficial to the teaching and learning of Geography.

In that case it is going to enhance quality and up to date teaching and learning of Geography. (B1, school B: 21/07/2020)

Geography teachers in the selected schools agreed that research was very important to the teaching and learning of Geography especially if it was in line with what teachers taught.

4.3.3 Views of teachers of Geography on the importance of teacher engagement in research

Teachers were asked to explain why they thought engaging in research was important for teachers of Geography. Their responses cut across major themes of effective teaching and problem solving.

a) Effective teaching of Geography

All the participants stated that doing research would lead to better teaching of Geography by promoting lifelong learning, knowledge and skills acquisition, and creativity.

i) Lifelong learning

Teachers of Geography viewed Geography as a subject that dealt with the earth and human interactions with the earth. They were also of the view that since the earth was ever changing, the subject was also dynamic and therefore required research oriented teachers. According to teacher B1 doing research for Geography teachers was very important because:

Geography deals with the environment and when you look at the environment, there are so many things that are happening. The environment is always changing. Geography teachers need to acquaint themselves with what is happening in the natural environment where they live. (B1, school B: 21/07/2020)

Teacher B3 argued that the only way that teachers could teach and learn about the world as the subject Geography entailed, was by doing research. Teachers cited the need to constantly update themselves with issues regarding the subject and also with the changing world. This meant that they needed to be lifelong learners.

Related to this, teachers brought out the issue of lifelong learning for teachers. On this issue teacher B2 said

Teaching and research go hand in hand because they say that, he who dares to teach never cease to learn, most certainly you have to involve yourself in research, find out new information so that as you are imparting knowledge you are sure that you are giving pupils the right information (B2: 21/07/2020).

C3 and A1 also had this to say:

Geography is dynamic, things change. You need current data (C3;23/07/2020)

Geography is dynamic therefore, it is wrong for a teacher of geography to learn once. You need to constantly refresh your data base and be up to date with knowledge (A1:11/08/2020)

Geography as a subject requires inquiry, discovering what is in the environment and to understand what is happening in the environment. In addition, geography is dynamic, so if we don't research, we lag behind. We need to get up to date with the changing environment we deal with (A4, school A: 10/08/2020)

These views were shared by two other teachers. Therefore, doing research was considered as one way of continuing learning for teachers.

ii) Skills and knowledge

All the teachers mentioned that since teachers of Geography were required to teach research, it was just important that they engaged in research so as to teach field research better. Teacher B3 simply put it this way:

*Whoever is handling Geography should do research since he or she is required to teach research. It does not **ogre** well for a teacher to fail to teach fieldwork and give another teacher to handle that for them. They should do it themselves hence the need to be conversant with research and report writing (B3, school B: 21/07/ 2020).*

They made mention that research empowered teacher researchers with research skills and knowledge and also helped to sharpen and perfect research skills which they could impart to learners. The following were some of the responses:

There is a part of research in the name of field project that pupils are supposed to do. If teachers do research, they will have research skills. They will transfer them to learners who will also become good researchers (HOD, school A:11/08/2020).

I'm not at the same level as those who don't research. Skills are intensified through researching and I'm able to properly guide learners through their research. I do what is right because of being involved in research. I don't fumble (A4, school A: 10/08/2020).

I acquired some skills of data analysis and interpretation and was able to teach field research to learners (D1, school D:10/08/2020).

Four of the teachers of Geography also viewed engagement in research as important because it enhanced understanding, critical thinking and the teacher's confidence as they taught. According to A4;

Researching deepens our understanding and makes you sharp (A4, school A: 10/08/2020).

C2 also had this to say:

Doing research is important because it helps me have a broad understanding of what I'm doing. It opens my mind to critical thinking (C2, school C:23/07/2020).

D2 said that as a result of the researches he had done, he had no problems teaching certain topics.

I have first-hand information, so I teach confidently (D2, school D: 10/08/ 2020).

All the teachers of geography who participated in the study mentioned that if what was researched on was in line with what was in the syllabus then it could make the teacher teach Geography components better. B4 said he did a research on land tenure systems and challenges women have in accessing land in Zambia and gained extra knowledge from that research.

I was able to gain more knowledge and was able to teach land tenure systems adequately to my pupils. (B4, school B:22/07/ 2020)

Doing research as other teachers pointed out increases the knowledge base of the teacher and enable them to teach up to date information. C2 also said she did research on farming so as to have more information and this was what she had to say:

I don't struggle when teaching that topic because I'm very sure of the information I teach. I use some of the research findings as examples. I don't give examples from without but from the reality I know and I'm sure of and learners benefit. (C2, school C:23/07/2020).

Those who had engaged in some research gained more knowledge and understanding on the topics they researched on and their teaching was improved as a result.

iii) Knowledge creation (creativity)

Four teachers were also of the view that doing research could enable them to create knowledge. According to B4,

Instead of being a traditional teacher, by doing research you become a modern teacher who can supplement information that is not there or documented. (B4, school B: 22/07/2020).

Teachers pointed out that the books in school libraries were either outdated or shallow and that not everything was found in books and that there was very limited information in books about Zambia. Therefore, if Geography teachers were researching on their local environments they could make information about Zambia accessible and available. On this issue teacher B2 had this to say:

Research should be taken seriously by us Geography teachers so that we can be able to create new knowledge and be writers. I think Geography teachers indeed must do research. Our country is lagging behind in terms of research and as a result we have few local writers of geographical books and articles so research is very important. As Geography teachers we need to get interested in coming up with new information and challenging existing theories (B2, School B, 21/07/2020).

B2 considered doing research as a push needed for Geography teachers to become interested in writing books and articles. As they research they would use field evidence and write geographical articles and books rather than just relying on those done by others. It was clear from the statements the teachers made that research could be a powerful tool in creating knowledge and filling the knowledge gaps. It could improve the teachers' status as creators of knowledge.

b) Solving problems

The other benefit of research according to participants was that it could enable teachers solve educational problems as well as problems in societies they lived in, thus making them more relevant. The following were some of the statements made on this issue:

Teachers in fact can be better placed to solve the problems they are facing. So researches done by teachers themselves can be very beneficial to the education system. (B1, school B, 21/07/2020).

It helps us solve issues that are problematic, for example, where pupils are finding difficulties in learning, you can conduct a research and then the findings will help to solve the problem (HOD, school A: 11/08/2020)

Research opens our minds to what is happening in our environment. It gives us access to solve real problems people are facing. ...the problems we face locally can be solved locally and very quickly (HOD, school A: 11/08/2020).

Geography teachers to some extent can be a solution to problems we have in our environment. If we research, we can come up with solutions and recommendations and we can present them to policy makers to act on them so as to help the sustainability of the environment (A4, school A: 11/08/2020).

Apart from that, two teachers stated that doing research would boost the teacher's interest in the subject. Doing research was considered by teachers as means by which they could solve educational as well as societal and environmental problems. They considered themselves to be better placed than academics to solve the problems in their localities because they were the ones on the ground and therefore had a better understanding of the problems they faced in the education system.

4.3.4 Views of teachers of Geography on the importance of teacher engagement with research

Teachers were asked if reading research was important for a teacher of Geography. All the teachers said that it was very important especially that they taught field research to learners and were required to guide learners through report writing. The reasons given for reading research were that it updated knowledge and skills and enhanced understanding and critical thinking (cognitive abilities). These were considered important to the teaching and learning of Geography. Other reasons cited were that reading research improved vocabulary, writing skills and could enable Geography teachers find ways of protecting the environment using research evidence. Reading research was said to lead to improvements in cognitive abilities, vocabulary, knowledge and skills of a teacher.

a) Knowledge and skills

Teachers viewed reading research to be important to a Geography teacher because it enabled teachers to be up to date with knowledge and to have an enriched understanding of research methodologies and changes in such so that they can become better researchers. Teacher C2 simply said:

If I can't do field research I should read other people's researches to update my knowledge (C2, school C:23/07/2020)

They were also of the view that reading research could help the teacher to be innovative.

Teachers of Geography viewed reading research as another way of enhancing research skills as well as increasing and updating the knowledge base of the teachers. Geography teachers found reading research to be helpful in imparting research skills and knowledge to learners because it helped one gain these skills. The following were some of the responses from teachers regarding this issue:

Reading research gave me skills to teach and guide learners through field project (D2, school D: 10/08/2020).

I acquired some skills of data analysis and interpretation and this has been of help in teaching research. I'm able to teach research and impart the same skills to pupils. (D1, school D: 10/08/2020).

Reading research has helped me improve skills because I'm able to compare different research works and be able to find how best I can carry out and present my research. (B3, school B: 21/07/2020).

I'm able to impart research skills to learners by showing them how to write the field reports. I keep up to date with methodologies of research as well as new information so I'm able to teach relevant knowledge and skills as a result of reading research. (teacher A4, school A: 11/08/2020).

Furthermore, reading research according to teachers could improve the teaching methods in Geography because it enabled teachers use research evidence to inform their teaching. A female teacher from school C had this to say:

Through reading research, I improve the way I teach (C2, school C: 23/07/2020).

A1 and B3 also had this to say:

It has improved my approach of teaching. It has also helped me teach and guide learners through the field project

(A1, school A: 11/08/2020).

It can help improve teaching using research evidence

(B3, school B:21/07/2020)

Teachers of Geography in selected secondary schools in Serenje viewed reading research as helpful in improving research skills, knowledge and teaching field research as well as other components of Geography.

b) **Cognitive abilities and vocabulary improvement**

Four of the teachers also were of the view that reading research was important because it could broaden ones' thinking capacity. The following were some of the response on this issue:

It broadens one's thinking capacity by trying to understand what others have done (D1, school D: 10/08/2020).

Reading research helps teachers to be innovative

(B3, school B: 21/07/2020)

Two teachers were also of the view that reading research helped to improve their writing skills and their vocabularies. Teacher B3 explained:

It has helped improve my vocabulary because as I read other researches I learn new terms (B3, school B: 21/07/2020).

Two other teachers also said that it could help Geography teachers find ways of protecting the environment and come up with better ways of living. Furthermore, it could help Geography teachers to arouse interest in learners to learn Geography if they gave examples from researches they read.

4.3.5 Views of teachers of Geography in selected secondary schools in Serenje on making research engagement mandatory for teachers of Geography

Teachers and HODs were asked if research should be made mandatory for Geography teachers. three of the teachers, two females and one male, said it should not be because it was going to be burdensome on teachers who had a lot of work to do. These accounted for 19 percent of the participants excluding DRC and PRC officers.

According to teacher A2:

That will be extra work for teachers, it shouldn't be part of the job description of the teacher. Without incentives, it is not welcome (A2, school A, 12/03/2020).

Another teacher, A3 stated:

The teacher's job is just to impart knowledge. So research should be part of the job of the teacher but not necessarily the job description. (A3, school A: 12/03/2020).

However, the rest of the teachers and the HODs said it should be made mandatory because Geography simply couldn't be detached from research and that research for a Geography teacher was a must. These accounted for 81 percent of the participants excluding PRC and DRC officers. During a focus discussion with group1, the following statement was made:

On our part as Geography teachers we have no issues with that. We can do it as frequently as possible but since any credible research has a big cost, the thorn lies on who should foot the bill. (FGD 1: 11/08/2020).

Another teacher, D1 had this to say about making research mandatory for Geography teachers,

Yes, it is welcomed because most of the teachers lose interest when it comes to practical issues. So if research is included as part of their job, it will give the Geography teachers impetus to research (D1, school D, 10/08/2020)

From the statements teachers made, it was clear that they could welcome research as part of their job provided conditions were favourable. They had a positive view about teaching and research integration.

The purpose of the job of a Zambian teacher is “to teach effectively in order to impart relevant knowledge and skills” (MOE, 2007:13). Although teachers said the job description was silent on research, one teacher B3 said research was somehow encompassed there though not explicitly. According to him for one to impart relevant knowledge and skills they had to be research engaged. The following was his explanation:

You can't impart relevant knowledge and skills if you solely depend on text books because these might have outdated information which may no longer be what is on the ground. For Geography teachers

this means that they have to incorporate field research as part of their job. (B3, school B :21/07/2020)

Although they thought the job description excluded research, all the participants were of the view that for Geography teachers to impart up to date and relevant knowledge and skills they had to be research engaged.

We should do a lot of research so that we will be able to impart the knowledge that is up to date and relevant. (B2, school B, 21/07/2020).

In a way teachers seemed to agree that the current job description for teachers did imply that they should be research engaged.

4.4 Research engagements of teachers of Geography in selected secondary schools in Serenje district

Research question 2 was about establishing whether teachers of geography were research engaged or not so as to find out if the culture of research was in existence or not. It sought to describe the culture of research that existed among teachers of geography in selected secondary schools in Serenje district. This was achieved by asking questions 5,6,9, 10 and 13 (appendix 1), 9 (appendix 2), 4 and 5(appendix 3) and question 4 on appendix 4.

4.4.1 Engagement in research

Teachers were asked whether they did research, what kind and how often they did research and for what reasons (questions 5,6 and 9 on appendix 1).

a) Frequency of engagement in research

Out of the fourteen (14) teachers who were interviewed, six (6) said they did not do research apart from the one they did as part of the courses they were studying. One of the teachers simply said:

I have never done research after training. We take research as that to be done by those who are studying like you are doing. (C1, school C: 27/07/2020).

Two teachers said they often did action research on a small scale aimed at improving their teaching methods. Two said they had done research only twice after graduating to gain more knowledge on a certain topic. However, one of these said he abandoned his second research halfway due to lack of funds. Two other teachers said they did it once to gain more understanding on a given topic.

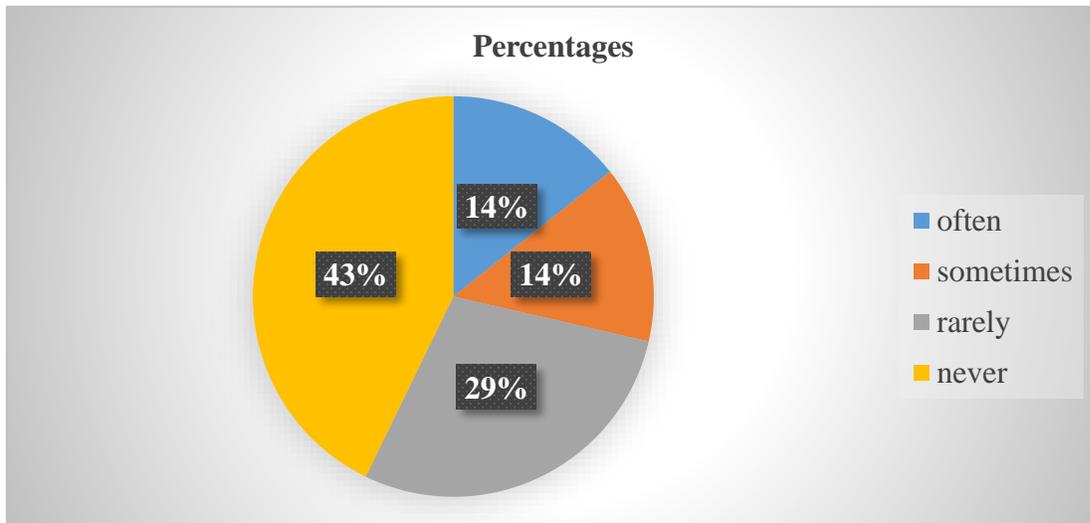


Figure1: Teachers of Geography engagement in research

Source: field data, 2020).

When asked whether they were at that time involved in research or had recently engaged in research apart from doing it for academic purposes, all of them said they were not.

Teachers were also asked to comment on the culture of doing research among Geography teachers in the district. Individual teachers and the heads of social sciences department that were interviewed said that generally Geography teachers in the district did not engage in research apart from when they were studying. Teacher B3 had this to say:

If during the conference a lot of teachers did come out that they did not know how to carry out a research, I can deduce from this that the Geography teachers who conduct research are very few. (B3, school B: 21/07/2020).

This was echoed in the Focus group discussions. When asked to comment on the culture of research of the Geography teachers in their departments, the HODs who participated said the culture was poor.

The common trend is that you only do research when you go for studies (HOD, school A: 11/08/ 2020).

Engagement in research was poor among Geography teachers. Many teachers who said they had been doing research were actually referring to the time when they were studying for a qualification. Only a few of them had done a field research after graduating and even with those it was just once or twice since they started work.

b) Types of researches Geography teachers were involved in

Of the eight teachers who said they had done some research other than that for obtaining a qualification, five said they did field research while the rest were involved in action research.

When asked what type of research he was involved in, A1 had this to say:

I do action research on classroom. I observe shortcomings in teaching and learning so as to make improvements.

(A1, school A: 11/08/2020).

I have been doing small scale informal researches

(B2, school B: 21/07/2020)

I did one field research on farming (C2, school C: 23/07/2020).

I have been researching. One of the field research works that I have done was about challenges women face with regard to accessing land (B4, school B: 22/07/2020).

It seemed that teachers had more interest in field research and if environments were more enabling, they could do more field research to gain more knowledge and better understanding of the Geography components they taught. It could be noted that teachers were doing research aligned to what they teach so as to enhance their understanding and improve teaching.

4.4.2. Engagement with research

In order to find out if teachers of geography in the selected secondary schools were research engaged, questions 9, 10 and 13 (appendix 1) question 9 (appendix 2) questions 4 and 5 (appendix 3) and question 4 on appendix 4 were asked.

a) Frequency of engagement with research

When asked whether they read research works, only three of teachers said they didn't.

I just read different textbooks but not research Journals because time is not there (B1, school B:21/07/2020).

Another teacher said;

I haven't taken time to read research works because of lack of interest and access to motivating research works (B2, school B: 27/07/2020).

One said he used to but he stopped. The rest said they did. Those who read research were asked to state how often they did so. Seven teachers said they often read research when they saw the need

to do so. Four said they did that once in a while but not often. When asked how often they engaged with research, teachers C2 and C1 respectively said:

Once in a while only when I have a question requiring that (C2, school C: 23/07/2020).

Sometimes, not often though (C1, school C: 27/07/2020).

When asked whether teachers of Geography in the district read research, the response from the two focus group discussions were that it could be deduced from the way teachers were handling the field project that the culture of reading research in the district was poor. Here was the response of one teacher on this issue

No, it is even becoming a challenge to impart research knowledge and skills to learners because we distance ourselves as teachers from research works (A4: 11/08/2020).

When PRC and DRC officers were asked if teachers of Geography did visit the resource centre library, the response was that they did so. Asked for what purposes, they said for meetings, workshops and to get materials they needed.

They come for workshops, CPDs and subject association meetings as well as to get materials like textbooks, syllabus (DRC personnel: 10/03/2020).

When asked what sort of materials teacher asked for from PRC, the response was that they asked for:

Textbooks, syllabus and teaching learning materials (PRC personnel: 25/08/2020).

This was also what the personnel from DRC said.

The researcher asked whether teachers of Geography who went there did ask for research works. The response from the PRC officer in charge of secondary school teacher in-service training was that the demand was there from those teachers who were studying but other than that, the demand was not much. She said;

Not frequently but they do ask for them [research publications] especially when they are doing their studies but not often (PRC personnel: 25/08/2020).

Teachers were asked if they visited the resource centres for the purpose of reading research works, only three said they had been there but did not find any research works.

I was there last year to find out whether PRC had any research literature. I went there with the District SOSTAZ chairperson when we were discussing why teachers don't research. We found no research work so we concluded that the problem was not only with teachers but also with those in charge of PRC. They don't actually encourage teachers to research (Teacher B3, school B: 21/07/2020).

Another teacher said:

I have taken trouble even to check the provincial resource centres in our country. Most of them have no materials of research and most of the books they have are outdated and not related to research. I have been to our PRC. Research works are not there (teacher A1, school A: 11/08/2020).

The researcher also asked teachers if DRC and PRC had internet connectivity and gadgets through which they could access published research. Those who said they had been to the resource centres for the purpose of finding out if there were research works said there was no access to internet despite the installations being there. The following were some of the statements regarding this issue:

I have been at our nearest PRC several times. Installations are there but there is no internet there. What I expect from there is that they should have Wi-Fi but when you go even to people that work there, they rely on personal data bundles to browse (A1, school A: 11/08/2020).

When last I went there; I saw two old desk tops but I doubt whether those are connected to the internet (B3, school A:21/07/2020).

Installations are there but there is no internet or Wi-Fi (A4,11/08/2020).

The official from PRC confirmed these statements when she said:

Internet facilities, at the moment we only have a computer, so most of the time they just come when they want to print and if they have written something, we type for them (PRC official:25/08/2020).

The researcher took time to check in the visitors' book whether Geography teachers do visit the resource centre but found that mostly it was primary teachers that visited the resource centre and even those it was for workshops, meetings and collecting some text books. In the DRC visitors' log book from 8th May 1997 to 10th March, 2020 there was no evidence of secondary school teachers' visit for the purpose of reading. Equally in the PRC visitors' book there was no record of teachers visiting to borrow research works or to read from within from 29th January, 2015 to 10th May, 2020. Most of the visits by teachers were for the purpose of attending workshops and meetings. Visits to read were not documented if at all they were there. The record for teachers borrowing of books from PRC and DRC from 30th March, 2015 to 10th March, 2020 only covered 2 and a quarter pages. Most materials borrowed were literacy, English books and curriculum and mostly it was the primary section that visited the resource centres to borrow books. It can be deduced from the statements given by teachers and resource centre officers that engagement with research was not good either. Teachers did not frequently read research works and the reading was done mostly when one was studying for a given qualification that required them to read research.

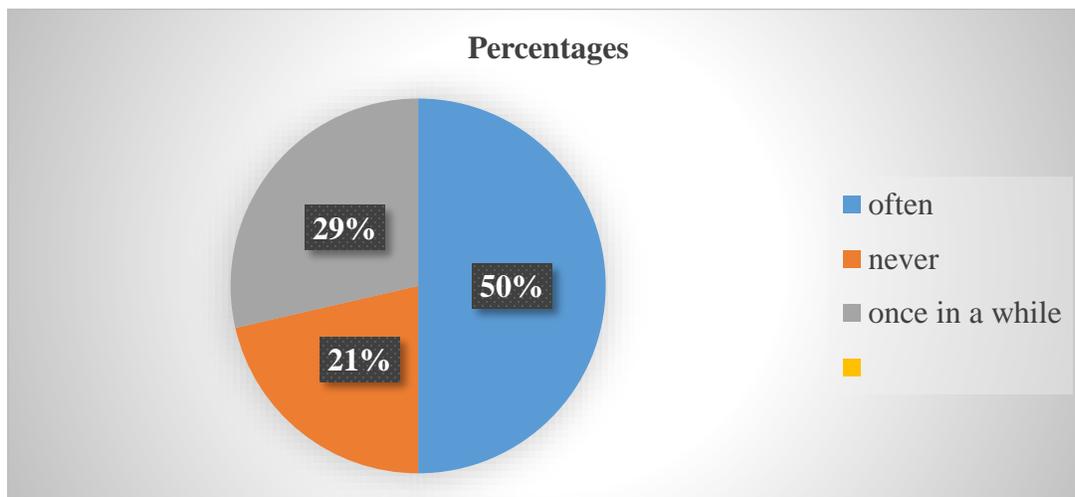


Figure 2: Geography teacher engagement with research

Source: field data, 2020

b) Sources of research works read by teachers of Geography

Teachers were asked to state what sources of research literature they read and why. All the teachers who said they read research works said they read online sources because these were readily accessible (once one had data bundles) and convenient.

I read online publications once in a while because hard copies are not easy to find (teacher B3, school B:21/07/2020).

This sentiment was shared by teacher C4 and most teachers who said they read research publications. A female teacher from school A when asked what sources of research publications she read said;

I use internet sources because there is variety of information from different writers on the internet (teacher A2, school A: 12/03/2020).

Two made mention that they read hard copies as well though these they said were rare.

I read online sources and hard copy journals. We have some in our department which government donated but they are not many (C3, school C: 23/07/2020).

Teachers said if published hard copies were available in libraries, they would read these instead of online ones because of the issue of lack of data bundles and gadgets to use. It was clear that online sources were read more than hard copies due to the issue of availability.

4.5 Barriers to research engagements of teachers of Geography in selected secondary schools

Research question 3 sought to establish the barriers to Geography teachers research engagements in selected secondary schools in Serenje district. Barriers to teacher research engagement have been presented under barriers to engagement in research and barriers to engagement with research.

4.5.1 Barriers to engagement in research

Barriers to engagement in research were established with the help of questions 7,11,12,14 and 16 (appendix 1), question 10 (appendix 2), questions 10 and 6 on appendices 3 and 4 respectively. Geography teachers in selected secondary schools in Serenje district were asked to state the obstacles to doing research. They cited lack of time and pressure of completing the syllabus; lack of incentives; lack of funding; lack of publishing opportunities; lack of research skills and knowledge; societal and organizational culture; lack of support from administrators; lack of expectation and recognition of research from Employers (Government); lack of support from

institutions dealing with geographical issues and lack of support from peers as hindrances to doing research.

a) Lack of time and pressure of completing the syllabus

One of the frequent responses was that time to do research was not there. All but one of the teachers who participated in the research said that they had the syllabus to complete and a lot of work to do. According to them, doing research could compete for time with teaching and the system was not flexible enough to allow teachers to do research. The following were some of their statements regarding the issue of time:

FGD1: Doing research takes time that could have been used to prepare lesson plans, mock exams, etc. and several times teachers are put on duty and this makes it challenging to find time to research (FGD1, 11/08/2020).

B1: The systematic process involved in research consume a lot of time and we don't have ample time to do research (B1, school B: 21/07/2020).

FGD1: It will be a compromise on the part of finishing the syllabus if you spend time doing research” (FGD 1, 11/08/2020).

C2: Teachers are very busy and have big workload, because of that, they just present to learners what is in the textbooks just for the sake of exams. I think what is killing us is failure to see beyond exams (C2, school C: 23/07/2020).

FGD 2: The system itself does not even allow us to do research because it is overloaded with a lot of activities. Teachers are overwhelmed. So they have got no time to research. That is why our job description is purely teaching not researching. The research component is not accommodated (FGD 2: 14/08/2020).

C3: Time is not there. The way the time table is discourages doing research. you find that you are in school from 07:00 hours to even 17:00 hours. So by the time you knock off you are already tired (C3, school C: 23/07/2020).

One teacher said he had limited time to do the research he was engaged in and this had discouraged him to do that again.

I had to divide time between teaching and doing field research. This has even made me reluctant now to do research
(D2, school D :10/08/2020).

Teachers complained that the system was rigid and overloaded. So teachers did not have time to do research. One HOD (School C) said there was a lot of paperwork involved in the teaching profession apart from lesson planning. So finding time to do a research was a challenge for teachers. A credible research requires time. However, one of the teachers did not think that time was the barrier to doing research. The following was his argument;

Man always has time. What blocks time is the absence of incentives. What makes people look at time as a barrier to doing research is knowing that research has no incentives attached to it (A4, school A: 10/08/2020)

c) Financial constraints

Financial constraints and lack of motivation were also among the common responses. Most of the teachers said financial challenges were one of the reasons for not doing research and publishing. Two of them said they had to stop doing research because of financial challenges. Teachers said that research was costly and there was no funding allocated for teachers to do research in the national budget and the school budgets. This meant that for one to do a research they had to provide the funds themselves. The following were some of the statements from the teachers:

I faced financial challenges when I did a research because I had to foot the bill myself (D2, school D:10/08/2020).

Research requires time and money. These have hindered me from doing a personal research (D1, school D: 10/08/2020).

On our part as Geography teachers ... We can do [research]as frequently as possible but since any credible research has a big cost, the thorn lies on who should foot the bill? Who will put in the money for us to continually do research? So the major problem we have is that though we are willing, financial limitations prevent us from doing research (FGD1:11/08/2020).

Research requires a lot of resources for it to be done appropriately. So lack of resources is a hindrance (B3, school B: 21/07/2020). Again the issue is when we do a research, where are we going to take the findings? Are we even going to afford to publish in journal articles or anywhere else? (FGD 2, 14/08/2020).

Financial limitation was a hindrance to teacher engagement in research.

d) Lack of incentives

All the teachers of Geography that participated cited lack of incentives as the one of the barriers to doing research. Teacher B1 lamented:

There is no deliberate plan or action by the system to appreciate or support research...there are no incentive attached to that. So we don't see any benefit in conducting research (B1, school B:21/07/2020).

This sentiment was shared by all the teachers interviewed, some said it directly, others implied it.

What makes people look at time as a barrier to research is knowing that research has no incentives attached to it (A4, school A: 11/08/2020).

From the above statements it seemed that teachers were not engaging in research because there was no financial benefit attached to doing research. Lack of incentives seemingly was the main reason teachers were not engaged in research despite knowing that doing research was important.

e) Lack of publishing opportunities

In both focus group discussions, it was revealed that lack of publishing opportunities was also a hindrance to establishing and enhancing a culture of doing research. Geography Teachers felt that they had limited publishing opportunities especially that publishing was very expensive, therefore, some saw it to be pointless to venture into research.

Again the issue is when we do a research, where are we going to take the findings? Are we even going to afford to publish in Journal articles or anywhere else? If it will be packed in resource centres, people don't even read them. So they will just keep on piling (FGD 2, 14/08/2020).

This sentiment was shared by A1, A4, BI, and B3.

You cannot do a research and put it under a door mat. It has to be made public and this requires publishing (A4, school A:10/08/2020).

The lack of opportunities to publish in Journals may have hindered some teachers from even attempting to venture into research. According to teachers, a research only become valid, useful and meaningful if it is published.

f) Culture

Culture was among the hindrances to Geography teacher involvement in research identified by some teachers. Our attitudes and interests reflects our culture. Teachers assumed that in Zambia generally, the culture of research was not there. According to some of them, research was only given significance in higher institutions of learning. The following were some of the responses from participants:

What I have come to understand about us Zambians is that we are not into practical. We enjoy theories (D1, school D:10/08/2020).

Firstly, it is culture. We have no reading and research culture. We rely on here say (A4, school A: 22/07/2020).

During focus discussion with group 2, the following sentiment came out:

We found that culture of not doing research. That is the culture we have seen to be normal that research is just at college. After we leave college, it is just giving research to pupils and for us it is business as usual (FGD 2:14/08/2020).

This sentiment was shared by B3 and HOD from school A.

It is the culture we found. We graduate with a zeal to research but when we came here we discovered that the environment was not conducive or motivating. We found a culture which does not support research. So we just joined a band wagon of individuals who don't want to do research. This culture develops and we became part of it (FGD2, 14/08/2020).

Culture also explains people's attitude and interests in certain things. Lack of interest was also mentioned as one of the reasons for not doing research. One teacher when asked why he wasn't engaged in research said:

Lack of interest has hindered me from doing a personal research
(D1, school D: 10/08/2020).

That was echoed by C3 who said that some teachers were not doing research simply because they lacked interest. One teacher on this issue further explained:

Some teachers have no interest in research. Interest is cultivated depending on the way institutions handling prospective Geography teachers handled the research part. How you were baked reflects in your attitude towards research when you are in-service (A1, school A: 11/08/2020).

This view was also shared by teacher B3 from school B and it also came out during focus discussion with group 1. Others felt research was to be done by those who were studying judging from some sentiments from teachers.

The common trend is that you only do research when you go for studies (HOD, School A, 11/08/2020).

I have never done field research, we take research as that to be done by those who are studying like you are doing (C1, school C: 27/07/20).

These statements show that teachers associated doing research with studying and obtaining a qualification, not teaching.

g) Lack of cooperation with departments dealing with geographical issues

Focus group discussion 2 also revealed that lack of collaboration between Geography teachers and other departments that dealt with geographical issues (for example meteorological department, tourism, forestry departments) was another issue that did not make it easy for Geography teachers to do research. One teacher also mentioned that even institutions and organizations such as non-governmental organizations (NGOs) that should sponsor teacher research didn't see the need to do so. These institutions and organisations, according to him,

...are more interested in just helping the poor but not investing in research. What they forget is that they need research to determine the cause of poverty, hunger etc. so that they can give appropriate interventions instead of just giving handouts. So they deal with the

problem at the surface and their help or intervention is minimal (B3, school B, 21/07/2020).

This view also come out during FGD 2.

h) Lack of research skills, knowledge and materials

Apart from what has already been stated, lack of understanding of the importance of doing research as well as lack of knowledge and skills on how to do research were among the common responses. According to teachers, pupils were handing in substandard research reports because they were not properly guided due to lack of knowledge and skills on the part of their teachers. According to teacher B3:

It has been identified that a good number of teachers of Geography in the district do not know how to carry out a research that is why pupils are handing in half-baked field project reports. Probably some did not undergo research training or they did research in a group and wrote the report as a group. So they don't see the need to do research individually and they are hindered by the lack of basic knowledge and skills of how to conduct research (B3, school B: 21/07/2020).

When asked how he came to that conclusion he said,

During the conference a lot of teachers did come out that they did not know how to carry out a research (B3).

Another teacher regarding this issue had this to say:

In terms of research, there are a lot of untrained Geography teachers. Diploma holders did not receive research training. Others have it on paper but they did not actually do the research. So there is nothing they know because they just paid someone to do it for them. These are the people who give problems when guiding learners during field project (A1, school A: 12/03/2020).

One HOD (school C) had this to say about teachers' research knowledge and skills:

I can tell you that there is a lot of ignorance among Geography teachers that is why we have issues with the field project. You can

tell when you pick 4 or 5 marked scripts (reports) of pupils to check, you can re-mark. You find that a pupil is also presenting and analysing the data on the part for discussion of findings when he/she had already done that and the teacher has marked
(HOD, school C: 23/07/2020)

All these statements were indicative of lack of research skills and knowledge among teachers of Geography in the district although no teacher categorically came out that they lacked research skills and knowledge.

Access to relevant research books and articles was also mentioned in focus group discussion 1 as a barrier to doing research. In line with that, the teacher said:

If we have libraries with no research materials to help teachers understand research, so where do teachers go if they are to conduct research (FGD1: 11/08/2020).

Research books and articles are needed to help teachers understand research and how to go about it. In fact, another teacher mentioned that those who lacked research skills and knowledge could acquire that through reading.

i) Lack of expectation and recognition of research from employers (Government)

Teachers felt that research was not given significance by government and that they were not expected to do it. There was no deliberate policy to push teachers to do research. Geography teachers felt that the policy document on education had not explicitly stated that teachers were required to do research and because of that, teachers felt they were not required to do research.

We have never seen any seriousness regarding research on the part of the Ministry. Research is only given importance at university level and then not all universities offer research training (FGD1, 11/08/2020).

Teachers felt that government had done almost nothing to push teachers to do research. In line with that one teacher lamented:

There has been no vigorous enthusiasm from education authorities to encourage research. The only time you hear about research is when you go to university. The moment you come back from training

no one even talk about it at schools, district, province etc. They don't see the need for research (B3, School B: 21/07/2020)

Another teacher had this to say:

Even at institutions of higher learning, government is doing very little to support research...since it is not promoted at that higher level it does not trickle down to the lower levels (B4, school B:22/07/2020).

During focus discussion with group 2, teachers complained that the education system was not flexible enough to allow teachers do research. It was said that if teachers were expected to be research engaged, the system wouldn't be as rigid and as overloaded as it was.

The system itself does not even allow us to do research because it is overloaded with a lot of activities. Teachers are overwhelmed. So they have got no time to research. That is why our job description is purely teaching not researching. The research component is not accommodated” (FGD 2: 14/08/2020).

Another teacher pointed out that government had not put up any plan regarding research engagement of teachers.

There is no deliberate plan or action by the system to appreciate or support research (B1, school B: 21/07/2020).

In line with that, teachers felt that they were not expected to engage in field research by administrators and the Ministry and that if they were, there was no much emphasis on that.

j) Lack of support from administrators

Apart from that, ten (10) teachers mentioned that administrators would not be willing to support research judging from the way they treated the Geography field project. The following were some of the sentiments from teachers on this issue:

School management is very selective in the way they support things. Sometimes you find that they channel resources to things that may not even benefit pupils' learning but when a teacher wants to take learners for field trip or research, management is reluctant to support. How then can you expect them to support teachers'

research or expect them to buy journals or make subscriptions? Management see such as a cost and not an investment. They are mostly looking for immediate benefits (B3, school B: 21/07/2020). You find that certain administrators don't understand the importance of research. Even when they hear about fieldwork they feel you want to wipe out the money from the school coffers so that is really discouraging (C3, school C: 23/07/20).

This view was shared by nine other teachers and was also brought out in the focus discussions. The statement seems to suggest that administrators were short-sighted and viewed research as unimportant. In fact, one teacher did mention that these administrators were short-sighted and lacked understanding of the importance of field research. Most of the teachers thought administrators were not in favour of field research.

4.5.2. Barriers to engagement with research

Questions 9, 10 and 13 (appendix 1) question 10 (appendix 2) questions 10 and 6 on appendices 3 and 4 respectively elicited for perceived barriers to engagement with research of teachers of Geography in selected secondary schools in Serenje district. Geography teachers identified lack of access to relevant research publications; financial constraints; lack of support from administrators; poor reading culture; and lack of time as hindrances to reading research.

a) Lack of access to relevant research publications

The major hindrance to reading research that teachers identified was lack of access to relevant research publications. Of the participants that were interviewed 13 out of 14 cited lack of access to research literature as one of the barriers to reading research. This was echoed in all the focus discussions.

I have not taken time to read research works [because of] ...lack of access to motivating research works (teacher B3, school B: 27/07/2020).

Another teacher, when asked to mention the hindrances to reading research said one of the hindrances was:

Unavailability of research works which are relevant to what I'm teaching (C2, school C: 23/07/2020).

All the teachers interviewed including DRC and PRC officials did mention that the district lacked well stocked libraries. When asked what had hindered him from reading research, one teacher said:

Inadequate materials at school and district levels. We have not been exposed to such areas where we can have access to research literature (D1, school D: 10/08/2020).

Some schools did not even have libraries and those which had, had outdated books which were not helpful to both teachers and pupils. At school B, teachers said the library used to be there but it did not stock any research publications in any field let alone in Geography.

I have visited the school library. It is full of outdated books and in most cases you will mostly find literature in English books. Concerning Geography, the library is poorly stocked. So both teachers and learners who go there benefit very little. To the best of my knowledge, I have not seen any research article or journal in our school library (B1, school B: 21/07/2020).

Nearly all the school libraries, even the DRC and PRC did not have any research publications in Geography. At PRC and DRC according to the officers, there was one or two copies in the subject area of English. DRC officer said:

Research publications are lacking here” (DRC officer, 2020).

When asked if research publications were there, the PRC officer said:

Not in all subject areas, for example in literature there is one” (PRC officer: 25/08/2020).

At the time of collecting data, no research publication was available. The researcher did not see any. The researcher asked if there were any research publication to do with Geography. The PRC officer said there was none. At school C there was no school library but there was a departmental library which according to the teachers there had a few copies of research publications but that those were not enough.

One teacher, when she was asked how accessible research literature was in their school, said

We have some in the department which government donated. They are not many. There is no school library (teacher C3, school C: 23/07/2020).

School D did not have a library at all. On the issue of availability of research works in schools, teacher D2 said:

They are not available. I'm even thinking of putting the ones I have done in the department. I'm not sure if research literature is accessible in our district (D2, school D: 10/08/2020).

School A had a library but it did not stock any research publication or literature on research.

In focus discussions 1 and 2, teachers said there was also lack of internet accessibility. There was no free internet in libraries. Some schools had some computers but no Wi-Fi access or internet connectivity.

The school library has no internet from where you can access online materials (B1, school B: 21/07/2020).

The DRC and PRC had some installations but internet was not there. In the district there was nowhere where teachers could access free internet so that they could read researches online.

I have been at our nearest PRC several times. Installations are there but there is no internet there. What I expect from there is that there should have Wi-Fi but when you go even to people that work there, they rely on personal data bundles to browse (A1, school A: 11/08/2020).

PRC officer, however, stated that they had been encouraging teachers to buy gadgets through which they could access internet but teachers said to do that they needed money to buy data bundles and some schools in the district did not have network connectivity.

Not everyone has sufficient money to use the internet for research and some teachers do not even know how and where to access such things on-line (teacher A1, school A; 11/08/2020).

One teacher also mentioned that relevance of research publication was another factor of engagement with research. He said if what was published was not in line with what was taught then it could be pointless to read it. Most of what was researched on, according to him, was different from classroom situations and what was taught. So they couldn't interest teachers.

b) Financial constraints

Findings revealed that financial challenges were one of the major hindrances to reading research. Teachers said they had financial challenges making it difficult for them to buy data bundles,

Journals and to make Journal subscriptions. It also made it difficult for them to even find time to read research works.

It is the harsh economy. Teachers after work would rather do gardening and other activities that will give them some income. So the time for reading is not there (teacher B4, School B: 22/07/2020).

At school C, two teachers also mentioned that schools and resource centres were constrained financially and funding to schools was erratic and very little. Schools therefore, could not afford to make Journal subscriptions and to provide free internet access to teachers and pupils within the schools. Concerning this issue, one teacher had this to say:

Schools do not have money to buy Journals and other research related materials. So school libraries have become just a stock of old outdated books which are not very helpful to both teachers and pupils (teacher B4, school B:22/07/2020).

This also came up in the focus discussion 1 where the following was said;

The major problem with many institutions is that funding has become scarce. Such things [internet and Wi-Fi connectivity] are never even budgeted for because they are never taken seriously by the funders (FGD1:11/08/2020).

c) Poor reading culture

Focus group discussion 2 brought up the issue of culture. Teachers said the country had a very poor reading culture. When asked to mention the hindrances to reading research, one of the teachers said:

Attitude which goes back to our reading culture which is poor (C2; 23/07/2020).

Another teacher said:

It is culture. We have no reading and research culture most of us. We rely on hearsay (B4, school B: 22/07/2020).

This was also mentioned by D2, HOD from school A and in Focus discussion 1. This suggests that teachers had a poor reading culture.

d) Lack of time

All but one of the teachers interviewed mentioned time as a major barrier to reading research. Teachers said they were constrained by workload and other responsibilities. At the same time, they had the syllabus to complete and that according to them made it difficult to find time to read. A teacher from school C said:

Finding time to read is a challenge (teacher C3, school C: 23/07/2020).

This was also echoed in both focus group discussions.

e) Lack of support from administrators

Teachers felt that reading research was not supported by administrators judging from the lack of any publications of research in school libraries. Teachers were of the view that financial support for buying journals and or making subscription was not expected to come forth from administrators because even the field project for pupils was hardly supported. One teacher had this to say:

If a teacher wants to take pupils for a fieldtrip or research, management is reluctant to support, how do you expect them to support teachers' research or expect them to buy Journals?
(Teacher B3, school B: 21/07/2020).

Teachers also feel that administrators lacked awareness of the importance of research judging from the way they handled field research of the learners. Some teachers said that that lack of awareness of the benefits of reading research however, was not only on the part of administrators but also on the part of teachers of Geography.

4.6 Establishing and fostering research engagement among Geography teachers in selected secondary schools in Serenje

This issue was handled by looking at what could foster engagement in research and what could foster engagement with research.

4.6.1 Establishing and fostering engagement in research

Participants were asked how the challenges they had identified could be mitigated so as to encourage teachers of Geography to do research. Their responses centred around incentives/ motivation, funding research, mandatory research for Geography teachers, research training, support from administrators and other stakeholders, time and dissemination opportunities.

a) Incentives/ Motivation

All the teachers of Geography that participated mentioned that giving incentives to teacher researchers was key to promoting a culture of research among teachers. All the teachers of Geography interviewed said they could do research if incentives for doing so were there.

There should be a deliberate policy by schools and government to motivate teacher researchers by giving them an appreciation since research is not all that simple (FGD1: 11/08/2020).

Ten (10) teachers of Geography said that the barriers to research such as time, the tedious, rigorous scientific processes involved in doing research, workload and lack of interest could be negotiated with incentives. This was also mentioned in both FGD1 and FGD2. In fact, incentives especially in monetary form were seen as the most important factor of engagement in research. On this issue one teacher said:

Man always has time. What blocks time is the absence of incentives. What makes people look at time as a barrier to doing research is knowing that research has no incentives attached to it (A4, school A: 11/08/2020).

One teacher indicated that even if she was given time and her workload reduced she wouldn't do research without some incentives attached to it because research was involving.

Research is too involving and demanding but if an allowance is there I may do it (A3, school A: 12/03/2020).

Awarding good researches done by teachers and taking teachers out for field excursions were suggested as ways of motivating teachers to do research. That could be done during teachers' day, conferences, staff meetings and so on and so forth. One teacher was also of the view that if doing research would increase their promotion prospects then he would be motivated to do it. It seemed that if a qualification that could secure a promotion could be awarded for good researches, teachers could be motivated to engage in research and publishing.

b) Funding research

Teachers also mentioned that since research was an expensive venture, it should be funded. That also came up in both the focus discussions. On who to fund teacher research, teachers were of the view that government and non-governmental organisations should do it. Teacher A1 suggested that there should be an allocation specifically for research in the budget and that it should be given

to various institutions of learning to support teacher research. All the teachers agreed that if funding for research was made available, they could be motivated to engage in research and publish.

FGD1: On our part as Geography teachers, there is no problem. We can do research as often as possible but the fact of the matter is that any credible research has a big cost, therefore, who to foot the bill is the problem (FGD 1: 11/08/2020).

FGD2: On the part of government, what we recommend is that there should be an allocation of funds towards research in the budget (FGD 2).

One teacher also mentioned that teachers should do small scale research which did not require a lot of money since financial resources were limited. This was supported by one of the HODs who said;

For lack of funds, I would advise Geography teachers to just do little problems within without indulging in more complicated researches (HOD, school A: 11/08/2020).

Another teacher suggested that teachers should take advantage of the field work project and do research of their own alongside pupils. He said that could gain them more experience in research that might help them guide learners well.

c) Mandatory research for teachers of Geography

Making it explicit in the policy that teachers should do research could push teachers to do research. Geography teachers agreed that if doing research was a policy matter they could do it. Geography teachers felt that research for a Geography teacher was a must because the teaching of Geography couldn't be detached from research. Regarding this issue one teacher said:

If research is included as part of their job, it will give the Geography teachers impetus to research. (D1, School D: 10/08/2020)

Most of the participants were of the view that for Geography teachers doing research should be mandatory and should be part of their job since they teach research to pupils. Making it mandatory could force teachers to do research.

d) Research training

Although all the participants in the study were university graduates who had undergone research training at universities, they mentioned that Geography teachers needed retraining in carrying out research.

We need constant refresher courses and workshops so that we are equipped with appropriate skills and knowledge and methods of conducting research. Geography teachers have little research skills and knowledge and this explains the challenges we face when dealing with the field project (B1, school B: 21/07/2020).

Going for further studies was also mentioned as a way of acquiring and or improving research knowledge and skills.

Those with diplomas should upgrade but even those with degrees should upgrade so that they understand research from a better perspective (A1, School A:11/08/2020).

CPDs, workshops, SOSTAZ conferences and teacher group meetings were said to have great potential in ensuring that teachers were imparted with research skills and knowledge if they could be made to incorporate research issues in their agenda. Regarding this issue one teacher said:

The district SOSTAZ has planned to hold a conference for Geography teachers for the purpose of imparting research knowledge and skills (B3, school B:21/07/2020).

Apart from that, there was a suggestion that regulatory bodies and accreditation bodies such as Ministry of Higher Education and Zambia Qualification Authority should be empowered to look at the curricular in institutions of higher learning so as to ensure that prospective teachers of Geography undergo research training in the same way. Some teachers claimed that some institutions of higher learning were not properly training students in research. There was also a claim that not all the graduates did research truthfully because some actually just paid someone to do it for them. This substantiated the need for retraining of Geography teachers.

e) Support from Administrators and other Stakeholders

Geography teachers were of the view that a culture of research among them could be established and fostered if administrators were to be more supportive. They felt that administrators might not support it judging from the way they treated the field projects. Teachers felt that administrators

needed to be oriented on the importance of research for both teachers and pupils if a culture of research was to be established and sustained in schools. Teacher A1 simply said:

There is need to orient administrators in schools so that they develop a positive attitude towards research and this orientation should be done by MOGE, CDC and ECZ (A1, school A: 11/08/2020)

This was also echoed by all the teachers and also in FGD 1 and 2.

Apart from that, teachers felt ECZ and CDC had not attached much importance to research judging by the marks allocated to the field project (12 percent only). That was why it was not seen as very important even by some teachers. Teachers suggested that if more marks were allocated to the field project, it could show that research was a very important aspect in Geography and once it was given more significance teachers could be motivated to research (FDG 2). On this issue one the following explanation was given by a teacher during a focus discussion:

Interest in research should be cultivated in learners because these are future Geography teachers. It starts from when you were a pupil, how much did you appreciate research? If not much, even when you become a teacher that culture remains in you. The field project should be accorded more marks, maybe 30 percent, so that pupils will be serious and put in more effort. Even on the part of Geography teachers, seriousness will be there when dealing with that component. (FGD 2:14/08/ 2020).

It was suggested in FGD 2 that SOSTAZ should be linked with organisations and departments that deal with geographical issues such as agriculture department, meteorological department, forestry, tourism and central statistics. One teacher said:

I feel that the subject association (SOSTAZ) should be linked to departments like meteorological department, agriculture department, disaster management and mitigation unit etc. which deal with geographical issues in the real and practical sense unlike teaching which only depends on already generated data. This way teachers will be more motivated to get involved in research as it will be relevant to what they teach. (FGD 2: 14/08/ 2020).

This was supported by the group members and was also mentioned by B3.

f) Time

All the teachers suggested that giving them time to do research could make them develop a culture of research. All the teachers except one said that if their workload was reduced they could be motivated to do research as that could give them more time to do research (FGD1 and 2). They also suggested that time for research should be allocated. The following were some of the responses on this matter:

We can be encouraged to do research by giving us more time and reducing the workload C3 suggested.

Administrators should give teachers who are doing research time to do so (D1, school D: 10/08/2020).

Furthermore, there was a suggestion that Geography teachers who were doing research should be identified and given time to do so and should be relieved of some duties such as being on duty so that they could concentrate on the research (FGD 1 and FGD 2).

g) Dissemination opportunities

Free publishing of research done by teachers was suggested by Geography teachers as a way of encouraging people to venture into research (FGD 1). Since publishing research was expensive and teachers didn't have enough money, the following suggestion was made:

Government should come up with a deliberate policy of publishing free of charge any research done by teachers which makes sense to them (FGD 1:11/08/2020).

Funding research done by teachers according to teachers, could also save teacher researchers from being exploited or used by funders who just wanted their names to appear on the article when they did not contribute anything scholarly to it. Coming up with a Journal for Geography teachers was also suggested by teachers as one way of providing an opportunity for teachers to publish.

Research has to be approved and reviewed before it can be believed and made public. A system or firm has to approve it. We need a firm to publish Geography researches done by Geography teachers explained A4 (A4, school A: 11/08/2020).

Publishing opportunity could encourage Geography teachers to do research. Teachers also suggested that collaboration with universities would help lessen the publication burden since universities had their own Journals.

The challenge is that there is a gap between institutions of higher learning and secondary schools. Once their students graduate that's the end but that should not be the case. Lecturers and teachers should work hand in hand to research and publish articles aimed at solving challenges in the education system. Since institutions of higher learning have their own Journals, collaboration with them will make publishing less costly. (B1, school B: 21/07/2020)

Another teacher during focus discussion with group 1 suggested partnering with other researchers to reduce the cost of publishing on the teacher researcher. Other avenues of disseminating research findings identified were social media, television, radios, posters, teacher group meetings, SOSTAZ conferences, CPDs and staff meetings. These avenues were mentioned by nearly all the participants. One teacher also suggested that the district should create local articles through which research done by teachers could be disseminated.

One head of social sciences department and two Geography teachers also suggested encouraging teachers to be writers of books because that could push them to do research.

You cannot write a book if you are not researching and reading other people researches (HOD, school A: 11/08/2020).

Encouraging teachers to get involved in writing educational books could be a step in pushing teachers to do research.

4.6.2. Establishing and fostering engagement with research

According to participants, engagement with research could be fostered by stocking libraries with relevant research works, giving teachers time to read, raising awareness, funding schools, DRC and PRC, advertising research materials and facilities accessible at DRC and PRC and providing access to internet facilities

a) Comprehensive library facilities

This centred around having libraries that were well stocked with relevant research works and that had internet facilities.

i) Stocking libraries with relevant research works

Teachers felt that if their school libraries and the resource centres were to be adequately stocked with relevant research literature and journals of research they could be encouraged to read research. This was one of the most frequent response even in focus discussions. According to one teacher,

Stocking school libraries and resource centres with research works can increase access to research works and encourage teachers to read (A1, school A: 11/08/ 2020).

Participants suggested that if the libraries, DRC and PRC had a section dedicated to research works, it could enable them to have quick access to research works and that could motivate them to read research. They said they needed research works that were relevant to what they taught and to their profession. One participant had the following to say:

Aligning local education research to what is in the syllabus will encourage teachers to read research because it will be relevant to what teachers do and teach (C2, school C: 23/07/2020).

Relevance of research publications to the teachers' work was seen as one of the key factors of teacher engagement with research. According to teachers, publishing researches done by teachers in their field and placing them in school libraries and resource centres could motivate teachers to read research. One teacher suggested that schools should own internet websites to publish online the researches done by teachers. Teachers also suggested that local resource laboratories for researches could be helpful if established and well stocked. Schools and DEB office could be instrumental in this regard. Regarding this, one teacher had the following to say:

Schools and DEB office should create local articles or come up with a system where they give a mandate to schools to submit research articles within a given time frame so that these are posted on-line or at resource centres for teachers to access (B1, school B: 21/07/2020).

The teachers also expressed the need for a public library in the district.

ii) Access to internet facilities

Access to free internet was among the frequently mentioned ways of motivating teachers to read research. During focus discussion with group1, a participant said,

Introduction of Wi-Fi in schools can help where libraries do not have adequate and relevant research publications. (FGD1:11/08/2020).

This according to teachers required support from administrators and the Ministry of Education. They made mention the need to sensitize administrators on the importance of reading research for teachers so that they could be more willing to procure Wi-Fi installations and provide internet access to teachers within the school premises. Once the administrators had been sensitized, they might even be willing to make Journal subscriptions.

b) Giving teachers time to read

Giving teachers time was also among the frequently mentioned ways of encouraging Geography teachers to read research. One teacher said he didn't read research publication because he didn't have time to do so but when asked if he could read research if he was given time to do so he said,

Yes, provided the ground is level. I will be very interested to read research publications (B1, school B: 21/07/2020).

Reducing the workload was suggested as one way of giving teachers time to read research.

c) Raising awareness

Participants expressed the need to sensitize each other of the importance of reading research. They suggested teacher group meetings, CPDs, SOSTAZ conferences, staff meetings, departmental meetings as avenues for doing that. According to A4,

Geography teachers need to be reminded on the importance of reading research. This we can do by creating some fora for Geography teachers to sensitize one another on the importance of reading and doing research (A4, school A: 11/08/2020).

Through these avenues teachers could be encouraged to use online sources of published research since hard copies of journals were not easy to access. They could also be encouraged to be buying data bundles for research, hard copies of research books, and journals for personal use. During a focus discussion, the following statement was made:

On our own we can die a little (sacrifice) to buy data bundles for our phones and computers so that we can read research from the websites and also buy hard copies of research works and materials

that can be helping us for reference's sake and these can become part of our personal library stock (FGD1: 11/08/ 2020).

Encouraging teachers to have personal libraries could be helpful in establishing and fostering engagement with research.

d) Funding DRC and PRC

Teachers expectations were that DRC and PRC should have internet access and computers and that when they visit the resource centre to read research, they should access internet free of charge and read on line. FGD 1 suggested that DRC and PRC should be funded adequately by government so that they could buy computers, make journal subscriptions and install Wi-Fi. Teacher A1 made the following suggestion:

In addition to supplying hard copies of research journals, research related books and other materials, government should also ensure that they help PRC and DRC with Wi-Fi installations and should keep funding them so that they have data bundles all the time for Wi-Fi (A1, school A: 11/08/2020).

e) Advertising research materials and facilities accessible at DRC and PRC

Most of teachers didn't know what materials and facilities resource centres had and they had a preconceived mind that they couldn't find something worth studying even if they went there because they saw these places as venues for various meetings. Most of the teachers felt that the two institutions needed to advertise the resources and reading materials available to the teachers. This was also echoed by one of the HODs. Apart from that, some teachers suggested that DRC and PRC should be calling for research papers from schools, have them reviewed and stock those that seem good and beneficial for the teaching profession. Regarding these issues, one HOD made the following suggestion

Resource centres should create space for research works locally produced by teachers. They should also advertise the resources they have for teacher benefit (HOD, school C:23/07/ 2020).

Teachers felt that if that was done they could be motivated to go to DRC and PRC and read locally produced research articles as well as other articles available so long as they were relevant.

4.6.3 Summary

The findings of this study revealed that teachers viewed research as a complicated and very involving process. They also viewed it to be very important to the teaching and learning of Geography. The findings seemed to suggest that teachers of Geography could be receptive to the integration of teaching and research. Apart from that, they suggested that the obstacles to research engagement emanated from societal and institutional culture as well as financial issues. Furthermore, the findings seem to suggest that research engagement could be established and or enhanced and sustained by addressing cultural, motivational, skills, knowledge, and financial issues as well as by enshrining teacher research in educational policy, job description, and schedules.

CHAPTER FIVE: DISCUSSION OF FINDINGS

5.1 Overview

This chapter presents an analysis of the findings of the research in light of the identified themes. Although data had been analysed according to themes identified, research objectives had also been instrumental in helping the researcher analyse the findings. The chapter begins by describing the participants in terms of gender, length in service, and qualifications obtained. It has also described the views that teachers had regarding research, teachers research engagements, and the factors of research engagements that is, how research engagement could be established and enhanced among teachers of Geography in secondary schools in Serenje district. Barriers and facilitators of teacher research engagement have been discussed under factors of teacher research engagement. Efforts have also been made to extend existing knowledge.

5.2 Characteristics of participants

A total of eighteen (18) people participated in this research. Females were six (6) while males were twelve (12). It was important to include data on gender because the researcher wanted to find out if there were any differences in the way research was perceived or viewed between men and women and also to get balanced views. What was established was that male and female teachers of Geography in selected secondary schools in Serenje viewed research in a similar way.

Data on qualification was also obtained to establish whether the participants had undergone any research training prior to starting work. This was important because engagement in research requires training and theoretical knowledge (Borg, 2003; Mehrani and Behzadnia, 2013; Soe, 2014; Ellis, and Longhand, 2016). All the Geography teachers who participated were University graduates who had received research training during their studies. Therefore, their culture of research had nothing to do with lack of research training prior to service. These teachers, therefore, were supposed to have theoretical knowledge and skills on how to do a research and were supposed to be research engaged.

It was also important to know how long one had been in service so as to determine research engagement levels and hence a culture of research. It was important to do so in order to compare engagement levels of teachers who were old in service and those who were new in service. It was established that there was no difference in the culture of research between old and new teachers in service.

5.3 views of teachers of Geography on research and research engagement

a) Meaning of research

Teachers gave several definitions of research but what was common among the definitions was that research involved looking at a problem in details so as to understand it and that research was aimed at finding solutions to a problem. Teachers viewed research as a complex and systematic process involving a lot of stages. That also might be the reason they failed to engage in it. They also viewed research as something to be done when one was studying. This supports findings in Mehrani's (2015) study which indicated that many teachers don't do research after graduating from universities. According to Mehrani (2015:93), "this substantiates the idea that for many teachers, university graduation marks the end of their research engagement period". Even Borg (2006) established that. This may offer an explanation as to why some were not research engaged because as Borg (2006) posits, research should transcend certification and examination for it to become an integral part of the teachers' professional practice.

Teachers felt they were not expected to do research and that research was not part of their job description. This is also what Borg (2006) observed. According to Borg (2006:25), "research is often seen by employers, parents, learners and even teachers as an activity that lies outside the scope of the teacher's work". There was willingness among Geography teachers to be research engaged provided that conditions for doing so were put in place. This willingness was seen in the fact that almost all the teachers felt that research could be made mandatory. Eleven of them were also of the view that teaching and researching could be integrated. The eleven teachers agreed that research engagement should be part of their job description.

Geography teachers understood that it was very important for a teacher of Geography to be research engaged. They had a positive view about integrating teaching and researching judging from the numbers of those that said they would welcome mandatory research for Geography teachers. How one views an activity determines whether or not they will willingly get involved in it. Studies have shown that what teachers understand about research, their role and the importance of research will determine their engagement or lack of it in research (Soe, 2014; Borg, 2007). It could be possible to establish a culture of research among teachers of Geography in Serenje because teachers had a positive view about teaching and research integration. This is in agreement with Soe (2014) who was of the view that teachers could be motivated to do research if they viewed

it positively. It also supports what deliberate practice theory which asserts that for one to engage in deliberate practice, they should view the tasks to be very important (Ericsson et al., 1993).

5.3.1 Views of teachers of Geography on the importance of teacher research engagement

Participants viewed teacher research engagement as very important for Geography teachers, the pupils and the Ministry of General Education as well as the society.

5.3.2 Importance of engagement in research

Geography teachers were of the view that doing field research was cardinal for teachers of Geography. The importance of doing research are discussed under the major themes of effective teaching and problem solving.

a) Effective teaching of Geography

Doing research was said to have a positive effect on teaching in that it promoted lifelong learning as well as enhancing knowledge and skill acquisition, and creativity.

i) Lifelong learning

Teachers said doing research was important for teachers to enhance their knowledge and to get up to date with what was happening in the world they taught about. The world is dynamic so the environment keeps changing. What was true about a given place years ago might not be true now. Geographical aspects keep changing for example rate of deforestation in a given area, climate change and its effect on particular groups of people, and so on and so forth. Since the earth and human interactions change, the subject contents also change. Geography teachers cannot therefore depend entirely on text books or entirely on researches done years ago because things on the ground change.

Doing research could help teachers update knowledge as it could make them be in touch with reality. As Long & Roberson (1966:128) explained, 'Much if not most raw material of Geography is the surface of the land' and therefore these should be studied through field research and not theoretically. Doing research is therefore very important for Geography teachers. The foregoing argument is in correlation with (MOE,1996) which noted that the teacher should be a lifelong learner and doing research is one way of continuing learning. Researching also enhances the knowledge of teachers. Bilgili's (2005) study revealed that doing action research increased the

knowledge base of teachers making them better at teaching. A teacher should have sufficient and updated knowledge of the subjects they teach. That's why MOE (1996) stipulated that the teacher should extend and deepen their knowledge and be lifelong learners because teaching is a learning profession.

ii) **Acquisition and improvement of Skills and knowledge**

Those who had done research in line with what they taught said it enhanced teaching and learning of Geography. These teachers reported that doing that had enabled them to teach better the topics they researched on since they gained more knowledge. Teacher research engagement enables teachers to teach better as it increases the teacher's knowledge base, understanding and critical thinking. Bilgili's (2005) study revealed that doing action research increases the knowledge base of teaching, makes teachers better at teaching, and helps teachers to be reflective on their instructional practices during the inquiry. Furthermore, studies by Elton (2008) and Khan (2017) also show that researching helps teachers to become competent in that it builds and rebuild skills as well as improve cognitive abilities, critical and logical thinking which teachers can pass on to their learners. Researching enables the teacher researchers to be confident as they teach because they know what they are teaching about and they give examples from the reality they know very well and this makes teaching and learning interesting and smooth in their classes.

Ministry of General Education wishes to produce an innovative learner who has high level thinking skills, therefore, a teacher should develop critical thinking skills if they are to facilitate the development of critical thinking skills in learners. Doing research continually could improve teacher competence by enhancing high order thinking skills and building and revamping skills, hence making them experts at teaching. It is not necessarily the experience that makes one a better teacher, but it is steady efforts to better teaching performance through involvement in activities (such as doing research) that could better their teaching. Ericsson et al. (1993:363) explain that "...the maximal level of performance for individuals in a given domain is not attained automatically as a function of extended experience, but the level of performance can be increased even by highly experienced individuals as a result of deliberate effort to improve". Experienced Geography teachers, therefore, could further improve their performance through engaging in research because teaching as MOE (1996:115) states is "a learned and learning profession". Attaining high levels of competence is not an event but a process requiring prolonged effort to

improve. Regardless of the number of years one has been teaching, learning does not end. Experience alone cannot make one highly skilled and competent. Prolonged efforts to improve performance is necessary for quality teaching and learning. Becoming a competent teacher is not an event but a gradual process involving continuous building, rebuilding and perfecting skills and knowledge as well as improving critical thinking skills, a process that requires research engagement.

Apart from enhancing cognitive skills, doing research was said to be very helpful in acquiring research skills and knowledge that could enable Geography teachers to teach field research effectively and competently to learners. Since the Geography curriculum had included field work, their involvement in research during their studies at universities were of help in teaching learners field work and also guiding them to write reports. It could be argued in this case that doing research is a domain specific task that Geography teachers should continually engage in to become better teachers of research. Doing research helps sharpening and perfecting research skills of teachers. Deliberate practice theory asserts that expertise is gradually attained through extended amounts of designed deliberate practice over time (Ericcson et al., 1993). Continued involvement in research could make teachers of Geography understand research better and perfect the skills which they could then transfer to learners.

Research skills are becoming increasingly important in this era of rapidly changing knowledge base and teachers have a duty to transfer research skills and abilities to their learners (Deakin, 2006; Jenkins et al., 2003). Imparting skills to learners requires that the teacher has the skills to begin with and then these skills have to be sharpened and perfected. The policy document 'Educating our Future' states that the teacher has the responsibility to themselves and their profession to deepen their knowledge and extend their professional skills (MOE,1996). Among the skills a teacher of Geography should acquire and extend are research skills. Doing research could be instrumental in acquiring and perfecting research skills and knowledge.

One of the goals of MOGE is to produce a learner who among other things is "capable of developing an analytical, innovative, creative and constructive mind; appreciating the relationship between scientific thought, action and technology on one hand, and sustenance of quality of life on the other; ...participating in preserving ecosystems in one's immediate and distant environments..." (MOE, 1996:5). These aspirations justify the inclusion of fieldwork in the

Geography curriculum. For this goal to be achieved, teachers should also develop this analytical, innovative, creative and constructive mind before they could hope to produce such a learner. In line with this, Mayne (2014:48) states “improving all aspects of quality of education is dependent on preparing teachers to become critical citizens.” Deliberate engagement in research is therefore cardinal for teachers for it has been proven to build and revamp skills as well as enhancing critical thinking. In other words, for learners to be properly and adequately guided through the inquiry process the teachers themselves should have sufficient and up to date inquiry skills and knowledge and these skills should be sharpened and perfected. Research skills and knowledge could be acquired and perfected through doing research. Doing research should be a task set for Geography teachers so that they can perfect skills and knowledge and become better teachers. If teachers continually do research, they could progressively perfect their skills and knowledge and gradually become better researchers and teachers. Becoming an expert is not an event but a process which is gradual. Expertise is slowly attained through involvement in great amounts of deliberate practice over time (Ericsson et al., 1993). In this case, engagement in research could be considered as deliberate practice aimed at improving research skills and knowledge.

iii) **Knowledge creation**

Geography teachers were aware that doing research could enable them create knowledge and thus add to a body of knowledge. This supports Alpay & Jones (2012) and Durning & Jenkins (2005) who stated that new knowledge which can help enhance the curriculum is created through researching, therefore, it is important to integrate research and teaching. Doing research also enhances writing skills and could make Geography teachers good writers. According to Mundende (2015:51), “Zambian secondary schools were not fully stocked with the relevant literature on Geography field project to facilitate the successful implementation of the field projects.” Mulemi’s (2011) study also brought to light the teachers’ and pupils’ complaint that the available books on the sub-region could not provide enough information. This shows that there is lack of Geography reading material in secondary school in Zambia. Mulemi recommended that Geography teachers should as much as possible take part in writing books that could provide enough information about Zambia and the sub-region (Mulemu, 2011). He however did not explain how teachers could do that. This research has shown that engagement in research could empower teachers with writing skills and innovativeness. Engagement in research could enable them fill the

gaps in knowledge and therefore supplement information that was in textbooks. Through the few researches they were engaged in, some teachers were able to supplement text book information.

Writing books requires an inquiring and critical mind, extensive reading as well as researching because “geographies are written records of field investigations” (Long &Robertson, 1966:128). Ntalasha et al. (2004) also posited that researching could empower Geography teachers with professional knowledge and skills and accord them opportunities to write local text books. Through doing research, teachers of Geography could be motivated to write textbooks using the information they gathered through research. Field research, therefore, as UNESCO (1965) noted could be instrumental in knowledge creation. Researching could also help teachers create research evidence and could enable them supplement information that is in textbooks. According to Firth (2016), teachers should help create research evidence.

b) Solving educational and societal problems

Doing research was said to have the potential to give Geography teachers opportunities to solve educational and societal problems. Teachers are in a better position to finding solutions to problems they face because they are the ones on the ground. Research could make them relevant in the society they live in because as Khan (2017) puts it, possessing research and consultancy skills and the ability to apply subject based knowledge in solving actual life problems are qualities society and the corporate world needed in a person. Researches done by teachers could be more helpful in dealing with classroom situations because these could be more relevant and context specific. Geography teachers know the challenges they experience in their different localities, therefore, if they could tailor the researches to what their job revolve on, more appropriate solutions to those challenges could be found than if an outsider did the research. The challenges to do with teaching and learning of Geography could be solved locally and immediately if Geography teachers were research engaged. Researching could help them solve identified challenges in the teaching and learning of Geography. Where they have no means to solve those problems, they can make recommendations to relevant authorities through research reports.

Through researching, teachers could create research evidence that could lead to solving some of the challenges in their field. Moreover, the skills they could acquire through doing research could help them make sound decisions and judgement which are critical in problem solving. This is in

agreement with Jenkin et al. (2003) who stated that research skills and abilities are important in decision making and problem solving.

5.3.3 Importance of engagement with research for teachers of Geography

Teachers of Geography viewed reading research as very important to the teaching and learning of Geography. Four reasons were given as to why reading research was important. One of them was that it enhances knowledge and understanding. Another one was that it improved research knowledge and skills which they could transfer to learners. Apart from that, reading research was said to improve vocabulary and writing skills of teachers. Furthermore, it could enable teachers of Geography solve educational and societal problems. Reading research was said to lead to improvements in cognitive abilities, vocabulary, knowledge and skills of a teacher, thus leading to improvements in the teaching of geography.

a) Acquisition and improvement of Knowledge and skills

Participants cited acquiring and updating knowledge and skills as one of the benefits of reading research. Geography teachers reported that reading research had increased their knowledge and understanding of the issues they read on. It had enabled them teach confidently as it gave them up to date information. This substantiates MOE's (1977:61) statement that "good teaching demands the teacher to possess correct attitude and adequate knowledge of the subjects he/she teaches, keep abreast with developments in those subjects and in the objectives and methods of teaching." Through reading research, teachers could get new and up to date information in their subject area. This could help them to teach the subject effectively and confidently. A teacher who doesn't have vast and up-to-date knowledge in his or her subject area cannot teach effectively and definitely cannot teach confidently.

Through reading research, one's understanding of Geographical phenomena is enhanced and their knowledge of such increases. Teachers could also have an enriched understanding of teaching methods and could therefore employ the best methods that have been proven to promote more learning. They can improve teaching methods using research evidence. The exploratory study done by Campbell & Jacques (2004) shows that engagement with and in research has several positive influences on the professional development of teachers, notably on teaching planning, teaching methods and strategies, teachers' knowledge base, reflective abilities and educational objectives. This is also in support of Lankshear & Knobel (2004) who stated that reading research enhanced

teachers' ability to make sound professional judgement on their own. Participants said that if one was not doing research, they should at least read research so as to learn more and update their knowledge and understanding. Acquiring, updating and increasing knowledge and skills is important for one to impart relevant knowledge and skills to learners. Reading research in this case improves the teacher's competence. Therefore, reading research could also be considered as deliberate practice to better Geography teachers' performance.

Apart from improving understanding and updating knowledge, teachers said reading research improved their research knowledge and skills such as preparing data collection instruments, presentation and analysis of data. This agrees with Doğan (2014) who stated that reading enables one acquire knowledge and skills. Teachers became up to date with research methodologies and their weaknesses and strengths as a result of reading research. Since reading research enhances research skills and knowledge, teachers could become better at teaching field research to learners if they continually read research. Becoming an expert involves prolonged efforts to improve performance (Ericsson et al., 1993). Attaining high levels of expertise is not an event but a gradual process involving frequent engagement in activities (such as reading research) that could improve performance.

Continued engagement with research is one way of acquiring and perfecting skills and should be one of the tasks set for teachers of Geography so that they can acquire and perfect research skills for better teaching of Geography. In this case, reading research could be considered as deliberate practice to improve performance. Though teachers were trained in research and some of them had vast teaching experience, they needed to engage with research to perfect their skills because as deliberate practice theory by Ericsson et al. (1993:363) explains, "...the maximal level of performance for individuals in a given domain is not attained automatically as a function of extended experience, but the level of performance can be increased even by highly experienced individuals as a result of deliberate effort to improve". Experienced Geography teachers could also improve their teaching further through reading research frequently.

b) Cognitive abilities and vocabulary improvement

In addition, reading research was viewed as one way of enhancing understanding, vocabulary and writing skills. This finding is in support of findings in the research by Doğan (2014) that reading improves language skills. As one goes through what others have written, they meet new terms and

these are added to their vocabularies. They also learn how to present information. This could make them good writers. Some participants attributed the lack of text books and local writers to poor reading and research culture. There is need therefore to push Geography teachers to read research.

c) Solving societal and educational problems

Reading research was also viewed to have the potential to enable Geography teachers find ways of protecting their environments according to two participants. Through reading they might find ways of dealing with some of the challenges in their physical environments as well as the education sector. This agrees with Borg (2010) who stated that making use of research findings enables teacher make decisions that are evidence based. Decision making is an important aspect in problem solving. According to Jenkin et al. (2003), research skills are important in decision making and problem solving. The ability of a person to make sound judgement also depend on what they know and reading is one avenue of acquiring knowledge. Reading research, therefore, could enable Geography teachers use research evidence to make decisions that might solve societal and educational problems related to the field of Geography.

5.3.4 Views on making research mandatory for teachers of Geography

It could be said that teachers could welcome research as part of their job provided conditions were favourable. They had a positive view about teaching and research integration. Teachers considered research to be a very important aspect of teaching Geography which should not be detached from the job of a Geography teacher. Although teachers felt that the job description didn't include field research, they were of the view that research should be an integral part of the Geography teacher's job since they teach field project and because they teach about the dynamic earth. Currently the job purpose of the Zambian teacher is "to teach effectively in order to impart relevant knowledge skills, and values" (MOE, 2007:13). A teacher of Geography teaches about the earth and human interactions with the earth. The earth is not static and human interactions with the earth keep getting more and more complex making the earth even more dynamic. This makes the subject to be dynamic as well and hence the need for the Geography teacher to be current with the changes the earth is undergoing especially within their locality. The subject by nature requires inquiry.

Apart from that, the subject also has a fieldwork component which teachers have to teach because as Sauer (1956) puts it, the principle training of a geographer should come as much as possible through field work. For a teacher of Geography to impart relevant knowledge and skills, they must be research engaged. One does not impart what they don't have and one who has insufficient skills

cannot teach effectively. Research knowledge and skills in a teacher have to be enhanced and perfected before the teacher can hope to guide the learners through the inquiry process. Perfecting skills requires deliberate practice (Ericsson et al., 1993). Teacher research engagement therefore should be encouraged as deliberate practice.

If relevant authorities advocated for teacher research engagement and enshrined it in policy and job schedules of teachers, teachers would be research engaged and would be highly skilled. As Firth (2016) explained, research engagement produces highly skilled teachers and this can greatly improve quality in education. Teachers of Geography expressed willingness to be research engaged provided the conditions were favourable for that because they viewed research engagement to be very beneficial. This substantiates deliberate practice theory's assertion that individuals need to perceive these tasks as highly relevant for improving their performance for them to engage in deliberate practice (Ericsson et al., 1993).

5.4 Research engagements of teachers of Geography in selected secondary schools

Teacher research engagements of Geography teachers have been described in terms of engagement in research and engagement with research.

5.4.1 Engagement in research

Although all the teachers who participated in the research were degree holders as table 2 indicates, and had supposedly undergone research training during their training, the culture of doing research among Geography teachers in the district was almost non-existent. There were very low levels of engagement in research as could be seen from Figure 1. This is despite that they considered engagement in research to be very important to the teaching and learning of Geography. It is believed that people are willing to engage in activities they perceive to be very important or relating to their work, however in this study it was not the case. All the teachers who were interviewed were aware that doing research could improve their teaching but engagement in research was very low among them. This contradicts Borg (2006) who was of the view that if teachers understand the role of research and their own role, they can be research engaged. It also contradicts the view that when teachers believed that research would benefit their work, they were likely to engage in it (Ebbut, 2002; Borg, 2006; Mehrani & Behzadnia, 2013; Mehrani, 2015).

Low levels of teacher research engagements have also been observed among teachers of other disciplines or subjects elsewhere (Hancock, 2001; Borg, 2006; Mehrani, 2015). Earlier, Borg

(2006) researched on conditions for teacher research and suggests that most of the professionals in not only English language but also in other fields were not involved in research. Some of those who said they did research were referring to the ones they did in order to obtain certificates. Even in this study very few teachers had done research apart from the ones they did during their studies. This is also what some other researchers had observed (Borg, 2006; Mehrani, 2015).

5.4.2 Engagement with research

Figure 2 shows that engagement with research was moderate, it was neither low nor high. It was slightly better than that of engagement in research. Few Geography teachers read research frequently. The reasons advanced were that research works were not available, there was no time for reading due to high workloads, pressure of completing the syllabus and other responsibilities and lack of interest which was rooted in the poor reading culture of the Zambian people. Teachers in Serenje are not the only ones whose engagement with research was hindered by these obstacles. These obstacles have been identified in several other researches on teacher research engagement (Borg, 2006; Brew, 2010; Drill et al, 2012; Mehrani, 2015; Firth, 2016). Making research works available, giving teachers time to read, and raising awareness of the importance of reading were suggested as some of the things that could motivate teachers to read research.

The sources of research materials teachers read were online sources because these were readily available once one had access to internet. Mehrani's (2015) study also revealed that teachers' tendencies towards web-based sources such as weblogs and forums was also because these were more available than published printed journals. When what to read is available teachers could be motivated to read. Availability of published research works therefore does determine whether teachers research engagement could be established and sustained.

The low incidences of engagement in and with research is worrisome because teachers of Geography teach about the earth and human interactions with the earth and they also teach research to secondary school pupils. The earth is dynamic, therefore, one who teaches Geography is expected to constantly update their knowledge about the earth and should interact frequently with reality in their surrounding environments. Moreover, since teachers of Geography teach research they need to be constantly in touch with research publications and should be conversant with the research process. Doing and reading research are preconditions for teaching research (Lambert & Balderstone, 2000). According to Sauer (1995), doing field work is an essential aspect in the

training of a Geographer. If pupils should be inquiring learners, they have to be imparted with inquiry skills and knowledge. The teachers' research skills and competencies such as awareness, perception, and analysis should be enhanced and perfected first before teachers can hope to give support to their learners who are trying to develop these skills (Lambert & Balderstone, 2000).

Perfecting skills require experience and deliberate practice (Ericsson et al., 1993). Engaging deliberately in research and with research could enhance and perfect research skills and knowledge and therefore could result in effective teaching and learning of Geography. The low levels of research engagement of Geography teachers in the district might provide insights into why there were challenges in the way field project was being executed in secondary schools in the district and also why pupils were handing in half-baked or substandard project reports or just buying reports. There is need for further research in this regard.

5.5 Establishing and fostering research engagement among teachers of Geography in selected secondary schools in Serenje district

Obstacles as well as facilitators of research engagement for Geography teachers have been identified and these could help in determining how research engagement could be established, enhanced and sustained in the district.

5.5.1 Establishing and fostering engagement in research

In order to establish a culture of doing research among Geography teachers in Serenje district, some issues were identified that needed attention. These included incentives/ motivation, time, support from administrators and other stakeholders, research skills and knowledge, financial issues, publishing opportunities, collaboration among teachers and organisations, awareness and expectation.

a) Incentives/ Motivation

The major reason teachers of Geography in the district gave for not doing research was that there were no incentives attached to it. There was no deliberate policy at school, district, provincial and national levels to support or reward teacher researchers. Many of the obstacles against doing research, it seemed, could be overlooked if incentives were there. Teachers expressed willingness to engage in research on condition that incentives were attached to doing so. In line with this,

Mehrani was of the view that financial motivation could also help promote a culture of research (Mehrani, 2015).

Incentives could be in form of money, recognition/ awards, sponsoring researches and publishing opportunities. Mehrani (2015), Carlile (2004) and Borg (2006) also identified publishing opportunities as a form of motivation that pushes teachers to do research. Giving incentives to teachers who did good researches could push teachers towards research and could help build a culture of research among teachers not only in schools but also in the district. Certificates of achievement could be designed and be awarded to teachers that had done good researches deemed to be beneficial to the teaching and learning as well as to the ministry and the community at large. This might help push teachers towards research for as long as these certificates are given significance in the Ministry of General Education.

In the harsh economy, teachers in their free time would rather engage in activities that would bring them some income or benefits than doing research which wouldn't earn them financial benefits. Doing research is involving and requires time. Given the prevailing conditions, if teachers have to do research they have to do so outside working hours. Since there was no deliberate policy to reward and support teacher research engagement, teachers opted to do other activities in their free time. Therefore, under the circumstances incentives could go a long way in motivating teachers to find time and energy to do research. If an activity has attractive incentives attached to it, people could be willing to find time to engage in it. Sponsoring researches could also motivate teachers to do research.

b) Time/flexibility in the education system

Doing research requires a lot of time. Like in other studies (Firth, 2016; Ellis & Longhand, 2016; Soe, 2014; Drill et al., 2012; Borg, 2006; Bilgili, 2005), time had been found to be one of the factors of research engagement even in this study. However, unlike in other studies, lack of time was not a major hindrance to doing research in this study. Teachers complained that they were constrained by high workloads, a lot of paper work, pressure of completing the syllabus and also other responsibilities given to them at school. This is consistent with findings of other researches that often teachers complain that time is lacking due to the teaching load they have and the pressure of completing the syllabus (Ellis & Longhand, 2016; Soe, 2014; Bilgili, 2005).

The pressure of completing the syllabus is due to the 'examination syndrome'. Teachers are given syllabus to complete and they have to align their teaching to what comes in the examinations so that pupils can pass, making it difficult for them to get involved in research. Teaching has therefore become exam driven and not inquiry driven. This had made teachers to ignore research and concentrate on preparing learners for exams. The study by Drill et al. (2012) also established that doing research compete for time with teaching and therefore, research is given low priority. Apart from that, teaching is a job that involves a lot of paperwork, so teachers were finding it difficult to find time to do research. Furthermore, teacher found the system not to be flexible enough to encourage research. The education system was said to be so overloaded with activities that teachers could not find time to either read or do research.

Teachers expressed willingness to do research if their workloads were to be reduced and time was given to them to do research. Even in the study done by Drill et al. (2012) the teachers expressed willingness to engage in and with research if the administrators sanctioned some time for research. Soe (2014) also recommended reduced workloads for teacher research engagement to increase. If their workloads were to be reduced and time given to those who are involved in research to do so, then research engagement could be established and fostered. Relieving teacher researchers of some administrative responsibilities (such as being teacher on duty, supervising preventive maintenance) while they are doing their research could also foster engagement in research. This was also suggested by Firth (2016) and Ellis & Longhand (2016). They independently suggested that there be flexibility in timetabling when a staff is committed to a project and that such a teacher be relieved of some duties such as administrative duties.

Reducing the workload however cannot guarantee that Geography teachers would do research. Some teachers of Geography said they wouldn't do research even when time was given to them unless incentives for doing so were there. One participant did mention that people consider lack of time to be a barrier to doing research because of absence of incentives. All the teacher participants also implied what this participant said. Research for secondary school teachers was not funded, therefore, it was costly on a teacher researcher's part. This coupled with the absence of incentives for doing research made Geography teachers reluctant to fix research in their programmes. One does not invest their time and resources on activities that do not have incentives or financial gain.

If incentives for doing research were there, time for doing research could be found. Therefore, lack of time as an obstacle to doing research could be better negotiated using incentives.

It is also important that stake holders (teachers, parents and MOGE, ECZ and CDC) change the way they view the purpose of teaching and learning. Where teaching is done just to make pupils pass the examinations, a culture of research is difficult to establish and sustain. There is therefore need to see beyond examinations because teaching and learning are more important than examinations. The capabilities MOGE wants to develop in learners cannot be developed if teaching and learning does not transcend examinations. However, that is not to say examination shouldn't be there. It just means teaching and learning should not be done entirely for examinations.

c) Support from administrators and other stakeholders

For a culture of research to be established and fostered, support is needed from administrators and even MOGE. Ten of the teachers complained that administrators were not supportive of the Field Research project of learners and they said that support for teacher research from administrators was unlikely. Lack of support from the education system was also a hindrance to teacher research engagement in Mehrani's (2015) study. Those who did research were providing the funds for research themselves and that discouraged teacher engagement in research. Research for teachers should be supported in terms of finances and other research materials. For teachers to get involved in research they should feel supported by their superiors. Support could also be in form of giving time to teacher researchers to do research through flexibility in timetabling and also by relieving those teachers identified as being involved in a research of some administrative duties such as being on duty, supervising preventive maintenance etc. Firth (2016) and Ellis & Longhand (2016) also suggested that there be flexibility in timetabling when a staff is committed to a project and that such a teacher be relieved of some duties such as administrative duties.

Administrators can also create enabling environments for research by providing access to internet and Wi-Fi and also making Journal subscriptions as well as buying hard copies of relevant research works for teachers to review and learn from as well as giving incentives to teacher researchers who produce good research works. Furthermore, they could help teacher researchers disseminate the researches through avenues like staff meetings, school articles and even in Journals. This way teachers could be motivated to engage in research. Earlier, Borg (2006) had stated that where Head

teachers are encouraged by their head teachers and where teachers can research, discuss and share research knowledge, teachers are more likely to engage in research. Later, Soe (2014) also suggested that collaboration, cooperation and support within and outside the institution could help create an enabling environment for teacher research engagement. Mehrani (2015) also suggested that teacher researchers should receive support in terms of money, time and assistance from their organizations. As things were at the time of research, it could be difficult to establish and sustain engagement in research among teachers because teachers felt that support from administrators was not guaranteed judging from their attitude towards the field project of learners as well as field teaching.

There should be collaboration between SOSTAZ and organizations/ departments such as agriculture department, meteorological department, forestry, tourism and central statistics. Creating association with various organisations and departments that dealt with aspects of Geography that are taught in secondary schools could be of help in establishing and promoting a culture of research among Geography teachers. Such organizations could even help fund research by Geography teachers. They could identify areas that required research in their departments and engage Geography teachers to research with them to come up with data useful to both their departments or organisations and the teaching of Geography in secondary schools.

d) Funding research

It was established that lack of funding was a hindrance to teacher involvement in research. Other studies also established the same (Drill et al., 2012; Firth, 2016). Teachers made mention of the harsh economy they were in and that sometimes administrators were not to blame since funding to schools had reduced and had become erratic. Apart from that, collections from pupils were slow and not 100 percent as some pupils were not paying fees, others were not paying in full due to poverty. Given the prevailing conditions in schools, it could be difficult to set aside funds for research especially that school fees had been drastically reduced and the benefits of research might not be immediate. Administrators would rather spend money on projects and activities that could bring immediate benefits. In addition, teachers were not likely to sponsor their own researches especially that research had no incentives attached to it. A person doesn't invest resources in things they perceive will not profit them. Besides, teachers were constrained financially so, parting away

with some money for research was a difficult thing to do. One of them claimed he had to abandon his research because of lack of funds since he was the one funding his own research.

From the teachers' statements it was clear that funding for research done by teachers was not there. The ministry did not provide funding for teachers to do research. In fact, there was no allocation for that both in the school budgets and in the national budget. Teachers who dared to do a field research had to bear the cost. For a research to be done properly, it requires money and when it is done it requires publishing which is also costly. Teachers on their own said they could not manage to fund their own researches because of financial constraints, hence most of them could not think of venturing into field research. In this case teacher research engagement was hindered by absence of funding specifically for research.

Teachers therefore, suggested that there should be funding allocated specifically for teacher research engagement. This is also what Firth (2016) suggested. Firth recommended that a small scale research funding be established to fund teacher research activities (Firth, 2016). Making funds for research available could motivate teachers to engage in research. For research engagement to be established and fostered in secondary schools, there should be funding allocated to research at national level and this should trickle down to schools. Ericsson et al. (1993) set conditions for deliberate practice and one of them was that for one to engage in extended amounts of deliberate practice, one should have resources and suitable facilities. In this case teacher research engagement needs funds for various purposes such as mobility, stationary, Journal subscriptions, and publishing.

Research should be funded because it has a lot of benefits to the teaching and learning of Geography and it could ensure quality education which is the goal every nation, including Zambia aspires to achieve. As Firth (2016) puts it, although teacher research engagement is costly on schools and government, the cost is worthwhile and justified in that the end results are highly skilled teachers and hence quality education. The benefit of engaging in extended amounts of deliberate practice according to deliberate practice theory is expertise. Attaining expertise is necessary for teachers so as to have quality education, a goal which the nation aspires to attain.

Government should therefore set aside funds to support teacher research engagement and this fund should be availed to schools for that purpose since some schools might not afford to sponsor research engagement of teachers. If sponsoring field research of pupils was a challenge for schools,

it could be almost impossible to include research engagement of teachers on school budgets, therefore, government should put in money to this end so that teachers could research and publish. Teacher engagement in research and publishing is hindered if the cost falls entirely on the teachers. This is why Drill et al. (2012) called on Local and state-level policymakers to find ways and means of reducing or eliminating the financial cost associated with teacher research engagement so as to promote teachers' access to knowledge that is vital to improving student learning.

Non-governmental organizations and the private sector should come on board to support teacher research financially. There are a lot of issues to do with Geography that these organizations are dealing with and some of these issues requires research. Geography teachers could be engaged and funded to do such researches. This way, they could help build a research culture among teachers of Geography both in the district and anywhere else in the country.

On the other hand, small scale researches could be ideal where funding is not adequate. Teachers should be encouraged to do small scale researches which do not require a lot of money. This is consistent with Soe's (2014:9) proposal that teachers should be encouraged to have a broader view of research and to focus on "small scale studies that are feasible to teachers." Doing so might ensure that they at least engage in some form of research.

e) **Recognition and expectation**

When people take up a job they are supposed to be given a job description. They need to know what their job entails and what is required of them. They should know their job purpose as well as the key result areas. People tend to do only what is required of them or what their job description prescribes. It is therefore important that teachers understand what their job description says and what it entails. Geography teachers' understanding of their job description and requirements had a bearing on their research engagements.

The purpose of the job of a Zambian teacher is "to teach effectively in order to impart relevant knowledge and skills" (MOE, 2007:13). Teachers of Geography felt that their job description did not demand research. In fact, according to some, it was silent on research. They interpreted their job description as purely teaching, not researching and that was also why they were not engaged in research. Research had shown that many teachers did not engage in research because they felt it was not expected of them and that it was not part of their jobs (Borg, 2006; Drill et al., 2012;

Mehrani & Behzadnia, 2013; Mehrani, 2015). However, as one teacher stated, the job description did imply that a teacher should research for them to teach effectively so as to impart relevant knowledge and skills. This is very true because as a teacher of Geography one cannot teach effectively and impart relevant knowledge and skills if one is not research engaged. For a teacher of Geography, a subject that has a research component, it means doing and reading research is an integral part of their job. The subject deals with the earth and human interactions with the earth and that makes it dynamic because the physical environment keeps changing. Besides, Geography teachers are required to impart research skills and knowledge to learners. Therefore, they require adequate and sufficient research skills and knowledge. These they could acquire and perfect through research engagement.

Policy makers should consider including research explicitly in educational policy as well as the job description if the nation wants analytical, innovative and creative teachers. Analytical, innovative and creative teachers are needed to offer quality education. Aina et al. (2011) were of the view that teachers must research even if it was under duress because their job demanded that they do so. Teachers felt that research should be explicitly included in the job description for the teacher of Geography and that government should do everything within its power to enforce research among teachers who are teaching research. Making research engagement mandatory would push teachers of Geography towards research provided that the requirements for doing so were put in place. Borg (2006) was of the view that if it was expected of teachers to do research, they would do it just as they mark pupils' books because they know it is expected of them (Borg, 2006). This finding also justifies the conclusions made by researchers that if it were enshrined in policy, job description and schedule that teachers were expected to do research, then they would do so (Mehrani & Behzadnia, 2013; Mehrani, 2015). Therefore, making research mandatory for Geography teachers could help build a culture of research among them. The findings of this study also supports the view by Mehrani & Behzadnia (2013) that the educational system through teacher training programs, teachers' evaluation system, and the job description of teachers could help in pushing teachers towards research. If Geography teacher training programmes at all levels of training included a comprehensive research training, a culture of research would be promoted among Geography teachers.

Similarly, if evidence of research engagement was one of the requirements for promotion, teachers of Geography would be research engaged. This being the case, incorporating research in training programs, teachers' evaluation system, and the job description of teachers of Geography could promote a culture of research among teachers of Geography. The education system could be of help if it puts in place mechanisms that would ensure that all institutions of learning embrace research so as to have quality education. According to MOE (1996:4), "Quality is brought about by maximizing the efforts of all those responsible for the education of learners and by coordinating all the structure of the system so that centres of education, from pre-school to university, are places where effective teaching, learning and research take place..." This nevertheless, requires that administrators, teachers themselves, government and other stakeholders recognize and appreciate the value of teacher research engagement. Findings of this research indicates that Geography teachers on their part do recognize the importance of research engagement to the teaching and learning of Geography but the environments they were in were not enabling enough for doing so. However, according to teachers, administrators and the Ministry at large seemed not to see the value in teacher research engagement. Findings indicated that teachers would willingly engage in research if the environments were enabling.

For stake holders to create enabling environments for research in schools, they first of all have to recognize that teacher research engagement is important. They should also start seeing teachers as innovators and creators of knowledge. According to Hargreaves (2003:1), "Teachers are expected to build learning communities, create the knowledge society and develop capacities for innovation, flexibility and commitment to change that are essential to economic prosperity". Firth (2016) posits that teachers should not be reduced to being mere consumers of research but should rather be seen as co-creators of research evidence. It is for this reason that he condemned evidence based teaching because according to him it reduces the teachers' role to mere consumers of research evidence rather than as members of a broader education communities. The narrow view of the teachers' job is an impediment to research engagement and therefore to effective teaching and lifelong learning as well as building knowledge societies needed to survive in the 21st century.

The Directorate of Social Sciences should identify areas in the Geography subject area that requires research and avail these to Geography teachers to research on. It should also encourage teachers to come up with researches that is related to the teaching and learning of Geography so as to create

geographical knowledge and improve the teaching and learning of Geography. Those who do well should be awarded and given recognition. When teachers are viewed as innovators and knowledge creators and are encouraged and expected to be so by policy makers and administrators, then a culture of research could be established, enhanced and sustained.

There should be political will to support teacher research. Stakeholders should endeavour to create an enabling environment to establish and foster teacher research engagement so as to ensure that teachers teach effectively so to impart relevant knowledge and skills thus ensuring quality education. Borg (2006) was of the view that teachers and other stakeholders need to appreciate and see the value in teacher research for it to be implemented and sustained. Teachers complained that research was not given significance by the system even at higher levels and that was why in schools one only heard about it only when dealing with the field project of learners and when one was studying. Moreover, the fieldwork component only had 12 percent, which to many teachers and pupils, was not significant enough to warrant serious commitment. This seemingly suggested that attaching more marks to the field project might give it more significance and that could make teachers and pupils to take the project more seriously. That being the case, teachers could be made to do research before handling that component.

Research should be given recognition at national level and this recognition should trickle down all the way to schools if we are to establish, enhance and sustain a culture of research among Geography teachers and indeed other teachers in secondary schools. As Mehrani (2015:94) suggested “Given the roles that such institutional motives could play in promoting teachers’ research engagement, it seems necessary that policy makers implement a set of supportive educational policies to push teachers further toward research”. Teacher research engagement should be explicitly included in educational policy and in the job description of teachers. When that is done, administrators will also expect teachers to do research and hence building a culture of research in schools.

f) Research skills and knowledge

One of the hindrances to doing research that teachers hinted at was lack of research skills and knowledge. Degree holders are expected to have research skills and knowledge because according to Mundende (2015:46), “It is believed that at degree level, Geography teachers did a lot on the field excursions, trips, visits and report writing.” Although the participants being degree holders

had undergone research training at universities prior to joining the teaching service, they indicated that they needed constant refresher courses on research. Some even suggested upgrading as a way of acquiring and enhancing research skills and knowledge. This showed that initial training was not enough to sustain teachers, continuous in service training is required. This is in tandem with MOE (1996:108) which states, “Initial preparation provided at training colleges and the Universities, does no more than lay the foundation for a life time of teaching. There is need for regular ongoing development in a process that is never complete”.

In addition, it was revealed that some teachers, although they might have a transcript showing that they did research, did not genuinely do the practical. Some paid others to do the practical and write the report for them. Hachintu’s (2017) study also revealed isolated cases of dishonesty at Nkrumah University involving some students who were not reading and researching but were graduating with good grades through vices such as buying project reports and assignment through sexual favour and using money. This situation is indeed ‘a celebration of mediocrity’ as Hachintu (2017:61) referred to it because it is a mockery of quality education which the Ministry emphasizes. If Universities are turning out such teachers and the nation ends up with a teaching force compromised by cheats who cannot even read and research, then we should forget about quality education.

It also came out in the discussions that some universities did not properly handle the research part. In such institutions research was done in groups and reports written in groups. The challenge with group work is that there is a high probability that some group members will just be passengers. That being the case, some might have graduated with insufficient or no research skills and knowledge and that has a bearing on both their ability to guide learners through the field project and their attitude towards research. This substantiates MOE’s (1992:97) statement that “the quality of teachers reflects the effectiveness of the institutions that train them.” This may be indicative of why engagement in research was low among teachers of Geography. Hanover Report (2014) explained that if members do not have sufficient research skills and or lack motivation to research and publish, it is difficult to establish a research culture.

Since research skills and knowledge were lacking, Geography teachers expressed the need to have ongoing research training to refresh and enhance research skills and knowledge so that teachers

could engage fruitfully in research. This supports Guy (2017) who stated that training and retraining is important in building and re building of theoretical knowledge and practical skills. This is also in agreement with deliberate practice theory, that one requires good teachers so as to engage fruitfully in deliberate practice and that deliberately engaging in activities with the aim of improving or perfecting skills could make one an expert (Ericsson et al.,1993). Under going constant refresher courses as suggested by teachers is also a way of enhancing and perfecting research skills and knowledge.

CPD, SOSTAZ conferences, workshops could help in imparting research skills and knowledge in Geography teachers. In these activities, teachers could share knowledge and skills of conducting research, so that those who lack these skills can acquire them while those who have can enhance and perfect their research knowledge and skills. Teachers suggested that such gatherings should be held frequently. Through such gatherings, teachers might come up with a research projects which they could do as a group and this way they could learn by doing and could also perfect their skills if they continuously do so. Engaging constantly in extended amounts of deliberate practice is required for perfecting skills (Ericson et al., 1993).

Since the Zambian secondary school Geography curriculum had included field project, teachers of Geography need adequate research skills and theoretical knowledge about research to effectively implement this curriculum. Acquiring and perfecting research skills and knowledge is a precondition for teaching field research to learners because as Lambert & Balderstone (2000) explained, the teachers' research skills and competencies such as awareness, perception, and analysis should be enhanced and perfected first before teachers could hope to give support to their learners who were trying to do the same. The policy document on education explains that it is the teachers' responsibility to themselves and to their profession to extend their professional skills, to deepen their knowledge and to be up to date with major development that affect their profession (MOE,1996). Therefore, through doing research projects initiated by teachers during CPDs, conferences and other teacher group meetings, Geography teachers could acquire, deepen and extend their professional skills and knowledge. Doing this frequently as teachers suggested, could also supplement initial training and one-off training and retraining workshops which have been said to be insufficient in perfecting skills and enhancing theoretical knowledge. As Donaldson (2011) noted, the impact of one-off training stimulating though they might be, cannot be sustained

in that they tend to dissipate when one returns to classroom realities. He recommended local initiatives as being more influencing and sustainable, hence the need for continuous teacher group meetings.

Apart from that, government should initiate short research courses for teachers of Geography so that those who didn't undergo research training could do so while those who wish to gain more research knowledge and skills could also do so. Teachers suggested that government through the Curriculum Development Centre and Ministry of Higher Education should also look into the curricula of institutions training prospective teachers of Geography to ensure that prospective teachers of Geography adequately undergo research training. This substantiates the statement by MOE (1992:97) that "the focus of concern in an effective teacher education institution is on transforming its students into competent and committed teachers. The programme for teacher education, therefore, must be kept under constant review to ensure that it responds to the real needs of Zambia's schools." Soe (2014) and Ellis & Longhand (2016) after identifying that skill deficit hindered teacher involvement in research also recommended that teacher educators should adequately, through research training, equip teachers with research related theoretical knowledge and practical skills needed for them to be able to venture into research. This also substantiates deliberate practice theory's assertion that one needed good teachers to engage in deliberate practice. One needs to be research trained to fruitfully engage in research hence the need for research training.

Research training for teachers of Geography should be mandatory since the subject by nature requires inquiry. How do you expect a research illiterate teacher to teach research? How can one impart the knowledge and skills they don't have? The teaching of Geography requires also that a teacher imparts research skills and knowledge to learners. Therefore, a teacher of Geography needs these skills and knowledge and these skills need constant refreshing and perfecting hence the need for mandatory research training for in-service and prospective teachers of Geography. One of the goals of the Zambian education system as stipulated by MOGE is 'producing a learner capable of developing an analytical, innovative, creative and constructive mind' (MOE, 1996:4). If the education process is supposed to produce high order thinking skills and abilities in learners, the teachers that are supposed to facilitate this should also possess such thinking skills. The cognitive

skills MOGE wishes to develop in learners requires inquiry based learning to develop. If MOGE wants teachers and pupils to be inquiry oriented, it should initiate such training programmes.

Teachers suggested that there be collaboration between lecturers and secondary school teachers so that teachers could learn from lecturers. They complained that institutions of higher learning were so distant from secondary schools that the only time they had anything to do with schools was when lecturers went to observe students on school based teaching practice. Once their students graduate, there is no communication between these institutions and secondary schools. Yet these institutions could help build a culture of research in secondary schools. Collaboration with university lecturers could be of help to Geography teachers because lecturers can provide mentorship especially that a culture of research in these secondary schools was almost non-existent. This supports Borg (2006) and Soe (2014) who said that mentorship could help where skills and knowledge were lacking. It is also in line with one of deliberate practice theory's tenet that one requires good teachers to engage in deliberate practice (Ericsson et al., 1993).

g) **Dissemination opportunities**

Engagement in research for Geography teachers might have been impeded also by the fact that publishing opportunities were limited and very expensive. Research should not be done and then hidden from the public. For it to make an impact and be useful it has to be published. Borg (2006) had earlier identified dissemination opportunities as a factor of research engagement. Publishing requires a lot of money especially that teachers didn't know of a publishing firm that did it free of charge. A lot of money has to be paid for publishing. Lack of funds for publishing seemingly hindered development of research culture. Teachers were discouraged from embarking on research because they knew that money to publish was not there and on their own they could not manage to foot the cost of publishing should they engage in research. One teacher brought out the issue of high probability of being exploited should they look for people to fund them. He said some of these funders wanted their names to be put on the article as one of the researchers when all they contributed was money for publishing.

These challenges according to teachers of Geography may be overcome if a peer reviewed Journal could be established for researches done by teachers of Geography and publishing of articles in this Journal could be made free for as long as the article had been assessed and found to be of good quality and helpful to the teaching and learning of Geography as well as to the education sector.

Firth's (2016) article on whether teacher professionalism can and should include research also proposed establishing a peer reviewed Journal specifically for research by teachers so as to motivate teachers to do research and publish.

Institutions of higher learning could be of great help in helping teachers publish the researches. Teachers called for collaboration between secondary schools and universities. Since some of these institutions have their own Journals, they could help teachers publish the researches they do in their Journals. According to Soe (2014), support within and outside the institution could create an enabling environment for teacher research engagement. Geography teachers can also be advised to team up as they do research so that they can share the cost of publishing making it less than it could be if one teacher had to publish alone.

In the meantime, since publishing in Journals was said to be expensive and there was at the time no deliberate policy to sponsor research done by teachers, other avenues for disseminating information should be explored. Teachers suggested that on a small scale, avenues such as CPDs, SOSTAZ conferences, departmental meetings, staff meetings, newsletters, social media (wats app, face book), school websites, mass media (television and radio) should be exploited as ways of disseminating research done by teachers. Borg (2006) had earlier suggested that mechanisms such as newsletters, websites, professional development events, presentations at conferences, written reports submitted to journals of professional associations can give opportunities for teachers to share their inquiries with others. Teachers could be encouraged to form WhatsApp groups so as to help share their inquiry. Local articles could be of help if established in schools and at district level. SOSTAZ should look into the possibility of having its own magazine or Journal in which teachers could be sharing the researches they do. Using the money collected as affiliation, they can even come up with a journal for Geography teacher researches and this might help establish and sustain a culture of research. During meetings and conferences, time can be set aside for sharing researches done and for talking about how to conduct researches. Mehrani & Behzadnia (2013:22) had also suggested that "practice-oriented workshops and non-academic conferences can open new avenues for research dissemination." This way research engagement might be fostered in the district.

h) **Culture**

Culture has an influence on how people behave despite their education. The community one finds themselves in determines what sort of activities they will engage in. Teachers cited organizational culture as one of the contributing factors to their research engagement situation. The cultures they found in schools and even in the district all the way to national levels were not research oriented. The job of a teacher was purely teaching. Research was not mentioned in departments, at schools, district, province and even at national levels. People only heard about it when they went for studies hence the view by some that it was just for obtaining a qualification. The only time research was mentioned in departments was when it was time to take pupils for field research project and that was only done because it was Examination Council of Zambia (ECZ) requirement. It was mainly done just to enable pupils pass the examination. In the study by Mehrani & Behzadnia (2013), Iranian English language teachers viewed their education system and their traditional society as being negative about research and innovation. Based on the findings of this study, it could be said that teachers of Geography in Serenje district were of the view that their education system did not value teacher research engagement. They viewed it not to be research oriented that posed a problem for teacher research engagement.

According to teachers of Geography in selected secondary schools in Serenje, taking pupils out for field teaching to observe a phenomenon in its natural environment was a challenge because administrators usually felt it was a sheer waste of time and resources. Such ventures were rarely supported by administrators who were interested in spending money only on things that would bring immediate benefits. Some participants mentioned that Zambians relied more on stories than on creating knowledge for themselves. This tendency to rely on the knowledge created by others is a hindrance to doing research because it does not create in people the desire to create new knowledge to add to the existing one.

Teachers mentioned that the country was lagging behind because many of its citizens were more into theories than practical. This could be taken to mean that the culture of research among Zambian teachers was poor. Engagement in research cannot be expected from people who are more interested in theories and hearsay than in generating and proving theories. Teachers also mentioned that school administrators were short term oriented and therefore were unlikely to support teacher engagement in research judging from their attitude towards field teaching and field

project of learners. With such attitudes, it is difficult to establish a culture of research because societies that are not receptive to innovation and are not long-term oriented are unlikely to be receptive to the integration of research and teaching (Brew, 2010; Khan, 2017). One wonders why prospective Geography teachers at universities undergo research training only to go and work in school environments that do not promote research or are not research oriented.

In addition to organizational culture, attitude of some teachers hindered them from doing research. Earlier studies by Borg (2007) and Mehrani & Behzadnia (2013) had also pointed out that lack of engagement in research had more to do with attitude. Some teachers made mention that they associated research with study and that research was commonly done when one was studying. This agrees with Borg (2006) who stated that English language teachers mostly did research in the context of formal programmes of study. Research was often seen as something to be done when one was studying i.e. for certification and qualification. Attitude, according to some teachers, reflected how one was trained. Where the institution training teachers fail to adequately inculcate research attitudes in its students, the students are likely to graduate without positive attitudes towards research. This substantiates the assertion by Mehrani & Behzadnia (2013:25) that “the educational system plays a determining role in the formation of teachers’ conception of their profession. For instance, pre-service and in-service teacher education programs, teachers’ evaluation system, and the description of teachers’ duties play key roles in the formation of their conception of English Language Teaching.” It is therefore, important that institutions training in-service and prospective teachers of Geography should inculcate positive attitudes towards research. The education system should also through policy, teacher education programmes, job description and schedules give research significance.

To push teachers towards research, school environments should be supportive of research. There should be collaborations among teachers in departments and schools to establish a culture of research among teachers of Geography. Soe (2014) suggested that if there was collaboration, cooperation, support within and outside the institution, then the environment could be enabling for teacher engagement in research. The school environments should be such that teachers could do research together and share knowledge and research experiences for engagement in research to be fostered. This calls for administrators to be supportive of research and to encourage their teachers to be involved in research. Organizing capacity building workshops for teachers might enable

administrators encourage their teachers to become research oriented. If decisions by management could be evidence based, their schools would have teachers with good research cultures.

Universities could also help build a culture of research in Geography teachers by working in collaboration with schools. Universities were said to be so distant from schools that the only time they had anything to do with schools was when they went there to monitor students on teaching practice. There was therefore no collaboration with them once their students graduate and start work. This situation has to change if a culture of research among Geography teachers in secondary schools has to be built. University lecturers could provide mentorship to the teachers and also incorporate them in the research projects they do. Mentorship is helpful in building a culture of research (Borg,2006; Ellis & Longhand, 2016) especially where a culture of research doesn't exist or is poor (Soe, 2014). In addition, if institutions of higher learning ensured that they cultivated a sense of research in prospective Geography teachers, there is a likelihood that these would graduate with the right attitude towards research. Institutions of learning should endeavour to transform their students into competent and committed teachers (MOE,1992). This means ensuring also that they graduate with right attitudes.

Teacher group meetings such as CPDs and SOSTAZ conferences could be handy in helping to change the negative attitude towards doing research. They might help sensitize teachers that research is not only for certification but for a lot of benefits. Borg (2006) had also suggested that teacher associations could be helpful in promoting and supporting teacher research. The education system could also help in raising this awareness through teacher training programmes and workshops. It should inculcate in teachers, innovativeness so that teachers start seeing themselves as knowledge creators as well. Firth (2016) suggested that stakeholders should change the way they look at the teacher's role and start seeing them as innovators and creators of research evidence.

5.5.2 Establishing and fostering engagement with research

Participants were asked what factors hindered engagement with research and also how engagement with research could be fostered. Their responses indicated that engagement with research depended on factors such as availability of relevant research works (comprehensive library facilities), time, and culture.

a) Comprehensive library facilities

One of the tenets of deliberate practice theory is that for one to engage in deliberate practice, they should have resources and suitable facilities. One of the factors of reading research identified was comprehensive library facilities. Absence of comprehensive library facilities in Serenje district was one of the hindrances to reading research. Firth (2016) also stated that teacher research engagement was hindered by lack of comprehensive library facilities. This factor encompassed two aspects, namely; availability of relevant research works and access to internet. Availability of relevant research works was the most important factor in reading research. Two important things came out regarding this issue: relevance and access. Teachers were not able to engage with research because of lack of access to relevant research works. School libraries were not serving the purpose for which they existed because they had outdated books and did not stock research works. Of the schools that were included in the research, only one had a few copies of research works and then these were insufficient.

Teachers who had visited DRC and PRC claimed that there was no research works available there. Although the PRC officer claimed that there were a few copies of research works, none were available at the time data was being collected. The PRC and DRC officers, moreover, did confirm the claim of teachers that in terms of Geography there were no books, let alone published research works. What was there was for English language. According to PRC personnel, teachers were being advised to access research works online using their gadgets such as phones, tablets and laptops. However, at PRC there was only one desk top which unfortunately was not connected to internet. Therefore, there was no chance of teachers accessing research works online from PRC. Their schools also lacked hard copies of research works and Wi-Fi connections, though some schools had computers laboratories. Therefore, access to research works online in schools was not possible either. The issue of inaccessibility of research work was also a complaint among English language teachers in Iran (Mehrani & Behzadnia, 2013). Some schools in Serenje district didn't even have libraries. This supports the statement made by MOE (1996:86) that "library facilities in Zambia are scarce, at both institutional and public levels: ...most secondary schools have no libraries and very few have trained librarians." It is not possible to develop a reading culture in institutions that lack comprehensive library facilities. Geography teachers did not have access to comprehensive library facilities and that was a hindrance to their research engagements.

The only available option for teachers to access research works was through their phones and laptops using their own data bundles and making Journal subscriptions themselves. Therefore, reading research proved to be costly on the part of the teacher as some complained of the harsh economy making it difficult for them to read research. Due to lack of funds, certain things such as Journals and Wi-Fi connectivity were not prioritized in institutions though they were important to teaching and learning. Financial constraints therefore reduced access to research publications.

This is consistent with Drill et al. (2012) who said that since journal subscriptions, books, and workshops come at a cost, teacher engagement with research is hindered (Drill et al., 2012). Firth (2016) had also identified lack of comprehensive library facilities and limited accessibility to research Journals as barriers to research engagement.

For one to read something, it has to be relevant and motivating to them. One teacher said he did not read research because he had not found any motivating research works. Another mentioned that what hindered teachers from reading research was lack of access to research works that were relevant to teachers' work. The issue of relevance of research works to teachers' work was a factor identified even in the study by Mehrani & Bhzadnia (2013). Block (2000) and Nasaji (2012) criticized academic research as being irrelevant to the teacher's interest and that it cannot be placed in the teachers' context. Hancock (1997) and Mehrani & Bhzadnia (2013) established that the mismatch between many available research methodologies and the teachers' professional ways of working in the classroom was one of the barriers to teacher research engagement. Given the prevailing conditions in secondary schools in Serenje district, if what the teachers found online was not relevant to their work, then their unwillingness to buy data bundles to access such was justified. Geography teachers might be more willing to buy data bundles to access research works if they perceive it to be relevant to their work.

If Geography teachers should be encouraged to read research, then it is imperative that school libraries should be there and should stock relevant research works. Apart from that, libraries should have internet facilities to provide access to internet facilities for teachers. MOGE should fund schools and resource centres to ensure that libraries have relevant materials and adequate internet facilities such as Wi-Fi. Doing that could ensure that teachers have access to relevant research works and hence motivating them to read research. This is in accordance with one of the tenets of deliberate practice theory which states that optimizing practice requires that the individuals have

resources and suitable facilities (Ericson et al., 1993). It was quite unfortunate that some secondary schools did not even have libraries. One wonders how both teachers and learners could be lifelong learners in such situations. Government should also recruit trained librarians in school libraries. Comprehensive library facilities are needed for teachers to optimize their research engagements.

Earlier research by Drill et al. (2012) recommended that policy makers and administrators should consider setting up research libraries in districts. Government should fund schools so that they establish libraries that are adequately stocked and have internet connectivity to help both teachers and pupils so as to promote the idea of lifelong learning through reading research. Administrators should be oriented on the need to make Journal subscriptions and provide internet access. Once each school has Wi- Fi installations, administrators should organize workshops to train teachers on how to access research publications online.

Teachers of Geography suggested that research done by teachers themselves could be helpful in stocking the school libraries and resource centres with research works that are relevant to their works. Teachers themselves could be in a better position to identify problems that affect them and to conduct research on problems identified so as to come up with solutions to those problems. The directorate of social sciences could be helpful in identifying areas in the Geography subject area that require research and avail these to Geography teachers to research on. It should also encourage teachers of Geography to come up with researches that are related to the teaching and learning of Geography so as to create geographical knowledge and improve the teaching and learning of Geography. Once these articles are published, they should be taken to resource centres and school libraries where they should be placed in sections that should be set aside for that purpose. Aligning research to what teachers taught and encouraging teachers to do research in line with the syllabus or the teachers' work could ensure that school libraries and resource centres are well stocked with relevant research publications. Geography teachers' engagement in research might therefore, help in stocking libraries and resource centres with research works that are relevant to teachers of Geography. If research is aligned to what the teachers teach and the classroom situation, it will have relevance to the teachers and they will be likely to engage with it. According to Mehrani (2015), teachers are more likely to engage with research when they perceive it to be useful or relating to their work.

Since publishing is costly, local articles and magazines could be created in which teachers could publish and these magazines should be put in school libraries and resource centres. Setting aside a section in all school libraries and resource centres just for research works could help teachers locate research publications easily and read them. According to Drill et al. (2012), if a section of the school library was to be set apart and stocked with relevant research articles, books, and digital media that are useful to teachers, it can make research more easily accessible to busy teachers.

Resource centres should also advertise what they have to offer because teachers seemingly didn't know what they could find in these resource centres hence their reluctance to even go there. Most teachers viewed the resource centres as venues for meetings because some had gone there just for meetings and workshops. They assumed that relevant materials could not be accessed from resource centres. Some even felt that they would not be welcomed if they tried to visit the resource centres for reading. This idea that resource centres were just venues for meetings and the assumption that relevant materials couldn't be accessed from resource centres might be the major reason why Geography teachers in the district were reluctant to go there for reading.

Geography teachers needed to be sensitized on the use and purpose of resource centres. Resource centres could do that through orientation workshops. They should also strive to stock their libraries with relevant research works and other books in all subject areas. They should also create a section in their libraries just for research works and books to enable easy access to research works. Teachers should be made aware of what is in stock at these centres once they have any relevant materials and gadgets. Wi-Fi should also be installed at resource centres and in schools. Since not all the teachers know how and where to access online researches, orienting them on how to do that might encourage them to read research since it would empower them with knowledge on how to access online resources fast. When resource centres and school libraries have comprehensive facilities and start operating the way they should, a culture of reading research might be promoted in the district.

b) **Time**

Time was another important factor identified by teachers of Geography. Lack of time had been seen as an impediment to reading research. Teachers complained of a lot of paperwork to do, high workloads, administrative responsibilities, and pressure of teaching to complete the syllabus so that pupils could pass the examinations. Time was also one of the factors in Iranian English

language teacher engagement with research (Mehrani, 2015; Mehrani & Bhzadnia, 2013). Gore & Giltin (2004) had also stated that the teacher's life does not easily allow them find time to read research. Teachers of Geography complained of high workloads and inflexible schedules, especially during the time of Corona Virus pandemic which required dividing classes into two so as to implement social distancing in classrooms. Teachers couldn't be expected to find time and energy to read research because of double sessions. The harsh economy had also contributed to not reading research as teachers in their free time could rather do activities that could earn them some money to supplement their budgets than reading research which had no financial benefit attached to it.

Flexibility in timetabling could be of help. Teachers suggested that school timetables should be designed in such a way that each teacher has at least some periods for reading research. Time tabling reading time for teachers might help build a culture of reading in schools. This is consistent with findings in the study conducted by Drill et al. (2012) where majority of the teachers expressed willingness to engage in and with research if the administrators sanctioned some time for research. However, giving teachers time to read is not a guarantee that they would read research reports because chances are there that these period for reading might be used for other personal activities. As one participant stated, the harsh economy made it difficult for teachers to find time to read as they had to look for ways and means to supplement their budgets. If care is not taken, the periods for reading research might be used for activities that could enable teachers earn extra income. Schools should, therefore, come up with deliberate plans and mechanisms to ensure that during those periods teachers read research. For example, they could be checking whether teachers read by assigning teachers to make presentations on what they read during staff briefings or any day dedicated to such. Time alone, therefore, is not sufficient enough to motivate teachers to read research.

c) **Reading Culture**

One of the hindrances to reading research that the Geography teachers in selected secondary schools in Serenje identified was poor reading culture. The reading culture of Geography teachers in the sampled schools in Serenje district was generally moderate. Participants assumed that Zambian societies had poor reading culture. The study by Ronnås (2009) linked reading to the culture of the people. According to Ronnås (2009), in Zambia because the issues of literature and

reading were foreign to the culture, and were just brought into the country through a foreign language medium, it had been difficult to develop a good reading culture. This might also explain why there are few local writers of books in Zambia and also why books on Zambia and the sub region were scarce in schools. It also might serve as a clue to why there is scanty information about the Geography of Zambia and the sub region even online. Teachers mentioned that poor reading culture was a hindrance to reading research. Sentiments from teachers such as lack of interest and motivation to read all pointed to poor reading culture. One teacher even mentioned that Zambian societies generally were more into listening and talking than reading and writing. This is consistent with Toteimeyer's (1999) assertion that in African societies reading stops immediately one completes formal education because people find more pleasure in oral traditions and practices than in written forms. It is also in line with the assertions by Mulindwa (2001) and Sangkeo (1999) that African societies are not reading societies but are rather a chatting or narrating societies that lack a culture of reading.

Another observation that was made was that schools were not long term oriented judging from teachers' sentiments that administrators would rather spend money on things or activities that would give them immediate benefits than on research seeing that the field research for learners was not receiving the attention it deserved. One teacher actually mentioned that the administrators were short sighted. This gave a clue as to why teachers were reluctant to even venture into research and also why research related materials were lacking in schools. Unless this situation changes establishing and sustaining teacher research engagement would be difficult because as Brew (2010) posited, societies that embrace innovation and are long-term oriented are more likely to be receptive to the integration of research and teaching than those who are not. In other words, it is difficult to establish and sustain teacher research engagement in societies or cultures that are not very receptive to innovation and are not long-term oriented.

Culture explains attitude towards reading and research works. Some participants did mention that such activities as reading research and doing research were only common when one was studying. Where reading is associated with school, it is difficult to build a culture of reading because one will only read for the sake of passing examinations. This may also substantiate some teachers' claim that some had graduated without research skills and knowledge to impart on pupils. It is likely that some were reading research not to understand and use it but just to pass the research

course. In such cases, rote learning is what is active and once one writes the examination, they cannot remember what they read and therefore, cannot share the knowledge with anybody. This situation might have something to do with the way literature and reading were introduced in Zambia. According to Sturges & Neill (1998:135), “The colonial education system inherited by Africa and expanded since independence, presented reading as something to be learned, rather than a means of enjoyment. Books are often associated with study and you read to pass your exams”. If issues of written literature and reading were not alien to the Zambian culture, Zambians could not be reading only for the sake of passing exams. Had reading been presented as a means of enjoyment, it might have been easier to inculcate a positive attitude towards reading. This situation might offer some explanation as to why some Geography teachers in the district did not engage with research often.

There is need therefore to put mechanisms for encouraging teachers of Geography to read research. A positive attitude towards reading should be inculcated in teachers. Through workshops, teacher group meetings, SOSTAZ conferences and staff meetings, awareness of the importance of reading research and the benefits thereof could be raised. Motivational talks might also help to encourage Geography teachers to read research. Since long posts were not desired by teachers as one participant observed, making research reports brief might also encourage teachers to read. A study done by Drill et al. (2012) also established that teachers were willing to engage with research if research findings were presented in brief synopsis, as a bulleted list, or even as audio-visual media.

In addition, making available research literatures that are relevant to Geography teachers or that would suit their interest might motivate them to read because people generally have a positive attitude towards something that suits their interest. The more relevant to their work a material is, the more likely teachers are to interact with it. Geography teachers, it seemed, interacted more with text books because these were perceived to provide the information they needed to teach. Providing research works that bridge the information gaps left in text books might make teachers develop a positive attitude towards reading research and therefore, might enhance their interaction with research works. This could perhaps push teachers towards reading research because as Mehrani (2015) had explained that teachers could only engage with something they perceived to be useful or relating to their work. Having comprehensive library facilities stocked with relevant reading

materials could help in developing a culture of reading among teachers and pupils. Suitable facilities are necessary for one to engage in deliberate practice (Ericsson et al., 1993).

5.6 Summary

Teachers viewed research as a complex process that is very involving. This may partly explain why engagement in research was low. They also viewed research as something to be done when one was studying. This is in line with findings in Mehrani (2015) that for many teachers, university graduation marks the end of their research engagement period. Teachers felt they were not expected to do research and that research was not part of their job description. This agrees with what researchers like Borg (2006), Soe (2014) and Mehrani (2015) who stated that teachers did not view research as part of their job. This might explain why research engagement was generally low.

Despite this, teachers of Geography also regarded research engagement to be important in enhancing skills and knowledge, vocabulary, writing skills and critical thinking as well as creating knowledge and solving educational and societal problems. They viewed it to be of particular importance to teaching field research.

Engagement in research of teachers of Geography was low while engagement with research was moderate. Teachers mostly did research that was aimed at gaining more knowledge. They mostly read online sources because these were readily available once one had access to internet unlike hard copies. Mehrani's (2015) study also established that teachers mainly read online resources because they were more available than hard copies. The low levels of engagement in research is worrisome especially that the teachers of Geography teach field research to learners. Geography teachers are supposed to guide learners through the inquiry process and this requires that they deepen their research knowledge and sharpen and heighten their research skills. Research engagement could help them achieve that.

In order to find possible ways of establishing and or enhancing research engagement among teachers of Geography in the district, teachers were asked what hindered them from doing research and reading research. The following barriers were identified: lack of incentives; lack of time; lack of funding for research and lack of publishing opportunities; lack of support from administrators and lack of expectation and recognition of research from employers (MOGE); lack of research skills, knowledge and reading materials; lack of access to relevant research publications; financial

constraints and societal and institutional culture. Lack of incentives was the major barrier to research engagement of teachers of Geography.

Most of these hindrances had to do with finances, skills and societal and organizational culture. To establish and sustain research engagements of teachers of Geography in Serenje district, attention is needed in the following areas: policy, job description of the teachers, teacher training and retraining, school culture, libraries, and funding for research.

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

6.0 Overview

This chapter is the concluding one. The conclusions drawn from the study have been presented. In addition, recommendations on how best research engagement for teachers of Geography could be established, enhanced and sustained have been advanced in this chapter. Furthermore, areas that need further research have also been suggested.

6.1 Conclusion

Based on the findings, the conclusion for objective 1 is that teachers of Geography in selected secondary schools viewed research engagement to be important in enhancing teaching and learning of geography, acquisition of knowledge and skills, creation of knowledge and improving vocabulary and thinking. They could welcome mandatory research if conditions are favourable. The conclusion on objective 2 is that despite regarding research engagement to be important, teachers' engagement in research was low while engagement with research was moderate. For objective 3, it could be concluded that geography teacher research engagement was hindered by a compound of factors to do with time, resources, culture, skills and knowledge, policy, job descriptions and publishing opportunities. The conclusion for the last objective is that making research mandatory, enshrining teacher research explicitly in policy, job description and schedules of teachers, ensuring schools and resource centres have comprehensive libraries facilities and providing funding for teacher research could help establishing and sustaining a culture of research among teachers of Geography in selected secondary schools in Serenje district. If things remain the same in the education system, then there is little or no hope that teacher research engagement habits could be established and sustained in teachers of Geography.

6.1 Recommendations

In the light of the findings in chapter four, the following recommendations are being made.

- i) Institutions training prospective and in service teachers of Geography should ensure they offer them a comprehensive research training. In addition, they should ensure that they cultivate a sense of research in prospective Geography teachers so that they graduate with the right attitude towards research. Furthermore, these institutions should work in collaboration with schools to facilitate the development of a culture of research engagement. Since initial training is not sufficient for life and that the impact of one-

- off workshops is inadequate to sustain teacher research engagement, teacher group meetings, CPD meetings, SOSTAZ conferences should help in imparting research knowledge and skills. MOGE working together with institutions of higher learning should also initiate research training and retraining programs for serving Geography teachers so that they could acquire and rebuild research skills and knowledge which would enable them venture into research.
- ii) Seeing that school libraries and resource centres in the district were either absent or inadequately equipped in terms of relevant research publications, Geography textbooks and e-facilities, MOGE working together with Zambia Library Services should ensure that resource centres and secondary school have libraries that are well stocked with relevant research literature and have internet or Wi-Fi connectivity. The directorate of social sciences should identify areas in the Geography subject that requires research and avail these to Geography teachers to research on. It should also encourage teachers to come up with researches that are related to the teaching and learning of Geography so as to create geographical knowledge and to improve the teaching and learning of Geography. Aligning research to what is needed in the subject area could make research relevant and meaningful to teachers. It might also ensure that libraries have relevant research materials and textbooks.
 - iii) Since teacher research engagement was low due in part to the fact that teachers felt they were not required to do so, MOGE should look into the job description of teachers to ensure that research engagement is explicitly captured in it. The education system, through policy, teacher education programmes, job description and schedules should also give teacher research significance.
 - iv) MOGE should lobby for funding specifically for teacher research engagement in the national budget and this funds should be availed to schools so that teacher researchers can access it. This has been suggested because there was no funding for teacher research engagement and those who dared to venture into it had to provide the funds hence making it difficult for teachers to be research engaged.
 - v) Seeing that lack of publishing opportunities was a hindrance to teacher engagement in research, MOGE through the Directorate of Social Sciences and SOSTAZ should establish a peer reviewed Journal specifically for researches done by teachers of

Geography and publishing in this Journal should be sponsored. SOSTAZ conferences and other teacher group meetings could also serve as avenues for disseminating researches done by teachers since publishing in Journals was said to be costly.

- vi) The reality on the ground was that teachers were not research engaged because doing so had no incentives attached to it. In the light of this, MOGE as well as school administrators should come up with a deliberate policy to reward teachers who do good researches. This could be in form of money, certificate of achievement, awards during Teacher's Day, promotions, etcetera.

6.3 Suggestions for Further Studies

This study had investigated teacher research engagement for teachers of Geography in selected secondary schools in Serenje district using qualitative methods.

- i) There is need to carry out a similar study using quantitative or mixed methods.
- ii) There is also need to carry out similar studies in other districts and provinces.
- iii) Apart from that, a study on whether teacher research engagement could bring about better fieldwork implementation in secondary schools is suggested.

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APENDIX 1: UNSTRUCTURED INTERVIEW GUIDE FOR GEOGRAPHY TEACHERS

A. Preliminaries

1. Date of interview.....
2. School name tag: A B C D
3. Sex: male female
4. Length in service:

B. Views of Teachers Regarding Research

1. What is research in your view?
2. Should a teachers of geography do and read research? give reasons for your answer.
3. What is the Importance of research in Geography teaching and learning?
4. Should research be mandatory for Geography teachers? Explain your answer.

C. Engagement in Research (Doing Research)

5. Have you conducted research before? If so what type, how often, and for what reasons?
6. How beneficial was your involvement in research to the teaching and learning of Geography components? Is doing research beneficial?
7. In your view, what hinders teachers from doing research?
8. How could the said hindrances be mitigated so that teachers can engage fruitfully in research and publish their findings.

D. ENGAGEMENT WITH RESEARCH (READING AND USING RESEARCH)

9. Do you read research works?
10. What sources of research literature do you read?
11. How accessible is research literature in your district?
12. Does your school library have educational research material or published researches that one can read?

13. Your district has both the district resource centre and provincial resource centre, how often have you been to these centres and for what purposes?
14. Do these centres have any research publications or do they provide ways of accessing research publications or articles?
15. In your view, how helpful is reading and using educational research publications to the teaching of Geography components?
16. What are the obstacle / challenges to reading and using research publications or literature?
17. In your view how can the said obstacles be mitigated so that Geography teachers can be motivated to read research articles and use research findings?

Thank you very much for your cooperation

**APENDIX 2: FOCUS GROUP DISCUSSION GUIDE FOR TEACHERS OF
GEOGRAPHY**

1. Date:
2. Group number: 1 [] 2 [] 3[] 4 []
3. Group composition by gender: number of males: ... Number of females:
4. What is the meaning of research in your own understanding?
5. What is the Importance of research in Geography teaching?
6. Should Geography teaching and research be integrated? Explain your answer.
7. Should teachers of Geography read, use and do research? explain your answer.
8. How beneficial could it be if Geography teachers integrated research in their work?
9. How is the research culture of teachers of geography in the district?
10. What are the perceived barriers to teacher research engagement?
11. What should be done to motivate teachers of Geography to be research engaged?

Thank you very much for your cooperation

APPENDIX 3: INTERVIEW GUIDE FOR PROVINCIAL RESOURCE CENTRE AND DISTRICT RESOURCE CENTRE PERSONNELS IN SERENJE

1. Date of interviews:
2. Name of Institution: PRC DRC
3. Sex: Male Female
4. How often do teachers visit the resource centre library?
5. What reading materials do teachers request for at the resource centre?
6. How well stocked is the resource centre in terms of research literature?
7. How often do teachers request for research literature?
8. In your opinion, should teachers research and use research outcomes?
9. How useful is research engagement to the teaching and learning of Geography?
10. What hinders Geography teachers from visiting the resource centre to engage with research?
11. How can teachers of Geography be motivated to be research engaged and to visit the resource centre to engage with research?

Thank you very much for your participation

**APENDIX 4: INTERVIEW GUIDE FOR HEADS OF SOCIAL SCIENCES
DEPARTMENTS IN SELECTED SECONDARY SCHOOLS OF SERENJE DISTRICT**

Institution:

Gender: male female

Length in service:

1. What is research in your view?
2. Are research and Geography teaching related? Give reasons
3. Should teachers of Geography do, read and use research? Give reasons.
4. Do teachers of Geography in your department do, read and use research? Reasons?
5. How beneficial is teacher research engagement to both the teacher and the pupils?
6. What challenges could hinder teacher research engagement?
7. How can teachers be motivated to do, read and use research?

Thank you very much for your participation

APPENDIX 5: RESEARCH BUDGET

Description	Quantity	Unit price	Total
Transport	-	-	K1000
feeding	-	-	K500
Stationery (pens, pencils, field note book and eraser	-	-	K200
Printing interview schedules	13	K5	K65
Printing proposals	7	K120	K840
Ethical clearance	1	K500	K500
Journal publication	1	K1000	K1000
Printing of dissertation	4	K500	K2000
Contingency	-	-	K500
Grand total			K6605

APPENDIX 6: RESEARCH SCHEDULE

SN	ACTIVITY	PERIOD
1	Research topic and objective formulation	October,2019
2	Literature review	October to November, 2019
3	Designing and refining research instruments	December, 2019
4	Proposal writing and submission	December, 2019
5	Data collection	February, 2020
6	Data analysis and interpretation	March, 2020
7	Report writing (first draft)	April, 2020
8	Submission of first draft	May, 2020
9	Report writing (second draft)	June, 2020
10	Presenting research findings at school level	July,2020
11	Working on comments and final report writing	July to august, 2020
12	Submission of report for examination	September, 2020
13	Defending the dissertation	November,2020
14	Working on comments and final research submission	November to December, 2020

Appendix 7: Ethical clearance letter from UNZA-HSSREC



THE UNIVERSITY OF ZAMBIA

DIRECTORATE OF RESEARCH AND GRADUATE STUDIES

Great East Road | P.O. Box 32379 | Lusaka 10101 | Tel: +260-211-290 258/291 777
Fax: +260-1-290 258/253 952 | Email: director@drgs.unza.zm | Website: www.unza.zm

RESEARCH DEPARTMENT

APPROVAL OF STUDY

6th October, 2020.

REF NO.HSSREC-2020-JUL-021

Patricia Lako
LUSAKA

Dear Ms. Lako,

RE: " AN EXAMINATION OF THE RESEARCH ENGAGEMENT OF GEOGRAPHY TEACHERS IN SELECTED SECONDARY SCHOOLS IN SELENJE DISTRICT OF CENTRAL PROVINCE"

Reference is made to your protocol dated 1st July, 2019. HSSREC resolved to approve this study and your participation as Principal Investigator for a period of one year.

REVIEW TYPE	ORDINARY REVIEW	APPROVAL NO. HSSREC-2020- JUL-021
Approval and Expiry Date	Approval Date: 6 th October, 2020	Expiry Date: 5 th October, 2021
Protocol Version and Date	Version - Nil.	5 th October, 2021
Information Sheet, Consent Forms and Dates	<ul style="list-style-type: none">English.	To be provided
Consent form ID and Date	Version - Nil	To be provided
Recruitment Materials	Nil	Nil
Other Study Documents	Questionnaire.	
Number of Participants Approved for Study		

Specific conditions will apply to this approval. As Principal Investigator it is your responsibility to ensure that the contents of this letter are adhered to. If these are not adhered to, the approval may be suspended. Should the study be suspended, study sponsors and other regulatory authorities will be informed.

Excellence in Teaching, Research and Community Service

Conditions of Approval

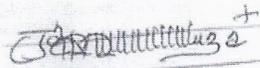
- No participant may be involved in any study procedure prior to the study approval or after the expiration date.
- All unanticipated or Serious Adverse Events (SAEs) must be reported to HSSREC within 5 days.
- All protocol modifications must be approved by HSSREC prior to implementation unless they are intended to reduce risk (but must still be reported for approval). Modifications will include any change of investigator/s or site address.
- All protocol deviations must be reported to HSSREC within 5 working days.
- All recruitment materials must be approved by HSSREC prior to being used.
- Principal investigators are responsible for initiating Continuing Review proceedings. HSSREC will only approve a study for a period of 12 months.
- It is the responsibility of the PI to renew his/her ethics approval through a renewal application to HSSREC.
- Where the PI desires to extend the study after expiry of the study period, documents for study extension must be received by HSSREC at least 30 days before the expiry date. This is for the purpose of facilitating the review process. Documents received within 30 days after expiry will be labelled "late submissions" and will incur a penalty fee of K500.00. No study shall be renewed whose documents are submitted for renewal 30 days after expiry of the certificate.
- Every 6 (six) months a progress report form supplied by The University of Zambia Humanities and Social Sciences Research Ethics Committee as an IRB must be filled in and submitted to us. There is a penalty of K500.00 for failure to submit the report.
- When closing a project, the PI is responsible for notifying, in writing or using the Research Ethics and Management Online (REMO), both HSSREC and the National Health Research Authority (NHRA) when ethics certification is no longer required for a project.
- In order to close an approved study, a Closing Report must be submitted in writing or through the REMO system. A Closing Report should be filed when data collection has ended and the study team will no longer be using human participants or animals or secondary data or have any direct or indirect contact with the research participants or animals for the study.
- Filing a closing report (rather than just letting your approval lapse) is important as it assists HSSREC in efficiently tracking and reporting on projects. Note that some funding agencies and sponsors require a notice of closure from the IRB which had approved the study and can only be generated after the Closing Report has been filed.

- A reprint of this letter shall be done at a fee.
- All protocol modifications must be approved by HSSREC by way of an application for an amendment prior to implementation unless they are intended to reduce risk (but must still be reported for approval). Modifications will include any change of investigator/s or site address or methodology and methods. Many modifications entail minimal risk adjustments to a protocol and/or consent form and can be made on an Expedited basis (via the IRB Chair). Some examples are: format changes, correcting spelling errors, adding key personnel, minor changes to questionnaires, recruiting and changes, and so forth. Other, more substantive changes, especially those that may alter the risk-benefit ratio, may require Full Board review. In all cases, except where noted above regarding subject safety, any changes to any protocol document or procedure must first be approved by HSSREC before they can be implemented.

Should you have any questions regarding anything indicated in this letter, please do not hesitate to get in touch with us at the above indicated address.

On behalf of HSSREC, we would like to wish you all the success as you carry out your study.

Yours faithfully,



Dr. J. Mwanza

DR. JASON MWANZA
Dip. Clin. Med. Sc., BA.M.Soc., PhD

CHAIRPERSON
THE UNIVERSITY OF ZAMBIA HUMANITIES AND
SOCIAL SCIENCES RESEARCH ETHICS COMMITTEE - IRB

cc: Director, Directorate of Research and Graduate Studies
Assistant Director (Research), Directorate of Research and Graduate Studies
Assistant Registrar (Research), Directorate of Research and Graduate Studies

APENDIX 8: Permission letters from DEBS and Head teachers

All communications should be addressed
To: The District Education Board Secretary
Phone: 0215 382261

In reply please quote
No. **TS. 803940**



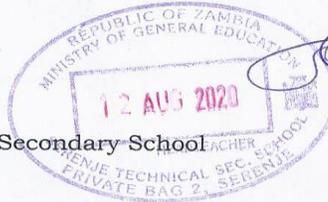
**REPUBLIC OF ZAMBIA
MINISTRY OF GENERAL EDUCATION**

**DISTRICT EDUCATION BOARD
P.O. BOX 850100
SERENJE**

Monday, February 10, 2020

The Headteacher

SERENJE BOYS STEM Secondary School
SERENJE DISTRICT



*She is free to
conduct her
research work*

RE: INTRODUCTORY LETTER - LAKO PATRICIA

I write to introduce to you the above named teacher who is pursuing her studies with the University of Zambia. She is visiting schools to conduct a research on the topic **"An Evaluation of Geography Teacher Research Engagement in Serenje."**

She has our permission, kindly attend to her accordingly.

Yours sincerely,

PP Harry Silungwe (Mr.)
**DISTRICT EDUCATION BOARD SECRETARY
SERENJE DISTRICT**



/mntl...*

All communications should be addressed
To: The District Education Board Secretary
Phone: 0215 382261

In reply please quote
No. **TS. 803940**



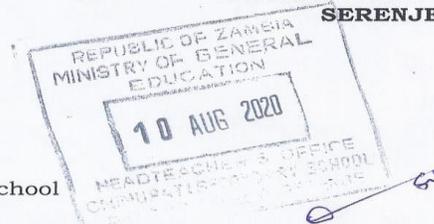
**REPUBLIC OF ZAMBIA
MINISTRY OF GENERAL EDUCATION**

**DISTRICT EDUCATION BOARD
P.O. BOX 850100
SERENJE**

Monday, February 10, 2020

The Headteacher

..... Secondary School
SERENJE DISTRICT



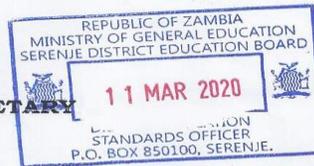
RE: INTRODUCTORY LETTER - LAKO PATRICIA

I write to introduce to you the above named teacher who is pursuing her studies with the University of Zambia. She is visiting schools to conduct a research on the topic "**An Evaluation of Geography Teacher Research Engagement in Serenje.**"

She has our permission, kindly attend to her accordingly.

Yours sincerely,

pp **Harry Silungwe (Mr.)
DISTRICT EDUCATION BOARD SECRETARY
SERENJE DISTRICT**



/mnl...*

All communications should be addressed
To: The District Education Board Secretary
Phone: 0215 382261

In reply please quote
No. **TS. 803940**



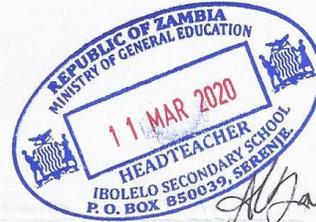
**REPUBLIC OF ZAMBIA
MINISTRY OF GENERAL EDUCATION**

**DISTRICT EDUCATION BOARD
P.O. BOX 850100
SERENJE**

Monday, February 10, 2020

The Headteacher

Ibohelo..... Secondary School
SERENJE DISTRICT



RE: INTRODUCTORY LETTER - LAKO PATRICIA

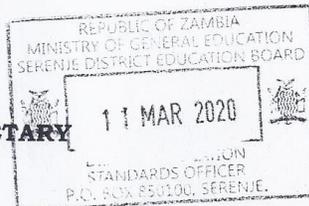
Allowed

I write to introduce to you the above named teacher who is pursuing her studies with the University of Zambia. She is visiting schools to conduct a research on the topic "**An Evaluation of Geography Teacher Research Engagement in Serenje.**"

She has our permission, kindly attend to her accordingly.

Yours sincerely,

pp Harry Silungwe (Mr.)
**DISTRICT EDUCATION BOARD SECRETARY
SERENJE DISTRICT**



/mnl...*

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**REPUBLIC OF ZAMBIA
MINISTRY OF GENERAL EDUCATION**

**DISTRICT EDUCATION BOARD
P.O. BOX 850100
SERENJE**



Monday, February 10, 2020

The Headteacher

..... Secondary School
SERENJE DISTRICT

HOD - S S
Assist

[Handwritten signature]

RE: INTRODUCTORY LETTER - LAKO PATRICIA

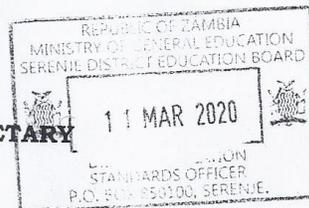
I write to introduce to you the above named teacher who is pursuing her studies with the University of Zambia. She is visiting schools to conduct a research on the topic "*An Evaluation of Geography Teacher Research Engagement in Serenje.*"

She has our permission, kindly attend to her accordingly.

Yours sincerely,

[Handwritten signature]

**Harry Silungwe (Mr.)
DISTRICT EDUCATION BOARD SECRETARY
SERENJE DISTRICT**



/ml...

Appendix 8: Authority letter from DEBS office- Serenje