

**THE NATIONAL UNIVERSITY OF LESOTHO**



**GEOGRAPHY TEACHERS' PERCEPTIONS ON THE USE OF  
INQUIRY-BASED LEARNING: A CASE OF FIVE HIGH  
SCHOOLS IN MOHALES-HOEK DISTRICT**

By:

**Thembiswa Koekoe**

(201201967)

A dissertation submitted to the Department of Language and Social Education in accordance with the requirements for the award of Master of Arts in Education degree at the National University of Lesotho

**Supervisor: Prof. M. G. Raselimo**

September 2023

## DECLARATION

I, Thembiswa Annastacia Koekoe, declare that this is my original work and has not been submitted for any other degree. All sources that have been used in this study have been cited properly. Equally important, this research adheres to the ethical guidelines and standards of academic integrity as set forth by the National University of Lesotho.



## **ACKNOWLEDGEMENTS**

First and foremost, I thank God for giving me the strength to complete this study, this would have not been possible without you my Lord.

I would like to convey my gratitude to the following people for playing an important role in my journey towards the completion of this study:

To my supervisor, Prof. M. G. Raselimo, thank you for the support and guidance you have given me. I have developed extremely well as an emerging academic researcher through your mentorship. I will forever be grateful to you for the difference you have made in my life.

To my language editor, Dr. M. Mahao, thank you for your meticulous proofreading which has improved my thesis. Your contribution in this study is sincerely appreciated.

To my beautiful mother, Noziphabantu Koekoe, thank you for supporting me during the course of my study. I will always be indebted to you for being an amazing role model in my life.

To my beautiful sisters, Vuyiswa, Lindiwe and Bongiwe and my brother Siphabantu, thank you for always being there for me. Your words of encouragement kept me going.

To my friends, Khabile Molatseli, Refiloe Masupha, Lipolelo Thamae and Reitumetse Ramone, thank you for being there for me during the process of writing this dissertation.

To my participants, this study would have not been possible without you. Thank you so much for agreeing to be part of this study. Again, thank you for sharing your perceptions with me.

I thank the principal of St. Mary's, Mrs. Mohlerepe for giving me permission to complete my studies while at work.

**DEDICATION**

I dedicate this study to my husband, Sekhoane Sephaphathi and sons, Batlounge and Ratsau for being a positive influence in my life. I love you Batlounge.

**Abstract**

This multiple-case study investigates Grade 10 geography teachers' perceptions on the use of inquiry-based-learning (IBL) in five high schools in Lesotho. Underpinned by interpretative research paradigm, the study followed a qualitative approach to gather data on the perceptions of ten geography teachers at the sampled schools. In-depth semi-structured interviews were used as the data gathering technique. The findings revealed that geography teachers have positive perceptions on the use of IBL. However, they have limited understanding of the approach as it applies to the teaching and learning of geography. The teachers indicated that one of the reasons for their reluctance on the use of IBL is the fact that they need to complete the syllabus within the specified time and have to prepare learners for the final examination which uses summative assessment and not engaging learners in activities of IBL. Based on the findings, it can be concluded that Geography teachers in Lesotho are reluctant to use approaches of IBL in their teaching and one of their reasons being lack of knowledge on the approaches of IBL in Geography teaching. Hence the study recommends in-service training of teachers on IBL and inclusion of guidelines on IBL in the geography syllabus in order to guide teachers, and the trimming of factual content in the said syllabus with the aim to accommodate the use of IBL.

## Contents

DECLARATION.....	2
<b>1.0 Introduction.....</b>	<b>10</b>
<b>1.1 Background.....</b>	<b>10</b>
<b>1.2 Statement of the problem.....</b>	<b>12</b>
<b>1.3 Research objectives.....</b>	<b>13</b>
<b>1.3.1 Main research objective:.....</b>	<b>13</b>
<b>1.4 Research questions.....</b>	<b>13</b>
<b>1.4.1 Main questions.....</b>	<b>13</b>
<b>1.5 Significance of the study.....</b>	<b>13</b>
<b>1.6 Outline of Chapters.....</b>	<b>14</b>
<b>1.6.1 Chapter One: Background.....</b>	<b>14</b>
<b>1.6.2 Chapter Two: Literature review.....</b>	<b>14</b>
<b>1.6.3 Chapter Three: Research design and methodology.....</b>	<b>14</b>
<b>1.6.4 Chapter Four: Research findings and discussion.....</b>	<b>14</b>
<b>1.6.5 Chapter Five: Summary, conclusions and recommendations.....</b>	<b>14</b>
<b>1.7 Chapter summary.....</b>	<b>15</b>
CHAPTER TWO.....	15
REVIEW OF RELATED LITERATURE.....	15
<b>2.0 Introduction.....</b>	<b>15</b>
<b>2.1 Conceptualisation of key concepts.....</b>	<b>16</b>
<b>2.1.1 Inquiry-based learning.....</b>	<b>16</b>
<b>2.1.2 Perceptions.....</b>	<b>16</b>
<b>2.1.3 Geography Education.....</b>	<b>17</b>
<b>2.2 Theoretical framework.....</b>	<b>17</b>
<b>2.2.1 Theory of Planned Behavior.....</b>	<b>17</b>
<b>2.3 Conceptual framework.....</b>	<b>18</b>
<b>2.4 What inquiry-based teaching involves.....</b>	<b>19</b>
<b>2.4.1 Inquiry-Based Learning as official CAP Policy in Lesotho.....</b>	<b>20</b>
<b>2.4.2 Phases of inquiry-based learning.....</b>	<b>20</b>

2.4.3 Types of inquiry-based learning.....	22
2.5 Principles of Inquiry-based Approach.....	23
2.6 Approaches to learning covered by Inquiry-based Learning.....	24
2.6.1 Assessment for Inquiry-Based Learning.....	25
2.7 Benefits of Inquiry-Based Learning.....	25
2.8 Empirical Review.....	26
2.8.1 Teachers' perceptions on the use of IBL.....	26
2.8.2 Teachers' understandings on the use of Inquiry-Based Learning.....	27
2.8.3 Geography teachers' opinions on the use of IBL.....	29
2.8.4 The use of inquiry-based learning in specific schools and classroom context.....	29
2.8.5 Challenges encountered by Geography teachers on the use of Inquiry-Based Learning .	30
2.8.6 Strategies used by Geography teachers in order to respond to the challenges.....	32
2.9 Summary.....	33
CHAPTER THREE.....	34
METHODOLOGY.....	34
3.0 Introduction.....	34
3.1 Research Paradigm.....	34
3.2 Research approach.....	36
3.3 Research design.....	36
3.4 Sampling.....	37
3.5 Sampling technique.....	37
3.6 Method of data generation.....	38
3.7 Data analysis.....	39
3.8 Ethical Considerations.....	40
3.9 Summary.....	41
CHAPTER FOUR.....	42
RESEARCH FINDINGS AND DISCUSSION.....	42
4.1 Introduction.....	42
4.2 Profile of participants.....	42
4.3 Teachers' understanding on the use of inquiry-based learning.....	43
4.3.1 Inquiry-based learning as collaborative learning.....	43
4.3.2 Inquiry-based learning as an extension of classroom learning.....	44
4.3.3 Inquiry-based is understood as a research.....	44



4.3.4 Teachers' views on geography topics where IBL could be used appropriately.....	45
4.3 Teacher' opinions on the benefits of inquiry-based learning and its inclusion in the geography curriculum.....	48
4.3.1 Benefits of inquiry-based learning.....	48
4.3.2 Teachers' views on the inclusion of inquiry-based learning in the geography curriculum .....	50
4.4 Teachers' views on the guidelines provided by the LGCSE Geography syllabus for implementation of IBL.....	51
4.5 Geography teachers' use on inquiry-based learning.....	52
4.5.1 Teachers' responses on whether or not they employ IBL in their lessons.....	52
4.5.2 Ways in which teachers align their geography teaching to the principles of inquiry-based learning.....	54
4.5.3 Resources used in the implementation of inquiry-based learning.....	58
4.5.4 Outdoor activities organised for Geography lessons.....	59
4.5.5 Inquiry-based learning activities used by geography teachers.....	61
4.5.6 Teachers' views on whether or not they consider learners' needs and interests in choice of learning activities.....	63
4.6 Challenges encountered on the use of IBL.....	65
4.6.1 Inadequate teacher training.....	65
4.6.2 Lack of teaching and learning resources.....	69
4.6.3 Inadequate lesson time.....	70
4.6.4 Teachers' experience on the use of IBL.....	71
4.6.5 Large class sizes.....	73
4.6.6 Little cooperation from learners.....	73
4.6.7 Language barrier.....	74
4.7 Strategies that could be used in order to respond to the challenges.....	75
4.7.1 Arousing learners' interest in geography.....	75
4.7.2 Strategies for effective use of inquiry-based learning.....	77
4.8 Chapter summary.....	80
CHAPTER FIVE.....	81
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....	81
5.1 Introduction.....	81
5.2 Teachers' understanding of inquiry-based learning.....	81
5.3 Benefits of IBL.....	82

<b>5.4 Teachers' views of the guidelines provided by the LGCSE syllabus for implementation of IBL</b>	83
<b>5.6 Geography teachers' use of inquiry-based learning</b>	84
<b>5.7 Challenges of implementing IBL</b>	86
<b>5.8 Strategies that could be used to respond to the challenges</b>	89
<b>5.9 Conclusions drawn from findings</b>	90
<b>5.10 Recommendations</b>	91
<b>5.11 Limitations of the study</b>	91
<b>5.12 Further research</b>	92
<b>REFERENCES</b>	93
Appendices	102
Appendix A	102
Appendix B: Introduction Letter	104
Fax: +266 22340000	104
P.O. Roma 180	104
Table 1 Profile of participants	39
Table 2 Principles of inquiry-based learning	51

# CHAPTER 1

## INTRODUCTION AND BACKGROUND

### 1.0 Introduction

This chapter relays the basis of this study's outline, that is, the background, problem statement, research objectives, research questions, significance of the study and the thesis plan respectively.

### 1.1 Background

There has been a concern in different countries around the world on the improvement of education that provides learners with appropriate skills relevant to the needs and demands of the 21st century (Fessier, 2011). This kind of education needs learners who are able to learn by investigating the scenarios and solve problems through social experiences rather than having to memorise information from textbooks as every day facts and information are dynamic and easily accessible from the internet (Mpango et al., 2017).

In addition, the socio-economic and political interaction through the process of globalization suggest that education has been influenced by globalisation economy since the 1990s. In this case, the new economy requires a type of learner who has acquired skills and values that enable them to be creative, multi-skilled and innovative, critical thinkers or problem solvers both at school and in real life situations (Altinyelken, 2011). Thus, the innovation of educational reforms in different countries across the globe has been impacted by the demand for learners with the mentioned qualities. For instance, one of these reforms entailed the shift from teacher-centred to learner-centred education which was disseminated from developed to developing countries.

In an attempt to make education relevant in addressing the needs of the nation, Lesotho published the Curriculum and Assessment Policy (CAP) in 2009 for the first time since it achieved independence. This was imposed by challenges brought by the Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS) pandemic and other contagious diseases, increasing poverty, climatic and environmental degradation and other needs resulting from globalization (Ministry of Education and Training (MOET), 2009).

Additionally, the policy suggests that the school life should be combined with community life and learners' every day experiences to make the curriculum more relevant. Thus, education

through different subjects is expected to contribute towards addressing the previously mentioned challenges (Selepe, 2016). This is clear evidence that Lesotho, like many other countries, wanted educational objectives that are critical for the country's economic development.

Following the concern of different countries on education that provides learners with the appropriate skills relevant to the needs and demands of the 21<sup>st</sup> century, different scholars recommended the use of Inquiry-Based Learning (IBL) for it fits the promotion of learners' engagement, flexible thinking, collaborative learning, interactive learning, transfer of learning, capacity for addressing complex issues and also enhances the natural curiosity of learners and encourages them to ask questions (Lambert & Balderstone, 2010) The said pedagogy emerged from constructivism whereby learners are encouraged to investigate scenarios and problems and through social experiences in their learning process that allows students to design their own questions and the teacher acts as the facilitator not instructor on making sure that the question is purposeful. Additionally, inquiry-based approach has been mostly aligned with problem-solving approaches, project-based approach, research-based teaching and discovery learning (Athuman, 2017).

In this case, Geography through learner-centred approaches should support processes that enable critical and reflective citizens who can make informed and reasoned arguments regarding such challenges (Roberts, 2010). For instance, the Lesotho Geography syllabus utilises field studies to concretise the link between the subject matter of Geography and methods of investigation associated with it. Again, the said syllabus supports learners in gaining basic geographic skills and techniques that will enable them to address environmental problems. Therefore, IBL has been supported by many countries including Lesotho because of its benefits.

Despite the recognised benefits of IBL in Geography education, there is lack of inquiry-based usage in some schools around the world. For instance, the study conducted by Simasiku (2012) indicated that high school Geography students in Turkey do not have high order thinking skills that they can use in their daily life because their teachers did not use inquiry approaches. Similarly, the study conducted by Athumani et al. (2021) on the implementation of inquiry-based approach in teaching Geography among secondary schools in Tanzania revealed that Geography teachers in Tanzania do not use inquiry-based approaches for they hold multiple conceptual

meanings of IBL. The majority understood it generally as a question-driven approach but were unclear of the role and position of those questions in the instruction process.

Likewise, Lesotho is not an exception in the issue of Geography teachers being reluctant to use approaches of inquiry. To exemplify, the study conducted by Phosisi (2019) revealed that Lesotho teachers are hesitant to use learner-centred approaches. Taking into account my lived experience for a short time as a Geography teacher in Lesotho, inquiry-based which promotes active learner's involvement is often ignored and not emphasised in teaching. Seemingly, the teachers still teach in a traditional teacher-centred way. In my opinion, the implementation of IBL in Lesotho schools is affected by lack of understanding of the learning theories underpinning IBL. In short, there is a gap between the inquiry-based ideas expressed in the CAP and actual practice in teaching.

## **1.2 Statement of the problem**

The intention of the Lesotho Curriculum Assessment Policy (CAP) of 2009 was to produce learners who are creative thinkers and problem solvers (MoET, 2009). In order to achieve this intention, several initiatives have been taken by the Ministry of Education and Training, including workshops and trainings for teachers about the implementation of the new curriculum and the use of learner-centred approaches (Phosisi, 2019).

However, a recent study reports that some teachers are reluctant to apply the active instructions in schools, and several reasons provided for such reluctance include lack of resources in schools and overcrowded classrooms (Phosisi, 2019). Therefore, the reluctance of teachers to use Inquiry-Based learning causes students to develop resistant behaviours such as reluctance to participate in the class, not being interested in the subject, not taking care of their friends, seeking attention, not respecting the teacher and not providing suggestions to the teacher (Giroux, 2001). In the like manner, it appears that an existing body of literature focuses on the Lesotho teachers' significant challenges regarding the general implementation of integrated curriculum and its pedagogies. However, one specific strategy that these teachers are encouraged to use; that is the inquiry-based approach, ignored. Evidently, it seems that minimal research is done on how this approach is implemented in Geography education in Lesotho. Therefore, the current study investigated teachers' perceptions on the use of inquiry-based learning.

### **1.3 Research objectives**

#### **1.3.1 Main research objective:**

- To investigate teachers' perceptions on the use of IBL in Geography teaching and learning.

#### **1.3.1.1 Specific research objectives:**

- To investigate Geography teachers' understandings on the use of IBL in Geography teaching and learning.
- To investigate teachers' opinions on the benefits of IBL in Geography teaching and learning.
- To explore the challenges encountered by Geography teachers on the use of IBL.
- To investigate the strategies used by Geography teachers while responding to the challenges they face on the use of IBL.

### **1.4 Research questions**

#### **1.4.1 Main questions**

- What are Geography teachers' perceptions on the use of IBL?

#### **1.4.1.1 Specific research questions**

- What are Geography teachers' understandings on the use of IBL?
- How do Geography teachers use approaches of IBL methods in teaching the subject in their specific schools and classroom context?
- How do teachers view the benefits of IBL in the teaching and learning of Geography?
- What are the challenges encountered by Geography teachers on the use of IBL?
- How do the Geography teachers respond to the challenges they face during the use of inquiry-based in their teaching?

### **1.5 Significance of the study**

This study aims to highlight the latent misconception of IBL that teachers have and the necessity of IBL in developing Lesotho learners' skills needed for the 21st century. Again, this research may uncover the challenges encountered by Geography teachers when using approaches of IBL which will hopefully encourage policymakers to make necessary adjustments and revisions in the

school curriculum in general, and the Geography curriculum in particular. Furthermore, the study is believed to have potential of helping teachers not only to comprehend that challenges are an inevitable part of any implementation process but will empower them to devise ways to overcome some of those challenges. Additionally, this study may add to the existing body of knowledge on the approaches of IBL which can be beneficial for further research.

## **1.6 Outline of Chapters**

This study is presented in five chapters and below, a synopsis of each chapter is presented.

### **1.6.1 Chapter One: Background**

This chapter presents the background, statement of the problem. The significance of this study. The researcher also outlines the research questions addressed in this study.

### **1.6.2 Chapter Two: Literature review**

This chapter is divided into two sections. The first section presents the definition of key words and draws links between geography and inquiry-based-learning (IBL). The second section represents the theoretical framework of the study, the Theory of Planned Behavior (TPB) and a review of literature relating to the implementation inquiry-based learning.

### **1.6.3 Chapter Three: Research design and methodology**

This chapter presents the research design and methodology adopted in the study. The chapter gives special attention to the interpretive paradigm, qualitative research as well as the sampling process. The chapter then discusses the research setting, selection of participants and data collection, namely, in-depth semi-structured interviews. Lastly, it explains the data analysis, the ways of ensuring trustworthiness, as well as ethical considerations.

### **1.6.4 Chapter Four: Research findings and discussion**

This chapter presents and discusses data generated from in-depth semi-structured interviews. The analysis of data is then facilitated by interrogating the research questions. The findings from the semi-structured interviews are then discussed based on the use of thematic analysis.

### **1.6.5 Chapter Five: Summary, conclusions and recommendations**

This is the final chapter which presents conclusions that are derived from the findings of the study and subsequently provides a summary of the study. Furthermore, recommendations to National Curriculum Development Centre (NCDC) are presented in this chapter.

### **1.7 Chapter summary**

This chapter presented the background, statement of the problem and significance of the study. Additionally, it outlined the research questions that are addressed in the study. This chapter has provided a layout of all chapters to show the development of the entire research project. The next chapter will present a review of related literature and the theoretical framework underpinning this study.

## **CHAPTER TWO**

### **REVIEW OF RELATED LITERATURE**

#### **2.0 Introduction**

In this new era, many educators are overwhelmed by the repertoire of classroom methodologies and techniques available. In the search of the best method, they need to carefully examine the needs of the students to truly grasp the necessary skills to acquire knowledge. In order to achieve



this, the role of educators must constantly evolve to meet the needs of learners today. From the traditional role of the teacher as director, more effective roles such as collaborator or facilitator are more relevant to this new millennium era that strives for better curriculum reform. This chapter discusses conceptualisation of key concepts, theoretical framework, conceptual framework and empirical review.

## **2.1 Conceptualisation of key concepts**

This section defines the concepts that are central to this study.

### **2.1.1 Inquiry-based learning**

Inquiry-based learning is a constructive approach where the overall goal is for learners to make meaning (Abell, 2005). Additionally, Prince and Felder (2006) assert that inquiry-based learning falls under the realm of inductive approaches to teaching and learning. Inductive approaches to teaching and learning begin with a set of observations or data interpret or a complex real-world problem, and as learners study the data or a problem, they generate a need for facts, procedures and guiding principles (Prince & Felder, 2006). Similarly, researchers define inquiry-based learning using different characteristics. The following are characteristics of IBL stated by different authors:

- 1) A student or learner-centered approach in which the focus of the teaching is on students' learning rather than on communicating defined bodies of content or knowledge (Kember, 1997).
- 2) Active learning is about learning by doing (Gibbs, 1988; Healey & Roberts, 2004) and may involve, for example, students discussing questions and solving problems (Prince & Felder, 2006).
- 3) The development of self-direct learning skills in which students take more responsibility for their own learning (Knapper, 2007).
- 4) A constructivist theoretical basis which proposes that students construct their own meaning of reality; it is the students who create knowledge rather than knowledge being imposed or transmitted by direct instruction (Bruner, 1990).

### **2.1.2 Perceptions**

As defined by Lutans (2005), the key understanding of perception is to recognise the unique interpretation of the situation, not an extract recording of it. In short, perception is a very

complex cognitive process that yields a unique picture of the world, a picture that may be different from reality. In short, perception is the way we understand or interpret the things that are happening around us. Additionally, McDonald (2012) asserts that our ideas, opinions, and actions are usually responses to something else. It may be a person or a situation that makes us think in a certain way. Perception may even be negative. McDonald further indicates that one's attitudes, motivations, expectations, behaviour and interests are some of the factors affecting perceptions.

### **2.1.3 Geography Education**

The nature of Geography has been debatable whether it is a science subject or a social subject. Kubiak et al. (2012) argue that Geography has a unique position between Social and Science subject. This is supported by Biddulph (2017) who suggests that due to this uniqueness, studying Geography equates to studying the world. The subject has four branches namely, Elements of physical Geography, Economic Geography, Settlement, Population and Migration and Basic Techniques and Inquiry skills but experience has shown that most teachers divide it into two branches; that is, physical and human Geography.

Physical Geography is a science studies on the earth's surface and its characteristics presenting spatial relationships and varying regional patterns (Roberts, 2010). This focuses on the earth's natural environment, which includes landforms, atmospheres, animals, plants, soils and the processes that affect them. Demirci et al. (2018) affirm that human Geography includes human, political, cultural and economic aspects of the social sciences. In my opinion, authors are not sure whether Geography is a science subject or social science subject because it is the connecting point between social science and physical science. It is reported that some parts of the subject have the strongest affiliation with mathematics and natural science, while others with history, philosophy and social sciences (Milson & Earle, 2008). Thus, all issues in geography are sorted based on political, social and economic background (Demirci et al., 2018).

## **2.2 Theoretical framework**

### **2.2.1 Theory of Planned Behavior**

The Theory of Planned Behavior (TPB), developed by Ajzen (1991), is a well-known social psychological theory of human behavior. It assumes that what a person does in given context (a behavior) is the formation of an intention to perform the behavior (Orth, 1985). Theory then provides a framework for explaining phenomena, and may serve as the basis for further research

as well as practice application (McGuire, 1985). In addition, the theory of planned behavior postulates three conceptually independent determinants of intention (Petty & Cacioppo). The first is the attitude towards the behavior and refers to the degree to which a person has favourable or unfavourable evaluation or appraisal of the behavior in question.

The second predictor refers to the perceived social pressure to perform or not to perform the behavior, and is named subjective norm (Sarver, 1983). The last is the degree of perceived behavior control which refers to the perceived ease or difficulty of performing the behavior and is assumed to reflect past experience as well as anticipated impediments and obstacles (Misehel, 1968). In short, the Theory of Planned Behavior posits that individual behavior results from intentions which are influenced attitudes, subjective norms and perceived behavioral control.

In this situation, this theory affirms that teachers' perceptions, understandings, beliefs and experiences promote their teaching approaches (Netemer, Andrews & Durvasal, 1990). Furthermore, one of its principles indicates that strong beliefs often predict behavior better than weak beliefs (Armitage & Christian, 2003). In this regard, if teachers strongly believe that students have an important role in learning, they would often use approaches of inquiry. However, if they hold strong beliefs that the teacher is the essential conduit of learning, they would be more likely to utilise direct instruction (Paker, Manstead, Reasons & Baxter, 1990). As such, understanding teachers' perceptions and beliefs about the use of inquiry is necessary for understanding their decisions to utilise it.

### **2.3 Conceptual framework**

While the ability to ask questions towards and direct learners' pursuit of probing questions towards active investigation and analysis of data is the foundation of IBL, its conceptualisation can vary based on different models, frameworks and disciplines. Therefore, it has different definitions (Slavin, 2007). In order to unpack the meanings of IBL and different perceptions of what guides it, this section focuses on the conceptual background by providing the IBL definitions, phases, levels or types, principles, approaches, assessment methods, benefits and background. Clarifying and discussing these concepts might be helpful for educators who inevitably confront them.

## **2.4 What inquiry-based teaching involves**

To further understand the role of IBL, this section discusses the fundamental concept of inquiry-based learning, its elements and model which give a clear picture of the roles of both the educator and the learners in the context of inquiry-learning classrooms. To begin with, in its modern conceptualisation, inquiry is rooted in the constructivist theories of education, namely in the works of Dewey and Vygotsky among others, who view learning as a situated and social process where students are able to construct their own knowledge.

Following the ways in which students learn best, Hollins (2011) suggests that during the learning process, the teacher has to determine the needs of the learner, the nature of the learning to be done and how to shape learning experiences accordingly. In fact, IBL is a model which emerged during the discovery learning movement and relies upon the idea that individuals are able to learn by investigating the scenarios and problem solving through social experiences, rather than having to memorise information from textbooks (Davidson, 2002). Inquiry can be defined in various forms, context and disciplinary fields.

Levy and Patriulis (2007) define inquiry as discovery-oriented (building new knowledge) or information oriented (exploring existing knowledge). In the former, students experience inquiry to contest an existing knowledge and build a new one, whereas in the latter, they experience inquiry to explore and acquire existing disciplinary knowledge. It is noteworthy that inquiry as information and discovery are both important parts of a continuum and reinforce each other (Kahan & O'Rouk, 2005). Engaging students in a discovery mode of inquiry in order to construct knowledge, new knowledge has to be firmly fixed to existing knowledge and students' ability to gather and examine it (Schweisfurth, 2010).

The National Research Council (NRC) (2000), on the other hand, defines inquiry as a multifaceted activity that involves observation; posing questions; examining books and other sources of information to see what is already known; planning investigations; reviewing what is already known in the light of experimental evidence; using tools to gather, analyse and interpret data; proposing answers, explanations and communicating the results (Davidson, 2002). It is therefore believed that inquiry-based learning increases learners' motivation because it connects school science to real life (Cetin-Dindar 2015; Campbell et al., 2010).

### **2.4.1 Inquiry-Based Learning as official CAP Policy in Lesotho**

As disseminated by CAP (2009), a learner-centred inquiry-based approach is expected to change classroom practices of teachers. Such curriculum advocates a learner-centred approach as it stipulates that learners are developed to become more responsible for their own learning process because they are equipped with skills that allow them to identify, formulate and solve problems by themselves and evaluate their work (MOET, 2009). In fact, the pedagogy has shifted more towards teaching and learning methods that can further develop learners' creativity, independence and survival skills (MOET, 2009). On this basis, it seems that learner-centred approaches emphasise more on learners' own activity. As a result, a teacher should have knowledge on different teaching and learning approaches and apply them in an appropriate context. This implies that geography teachers must be familiar with the curriculum approach.

Additionally, there are several indicators that CAP is an inquiry curriculum that places scientific arguments at the centre of the geography subject. There is evidence of two aims (learners should have developed creative and productive skills for survival and be able to appreciate independence existing between human beings and the environment for sustainable development and good health in the CAP document) that support this argument. Consequently, the curriculum does not provide learners with theoretical and scientific knowledge only but also provides the opportunity to conduct various investigations, making hypothesis about variables, and finally applying findings to real life situations (MOET, 2009).

Having discussed inquiry in teaching, the inquiry model to be highlighted in this study is the 6E Model by Peters and Stout (2011).

### **2.4.2 Phases of inquiry-based learning**

Pedaste et al., (2015) affirm that there is a variety of inquiry phases. For instance, Marshall (2013) lists four inquiry phases: Engage, Explore, Explain and Extend, and explicitly incorporate formative assessment (continually checking with students) and reflective practice into each phase. However, researchers explain that IBL is not a prescribed, uniform linear process (Padeste et al., 2015). Therefore, Peter and Stout (2011) adapt the 6E Model to inquiry, which is similar to the 5E instructional Model by Bybee et al. (2006), but includes an additional component: E-learning. A summary of the 6E Instructional Model is provided below (Peters & Stout, 2015, p.10).

### **2.4.2.1 E Instructional Model**

#### **2.4.2.1.1 Engagement**

The teacher or curriculum task accesses the learner's prior knowledge and helps them become engaged in a new concept through the use of short activities that promote curiosity and elicit prior knowledge.

#### **2.4.2.1.2 Exploration**

Exploration experiences provide students with a common base of activities within which current concepts (misconceptions), processes, and skills are identified and conceptual change is facilitated.

#### **2.4.2.1.3 Explanation**

The explanation phase focuses students' attention on a particular aspect of their engagement and exploration experiences, and provides opportunities to demonstrate their conceptual understanding of the concept by conducting additional activities.

#### **2.4.2.1.4 Elaboration**

Teachers challenge and extend students' conceptual understanding and skills. Through new experiences, the students develop deeper and broader understanding of the concept by conducting additional activities.

#### **2.4.2.1.5 Evaluation**

The evaluation phase encourages students to assess their understanding and abilities and provides opportunities for teachers to evaluate student progress towards achieving the educational objectives.

### **2.4.2.2 E-Learning**

This phase is infused throughout the model to enhance the technological skills of the learners while they do things such as gather information, engage in explorations, explain and communicate their findings.

If we look at individual phases of inquiry, it is clear that students cannot be expected to be able to immediately ask research questions and implement the entire phases' sequence of the inquiry independently. As a result, students' inquiry skills need to be developed gradually. Hence, the teacher needs to provide the students with an adequate level of independence and design the activity taking into account the intellectual level of the learners (Swarts, 2003W).

There are four levels of classification of inquiry that suit the different contexts, they are: confirmation, structured, guided and open inquiry, which can be sequentially arranged according to the degree of complexity (Gudyanga & Jita, 2019).

### **2.4.3 Types of inquiry-based learning**

#### **2.4.3.1 Confirmation inquiry**

This is where teachers demonstrate and instruct learners on what to do in every part of the investigation and it is the most basic level of inquiry (Banchi & Bell, 2008). For instance, teachers may provide learners with the hypothesis, set the apparatus of the investigation and provide learners' conclusions.

#### **2.4.3.2 Structured inquiry**

It is in this type of inquiry where the teacher provides learners with the questions and procedure of inquiry but giving them an opportunity to generate an explanation from the collected evidence (Ramnarain, 2014). Learners are provided with a hands-on problem to investigate as well as the procedures and materials necessary to complete the investigations (Zion & Cohen, 2017). However, it is the responsibility of the teacher to provide learners with questions and make sure that learners realise relationships between variables (Velloo & Viknesawry, 2013). The importance of using structured inquiry is that it allows the teacher to teach learners the basics of investigating as well as techniques of using various equipment and procedures that can be later used in more complicated investigations (Zion & Cohen, 2017). In general, structured inquiries provide learners with common learning experience that can be used in guided or open inquiry (NRC, 2005; Zion & Mendelovici, 2012).

#### **2.4.3.3. Guided inquiry**

This type of inquiry is where learners are provided with the research question and they design the procedures to test their question and generate explanations (Davidson, 2002). Weimer (2013) asserts that the teacher may give a prompt question as a starting point and learners find their own way to answer the question. The teacher delivers the problem for investigation as well as the necessary materials. In this approach, questions are usually presented by the teacher while the learners plan and select the procedures to solve the problem (Zion & Mendelovici, 2012). However, the procedures for data analysis, interpretation and drawing conclusions are usually teacher-guided but learner-interpreted (NRC, 1996; NRC, 2005; Zion, Cohen, & Amir, 2007).

#### **2.4.3.4 Open inquiry**

This is the highest level of inquiry where learners investigate questions, do procedures, interpret data and conclude the research (Zion & Mendelovici 2012). An open inquiry is defined by the absence of a predetermined result, where learners initiate their own questions and formulate their own process to answer their questions (Alabdukareem, 2017). The researcher therefore believes that Geography teachers should use confirmation where there are challenges to use full inquiry rather than verbal lecture method. Learners are also not to be left solely on their own in open inquiry because this may be difficult for them.

#### **2.5 Principles of Inquiry-based Approach**

Allowing students greater agency in their learning can be a liberating experience. Rather than having a teacher as an expert, Inquiry-Based Learning allows learners to assume the responsibility of becoming experts of the knowledge they are constructing through a process of self-discovery and trial and error, while the teacher's role is to monitor their students' process of constructing new meaning and step in when they need help (Banchi & Bell, 2008). Hence, the four key principles of Inquiry-Based Learning are as follows: students as researchers, teachers as research assistants, peer-to-peer collaboration and reflecting on learning.

**Constructive education (Students as researchers):** This principle indicates that students in an inquiry-based learning framework are introduced to a topic and tasked with developing their own research questions to guide their processes of discovery (Pedaste et al., 2015). For instance, in a Geography setting, one way to model this is to provide a leading question for students, choosing one that is open-ended and can lead learners in more than one direction. Thus, learners can do a deeper research to realise that one question can have different answers. In this regard, learners can use the internet to find relevant articles and videos to look at the question from multiple perspectives. In a more scaffolded setting, teachers can provide some information from articles and videos to discuss as a class and ask learners to find the relevant ideas and identify connections. Therefore, the goal is to have learners revisit the question each time new information is learned so that they can elaborate and refine their answers, and in doing so, slowly become experts on the topic.

**Learning is relevant context (Teachers as research assistants):** In most cases, an inquiry-based learning model often flips the roles of the teacher and the student. In an inquiry system, learners become researchers and the teacher acts as the assistant or guides learners' learning



(Dobber et al., 2017). One way to encourage this is that class time is devoted to learners applying what they have learned through practice and collaborative activities. In this case, teachers use the class time not to present the material but to attend to learners' questions and curiosities.

**Collaborative learning (Peer-to-peer collaboration):** Learning from peers and sharing ideas is another core principle of inquiry-based learning. Learners in an IBL class become each other's soundboards, which gives them an authentic audience from which to draw alternatives from their own and test the validity of their ideas (Elias, 2006). As a result, learners are meant to collaborate throughout the entire process, from their initial response to the final project. In this process, the teacher can pose a leading question in a discussion and require peers to respond to each other's idea.

**Self-direct education (Reflecting on learning):** The final principle is asking learners to reflect on their learning (Pedaste et al., 2005). This can be achieved by posing the leading questions on the discussion board at the end of the project, to see how learners' responses have evolved based on what they have learned. This helps them identify areas for improvement and gives the teacher guidance in tailoring the instruction in the future.

From the evidence above, it seems that learners in the IBL class are in the driver's seat, but teachers are not sitting alone in the back. They are in front occupying the passenger seat, watching learners navigate their way and giving direction when they get lost. This is because the teacher knows that the path of inquiry can take multiple routes, and that learners will need different tools to get to their final destination. With proper scaffolding, teachers can make learning for Geography learners very smooth.

## **2.6 Approaches to learning covered by Inquiry-based Learning**

Inquiry-based learning is primarily a pedagogical method developed during the discovery learning movement of the 1960s as a response to traditional forms of instruction, where students were required to memorise information from instructional materials and teachers (Asego & McNeil, 2017). In Inquiry-based learning, teachers use questions, problems and scenarios to help students learn through individual thought and investigation (Bettram & Christanse, 2014). The following are the approaches to Inquiry-Based Learning: Problem-based learning (Pure and Hybrid), Fieldwork, Case studies, Project method and lastly, Research activity.

### **2.6.1 Assessment for Inquiry-Based Learning**

In inquiry-based learning, the process of inquiry is just as important as the final product. Therefore, students learn and demonstrate different skills in each of the stages of the inquiry process and it is these skills that can be assessed when they are specifically connected to curriculum expectations (Yilmaz, 2008). In this regard, learning is enhanced when students are offered multiple ways to demonstrate their learning, because the educator is given more opportunities to understand students' thinking and learning (Vavrus, Thomas & Bartlett, 2011). As a result, teachers can use various ways to collect assessment information about students' learning, including a variety of observations and conversations (Carl, 2012). In short, assessment can be summarised in three forms: assessment for learning, assessment as learning and assessment of learning.

### **2.7 Benefits of Inquiry-Based Learning**

In a video titled *7 Skills Students Need for Their-Future*, Wagner (2009), Dr. Tony Wagner delivers a speech where he identifies a variety of skills needed for student success in a global economy. The seven skills are: critical thinking, problem solving, collaboration and leading with influence, agility and adaptability, initiative and entrepreneurialism, effective oral and written communication, accessing and analysing information and curiosity and imagination. Additionally, Mouton (2011) explains that "in an IBL classroom, students learn, practice and reflect on these seven skills in an authentic process that imitates those processes used in the real world" (p.23).

IBL is an instructional strategy that aligns with education that develops learners' skills needed for future success (Marks, 2013). Similarly, many studies conducted on the benefits of application of IBL in a classroom and seven benefits of IBL were identified. To exemplify, Mtitu (2014) affirms that IBL: (a) reinforces curriculum content, (b) warms up brain for learning, (c) promotes a deeper understanding of the content, (d) helps make learning rewarding, (e) builds initiative and self-direction, (f) works in almost any classroom and (g) offers differentiated instructions.

It is believed that students gain new knowledge and further extend and deepen their current understanding when they are provided the opportunity to work on a problem (Marshall, 2013). Additionally, Jonassen (2000) believes that students take responsibility for their learning when they explore and investigate for they are expected to make decisions and reach conclusions and

judgement. Similarly, Hwang and Chang (2011) argue that learners improve their critical thinking skills when they learn by means of discovery and investigation in authentic setting. Hellen (2013) concludes that developing understanding through students' own thinking and reasoning has many benefits for students including: enjoyment and satisfaction in finding out for themselves what works rather than just being told, satisfying and at the same time stimulating curiosity about the world around them, and developing progressively more powerful ideas about the world around them.

In general, it seems that learners are able to retain and transfer their learning to real life situations if they are engaged in activities and tasks that are relevant, meaningful and authentic and go beyond the facts.

## **2. 8 Empirical Review**

Having defined the concepts of IBL, the following section will illustrate the research pertaining to the influence of the following constructs: Geography teachers' perceptions on the use of inquiry-based approach, Geography teachers' understanding on the use of IBL, their opinions on the benefits of IBL in Geography teaching and learning and the way they use inquiry-based approach, the challenges faced by Geography teachers when using inquiry-based approach and the strategies used by Geography teachers in order to respond to the challenges they face in the use of IBL.

### **2.8.1 Teachers' perceptions on the use of IBL**

Fieldman (1999) defines perception as a constructive process by which we go beyond the stimuli that are presented to us and attempt to construct a meaningful situation. On the other hand, Frankel and Wallen, (2008) describe perception as objects, events, or relationships obtained by inferring information experience interpreting messages. From the definitions above, it can be concluded that perception arises based on experience and feeling of each individual. Perception is therefore a response owned by each individual through the process of sensing and can be divided into positive and negative perception. Thus, it can be said that perception always affects someone's reactions because both positive perception and negative perception depend on how individuals describe all their knowledge about an object that is perceived.

In the education context, the thoughts or mental images which teachers have about their professional activities and their students, are shaped by their background knowledge and life

experience and then influence their professional behavior (Dudu, 2014). An example of a qualitative study in Eastern Finland that was conducted by Banchi and Bell (2008) to examine the perception of science teachers about the use of inquiry, showed that both teachers and student teachers shared similar views and overwhelmingly endorse the use of inquiry in science. They believe that inquiry-based teaching and learning has a potential to purposefully awaken and sustain the interest of students and promotes positive attitudes of students to learning science.

Similarly, in a quantitative study conducted by Adofo (2017) which sought to establish teachers' perceptions on the use of inquiry-based in science education, it was confirmed that inquiry-based learning is beneficial to effective teaching and learning and motivates students to learn science, enhances students' curiosity and creativity and helps them develop self-direction. Thus, enhancing students' scientific skills.

Again, the findings of a thesis written by Mtitu (2014) on teachers' perceptions on the use of learner-centred teaching in Tanzania show that teachers at all nine participating schools had positive perceptions of inquiry-based learning, with benefits for learners that include the development of experimental skills and making Geography more enjoyable. On the other hand, findings from a study conducted by Blanchard, et al. (2008) revealed that teachers in Zambia see inquiry-based approach as a waste of time because during their final examination, learners are assessed in summative assessment.

It can therefore be concluded that most teachers see inquiry-based as an important tool that promotes positive attitudes of students to learning and this might encourage teachers to use approaches of inquiry more frequently in their teaching. However, others see it as a waste of time because final examinations are not asked in groups, but they are asked individually.

### **2.8.2 Teachers' understandings on the use of Inquiry-Based Learning**

Based on the theories of planned behavior and mindset, teachers' understandings and beliefs about inquiry were identified as relevant constructs for investigation in relation to teachers' perceptions (Ajzen & Fishbein, 1980; Dweck, 2008). It is therefore believed that teachers choose their teaching approaches to support their beliefs about how students learn from their own experiences in the field, and they choose their teaching approaches to support those beliefs. Evidently, many studies have investigated this idea. Roehring and Kruse (2005); Hollins (2011) explored the effect of teachers' beliefs on the implementation of a new reform-based curriculum

using a mixed-method study that included 12 high school Chemistry teachers in Turkey. In this study, the researchers concluded that teachers' beliefs play a large role in how IBL was implemented.

They further inferred that teachers' understanding on the use of IBL influences their methods of teaching. Additionally, no permanent changes in teachers' beliefs were found. Even though fundamental changes in belief were not found, the study demonstrated that beliefs held at the time influenced how teachers were willing to change their practice. It also illustrated that teachers were more comfortable implementing a new programme when they possessed content knowledge and received professional development.

Furthermore, the findings from an interpretative study conducted by Awases (2015) in Namibia revealed that some teachers did not give a precise definition of inquiry-based teaching and learning but they expressed some understanding of what inquiry is. The participants expressed ideas such as identifying geographical topics, collecting data, analysing data and doing field excursions. Some of their responses showed that their understandings of inquiry-based approach seemed to be that it involves fieldwork. The participant mentioned different aspects of the Geography syllabus that can be taught "outside" by using fieldwork, but does not mention the logical set of questions that drives the inquiry-learning process. In support, Weimer (2002) argues that fieldwork is an approach that converts theory into practice and allows learners to grow by making real world's observations and offering concrete suggestions instead of only dealing with abstract problems.

On the other hand, some of the participants displayed an understanding of critical aspects of inquiry-based teaching and learning which include learners coming up with questions, deciding what needs to be done, gathering data, sorting out the data, constructing and then communicating new knowledge. The response implied that the learners take certain responsibilities and also for their own learning in and out of the classroom (fieldwork).

The evidence from the above literature highlights that many Geography teachers are not sure about the role and nature of inquiry in geographical learning. In addition, it appears that some Geography teachers regard inquiry as any kind of active learning while others view it as a task. Furthermore, it seems like many teachers are not aware of diverse skills employed in inquiry learning. However, most Geography teachers agree that inquiry approach is more essential to

effective Geography teaching and learning. Overall, if teachers' core beliefs are in conflict with inquiry practices, they act as a hindrance to teachers in choosing inquiry as a pedagogical strategy. Thus, beliefs held by teachers influence their perceptions and judgement, which in turn affects their choices of teaching strategies and their behavior in the classroom.

### **2.8.3 Geography teachers' opinions on the use of IBL**

Brown and Warschauer, (2006); Darling-Hammond, (2007); Fleischman, Hopstock, Pelczar, & Shelly, (2010) assert that 21<sup>st</sup> Century learning skills have been identified as necessary abilities for today's students to prepare them for the fast-changing job market of the future. This is further attested by Brown, et al. (2006). On the one hand, a qualitative study conducted by Gudio (2017) revealed that there were remarkable improvements in students' tests. Thus, IBL had successfully helped students to develop some personal and interpersonal skills and encouraged them to become independent learners. In support, the research findings from Altinyelken (2011) indicated that using IBL in Geography education increased learners' content knowledge through the development of the information-processing skill. Similarly, Beista (2015) in his findings reported that learners in IBL socially construct their knowledge.

In this regard, learners developed skills in teamwork, leadership and collaboration. They learned to communicate well with one another, making the right decisions to produce best outcomes, respectful of others' opinions and assessing one another in completing the given tasks. Again, it was revealed that investigation and discussion activities helped learners to develop a sense of appreciation and nationalism within themselves. Besides developing students' content knowledge, a study conducted by Cetin-Dindar (2015) revealed that IBL had helped develop learners' critical thinking skills.

Based on the evidence provided above, it could be concluded that IBL is beneficial to learners as it helps develop their teamwork skills, leadership and communication skills.

### **2.8.4 The use of inquiry-based learning in specific schools and classroom context**

Seemingly, young peoples' interest in scientific and technical subjects, including Geography has been declining for a long time. According to (Waker, 2013), the most important reason for the decline in interest is the way these subjects are taught in primary and secondary schools. It is clear that the way teachers use geographical inquiry can promote its effectiveness during the teaching and learning process.

On one hand, the findings from Awases (2015) confirm that Geography teachers in Namibia use previous knowledge as a step for construction of new knowledge and as the central approach to teaching which aims to put learners at the centre. Again, some participants in the same study said that they incorporate the teaching methods such as project learning, problem-based learning and group or collaborative learning in their teachings. In contrast, other participants give what they consider to be learner involvement activities under examination conditions, for example, tests to assess learners individually and not as a group.

From these findings, it appears that one of the reasons why Geography teachers do not implement IBL more often is that they feel insufficiently prepared and they have not yet acquired the necessary competencies. Again, when dealing with issues in individual IBL activities, topics that are the content of different subjects often overlap. Even when solving problems in everyday life, it usually does not concern only one subject.

#### **2.8.5 Challenges encountered by Geography teachers on the use of Inquiry-Based Learning**

Since teachers play a vital role on educational knowledge, the problems they are faced with certainly have a direct impact on the education system. As has been noted, these problems will hinder the effectiveness of Geography teaching and learning in secondary schools (Bunchi & Bell, 2008). Thus, causing teachers to lose their faith in their profession (Choi & Ramsey). Building from the idea that Geography teachers face challenges on the use of IBL, this section will illustrate the numerous obstacles they encounter when providing better Geography education. These problems can be divided into two categories: systematic-related problems (those problems that affect education at large) and problems encountered in the field of Geography education.

Firstly, lack of in-service training support for Geography teachers and an education that will provide them with proper guidance and activity using the necessary and relevant materials is a challenge. In their research, Choi and Ramsey (2009) suggest that teachers would benefit from training courses that help alleviate their uncertainty towards implementing inquiry-based learning.

Furthermore, Athuman et al. (2020) in their study applied an explorative qualitative design to investigate the perceived conceptual understanding of Geography teachers on IBL, and its use for teaching at secondary schools in Morogo, Tanzania. They found the different challenges

Geography teachers face on the use of IBL. They are as follows: inadequate teaching and learning facilities, inadequate lesson time, students denied access to the smart phone usage, little cooperation from students, overcrowding of classes, negative perception of IBL and many others.

On the other hand, Saye (2017) conducted a qualitative research using phenomenology design, whereby 22 Geography teachers from nine different provinces of Turkey were interviewed using semi-structured interviews and the obtained results were analysed using descriptive analysis. According to the findings, thirteen problems were identified in situations where Geography teachers lived with school administration while doing their jobs. Among the problems experienced are that 26% of the school management does not have knowledge about Geography education. In the same manner, 16.9% of the school management lack interest and had indifference to the activities required for the effective use of IBL. As a result, 15% of management did not meet the teaching materials required for IBL approach.

Additionally, some scientific studies explain the problems of the learning-teaching environment in Geography education as follows: classroom environments are not suitable for IBL approach, there is not enough equipment to be used in Geography classrooms, and classes are crowded and restrict teachers from creating interesting learning environments (Akinoglu, 2005).

The evidence from the above literature highlights that indeed Geography teachers encounter numerous problems in the use of IBL approach in the teaching and learning process. In addition, the administration does not attach priority to the application of IBL and teachers lack sufficient support from school administration regarding the resources needed for effective implementation of IBL; and these were common in different schools. Furthermore, the results of most researches draw attention to various problems in teacher-training and learning-teaching environment. Overall, it seems that the insufficiency of training provided to Geography teachers makes IBL difficult and complicated and can influence teachers' reluctance on its usage.



### **2.8.6 Strategies used by Geography teachers to respond to the challenges**

Geography teachers understand that challenges are inevitable in any implementation process and therefore they should adjust and devise ways to overcome some of those challenges (Athumani, 2020). Therefore, it is possible that the way teachers prefer to solve problems could impact their decision about the pedagogical methods they use (Chichekian & Shore, 2016).

An illustration can be made of a qualitative case study conducted by Muchumi and Zhu (2018) on the theme “Creativity in teaching” which represented the ideas in which informants in that study seem not to deny challenges but decided to face them with alternative means. The theme relates with the previous researchers who denote that teachers’ interpretation of the challenges they face during teaching can sometimes determine their success (Chichekian & Shore, 2016). For example, teachers may switch to scaffold their teaching with other possible means with the aim to realise their teaching goals (Ngaewkoodrau & Yuenyong).

The upshot of all this is that Geography teachers should not put more focus on the challenges they face during the use of IBL in the teaching and learning of Geography, but they should also go for the alternatives that can promote the effectiveness of IBL in Geography classrooms. It is important to highlight that the coping strategies signal the passion and efforts of teachers to persist with their teaching role. However, most of these challenges imply that there is still a lot to be done in different countries to achieve the benefits of IBL, especially in the 21<sup>st</sup> century. Therefore, other researchers analysed the results obtained from their studies on the work that needs to be done in order to solve the problems experienced by Geography teachers on the use of IBL approach. A case in this point are the results gained from the study conducted by Kaya (2018) where teachers proposed the intervention of the Ministry of Education.

To sum up, the evidence presented in this empirical literature has shown that the use of inquiry-based is influenced by either positive or negative perceptions of teachers on its usage. Again, it has been established that the challenges faced by teachers on the use of inquiry-based seem to be barriers to its implementation. Furthermore, some teachers understand that challenges are inevitable parts of any implementation process and therefore they should adjust and devise ways to overcome some of those challenges. Therefore, it is believed that the decision to use inquiry-based approaches is based on teachers’ ways of solving the problems they face during this approach. Furthermore, it appears that there are very limited studies that speak about the use of

Inquiry-Based Learning especially in the Lesotho context. Hence, this study instigates teachers' perceptions on the use of inquiry-based approach in Lesotho high schools.

## **2.9 Summary**

Inquiry-based learning has been identified as an effective approach for the development of critical thinking, creativity, collaboration and ability to pose and find answers to questions, which are among the 21<sup>st</sup> Century skills needed for learners to succeed in a global economy (Brown, 2009; Darling-Hammond, 2007). There was considerable support in the literature investigate teachers' understanding on the use of IBL, teachers' opinions on the benefits of IBL, how teachers use IBL in their teaching, challenges that they encounter in the use of IBL and the strategies used as to respond to the challenges. The Theory of Planned Behavior (Ajzen & Fishbein, 1980) supported the importance of inquiry-based learning.

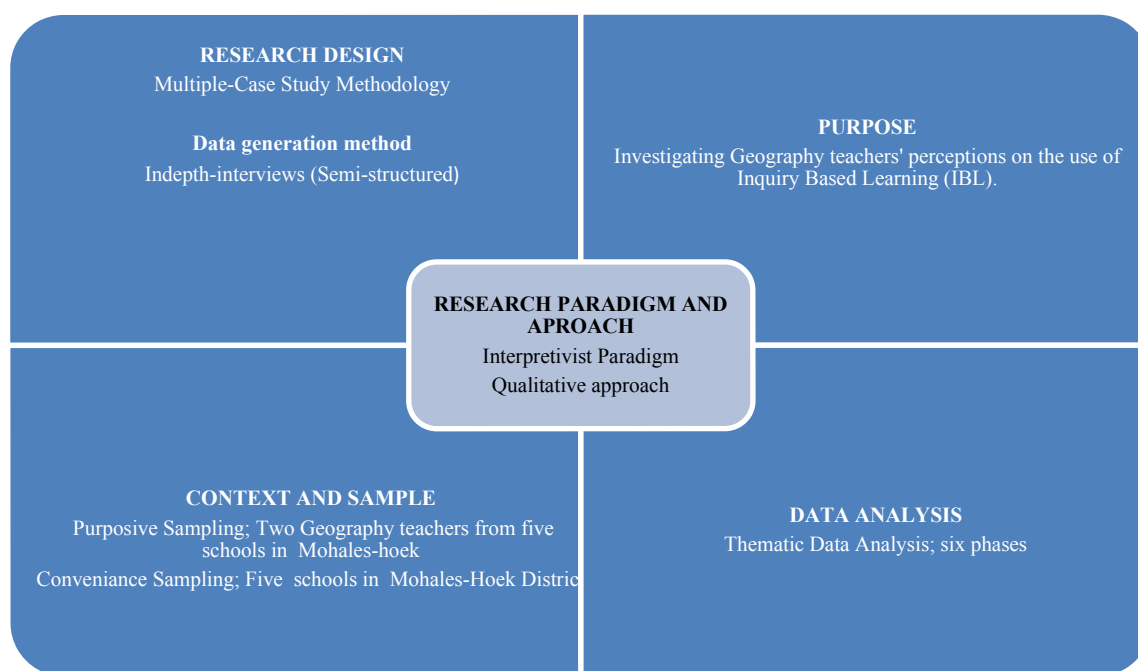
However, teachers' understanding and beliefs on the use of IBL appears to influence instructional decision-making (Eriksson, 1997; Phelps & Lee, 2003; Stuart & Thurlow, 2000). Moreover, many studies on inquiry-based learning and its implications have been conducted in different countries, and none have been conducted in Lesotho. Therefore, this research study will add to the body of knowledge about geography teachers' perceptions on the use of inquiry-based learning in Lesotho. The next chapter describes the paradigm and the sample chosen for this study, along with the research design, instruments and methods employed.

## CHAPTER THREE

### METHODOLOGY

#### 3.0 Introduction

The research methodology process which guided this study is discussed in this chapter. This section will provide a discussion of the research paradigm, research approach, research design, population, sampling, data generation procedures and instruments, data analysis and ethical considerations. It was therefore important for me as the researcher to consider if the methodology I chose would enable me to answer the research questions stated in Chapter 1. The following figure captures the research design for this study.



**FIGURE 1: THE RESEARCH DESIGN FOR THIS STUDY**

#### 3.1 Research Paradigm

As defined by Creswell (2013), a paradigm is a basic set of assumptions that guide the researcher's inquiries. Creswell further says the researcher approaches the world with a set of ideas, framework (theory, ontology) that specifies a set of questions (epistemology), which are then examined (methodology, analysis) in specific ways.

A paradigm is a framework that guides thinking and research within a particular field (Blaikie, 2002). According to Gage (2007), it encompasses a set of core assumptions and principles that guide how individuals perceive a studied matter. This study is underpinned by the interpretivist paradigm that Guba & Lincoln (2005) describe as a philosophical approach that emphasises the importance of understanding and interpreting human experiences and behaviours in their natural context. The choice of this paradigm in this study was based on its subjective understanding. As a matter of fact, Kincheloe (2008) asserts that this paradigm acknowledges that people have unique perspectives, meanings and interpretations of the world around them. For example, in this study, the geography teachers were interviewed to share how they perceive IBL in geography teaching and learning.

As acknowledged by Richards (2003), a paradigm encompasses ontology, epistemology and methodology. In terms of ontology, that is nature of reality (Scott & Usher, 2010), interpretivism assumes a constructivist ontology (Gall & Borg, 2003). This means that it views reality as socially constructed and subjective. In my opinion, this means there is no single, objective reality. To support this, Putnam (2012) states that reality is shaped by human perceptions, meanings and interpretations.

On the one hand, specifically in relation to epistemology; that is nature of knowledge (Searle, 2015), interpretivism adopts a subjective epistemology (Putnam, 2012). According to Alise & Teddlie, 2010, it asserts that knowledge is not discovered but rather constructed by individuals as they interact with and make sense of the world. For instance, in this study, the researcher strived to understand how the geography teachers interpret their IBL experiences and beliefs. Furthermore, the researcher gained knowledge through interpretation of these subjective meanings.

Equally important, in terms of methodology, Morgan (2007) outlines that interpretivism predominantly employs qualitative research methods. For Carpenter (2013), these methods are chosen because they allow researchers to capture the rich, context-specific and subjective aspects of human experiences. According to Davidson (2002), these qualitative methods include in-depth interviews and content analysis among others. As a matter of fact, in-depth interviews were used in this study.

Having established the purpose of the paradigm in a study, this research was located within the interpretivist paradigm. The said paradigm was chosen to discover, describe and interpret the reasons why geography teachers in Lesotho are reluctant to use inquiry-based approaches. It is therefore believed that an interpretivist research paradigm in qualitative research enables one to offer a perspective regarding a situation and to analyse the situation under study to provide insight into the way in which a particular group of people makes sense of their situation or the phenomena they encounter (Martens, 2015).

### **3.2 Research approach**

It is believed that the research approach functions as strategic plan for how the researcher intends to conduct the research in a way that valid deductions can be made from meaningful data without causing any harm to those that participate in the process (Cooper & Schildler, 2001). In fact, the researcher needs to choose ways of collecting and analysing data that will enable him/her to answer the stated research questions (Creswell, 2011).

The choice of qualitative approach therefore follows Leedy and Omrod's (2015) assertion that a qualitative approach is a systematic and subjective approach to describe life experiences and give them meaning. In addition, Mouton (2011) argues that "qualitative researchers want to know what the participants in a study are thinking and why they think what they do." This suggests that the teachers' perceptions, understandings and beliefs were of interest as the study attempts to answer the research questions. Furthermore, one of the greatest strengths of the qualitative approach is the richness and depth of explorations and descriptions it may produce.

### **3.3 Research design**

Research designs are generally viewed as a range of approaches employed in educational and other forms of research to collect data which serves as a basis of a study's interpretation and explanations (Asika, 2006). Examples are ethnography, narrative study, phenomenology, grounded theory and case study. In this case, this study employed multiple case study where the researcher studied five schools in Mphahle's Hoek district. According to Creswell (2013), a multiple case study design explores a real-life multiple bounded system through detailed, in-depth data collection involving multiple sources of information.

Through using a multiple case study design, a wider exploration of the research question and theoretical evolution enabled the researcher to understand Geography teachers' perceptions on

the use of inquiry-based learning between the five multiple cases that were studied. Again, this allowed the researcher to address the complex issues that needed to be explored in depth, and to understand the behavioral conditions through the perspectives of the participants who are closely involved in the teaching and learning of Geography using inquiry-based

### **3.4 Sampling**

As stated by Cohen et al. (2011), sample size in research might be suggested by the style of the research that the researcher plans to carry out. Therefore, the sampling in this study followed Leedy and Ormrod (2013) who have observed that samples might be purposively chosen for their potential to produce diverse perspectives on an issue. The reason for following their study is that the rationale of qualitative research was to facilitate the purposive selection of participants. In this qualitative investigation, the sample size was relatively small - two Geography teachers who were teaching at five different schools in Molepolole's Hoek district.

### **3.5 Sampling technique**

Furthermore, these five specific schools were chosen using convenience sampling. Convenience sampling is a non-probability sampling which focuses on gaining information from participants who are convenient for the researcher to access (Sedgwick, 2013). In this case, the teachers who were interviewed live in the same region of the country. This made it easier for the researcher to meet with them.

Moreover, using a purposive sample allowed the researcher to draw useful recommendations from the results of the research that may be applicable to other secondary schools in Lesotho. At least five participating teachers who were purposively chosen from these schools were chosen because of their knowledge and expertise in Geography teaching. This was based on the assumption that there would be at least one Geography teacher in Grade 10 at each school and these teachers use inquiry-based as recommended by Lesotho education policies. The choice to work with Grade 10 learners was based on the fact that Grade 11 examinations focus on summative assessment and that much Geography content is introduced in Grade 9. Therefore, the researcher believes that students need to have knowledge in Geography concepts before they can be introduced to inquiry-based approaches and the Grade 10 learners fitted these criteria well.

As indicated earlier, the gathering of data from more than one site is the key strength of case study research as it allows for the reinforcement and corroboration of evidence across multiple

sources. The sample size of ten teachers was determined by a desire to investigate the research questions fully and provide information-rich data not by the need to ensure generalisability.

### **3.6 Method of data generation**

This study generated data from in-depth interviews. An interview is an interactive conversation in which an interviewer asks a participant questions aimed at gathering meaningful data about a specific process or products (Putnam, 2012). Again, interviews allow the researcher to learn about the ideas, beliefs, opinion, views and behaviors of the participants. Thus, qualitative interviews offer the researcher opportunities to see the world through the eye of the participant, making interviews valuable sources of information as long as they are carried out correctly, and such interviews allow for probing and clarification of answers from the participants (Maree, 2011).

In this study, in-depth semi-structured interviews with two Grade 10 Geography teachers in each high school was carried out using an interview guide (see Appendix A) that required participants to answer predetermined questions. In-depth interviews were used for this study for their goal was to explore in depth a respondent's point of view, experiences, feelings and perspectives. In short, in-depth interviews can uncover insights and enable the researcher to find out the real story from people in the know (Boyce, 2006).

Furthermore, the researcher chose open-ended questions in the semi-structured interviews as they were expected to be the most efficient way to collect textured data from the participants. The reason was that open-ended questions were thought to allow an individual time and scope to discuss their perceptions and knowledge. Maree (2011) adds that open-ended questions allow the participants being interviewed to tell their stories and respond at length, and the interviews go into directions that were not anticipated by the researcher.

Individual interviews were conducted in different places that were convenient for the participants. Some were conducted at their own places and others at a quiet place in town because the schools were closed for winter holidays, therefore it was not easy to conduct interviews at one place. All interviews were conducted in English and were tape recorded with the permission of the respondents and compared with field notes. Since this study involved five case study schools, the findings also helped to make certain comparisons between the schools regarding teaching and

learning of geography. Chapter 5 provides a discussion and key findings of the study in detail. In addition, interviews were transcribed verbatim pseudonyms were assigned to protect teacher identities and were transferred into hyper research (Ware, 2009) to aid in identification of emergent trends and themes.

### **3.7 Data analysis**

This study adopted Braun and Clarke's (2006) thematic analysis for it fitted well with the qualitative case study approach that was used in the study to investigate the ten Geography teachers' perceptions, understandings, beliefs and experiences on the use of inquiry-based teaching and learning.

In this regard, the significance of thematic analysis in this study is that it bears the four characteristics which make it an appropriate method to a "wide range of research interests and theoretical perspectives" (Braun & Clarke, 2013, p.120). In this case, the research questions enabled the research to make sense in real world terms, and to provide rich detailed data and deeper insight (Braun & Clark, 2013). As a result, the challenge revealed from this study is that geography teachers have limited understanding on the use of IBL. This will be evident in Chapter 4 and 5 which deal with the presentation of data and discussion of the results in this study.

In addition, this study employed thematic analysis with its six phases: data familiarisation, initial code generation, generating themes, theme review, theme defining and naming and report production. The mentioned phases allow the researcher to enjoy flexibility to approach the analysis from different theoretical perspectives (Braun & Clarke, 2006). In this first stage of familiarising oneself with data, I read and re-read the transcripts of the interviews after transcribing the audio-recorded interviews. In this process, I noted the first interview question relating to teachers' understanding on the use of IBL in geography teaching and learning in terms of concepts or issues common in the transcripts of five geography teachers' responses.

The second phase of thematic analysis was composed of concepts that involved the development of codes (coding). Braun and Clarke (2013) define coding as a common aspect of various approaches employed in qualitative analysis. In this regard, the transcripts were re-read in the light of the codes generated from the main research questions employed during the interviews in order to facilitate a clear comparison between the concepts that were emerging. Therefore, the



important characteristics of the collected data, which were relevant to the research questions that guided the analysis, were revealed during the re-reading of transcripts.

As shown in Chapters 4 and 5, I coded every data item and ended the coding phase by collating all the data codes and relevant extracts for it is argued that “coding is not simply a method of data reduction; it is also an analytic process, so codes capture both a semantic and conceptual reading of the data” (Braun & Clarke, 2013, p.121). Thus, from the third stage of searching for themes embodied in the codes and extracts emerged this collating of code and extracts. A theme is defined as a coherent and meaningful pattern in the data relevant to the research questions (Braun & Clarke, 2013). In this study, the following were themes constructed from codes and extracts in order to bring attention to the main themes: profiles of the schools and teachers; teachers’ perceptions on the use of IBL, and analysis of data generated through interviews.

Reviewing the themes with the aim of reflecting whether they are convincing and compelling about the data is the fourth stage. Furthermore, this stage defines the nature of individual themes and the relationships between the themes. The fourth stage revealed that the three themes mentioned above were central to the study. The three themes were reviewed together with those that developed from interviews.

The fifth stage, which emerged after the fourth stage, defines and names the following themes: teachers’ understanding on the use of IBL, teachers’ opinions on the benefits of IBL, teachers using IBL in their teaching, challenges encountered by geography teachers during the implementation of IBL and strategies that could be used to respond to the challenges encountered by geography teachers.

The fifth stage extended to the sixth stage of thematic analysis. In this study, I illustrated data analysis under each theme with the use of rich compelling data extracts from the interview transcripts which were coded from transcripts of data in relation to the research questions in Chapter 1 and were presented in Chapter 4. The data extracts in Chapter 4 and the discussion in Chapter 5 are integrated with cross-cross referencing with key issues from the review of existing literature in Chapter 2.

### **3.8 Ethical Considerations**

To begin with, the consent form provided details about the study, and the participants together with the researcher went through the form before commencement of interviews. The use of the

consent form followed the standard procedure that the researcher needed to follow from the National University of Lesotho to protect their subjects and to function as responsible researchers. Creswell (2014) indicates that permission from individuals in authority at research sites to get access to study participants for data collection is required.

As stated by Frankel and Wallen (2008), it is of paramount importance for the identities of research participants in a qualitative study to be protected. This indicates that there should be measures put in place to protect research participants from being harmed or embarrassed during the study process. Therefore, I used an informed consent form for participants to sign before they engaged in the research with the aim to ensure that their rights in this study were respected and they would take part voluntarily. Furthermore, the participants were informed of the right to confidentiality, which means using codes instead of participants' names for identifying data, and that they had the right to withdraw from the study at any time.

### **3.9 Summary**

This chapter discussed the decisions and reasons for the use of the interpretive qualitative case study design. The chapter further discussed the procedures that were followed during the generation and analysis of the data from the five sampled schools in the research component of this study. Hence, the steps and procedures that were used are provided in detail. It is mentioned that the study drew data from interviews with five Geography teachers. The location was also included which shows that the interviews were carried out in the south region of the country. As indicated in the outline of chapters in Chapter 1, Chapter 4 presents the data from in-depth semi-structured interviews.

## CHAPTER FOUR

### RESEARCH FINDINGS AND DISCUSSION

#### 4.1 Introduction

The previous chapter discussed the methodology that was adopted in conducting this study. This chapter presents and analyses the data that was generated through interviews with geography teachers in the five secondary schools which were selected for the purpose of the study. The data is presented under the following themes reflecting the research questions which guided the study: teachers' understanding on the use of inquiry-based-learning, benefits of inquiry-based learning, use of inquiry-based learning, challenges encountered by geography teachers on the use of inquiry-based learning and strategies that could be used in response to the challenges. However, the analysis begins with profiles of the research participants.

#### 4.2 Profile of participants

Below I present the profile of participants in tabular form. Pseudonyms were used to represent the participants' names for confidentiality reasons.

**TABLE 1: PROFILE OF PARTICIPANTS**

PARTICIPANT NAME	GENDER	QUALIFICATIONS	SUBJECT TEACHING	YEARS OF EXPERIENCE
T1	M	BE.d	Geo and Ses	14
T2	F	BE.d	Geo and Eng	6
T3	M	BE.d	Geo and Bio	17
T4	M	BE.d	Geo and Eng	1
T5	M	BE.d	Geo and Ses	19
T6	F	BE.d	Geo and Eng	22
T7	M	BE.d	Geo and DS	20
T8	M	BE.d	Geo and Ses	16
T9	M	BE.d	Geo and DS	22
T10	F	Diploma in Education	Geo and Eng	29

#### PARTICIPANTS' PROFILE 1

**Key:** Geo = Geography, Bio = Biology, DS = Development Studies, Eng = English, Ses = Sesotho

There were 10 participants (seven males and three females) (T1-T10). These teachers were chosen from five schools; two from each school. All teachers taught geography and nine of the ten hold Bachelor of Education whereas one teacher has a Diploma in Education and their experience ranges from 1-29 years.

### **4.3 Teachers' understanding on the use of inquiry-based learning**

One of the key focus areas of this study was to investigate geography teachers' understanding on the use of inquiry-based learning. Analysis of the interview data suggests that the geography teachers, who participated in this study, have different understandings of inquiry-based learning with majority of them describing it by giving examples of teaching and learning activities such as collaborative learning, extension of classroom learning or fieldwork and as research. Furthermore, this section will report teachers' views on geography topics where IBL could be used appropriately.

#### **4.3.1 Inquiry-based learning as collaborative learning**

Teachers' responses indicated that they understand inquiry-based learning as some learner-centred activities such as cooperative learning, where learners work in groups on a given task.

On his side, T5 responded:

In this approach, learners work together in groups, may be of five or in pairs. For example, learners can work on a map, where they will be identifying some features and human activities taking place in different areas on that map and then discuss what they found as a class.

In agreement, T8 added:

It is an approach where learners are given a piece of work in groups, whether a research or a group assignment and this task is challenging.

Eliciting on her response, T8 further made an example:

For instance, I grouped learners in groups of five to do a research on how HIV/AIDS has contributed to poverty in some families.

The above responses indicate that inquiry-based learning implies asking learners to approach tasks in pairs or groups rather than individually. They further added that it is the responsibility of the teacher to ensure that the tasks are sufficiently challenging and will provide a genuine need for discussion, problem-solving and working together, which all require learners to work collaboratively.

#### **4.3.2 Inquiry-based learning as an extension of classroom learning**

The findings from the study reveal that the teachers understand inquiry-based as involving fieldwork as an extension of classroom learning. They mentioned different topics in geography that can be taught using fieldwork method. As can be seen from their responses, such topics include: river process, weather and climate and many other topics under physical Geography. However, the teachers generally ignored some processes of inquiry-based learning such as posing questions and planning questions. Below are some of the responses given by two teachers who also confessed that they were not sure whether they had the correct understanding of inquiry-based learning.

I don't know but I think it is whereby we do research and take students for the fieldtrips or they just observe things that are around our school. For example, our school is close to a small river and we can take students there. Again we take students to the eroded areas around the school to measure the volume of the soil that was left after erosion and also observe farming that is practiced there at our school. T2

The way I understand it, inquiry-based learning is an approach whereby students observe land forms from geographical processes, or they do experiments and report their observations back. I'm not quite sure... T7

From the above responses, it can be concluded that teachers understand inquiry-based learning as an approach where learners understand the world through experimentation and observations.

#### **4.3.3 Inquiry-based is understood as a research**

As for those teachers who understand inquiry-based learning as research, they mentioned activities done in a geography lesson. They also explained that a teacher guides students through the steps of a research but kept the instruction child-centred allowing learners to ask and answer questions. For instance, T7 responded:

It is a research where learners choose a topic themselves to research on but guided by a teacher, generate data and present it to the class.

Other teachers explained inquiry-based learning based on the information they got from the syllabus, and they mentioned all the stages taken when conducting a research. The following response by Teacher 3 was typical:

It is a research and it also enables learners to bring their own knowledge to class...the students act or have a role in the learning process and the teacher acts as the facilitator. The students will then bring their findings to the class. T3

Similarly, T10 associated inquiry-based learning with research, explaining that it involves learner-centred activities done in a geography lessons. She explained:

It is a learner-centred method whereby learners are given a piece of work to do, maybe a research. Students will be given an opportunity to do the work themselves but guided by a teacher. When the work is complete, it is then presented to the class.

Even though most participants seemed to understand inquiry-based learning as a research, they generally failed to explain research in detail, except for T9 who demonstrated a more refined understanding of what inquiry-based learning is as can be discerned from the quotation below:

Inquiry-based learning is whereby students identify the problem, work together to collect data and analyse it and then present it to the class.

From the above response, it can be deduced that the teachers' understanding of inquiry-based learning is based on the assumption that it was introduced as a research in the Lesotho geography syllabus. Therefore, it is difficult for teachers to adapt the new information on the concepts of inquiry-based learning.

#### **4.3.4 Teachers' views on geography topics where IBL could be used appropriately**

This subsection presents participants' responses on the areas that they think inquiry-based learning should put more focus on. Participants pointed out that inquiry-based learning should mainly focus on human geography because most of social issues faced by communities and learners can be easily discussed when teaching those topic branches that fall under human geography.

I think inquiry-based approaches should be used in human geography topics such as; economic geography, settlement, migration and population, even in the topic of HIV/AIDS because they are the topics that allow learners to research on the social issues they face. For example, learners can research on how HIV/AIDS impacts learners' performance at school.... T8

From the teachers' responses, it was revealed that some understand inquiry-based as an approach to research. It seems that they do not understand that inquiry-based learning is an approach on its own and consists of different approaches. This limited understanding of IBL is evident in the responses below.

Added T3:

Because students are expected to research on the problem, I think inquiry-based learning should put more focus on human geography because the topics there are the ones related to learners' previous knowledge. Some of the things that they may research on are there in their community. For example, if we are talking about effects of overpopulation, it is easy for learners to refer to their own community because they see all the problems that are brought by overpopulation.

Analysis of the interview data further reveals that other teachers understand inquiry-based learning as fieldwork. As such, they indicated that inquiry-based approaches should focus on different branches of Geography. For example, T7 was very elaborate on the use of fieldwork as can be discerned from the quotation below:

I think fieldwork can be used in different branches of geography, whether physical or human because students should observe so that they can have a better understanding of geographical concepts. For example, students can take a school trip to Durban or Cape Town to learn about the ocean currents and all the features that are the results of marine process. Again, students can visit mining companies to observe how mining processes take place and other industries that are attracted by those mines.

Although the teacher did not directly link fieldwork to inquiry-based learning, his response touches on important aspects of inquiry-based learning such as observing geographical phenomena, whether human, physical or economic.

Similarly, some teachers expressed the use of fieldwork as applicable in all branches of geography. T10 added that the environment is the laboratory for geography education, therefore, observation through fieldwork is more appropriate in the geography teaching and learning process. T10 articulates:

...from high school, I used to understand geography better when I observe things. If we went out of the classroom and observed some land features, I would always remember them...I still remember some of the things that were taught in high school because I got a chance to learn through observation. Therefore, I think that fieldwork should be used in all the topics of Geography.

As for those teachers who have a better understanding on inquiry-based learning, they indicated that inquiry-based learning can be used in all branches of Geography basing themselves on its benefits such as: inspiring, motivating and improving students' understanding, leading to the acquisition of knowledge and skills and promoting memory trace: Teachers answered:

I have noticed that inquiry-based learning motivates students to problem-solving. In my opinion, it is important to implement it in all topics of geography. T9

Inquiry-based learning inspires the students and improves in-depth understanding of the Geography concept, therefore it should be used in all areas of Geography. T6

On his side, T1 indicated that the possibility of remembering is very high when students are instructed through inquiry-based learning, as a result, all geography branches should be taught using inquiry-based learning. T1 expressed his opinion as follows:

Students remember the knowledge and skills better when they find it themselves instead of the teacher lecturing.

T4 however, believes that inquiry-based learning should be used with other varying methods in the teaching of geography. Hence inquiry-based learning should not be given high priority because other methods also have their importance. T4 remarked:

If teachers use inquiry-based learning constantly, it would be too hard. Varying all methods should be preferred. We should not consider inquiry-based learning as the most



important appropriate method in the teaching and learning of Geography, other methods are still appropriate. So I don't have the specific answer for your question.

From the evidence above, it seems that geography teachers believe inquiry-based learning is most appropriate when teaching the topics under human geography for their understanding of inquiry-based learning is only on research. However, few believe that inquiry-based learning should be used to teach all aspects of geography due to its benefits.

### **4.3 Teacher' opinions on the benefits of inquiry-based learning and its inclusion in the geography curriculum**

This section represents findings about the opinions of teachers on the benefits of inquiry based learning in the process of geography teaching and learning. It also analyses the data on teachers' views regarding the inclusion of inquiry-based learning in the geography curriculum.

#### **4.3.1 Benefits of inquiry-based learning**

With regard to whether or not inquiry-based learning is beneficial in the teaching and learning of geography, the views expressed by respondents suggest that inquiry-based learning is very beneficial in many ways. It arouses interest in the learning of geography; improves learners' creativity; helps develop self-direction; promotes retention and curiosity; develops learners' communication skills and creates scientific thinking.

The teachers who noted that inquiry-based learning arouses learners' interest in geography explained the skills that learners gained from research which encourage them to always want to find answers on the things that they don't understand. For example, T2 explained as follows:

Because research helps learners to answer the (what, how, where and why) questions, students will always want to find the reasons for everything, meaning that, they will be curious to find the source of the problem and the solution to it.

Similarly, T6 indicated that inquiry-based learning through the research method creates scientific thinking in learners, because they will have to generate data to prove their hypothesis right or wrong. She explained:

Research is very important because learners will always have to collect data as to prove that what they thought was the problem is really a problem.

Other teachers were of the view that through inquiry-based learning approach, learners gain important skills including creativity and communication skills. T8 responded:

As learners do projects, they gain the skills of creativity because they do things themselves, especially when they are engaged in projects. And this will help them in future.

Similarly, T7 explained how learners develop communication skills:

When learners are given a task in groups, they debate on the answers giving valid reasons for their answers and present the findings. This helps the students because even in future, they will raise their views without any fear. In fact, this also improves their self-esteem. (T7)

T10 responded the same way as T7 by saying:

Group work helps learners to communicate, even students who don't answer in class, you can see them talking in their groups. T10

Additionally, teachers' responses indicated that inquiry-based learning helps develop self-direction because most of the work is done by the learners and teachers act as facilitators. This is clearly captured in the following excerpts:

In a research, learners are given an opportunity to come-up with the topic. They do all the steps without the help of the teachers, the teacher only comes and assists them on something that gives them the problem but they do the whole process themselves. T1

Research is very important to learners because they do the work alone without the help of the teacher. And this will help them in future because they will be able to solve problems alone, they will be independent. T9

Based on the above comments, the advantage of inquiry-based learning which states that learners perform better when they are interested in the topic and participate in class appears to be true. In this case, it seems that things that were found to be difficult in geography do not seem difficult anymore when inquiry-based learning approach is employed.

However, T4 did not see any advantages in inquiry-based learning, probably because he already developed a negative attitude towards it. He worded his argument as follows:

As I mentioned earlier, I developed a negative attitude in inquiry-based learning, therefore I don't see it beneficial to anyone. I only see it as a problem.

Overall, it can be concluded from the teachers' responses, with the exception of T4, it appears that inquiry-based learning is beneficial in the teaching and learning of geography. The extent to which this approach forms part of the LGCSE geography curriculum is explored in the next section.

#### **4.3.2 Teachers' views on the inclusion of inquiry-based learning in the geography curriculum**

In addition to the benefits of inquiry-based learning teachers mentioned earlier, the teachers were asked to express their opinions on the inclusion of inquiry-based learning in the geography curriculum. They were generally positive about the inclusion of IBL, with some expressing a view that inquiry-based learning improves learners' participation in class and also develops their communication skills, boosts their self-esteem and provides them with problem-solving skills.

In expressing his opinion, T8 stated that it was a good idea to include inquiry-based learning in the Geography curriculum. He justified this by pointing out that inquiry-based learning boosts learners' self-esteem. He went further to explain that:

Including inquiry-based learning in geography was the best thing that was done because it includes collaborative learning. Learners express their opinions and argue on the problems and the solutions, after that they present their solution and this develops their communication skills and boosts their self-esteem because they are presenting in front of their peers.

In the same way as T8, some teachers also reported that inquiry-based learning is good because learners are actively engaged in activities that are taking place during the geography lesson. Below are some of their comments:

The inclusion of inquiry-based learning in the geography curriculum was good because it makes learners to be actively engaged in the learning process, because they work in

groups, they research and also do projects. This means that they spend most of their time doing something not sitting and listening to the teacher. T1

The department did a good job to include inquiry-based learning in the geography curriculum because projects help learners to become problem solvers in their society. Because they do some of the projects, like the one of cleaning the environment, in their community. T5

The indication from the above responses is that the inclusion of inquiry-based learning in geography is good.

#### **4.4 Teachers' views on the guidelines provided by the LGCSE Geography syllabus for implementation of IBL**

With regard to whether or not the Geography syllabus guides their teaching in the implementation of inquiry-based learning, all teachers responded that the syllabus does not provide guidelines on how to involve learners actively through inquiry skills and activities for learners to go beyond what is in the syllabus. This compels teachers to do all the teaching themselves instead of devolving it to the learners. T8 made the following comment:

Yes, the syllabus is an effective guide on the geography content to be covered within a specified time but it does not guide us on how to teach using this inquiry-based.

The teacher appears to be aware of the opportunity that the syllabus provides for Geography content but not for inquiry-based-learning.

T9 further added that he does not have time to cover his work because the demands for inquiry-based learning force him to go beyond the syllabus.

This syllabus is only guiding us on the concepts to be taught not the how part. So this forces me to go beyond the syllabus in order to involve learners actively in learning and this wastes my time because time is already limited for me to cover the syllabus. T9

It is clear evidence from the above extracts that the syllabus is a major tool for teachers during the teaching process as it guides them with the objectives for each topic. However, teachers seem to face problems when implementing inquiry-based learning because the syllabus does not have any guidelines on how to put it into practice.

#### **4.5 Geography teachers' use on inquiry-based learning**

This section analyses the data on opinions of geography teachers on the use of inquiry-based learning in their teaching. It represents the answers to the questions that meant to investigate their responses on whether or not they apply approaches of IBL in their Geography lessons and how they align their teaching with the principles of inquiry-based learning. The researcher further obtained responses on the resources used in teaching Geography, outdoor activities organised, inclusion of inquiry-based learning activities and geography activities shaped by the needs and wants of the learners.

##### **4.5.1 Teachers' responses on whether or not they employ IBL in their lessons**

This sub-section represents the responses of Geography teachers on the question that aimed to investigate whether they were employing approaches of inquiry-based learning or not. Some teachers indicated that they employ the mentioned approach once in a while. However, two teachers reported that they have never used inquiry-based learning due to lack of experience. It seems that both teachers know inquiry as research though I had explained of learner-centred approaches to them in the previous questions. T1 reported:

Because I have never been introduced to research at tertiary I always ask my colleague to help me with that part of research. As for my side, I have never employed it in my teaching.

In the case of T4, he said that he has never used inquiry-based learning in his teaching because he lacks knowledge on the approach.

As I mentioned earlier that I have never been in a workshop ever since I arrived here, I don't want to lie and say I use inquiry approach. What I do is just to teach students... I just make sure that I follow the syllabus and give students the content they need.

It is important to note that T4 was not comfortable when he answered questions and I could not probe deeper on all the questions. I assume it may be the case because he expressed that he

would only know inquiry-based if he was given a chance to go to the workshops. Therefore, he did not have any perception regarding the use of inquiry-based learning.

Because of the school environment, our school is around town and most places are developed and there are no places that have geographical features that I can take students to see outside the school campus. For example, there are no eroded places, weathered rocks not even a small stream is passing nearby. T3

Other teachers indicated that they use IBL because they believe it is associated with learner-centred approaches due to its benefits, but it is difficult to implement such because of the content that needs to be covered within a specified time. T5 responded thus:

It is true that we are encouraged to use the learner-centred approaches by the association but I think the advisors are just preaching what they cannot do. It is difficult to implement this approach within this limited time. T5

I only employ this approach once in a while, maybe once in a quarter, the reason is the limited time given to geography lesson. T8

Two teachers revealed that they only use inquiry-based approaches only if they have time because they need to cover a lot of content in a short period of time and the number of lessons given to geography as a subject influences their reluctance of using inquiry-based learning. They responded:

I only employ this approach once in a while, maybe once in a quarter, the reason is the limited time given to geography lesson. T8

If I get a chance, I take students to some place outside the school yard but if I don't have enough time, I just teach and give class work or quiz. T10

Based on the above comments, it can be concluded that the teachers, who participated in this study, are reluctant to use inquiry-based approaches due to the limited time they have to complete the syllabus.

In contrast to the views of many teachers who said that they do not use IBL frequently, three teachers claimed that they use inquiry-based learning approach. When asked to clarify how they employed it, the teachers gave examples of activities such as group presentations, research and projects. These activities are clarified in the excerpts below:

At times I might give them group work and then they present the work, then we discuss that work as a class. T5

I give learners a topic to go and research more information on it, maybe as a group and they will present that work to the class. T7

Students can come up with the problem in their community, then they do a project or research on that problem and then present the findings to the class. T9

The impression derived from the responses of participants indicates that geography teachers only have knowledge on the theory part of inquiry-based learning while the implementation part seems to be a problem. This is because most teachers were able to answer the question on the approaches they prefer when teaching geography but were unable to explain how they use those approaches. In this case, it can be concluded that Geography teachers lack understanding inquiry-based learning.

#### **4.5.2 Ways in which teachers align their geography teaching to the principles of inquiry-based learning**

Another question posed to the teachers was to explain how they align their teaching to the principles of inquiry-based learning approach. This question was tricky because from their definitions, teachers seemed to use their understandings to define the concept of inquiry-based learning; they did not give the exact definitions. Therefore, they seemed to lack knowledge on the principles. As a result, I had to elaborate more on the four main principles of inquiry-based learning. In this case, teachers were not aware that they were aligning their teaching with the principles of inquiry-based learning until after the elaboration, and their responses indicated that indeed they were aligning their teaching with the previously mentioned principles. Table 4.1 below presents the data on how teachers could be aligning their geography teaching to IBL.

**TABLE 2: PRINCIPLES OF INQUIRY-BASED LEARNING**

<b>The four main principles of Inquiry-based learning</b>	<b>Number of teachers aligning their teaching with the four main principles of Inquiry-based learning</b>
Constructive education (students as researchers)	5
Learning is a relevant context (teachers as research assistants)	7
Collaborative learning (peer-to-peer collaboration)	10
Self –direct education ( reflecting on learning)	4

From their responses, all the 10 teachers indicated that they employ cooperative learning in their classes. Again, seven out of ten reported that they give learners projects and also order them to research on things that are relevant to today's society. Thus, students' learning is a relevant content as indicated by the second principle. Furthermore, five teachers claimed that they teach in accordance with constructive education, explaining that they usually consider learners' prior knowledge. The table further shows that only four teachers allowed self-direct education in their classes where learners do the work themselves and teachers act as facilitators. Below are the responses of the five teachers.

When teaching, I allow learners to use their experience, for example, if I am introducing the topic of industrialization, I will first ask students if they have ever visited any industrial area in Maseru, maybe Thetsane. If they say yes, I will ask them give the



characteristics of that area, and they should also tell us type of businesses found in that area... then I explain industrialisation to them. T9

Yes, now I understand these principles...so in my teaching, I will give my students a topic, maybe on how HIV/AIDS has affected some of the students who are HIV positive or whose parents are HIV positive. In this case, students will be researching on something that is relevant to their lives, maybe they will come up with recommendations on what their communities can do to prevent this disease. T7

I do ask learners questions that need their experience. For example, if I am teaching about farming, I will first ask students to tell the class about the crops grown at their homes and this will lead us to different types of farming. T1

Because some students travel a long journey on their way to school, they know that they always have to share stories about the things they saw on their way to school or during the weekend, especially land forms and rocks. Then we derive topics from their stories. T5

After elaboration on the four main principles of inquiry-based learning, when two teachers were asked whether or not they align their teaching with the principles of inquiry-based learning, their responses were as follows:

Yes, I use discovery method... I allow my students to use their experiences and I will be guiding them with some questions that will lead them to the correct answers...most of the time I give them work in groups. Maybe an assignment for three weeks and after that they will present that work in class. T3

Students elaborate on the problems in their community, then they go and research about that problem and try to come up with the solutions, something like a research, or they can do a project out of that problem. T8

On the question of whether or not teachers align their teaching with the fourth principle (self-direct education), only four out of ten indicated that they allow learners to do the work alone in some topics while most of the teachers disagree and feel that learners are not capable of doing the work themselves. They say that students should learn from the teacher and imitate what the

teacher did. They complained about the calibre of students that they have. These teachers think that their learners are not ready for high school, therefore they cannot be expected to do the work without the help of the teacher. T2, T4, T7 and T8 made the following comments:

These students are lazy, they cannot do the work alone... they cannot even answer one question in class... and now you say they do the work without a teacher? In fact, I think they are not ready for high school. T2

The students we have don't want to do the work, they can't even write an assignment, and so do you think they can do the work alone? That will be the waste of time. T4

If you want to have heart attack you should give these students the work to do on their own, these students can't talk in class, so what if they are asked to do the work on their own? You will just hear so many stories when they are to submit. These students still behave like primary learners. T7

There is too much content to be covered before exam, so I will not waste my time giving these students the work to do alone. I think even primary students are better than my Grade 10 learners. T8

Two teachers added further that parents are already complaining about the assignments given to their children and teachers not doing their work. Therefore, allowing learners to do the work alone would make this matter worse. They responded:

Parents are already complaining about the daily assignments, so what if they hear that their children are teaching themselves? T1

One other parent once called me telling me that they are paying school fees for their students to be taught by teachers not parents, so allowing students to do the work alone will make it worse. T5

On the other hand, four teachers believe that learners are capable of doing the work alone; what they need is the assistance of a teacher when they encounter difficulties. T3 specified:

It is true that learners are at school to learn, but what we should bear in mind as teachers is that they are not empty vessels that need to be filled with everything. Students can

learn on their own, the teacher can come in just to pull their hand where they need help. Thus the teachers should be the facilitator in this learning process.

T6 adds:

...Yes, as teachers we should allow students to come up with the solutions to the problems they face in their everyday life. This can be done through education... where they do a research and come up with solutions at the end... this will help learners to solve problems themselves in future.

In line with acknowledging the significance of putting learners at the centre of their learning, T9 argued that it is important to allow learners to come up with ideas, to plan and argue on different concepts of geography for this is a skill they can use in future:

Yes, learners should be given a front seat in their learning, this helps them to be responsible for their learning. For example,... when they go home for winter holidays, I gave them a task to come up with the plans for their projects and we are going for competitions next year with those projects.

T10 further indicated that if students are given the opportunity to be the driving force in their learning, they develop the skill of independence and take responsibility of their work. He comments:

This helps students in future to be independent because they will be doing the work alone. They become responsible people.

From the above evidence, it can be highlighted that teachers do not believe in their learners' capabilities. They think their learners are not ready for high school, therefore, they are unable to take responsibility for their work. Again, it should be noted that teachers mentioned the idea of aligning their teaching with the principles of inquiry-based learning but they were reluctant to elaborate more on the activities they gave to learners that prove the claim of implementing inquiry-based learning.

#### **4.5.3 Resources used in the implementation of inquiry-based learning**

The teachers were asked about the resources they used when they attempt to involve learners actively in their lessons. All the 10 teachers said they rely on textbooks. T10, for example, said:

Textbooks, my phone especially for photos. I also use maps and charts.

However, two teachers indicated that there is a problem of textbooks in their schools. Some students cannot afford to pay the book rental while others have them but decide to leave them at home. They responded:

Most of my students come from poor families and they cannot afford to pay the rental of books. T5

Some students cannot afford the rental but some afford it but they decide to leave books at home purposely... for example, when you say they should look for something in their book, they will tell you that they forgot them at home. T7

When asked whether they are using information technology (IT) services as a teaching resource at their school, most teachers responded that they did not have access to internet services. However, T9 acknowledged the importance of IT in geography education though he experienced challenges of limited time and access to the internet. Responses from five teachers show that they tried to use different resources with the aim to promote the effectiveness of inquiry-based learning at their schools though they encountered problems. Their responses will be outlined in another theme which is the challenges teachers encounter in the implementation of inquiry-based learning in their schools.

#### **4.5.4 Outdoor activities organised for Geography lessons**

The other question under this theme was to find out which outdoor activities teachers usually organise for their students. Most teachers affirmed that they use outdoor activities when time allows. Others indicated that it is difficult to do these outdoor activities due to the large number of students in class and lack of resources. Some teachers complained about their school environment which cannot allow them to do regular outdoor activities such as fieldwork. They say for their learners to observe geographical features they need to take a trip and this might cost them a lot of money to do so.

One teacher shared his experience this way:

Teachers have a workload and to go out for the whole day leaving a lot of books on the table that need to be marked is another factor...Again, parents always complain that they do not have money for trips, so, does the school. The school cannot afford to pay a bus to

take more than 50 learners, just to go and see the weather station, but if our school had resources such as weather instruments, we would not waste money on unnecessary trips.

T1

In their answers, some teachers indicated that outdoor activities were done theoretically. They just explain those activities in the classroom. T2 explained:

I think our main problem is that our schools are located around town and geographical features such as rivers and weathered rocks are not found easily in these areas. So I do them theoretically in the classroom.

In agreement with T2, two other teachers indicated that the challenge of limited time for Geography lessons becomes a complex one and therefore prevents inquiry-based learning activities. They responded:

I think our major problem is the few lessons given to geography as a subject...one cannot take a field trip for 40 or 80 minutes. T5

We do not usually use fieldwork or any outdoor activities. It is not like just wake up and think of an activity, you have to think about it, so at times it becomes a problem in terms of the time that such an activity will take to complete it. T8

Apart from the challenges related to the workload of teachers, overcrowdedness and limited time, outdoor activities in their teaching is also affected by the need to prepare learners to pass the examination. T4 and T7 revealed that they concentrate on completing the basic competencies in the syllabus because that is what the learners will be assessed on in their examinations. They worded their arguments as follows:

Covering the syllabus also does control the way you do these activities because they are very time consuming... It is quite interesting to involve learners in these activities but the content in the syllabus also needs to be covered. T4

If we employ these outdoor activities more often, I tell you the syllabus will not be covered. The worst part is for learners to go into the examination without completing the syllabus. T7

T9 and T10 from the same school indicated that outdoor activities are their learners' daily bread because their school is surrounded by all the geographical features like a river, different types of rocks that are exposed to different types of weathering, and farming is also practiced in their school. This is what they said:

We use fieldwork maybe twice a month. Some of the things we observe through the windows, we don't even have to go outside the classroom... everything we need is there, the only thing that we don't have around is the ocean... T9

We usually employ fieldwork because our school is surrounded by nature, for example, rocks and the river. T10

From the extracts above, we learn that teachers realise the importance of outdoor activities though they cannot employ such because of barriers such as teachers' overload, overcrowdedness, limited time and pressure to complete the syllabus. It is evident teachers only employ fieldwork because their school environment is close to the things that learners can observe.

#### **4.5.5 Inquiry-based learning activities used by geography teachers**

Another question was asked as to find out if the teachers included activities such as project learning, problem-based learning and collaborative learning. Five out of 10 teachers use a combination of these three methods of teaching in their geography lessons. Some indicated that they used collaborative learning and a few prefer individual work. It can be noted that most responses were rooted from the previous ones where they were asked to define inquiry-based learning because teachers seemed to give the activities taking place in the use of inquiry-based learning instead of definitions.

Two teachers explained that they give their learners the work in groups and then present the solutions to the class. They narrated the activities as follows:

Yes, I include those activities, because most of the time I give them the group work that is to be presented in class. Sometimes I ask them to research on something that might be a problem in their community...for example, lack of water resources and they should present the things that might be solutions to such a problem. T9

Most of the work I give to my students is done in groups, it can be a project or research then the results are discussed in class. T6

T7 further added:

I always introduce a topic to them and ask them to go and research more on such a topic as a group.

Two teachers indicated that their association promotes the use of project method, because there are even competitions held for those projects, which are used as part of continuous assessment. They explained:

We include projects, group work and problem-based. Because some of the projects are based on the issues facing their societies and they do these projects in groups... and our associations work so hard to make sure that teachers include these activities. T5

Our school is a member of an association; the association encourages us to teach learners the project and we go for a competition each year. So we make projects a culture. T10

For T2, a useful strategy in Geography teaching is collaborative learning. She made the following comment:

Collaborative learning is a useful strategy. As a teacher I introduce the topic and then let students discuss the concepts in groups. And I give them time to present what they understand.

In line with T2, T3 also acknowledged the significance of giving students group work. T3's view was:

Students are more comfortable to express their ideas with their peers, so they understand things better when they do the work in groups.

Another teacher indicated that he prefers collaborative learning when teaching geography because it saves his time. This teacher made the following comment:

I always give my students group work because it saves me time as I will be marking few books and also decreases my load. T1

However, two teachers explained that they assess their learners individually. They give them tests and quizzes because in the final exam learners are assessed individually. Below are the views expressed by two teachers:

Even though the association encourages us to include the activities, I don't believe in group work as an individual because other students hide themselves behind other learners' work. They do not contribute anything. So only students who contribute will pass the final exam and the rest will fail. T4

I prefer individual work because learners are assessed individually at the exam not in groups. I prefer giving activities under examination condition so that I can be in a position to evaluate each individual. T8.

Other than these two teachers who do not prefer collaborative learning activities, the responses of many teachers suggest that they believe in the essence of active learner involvement in learning but each one of them had his/her own preferences as to how to do that. What also emerged is that it is relatively easy for teachers to understand the theoretical grounding of learner-centred teaching in geography teaching but what lacks is how to employ those theories in the actual teaching reality.

#### **4.5.6 Teachers' views on whether or not they consider learners' needs and interests in choice of learning activities**

When asked whether the process of learning in their classes was shaped by the needs and interests of learners, four teachers out of 10 expressed similar views in contrast to six teachers' perspectives as follows:

T2 explained that:

Even though we don't always consider their interests, sometimes we involve them actively... maybe in project, that's where we will allow them to come up with the problems they are facing in their societies and others come up with the problems they are facing in their families, and... as teachers we try to solve them but if they are above our control, we refer them to counselors there at our school.

T10 from a different school added:



Yes, we consider their needs, for instance, on a topic of migration. If you ask students how migration affects people, they will talk from their experience...others will tell you that their parents migrated to South Africa. They have abandoned them...these students are heads of the families and some get raped because they live alone there, no guardian and relative wants to take them. Some of their stories are touching, so we allow them to talk about them so this is how we consider their interests.

In corroboration with T2 and T10, T5 highlighted that:

Yes, we try to consider their interests and needs, though sometimes they get out of control. But they are children, so we still control them and take them back to the content while others seem to be affected emotionally, so we encourage them to go for counseling sessions here at school.

However, all other three teachers were of the view that the final examination is based on the content not on the needs and interests of learners. Therefore, the learning process should emphasise what learners need to learn in preparation for the final examination.

Two teachers responded thus:

No, learners should not tell us how to teach, like parents we are to guide them on what they need...and that is the content needed for final examination. So we do not consider learners' interests. T1

Students are children, their need is to learn. So I teach them the content needed in the exam. That's what they need. T4

On his part, T7 corroborated T1 and T4's argument by highlighting:

No, this issue of considering learners' interests is not that simple, the exam does not consider learners' interests. So, why should teachers waste time on stories that are not going to be asked during the final examination? We already have limited time to complete the syllabus, so why should we waste this little time that we have with unnecessary things?

It is to be noted that the remaining three teachers' responses were just a "no" they did not even want to elaborate more on their answers.

From the above evidence, I have been highlighted that teachers believe learners are young and their needs and interest in the learning process should not be taken into consideration. Thus, teachers are to act as parents who make choices for their children not the other way round.

#### **4.6 Challenges encountered on the use of IBL**

Despite its numerous benefits, inquiry-based learning has some setbacks which limit its usage. The participants in the study revealed that there were challenges regarding the implementation of inquiry-based learning in geography teaching and learning. These challenges include inadequate training, lack of resources (inadequate teaching and learning facilities), insufficient lesson time, teachers' experience, large class (big groups), little cooperation from learners and language barrier and lack of support from the administration.

##### **4.6.1 Inadequate teacher training**

Teachers were asked if they had attended workshops regarding learner-centred approaches such as inquiry-based learning. Majority of them revealed that they had never attended workshops on the use of inquiry-based learning but general workshops are held regularly on the issues that concern geography teaching and learning. These are some of their responses:

Yes, workshops are held but not exactly on inquiry-based learning but on other issues like the things that are believed to have contributed to the poor performance in geography education. We also do the competitions (geography fair) on the concepts of geography... Meaning that we learn some of the things from our colleagues who are examiners and markers... we have never been visited by any specialist on this new approach. T5

T8 added:

We are usually called to the workshops some of which are unnecessary because we always complain about one thing, "the resources". The examiners will tell us about questions that were not answered correctly, they don't talk about this inquiry-based learning. T8

From the above responses, it appears that the workshops that are held by the Ministry of Education and Training are not necessarily on inquiry-based, but on general information about geography education and learners' performance in the final examination. Therefore, those

workshops do not help them with information and strategies that can be used by geography teachers to address their challenges on the implementation of inquiry-based learning

Apart from teachers not having workshops concerning the use of inquiry-based learning, all nine teachers had never been introduced to approaches of inquiry-based learning either at the secondary school or during their initial teacher training. As a result, they experience difficulties regarding inquiry-based learning approaches in their Geography teaching.

T9, however, admitted to have been introduced to research at tertiary level in Development Studies, although it was difficult for them since they were not introduced to it in the secondary school. She responded:

...I have more than 5 years in the field of teaching. Back then when I was still in high school, there was no inquiry-based learning. I was never taught research, I only heard about it when I was working here. At tertiary level, I only did research in Development Studies but I forgot some stages taken to complete a research. But that little information is somehow helping.

Similarly, in his response T9 indicated that though he was introduced to research at tertiary level, he forgot some of the stages taken to complete the research. However, the knowledge that he has helps him on some concepts of research. Furthermore, some participants commended that although inquiry-based learning has so many advantages, teachers appear to encounter more challenges in its implementation. From their responses, teachers indicated that inadequate training on the use of inquiry-based learning by the Ministry of Education and Training and the teacher training institutions also plays a role in their reluctance to implement inquiry-based learning in geography teaching and learning.

T9 mentioned that it was good to include inquiry-based learning in the geography curriculum. However, the problem lies with the implementation process due to lack of training and resources. He elucidated:

It was a brilliant idea to include inquiry-based learning in the geography curriculum but the problem is the implementation ...lack of resources like projectors, internet and books is discouraging sometimes. Let's say I want learners to go and research on something and

they don't have books and also no internet, where do I think these learners will get information from? They won't do the work and I will be forced to use lecture method.

Similarly, T7 indicated that there is lack of resources in schools. He further mentioned that the main reason for this is because the administration does not support them. For the above reasons, he feels learners are struggling with finding information on geographical concepts. The same teacher elaborated on this issue as follows:

This approach is ok, especially the research part because learners are able to get information themselves without any help of a teacher but I think if the administration was supportive and allowed learners to use the computers, these learners would have a better understanding on concepts of geography because they would research on them. Apart from that, learners are not allowed to have cell phones at school where they can use them to research, so this is challenging.

T6 also supported the inclusion of IBL, expressing an opinion that:

The inclusion of inquiry-based learning in the Geography curriculum is perfect. BUT the problem is lack of knowledge on this approach. We go to workshops as geography teachers and try to come up with different ideas but none of us has a clear picture on how to use inquiry-based learning because we have never experienced it either at high school level or tertiary level and the Ministry of Education is not taking any initiative to train us.

From the above responses, evidence suggests that all participants seem to support the Curriculum and Assessment Policy (CAP) when it comes to including inquiry-based learning in the geography curriculum. However, lack of resources and inadequate training emerged as issues disrupting effective implementation of inquiry-based learning.

From their perspective, two teachers expressed that the National Curriculum Development Centre (NCDC) does not assist teachers in the implementation of inquiry-based learning by coordinating the geography content workshop in which the teachers are shown how to teach inquiry-based learning to their students. According to these two teachers, the main problem is when teachers try to teach learners using approaches of inquiry-based learning due to the fact that most of the teachers have never been exposed to it. They made the following comments:

The Department of Education is doing something but is not enough. The problem is that they would be taking teachers to workshops where we were taught about learner-centred approach but there is not even any information that we can refer to... maybe a booklet that explains this approach better and how it works. We don't know this inquiry because we have never been introduced to it, even at tertiary level. T1

Furthermore, T7 adds that the Ministry of Education and Training is not doing enough to train Geography teachers to improve inquiry-based learning implementation in schools. T7 explains:

The Department of Education is doing something for teachers, they develop teachers through workshops but it is not enough. That it is they would be taking teachers to workshops where we are taught about learner-centred approaches but that is not enough because...problem lies where we are trying to teach the learners using these approaches.

T2 stated that although geography teachers get involved and attend workshops on learner-centred approaches, they do not gain much information. She stated that this is because teachers who think that they know much end up assisting the teaching of learner-centred approaches in the workshops which then leaves them undeveloped because of not gaining the additional information that they need. T2 clarifies:

...we are asked to attend the workshops but you find that there is nothing much that you get from these workshops because teachers who think that they know better end up taking over for they have more information than what the department has prepared for us...so we end up not getting developed.

T4 on the other hand indicated that he has never attended any workshop regarding Geography education. He expressed his opinions as follows:

From my side, I have never attended any workshop ever since last year when I started working at this school because few individuals are chosen to attend the workshops especially the ones who have been working here for a long time. So, it is even difficult for me to teach using this approach therefore I am forced by the situation to be creative. In fact, those ones who went to the workshop always bring the report to us but... you know, it is best if you hear things from the horse's mouth. Unfortunately, some of us don't get that opportunity to attend such workshops.

From the above excerpts, there is evidence that the Ministry of Education and Training does not assist teachers in the implementation of inquiry-based learning through Geography content workshops. Therefore, it is clear according to participants that workshops organised by the Ministry are inadequate due to their failure to fund these learner-centred programmes to introduce teachers to additional knowledge about implementation of inquiry-based learning in schools.

#### **4.6.2 Lack of teaching and learning resources**

In this study, the participants were generally concerned about books, internet access, survey and weather instruments and a geography room. For example, T10 stated:

Lack of books because sometimes I want them to come prepared for the lesson, so I tell them to read on something and when they get to the school library there are no Geography books and I cannot tell them to go to the internet because they don't have money.

It is difficult sometimes for students to find materials because there is fewer number of books. We have a library but the number of books is small compared to the number of students. T6

Another participant expressed concern that they lack internet, yet their school has a computer lab. Meaning that teachers and students are denied access to computer usage. T3 adds:

We have computer lab but teachers and students are denied access to those computers, students only use them during computer lessons not for research.

Again, another participant, apart from mentioning a lack of books as one of the challenges, mentioned challenges associated with lack of a geography room and teaching aids such as survey and weather instruments.

There is shortage of resources, there is no equipment for Geography subject in my school. Like survey equipment and instruments which are used to record weather, sunshine or humidity, there is no equipment but books are available in the library, there are many geography books. The problem again lies with the geography room, even if one can bring his or her own equipment, there is no safe place to keep such. T7

This teacher seems to find it difficult to engage students in class because there is no actual demonstration of Geography equipment that students can observe.

Furthermore, another participant indicated that learners in his school are forced to use their minds in trying to understand the inquiry content. T9 explains below:

In my school, I do not have all the resources, I am currently using old maps, and draw some of the things on the chalkboard trying to explain some of the land features formed through different processes especially in physical geography. It is all in the mind but it is not practical.

In general, teachers find it difficult to engage learners in class because there is no actual demonstration using Geography equipment that students can observe and there is also lack of books.

#### **4.6.3 Inadequate lesson time**

Inadequate time was indicated to be another hindrance for effective implementation of inquiry-based learning. Participants mentioned that the time allocated for Geography in the school timetable is not enough for the teacher to accomplish all the stages of inquiry-based because they also have to complete the syllabus within three years. Their concerns are clearly captured in the following excerpts:

In 40-80min a teacher is expected to have provided learners with questions, each one wants to contribute in this learning process. So it is difficult for all of them to share what they have within this time. T5

Students have a lot of work to do from other subjects, every teacher wants to finish his/her topic. So it is difficult for them to complete a task in a short time especially when it is a group work. T2

Extracurricular also contribute to the delay of submitting the work, e.g., they have to clean their classrooms after school, they have to go for sport and other activities, some

are boarders while others are day-scholars. Even though they have morning and afternoon study, they are not allowed to engage in discussions. (T1)

The views of these two teachers suggest that use of IBL methods requires enough time for teachers to engage learners in learner-centred activities. Unfortunately, given the organizational structure of schools with too many subjects and extracurricular activities, geography teachers find themselves having limited time to teach the subject.

#### **4.6.4 Teachers' experience on the use of IBL**

All the participants' responses suggest that they struggled with inquiry-based at the beginning because of they lack experience with its application. This also caused them to lack confidence in their teaching because they did not understand inquiry-based learning and it makes it difficult for them to transfer knowledge to learners.

However, three teachers commented that they had improved a lot in implementing IBL throughout their experiences. T1 commended:

It was difficult in the beginning because other teachers claimed that this approach needs a person with experience of research from tertiary and for some of us... we didn't do research in our departments and we found it very difficult to teach students using this approach because I did not believe in myself. But it is now better because this is the second year I am teaching research in Grade 11. T1

Based on the above comment, using inquiry-based learning activities - more especially research - seems to be difficult for teachers who have never been exposed to it. However, it becomes better with time, as they get used to it.

Similarly, T5 mentioned that he felt uneasy about inquiry-based learning because of uncertainty about its implementation caused by lack of experience. T5 was of the view that teachers who completed their postgraduate had a better view and understanding of inquiry-based learning. The teachers expounded:

It was not easy to teach research, even though I managed to gain more knowledge through reading and researching, I still don't like to teach research. I am teaching it because I don't have any option.



In corroboration with T5, two teachers from the same school also found inquiry-based learning challenging at the beginning because of lack of experience.

At the beginning when I started teaching research in Geography, I struggled. It was a bit hard for me to teach research, as time went by, I applied the knowledge I obtained from tertiary and this assisted in teaching research in geography. T9

However, because T9 was exposed to research in Development Studies at the university, it assisted him in teaching research in geography as a subject, therefore they work hand-in-hand with his colleague.

It wasn't easy in the beginning, but my colleague assists me a lot. Whenever I get a problem, I refer to him because he has been once introduced to research at tertiary level. I think I do it better now because of the help I got from him. T10

On the other hand, T2 and T8 explained that they still face challenges in the implementation of inquiry-based learning because they view examination questions that need inquiry skills to be out of the range of learners. They further explained that although they teach to the best of their abilities and try to meet the examination standards, the level of questioning by examiners always increases. T2 points out:

It is not easy to teach learners using inquiry-based methods such as research, because you will try by all means to make learners understand the concepts, but at the end, the exam seems to ask questions that are on the upper level. Those questions are so difficult.

Again, two teachers indicated that because they are experienced in inquiry-based learning and also believe it to be challenging, they even developed a negative attitude towards it. They remarked:

This approach is already challenging and we lack experience. In fact, I don't like inquiry-based and I think I have developed a negative attitude towards it. T4

From day one till now, it has been challenging to teach research because I don't understand it. All I can say is that I don't like research. T7

From the above extracts, it is evident that teachers were faced with challenges when they started using inquiry-based learning. According to the participants, this was because inquiry-based

learning was new and they lacked experience. Furthermore, geography teachers became anxious and developed a negative attitude towards inquiry-based learning implementation.

#### **4.6.5 Large class sizes**

Scholars have stressed the fact that successful implementation of inquiry-based learning requires a reasonable number of students in the class in order to engage them in meaningful learning activities (Kinsey, 2013). In the case of this study, all the teachers who were interviewed expressed a view that large classes hinder the process of inquiry-based, especially group discussion. In elaborating on the challenge of large class sizes, T8 said:

Big groups may entail restlessness. Not every learner gets excited and commits well. Some are very excited and may lead the group while others may relax. T8

For another teacher, large class sizes constrain use of learner-centred activities such as group presentations.

I think infrastructure is a problem; the nature of our classrooms which have more than 60 students in each. It is difficult to group such a large number, and you want them to present, you will end up not finishing the syllabus. T9

In a nutshell, it would seem that the large number of learners in a class has been found to contradict the requirements of inquiry-based learning since the approach is learner-centred and learners need enough space and time to discuss, research, connect and express themselves.

#### **4.6.6 Little cooperation from learners**

Analysis of the interview data from the teachers who participated in this study reveals various views with regard to the way learners contribute to the ineffective implementation of IBL. Some of the views are as follows:

...students poorly participate in groups; they don't find solutions for the questions but rely on other students to finish the work. So it becomes difficult for me as a teacher to recognise those that do not do the work. T6

This participant considers that students' reluctance to participate in doing the assigned work rendered the approach unsuccessful. Apart from that, another participant indicated that learners seemed not to be ready for this approach because they are not familiar with learner-centred

approaches such as IBL as they are more used to teacher-centred ones. This teacher had the following to say:

I think some students are not ready for this approach due to the teaching strategies that were used at primary level, more especially the learners from free primary. They cannot even construct a sentence, what more about presenting to class? T3

Unlike those two participants, others such as T10 mentioned students' lack of motivation and cooperation as part of the challenges that render IBL ineffective. For example, T10 explained as follows:

After giving a task to them, you may find that some students are not cooperative with others to solve the questions, and few of them are able to present them.

#### **4.6.7 Language barrier**

It is believed that communication plays a role in implementing IBL because learners are expected to express themselves verbally and present the findings or solutions for a given question (Atmako & Hanurawan, 2017; Nasution, 2018). This describes the comments given by eight teachers, out of the ten interviewed geography teachers, regarding the challenges they encounter in the implementation of inquiry-based learning.

...Geography like other subjects has its vocabulary words that are pronounced in English but students want to express themselves in Sesotho. Even when a teacher explains some of the concepts, they want them to be explained in Sesotho. T7

On the above comment, the teacher recognises that learners are not allowed to use Sesotho in a Geography lesson even if they want to express themselves verbally. Hence, the use of IBL is constrained by the language of instruction, which in Lesotho is English language.

The challenge posed by the language barrier is clearly explained by T5, who said:

Sometimes they know the answer but they will not answer because it is difficult to say it in English. So because their English is poor, they are ashamed to answer in class or just participate in groups. T5

In a similar vein, T6 indicated that the challenge with the use of English for most learners emanates from their background when they were at primary schools. She remarked:

... we experience language problems in our schools. Most of our students come from the schools where they were used to being taught in Sesotho, so it becomes a problem when there are supposed to stand up and defend or explain things in English. T1

From the extracts above, we learn that there is a scarcity of resources to implement inquiry-based learning in geography education. It is evident that teachers struggle with the availability of resources to teach and this is discouraging since teachers may develop a negative attitude towards the implementation and acceptance of inquiry-based learning. It is also evident that although teachers want to use inquiry-based learning, they get inadequate training from the Ministry.

#### **4.7 Strategies that could be used in order to respond to the challenges**

This section represents responses from teachers on the strategies that they think could be used in order to respond to the challenges they face in the implementation of inquiry-based. In their responses, teachers mentioned that they encourage learners to be interested in geography and further indicated how they can improve the use of inquiry-based learning. From the analysis of the interview data, a number of strategies, including arousing students' interests in geography and using various innovative strategies to improve inquiry-based learning, were identified.

##### **4.7.1 Arousing learners' interest in geography**

On the question of how Geography teachers encourage their students to be interested in geography education, teachers gave different responses. They expressed ideas such as presentations at the assembly each Friday, discussing career opportunities in every topic, doing field excursions, regular assessment and others preferred teacher-centred method. For example, T2 and T6 indicated that learners are given opportunities every Friday to present the things that they have learned, so geography learners also present concepts of geography at the assembly. The following quotation captures the response:

In this school, learners present the things they learned. They do every Friday at the assembly. And because they want to be perfect during the assembly, they practise a lot and research on other things that they did not learn in class... and this makes them to be interested in learning geography. T2

In the same manner, T3 revealed that talking about career opportunities when introducing each topic encourages learners to research more on the topic. He shared what may be described as their pedagogical practice as follows:

When introducing a topic, we always discuss career opportunities in that topic. So, you find that students get interested in many topics because of the career opportunities presented in those topics and the learner will research more on those topics because he/she is now interested in the career opportunities. And that is working.

Two teachers view fieldwork as a strategy that arouses learners' interest in geography education. They shared their experience this way:

Yeah, like I mentioned earlier that our school environment has different geographical features, I therefore usually use fieldwork to encourage my students to have interest in Geography education. Maybe once a week, we go out of the classroom and observe some of the land features that are a result of some processes in geography.

T1 further indicated that outdoor activities are therapeutic to learners. He expressed her view in the following manner:

Fieldwork is good in encouraging learners to have interest in geography because going out of a classroom works as a therapy to learners.

In corroboration with T1, T8 further indicated that fieldwork and a lot quizzes encourage students to be interested in Geography education. He responds:

Students are interested in frequent outdoor activities so this makes them to like Geography. And if they are given a quiz after every activity, they will read more on such topics.

According to the responses above, it is apparent that outdoor activities play a major role in making sure that learners enjoy learning geography.

On the other hand, two teachers indicated that the calibre of students they teach has already lost interest in every subject, therefore they usually use teacher-centred method. T4 comments:

No, I don't waste my time on these students, whether they are interested or not. They are here to learn, so because they have already lost interest in all the subjects, I just teach them and give them notes and the syllabus will be completed.

It can be inferred from teachers' responses with the exception of T4 that presentations, learning about career opportunities and fieldwork encourage learners to be interested in geography teaching and learning.

#### **4.7.2 Strategies for effective use of inquiry-based learning**

Another question had to do with the things that teachers can do to improve learning of geography through inquiry-based learning. All teachers mentioned different things that could be done in order to improve the effectiveness of IBL in geography teaching and learning. Some expressed ideas such as establishing geography clubs, using collaborative teaching, workshops, buying the resources, encouraging learners to watch the geography videos and go for weekend and winter classes. This is what T5 had to say:

I think teachers should encourage learners to join geography club because that is where learners share their understandings on geography concepts. They even talk about the topics that are giving them problems...in fact the platform where learners are allowed to share their ideas on everything that concerns their geography learning process. This is where they can work collaboratively to do their projects.

In her case, T2 indicated geography clubs are also the solution to the limited time for geography lessons because learners attend their meeting after school. She worded her argument as follows:

Geography clubs are really important; I think teachers should encourage their learners to join them. In those clubs, learners share ideas with others, they even discuss some topics that seem to give them problems. This also helps teachers to cover some topics during that time because learners go for club meetings after school.

Drawing from these responses jointly, it is clear that teachers believe geography clubs can help learners to cover all the geography concepts and complete the syllabus in time and encourage

cooperative learning. In short, activities of the clubs may require learners to work collaboratively to investigate some environmental or development issues of geographical significance and later share their findings in class.

Two other teachers suggested that teachers don't need to wait for the workshops, they should research and work collaboratively to help learners develop their critical thinking skills. Below are their responses:

I think as teachers we need to stop complaining about inadequate training by the Ministry of Education but we should research and see how this inquiry-based works. We should also do team-teaching. For example, if I don't understand the concept I should ask my colleagues to teach the topic and I also help them on the concepts that I understand. T1

I think working together as teachers can help, we should get more information about inquiry-based learning and share our understandings as teachers. T3

From their responses, the two teachers believe lack of experience in the use of inquiry-based learning seems to be a barrier on the implementation of inquiry-based learning, therefore they think that it is better if they join associations and convene workshops on how to implement inquiry-based learning effectively and come up with strategies to be used in overcoming the challenges faced during its implementation. T7 explains:

It is true that we don't understand inquiry-based learning, therefore, I think it is better if we join associations and go for workshops where we can talk about this inquiry-based learning. Because it is difficult on our side to tell students to do things that we as teachers don't understand.

Joining association is the best weapon we can use to defeat the challenges we face during the implementation of inquiry-based learning. What I am saying is that the Ministry of Education will not come to each school to explain these things but if we have joined an association, it will be easy for them to reach almost all teachers. T10

The above responses contend that associations are important because they are used by the Ministry of Education as the bridge to reach all teachers across the country. Therefore, teachers

think that it is best to join associations in order to work together as teachers to overcome their challenges on the implementation of inquiry-based learning.

Other teachers on the other hand thought that the best solution to engage learners in activities of inquiry-based learning is to encourage them to watch geography videos, especially in those schools where fieldwork is a problem. T8 comments:

The calibre of students we have now are lazy, they don't want to read, so its best if we encourage them to watch geography videos because sometimes we don't have enough time to engage them in fieldwork.

Moreover, other teachers revealed that teachers who are unable to cover the syllabus within the given time should teach learners during the winter holidays and on weekends. This is what T4 and T9 explained:

Teachers should leave their comfort zones if they want good results, they should teach students during winter holidays or on weekends. T9

Weekends and winter holidays can help teachers to cover all the content if they think that the Geography lessons are not working for them. T4

In corroboration with T4 and T9, T6 further indicated that afternoon study can be used for discussion and inquiry-based activities can be done during that time. This is what she explained:

On my side, I think that teachers can do inquiry activities during the afternoon study. That time can also be used to cover some topics that could not be finished within five lessons.

The extracts above reveal the suggested strategies that could be used by geography teachers in order to respond to the challenges they encounter in the implementation of inquiry-based learning. It is evident that though teachers seem not to have solutions to the challenges they face during the implementation, they understand the importance of inquiry-based learning in geography teaching and learning and therefore think of the strategies that could be used to respond to the challenges they encounter in the implementation of inquiry-based learning.



#### **4.8 Chapter summary**

Most participants in this study had limited understanding of inquiry-based learning because they did not demonstrate in-depth and critical awareness of it. They seemed to think that conducting a research constitutes inquiry-based learning. In other words, they could not differentiate between a research and inquiry-based learning. So, there were participants who believed that they were teaching through inquiry-based learning, yet they were only conducting activities which were not investigative in nature. Since the inquiry approaches advocated by CAP, there is a need for in-service teacher development. These misconceptions presented a threat to inquiry-based learning and thwarted hopes for increased learners' interest in geography.

Furthermore, analysis of the data generated and compared suggests that while teachers try to implement IBL, several factors come into play. Among others, are the time allocated for lessons and lack of resources, which hinder the implementation of IBL in geography teaching and learning. The interaction of the analysis in this chapter and the literature reviewed in Chapter 2 suggest strategies that could be used to respond to the challenges teachers face in the implementation of IBL. The next chapter therefore brings the study to a conclusion. In doing this, the chapter summarises the study and presents the conclusions and recommendations based on the findings.

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Introduction

The previous chapter presented and discussed the findings of this study. This chapter discusses the key findings of the study, in relation to the literature review presented in Chapter Two. The findings are discussed under themes and sub-themes that emerged from the research questions. This chapter also provides conclusions and outlines recommendations for this study.

#### 5.2 Teachers' understanding of inquiry-based learning

There has been a concern from different countries around the world that the type of education provided to learners should equip them with appropriate skills, relevant to the needs and demands of the 21<sup>st</sup> century (Abdul Majid, 2017). With this in mind, the Lesotho Curriculum Policy (CAP) advocated for learner-centred approaches, stating that teaching should shift from didactic teaching to participatory, activity centred and interactive methodologies (Ministry of Education, 2009). As indicated in Chapter 2, teachers are required to employ learner-centred approaches such as IBL in their teaching to facilitate for the 21<sup>st</sup> century education needs with learners who are able to learn by investigating scenarios and solving problems through social experiences rather than having to memorise information from textbooks (Mpongo, 2016). It is, therefore, believed that it is important for a teacher to understand the learning process clearly (Fessler, 2011).

The findings of this study revealed different understandings of IBL by geography teachers. Some of the participants said that they understand IBL in geography teaching as involving research in which learners acquire abilities to solve real world situations at various geographical scales. This is in line with Saver (2006) who describes research as an instructional approach that empowers learners to integrate theory with practice and apply skills to develop solutions to defined real world problems. Even though most participants seemed to understand IBL as a research, they generally failed to explain research in detail, except for T9 who demonstrated a more refined understanding of what IBL can be. In his response, he identified the stages taken to complete a research, that is, learners would identify a problem, work together as a group to

generate data and then present the findings to the class. The observation that the majority of participant teachers could elaborate on research, as it relates to IBL, implies that the teachers generally have a limited understanding on the use of IBL.

Apart from that, the findings indicated that IBL in geography teaching and learning is understood as fieldwork where learners understand the world through experimentations and observations. This is supported by Weimer (2002), who argues that fieldwork is an approach that converts theory into practice and allows learners to grow by making real world observations and offering concrete suggestions instead of only dealing with abstract problems.

Additionally, the participants in this study explained that they understood IBL as cooperative learning in which individuals learn in small groups or in pairs with the help of each other. In corroboration with participants' opinions, Barkley, Cross and Howell (2007) assert that cooperative learning is a learner-centred approach in which several learners work together and share the workload equitably as they progress towards learning outcomes.

From my findings, it appears that geography teachers understand IBL in different ways. Similarly, Roberts (2010) in his assertion, indicated that geographical inquiry's understanding is influenced by teachers' beliefs with inquiry in geography concepts as well as their own teaching. This was also revealed in my study by participants who pointed out that IBL should mainly focus on human geography because most of the social issues can be easily discussed when teaching concepts in human geography. However, a few teachers who demonstrated a better understanding of IBL believe that IBL approach can be used to teach all aspects of geography. To this end, the study has addressed research question one, which sought to reveal geography teachers' understanding of IBL.

### **5.3 Benefits of IBL**

Findings from this study on teachers' opinions on the benefits of IBL indicated that learners perform better when they are interested in the topic and participate in class. Thus, things that were found difficult in geography do not seem difficult anymore due to the effective implementation of IBL. Hence, the learning process becomes smooth. For this reason, teachers seem to support CAP when it comes to including IBL in the geography curriculum. They believe that IBL should be used in all aspects of geography due to its benefits. This generates evidence

that IBL is viewed as an approach that provides learners with the appropriate skills relevant to the needs and demands of the 21<sup>st</sup> century.

The reason being that IBL is fit for the promotion of learners' engagement, flexibility, collaborative learning, interactive learning and capacity for addressing complex issues and also enhances the natural curiosity of learners and encourages them to ask questions (Akter et al., 2016). In addition, Gudio (2017) affirms that IBL reinforces curriculum content; warms up the brain for learning; promotes deeper understanding of the content; builds initiative and self-direction; works in almost any classroom and offers differentiated instructions.

#### **5.4 Teachers' views of the guidelines provided by the LGCSE syllabus for implementation of IBL**

According to Parkes and Harris (2002), a syllabus is simply a document that expresses to the reader the intentions of the instructor regarding course content, learning goals, assessment approach and expectations. It outlines for the reader what is expected to transpire during the course; what should be learned; and how it should be learned. In this study, teachers appear to be aware of the opportunity that the national Geography syllabus provides for geography content but not for inquiry-based learning. However, they were generally concerned that the current LGCSE Geography syllabus does not provide clear guidelines on the use of IBL.

By contrast, in other countries such as Australia, the Geography syllabus is explicit about the use of IBL, explaining all the stages and processes of an IBL approach (Australian Curriculum, Assessment and Reporting Authority 2016b). It is also argued in the academic literature that teachers' ability to employ learner-centred approaches such as IBL is dependent on the extent to which the teaching syllabus guides them on its use.

The findings of this study further revealed that teachers have a perception that they would master the approaches of IBL only if there were clear syllabus guidelines about its usage or if they were trained on how to implement it. This may suggest that teachers still use lecture method, despite the curriculum requiring them to employ learner-centred approaches. Similarly, Swerts (2003) argues that a syllabus should be designed in a way that it is clear with regard to how skills, such as those relating to IBL, are to be developed in a learner, the outcomes that should be expected and how knowledge is to be organised, and that less emphasis should be placed on describing information to be taught

### **5.6 Geography teachers' use of inquiry-based learning**

As discussed in Chapter One, the approach to teaching and learning in geography is based on a paradigm of learner-centred education in Lesotho (Phosisi, 2019). As a result, teachers are expected to use approaches that fit the purpose and content of the lessons and at the same time encourages active learner participation. This is in line with Harlen (2013) who affirms that developing understanding through students' own thinking and reasoning has many benefits for the students including: enjoyment and satisfaction in finding out for themselves something that they want to know, seeing for themselves what works rather than being told, satisfying and at the same time stimulating curiosity about the world around them and developing progressively more powerful ideas about the world around them.

In their responses on the question that aimed to investigate whether or not they were employing approaches of IBL, some teachers indicated that they employ the mentioned approach once in a while. They reported that they use IBL because they believe it is associated with learner-centred approaches due to its benefits. However, two teachers indicated that they had never used IBL due to lack of experience. From the small number of teachers who reported that they only use IBL if they have time, there is an indication that IBL has gained much traction in the schools in which this case study was done.

In the process of IBL, teachers guide learners by creating a respectful and supportive structure for collaborating where learners share ideas in meaningful ways (Turkmen, 2009). Additionally, the teacher acts as the facilitator throughout the learning process and works with learners to provide constant feedback in their investigations (Walker, 2013). This is in corroboration with T3 and T6 who believe that learners are capable of doing the work alone; what they need is assistance of a teacher when they encounter challenges. Teachers and learners are both partners, seekers of knowledge, who work together, in the power relations as researchers to develop strategies to problem solving (Ikepez, 2006).

However, the findings from this study indicate that generally, teachers do not believe in their learners' capabilities. They think that learners are not ready for high school therefore, they are unable to take responsibility for their work. Though the teachers mentioned that they were

aligning their teaching with the principles of IBL, they were unable to elaborate more on the activities they gave learners that prove their claim.

While the findings in this study show that the teachers rely heavily on textbooks for teaching geography, it is argued in the literature that the use of IBL requires the course book, computer, projector, maps, stone and soil samples (Doganay, 2014). While it is necessary to observe the natural environment in teaching physical Geography, there is need to observe human activities in teaching the human and economic Geography. Therefore, the differences between the events and processes in the human environment will necessitate the use of different materials in teaching these topics by bringing into the classroom the environment (Unlu & Ozey, 2002). For instance, models or photographs should be preferred as teaching materials in the geography subject so that the occurrence processes or appearance of geographical formations are discussed. On the other hand, there are also best materials in teaching the events and processes related to the population in a Geography class. In this case, it is also important to prefer the right material in teaching the specific topic (Inel & Sezer, 2017).

It was discussed in Chapter Two that in IBL, learners must be actively engaged in the learning process because they are likely to understand and remember concepts that they discover during their interaction with the environment (Roblyer & Doering, 2013). Based on this observation, my intention was to find out whether the teachers employ hands-on activities. Most teachers indicated that outdoor activities were done theoretically. In fact, those activities are explained in the classroom. This study has revealed that, although teachers realise the importance of outdoor activities, they cannot employ them because of barriers such as limited time, lack of resources and their school environment, which will be discussed later in this chapter.

As for a few teachers who claimed that they employ fieldwork, it is because their schools are close to the land features that learners can observe. As argued by Leat (2017), experiences outside the classroom are important because they make the subject come alive, promote enthusiasm and motivate students. Therefore, failure to use outdoor activities frequently, as indicated in this study, may interfere with learners' ability to develop important geographical skills such as observation.

Furthermore, inquiry is described as an effective tool for promoting learners' interest and an essential tool for sustaining it (Biesta, 2012). In support, Guidio (2017) examines inquiry from

both a student and a teacher's point of view. He explains that from a student's perspective, IBL focuses on investigating an open question or problem while from a teacher's perspective, IBL focuses on moving learners beyond the realms of critical thinking and understanding. Although the participants in this study did not specifically identify many aspects of inquiry in their teaching, their description of how they teach geographical concepts include some elements of inquiry. Two teachers explained that they give their learners work in groups and then present the solution to the class.

The reason for using group work is that IBL approaches tend to valorise group work for its effectiveness to achieve mastery of social skills such as peer relationship and coping with the differences (Lopez, 2005). It is believed that in an IBL classroom, learners learn, practice and reflect on these skills in an authentic process that imitates those processes used in the real world (Marks, 2013). The findings from this study revealed that teachers believe in the essence of active learners' involvement in learning but each one of them has his/her own preference as to how to do that.

It is stated in the literature that our societal needs have tremendously changed over the years. Therefore, there is need to think of students and the challenges that are ahead of them to make sure they are well equipped with the necessary tools to face the demands and expectations of the future. As a result, teachers are expected to relate to and know their learners well in order to identify their potential (Santrock, 2017). However, three teachers in this study were of the view that the final examination is based on the content not the needs and the interest of learners. As a result, they thought that the learning process should emphasise what learners need to learn in preparation for the final examination.

### **5.7 Challenges of implementing IBL**

Though it is largely agreed by many teachers that inquiry is an important tool and effective teaching and learning approach in geography, its effectiveness comes with some challenges that need to be addressed by the teacher (DiBiase & McDonald, 2015). In the case of this study, some of the challenges that the teachers are confronted with include: large class size, interest and abilities of learners, inadequate time, weak comprehension of the nature of science on the part of the teacher, inadequate skills in pedagogy, the inappropriateness of curricula, existence of tensions between emerging roles to be played by teachers during inquiry lessons, views held by

teachers on inquiry and the culture of the school. Given these challenges, geography teachers find themselves having no option, but to employ didactic methods with heavy reliance on textbook information.

Other challenges reported by the participants are associated with learner-related factors such language barriers and little cooperation from some learners. As for language barriers, it is worth noting that communication plays a major role in implementing IBL. The teaching process, for example, will demand learners to express themselves verbally and to present the findings or solutions for the given solution (Atmako & Hanurrawa, 2017; Nasution, 2018). This study revealed that the challenge of learners showing poor understanding of English language is because of their background when they were in primary schools. In Lesotho, most public schools use Sesotho as their instructional language, especially in the lower grades. It is only when those learners get to high school that they are exposed to English language as a medium for learning almost all subjects.

Furthermore, the participants in this study considered learners as impediments for effective implementation of IBL in class. This has been pointed out by other researchers that little cooperation from some learners happens with those who find it hard to use the skills and processes associated with inquiry instruction, because the learners have been used to the traditional methods (Smith, 2015; Kienzler & Fontanesi, 2017). In this study, participants presented different views with regard to the way learners contribute to ineffective implementation of IBL. Some of them consider that learners' reluctance to participate in doing the assigned activities rendered the approach unsuccessful. Other participants indicated that learners seem not to be ready for high school and that they are not familiar with learner-centred approaches such as IBL as they are more used to the teacher centred ones.

On the question of how these challenges could be addressed, especially lack of skills among teachers, all the participants in this study were of the view that in-service training workshops could help. Previous research suggests that teachers would benefit from training courses that help to alleviate their uncertainty towards implementing inquiry-based learning (Choi & Ramsey, 2009). Participants in this study were, however, concerned about lack of professional development activities in Lesotho, which makes it impossible for them to teach learners through the approaches of IBL. Professional development in this context refers to training that teachers



receive to inform their practice of IBL, with the aim to increase their pedagogical knowledge and confidence in geography teaching.

Writing in the context of Uganda, where a study was conducted by Vavrus et al. (2011), it is important for teachers with limited understanding of pedagogical knowledge regarding learner centred approach to attend professional development opportunities at colleges, universities or through high quality workshops and short courses offered at any institution. It is further suggested that while the provision of high quality in-service programmes and ongoing school-based monitoring for practising teachers is acknowledged as one of the useful ways to bring about change in the direction of inquiry-based learning, this research found out that the NCDC does not assist teachers in the implementation of IBL through geography content workshops.

As a result, this was perceived as a challenge because most participants felt uneasy about IBL due to uncertainty about its implementation caused by lack of experience. For example, T2 and T4 became anxious and developed a negative attitude towards IBL because they lacked experience. From the teachers' responses, it seems that workshops held by the Ministry of Education and Training are not necessarily on IBL but on general information about geography education and learners' performance during final examination. Hence, teachers feel like workshops do not help them with the information and strategies that can be used by geography teachers to respond to the challenges encountered during the implementation of IBL. However, some teachers indicated that they had improved considerably in implementing IBL as a result of their experience. In short, it becomes better with time as they get used to it.

In addition, participants in this study attributed non-inquiry-based teaching to limitation of time because the geography syllabus is heavily loaded with factual content. They also indicated that IBL needed more preparation time which they did not have. This was indeed a genuine concern because only five periods are allocated for geography teaching in Lesotho schools in a week, while subjects like Mathematics and Science are assigned seven periods per week (Ministry of Education, 2009). According to MBEC (1999), teachers need to allocate time for learners to carry out tasks and acquire skills in learner-centred approach, and ten teachers in this study reported that they do not get enough time to implement IBL.

Furthermore, participants in this study reported the challenges of inadequate teaching and learning facilities as hindrances to effective implementation of IBL in their schools. Pretorius et

al. (2016) and Tambwe (2017) report a similar finding that teachers in most developing countries are faced with lack of computers and laboratory equipment to facilitate the learner-centred teaching. This is because the constructivism perspective requires that an inquiry-based classroom is equipped with relevant teaching and learning resources so that learners can actively participate in self-learning and exploring materials (Strom et al., 2018). In this study, the resources that were reported to be lacking were books, internet access, survey and weather instruments and were seen as hindering the implementation of IBL.

### **5.8 Strategies that could be used to respond to the challenges**

Inquiry-based learning has been prescribed by experts as the way for effective teaching and learning in schools (Cetin-Dindar, 2016). It is therefore being promoted in many countries by state policies and other stakeholders in the education sector. However, most of the previously mentioned challenges imply that there is still a lot to be done in Lesotho in order to achieve the benefits of IBL especially in this 21<sup>st</sup> century. While participants in other studies seem not to deny challenges but decide to face them with alternative means, participants in this study opted for lecture method. It is therefore stated by previous researchers that teachers' interpretations of challenges they face during teaching can sometimes determine their success (Chichekian & Shore, 2016).

For example, teachers may switch to scaffold their teaching with other possible means with the aim to realise their teaching goals. Participants in this study did not themselves respond to challenges, instead, they came up with strategies that could be used in order to respond to the challenges they encounter in the implementation of IBL. Participants in this study expressed ideas of establishing geography clubs; using collaborative teaching; in-service training workshops; teachers buying resources with their own money; encouraging learners to watch geography videos and attending weekend and holiday classes.

It was reported by Majoni (2017) that teachers work overtime daily and use weekends and public holidays or stay at school after normal working hours to make up in order to overcome the challenge of workload. Other teachers in the same study use peer-to-peer tutoring whereby fast learners are assigned to assist the slow learners.

Furthermore, a growing body of research revealed that when teachers work more collaboratively, students' outcome can improve (Leithwood, 2006). In this case, making time for collaboration

can include scheduling occasional days off for students or creating regular times during the school week when teachers can work together (Macgrath, 2015). Researches have shown that some schools explicitly build time into teachers' schedules to enable them to collaborate. A few studies like Moon (2007) and Harrison & Killion (2007) revealed that scheduling time for teacher collaboration was one of three key components of successful collaboration identified in a case study of a struggling rural high school at which a new principal implemented collaboration-focused reforms that led to significant increases in students' achievement. Hence, time and spaces are required for sustained, ongoing collaborative work.

Furthermore, it is indicated that professional organisations and associations play a significant role in the exchange of ideas, sharing of experiences and trying out innovations and experiments among teacher educators cutting across barriers of the regions (Allen, 2009). According to Klink (2017), the teacher educators can become members of associations and organisations which, from time to time, take up academic activities and organise seminars, conferences, workshops and meetings to discuss professionally essential developments.

### **5.9 Conclusions drawn from findings**

Based on the findings discussed in this this chapter, most of participating teachers seem to lack understanding on the use of IBL in geography teaching and learning and therefore a few of them seem to have implemented it as required in the Geography syllabus. However, some aspects of IBL were present in their descriptions of how they teach Geography. The participants therefore seemed to have a positive perception on the use of IBL in geography teaching and learning and realise its importance in the Geography curriculum. Although this was the case, it was found from the interviews that it is a small number of teachers who demonstrated a rare ability to teach through IBL. Therefore, there is an implication that IBL has not gained much traction in the five schools in which this case study was done. The results of this study also revealed that teachers face problems in terms of implementing IBL such as unlimited time of five periods per week and lack of appropriate teaching and learning resources, large class sizes and language barriers, little cooperation from learners, inadequate training for teachers and a heavily loaded syllabus.

All teachers did not provide any pedagogical solutions to these problems, particularly those who claimed to have used IBL approaches in their teaching, instead, they mentioned strategies that

could be used to respond to the challenges encountered during the implementation of IBL in geography teaching and learning.

### **5.10 Recommendations**

The success of employing inquiry largely depends on the teacher who is to guide learners during the lesson (Saye, 2017). As indicated earlier, the implementation of IBL in Geography teaching is influenced by the understanding and belief of the teacher as well as his or her application of the approach in Geography lessons. The findings in this study have shown that geography teachers have positive perceptions on the use of IBL and its effectiveness in Geography teaching and learning. This could be accredited to consistency of CAP and the orientations teachers receive as they go through teaching. Although IBL is gaining traction globally, this qualitative research has proven that this approach has not been fully implemented in those five schools which believed in lecture method and perceived IBL as challenging.

As the study draws to a conclusion, all the issues discussed, inclusive of the findings, point towards the following recommendations to improve IBL approaches in the teaching and learning of Geography:

- Teachers should be provided with staff development programmes to be familiar with the changing dynamics of teaching geography.
- Teachers must be taken through the appropriate ways of successfully using IBL in geography lessons to achieve the aims outlined in the geography curriculum and the goals of CAP.
- Inclusion of IBL guidelines in the geography syllabus is recommended with the aim to guide teachers.
- The syllabus should be trimmed of factual content to accommodate the use of IBL.
- Laboratories in schools should be improved to enable quality teaching of geography inclusive of IBL-based activities.

### **5.11 Limitations of the study**

The major limitation is that the data for this study was obtained from interviews only. I was not able to do classroom observations because schools were closed for the winter holidays. But in depth-interviews were used as to get more information from participants. This would have validated some of the claims made by the teachers on their use of IBL. Therefore, there is need

for further research involving lesson observations to address this gap in this study. Again, these results cannot be generalised due to the small area covered as well as the limited number of participants.

### **5.12 Further research**

Further research is therefore required on the practical application of IBL in geography classrooms to ascertain the strengths and weakness of teachers in using this approach. This would provide the baseline upon which staff development programmes could be organised for teachers to be trained and be well informed about the effective ways of conducting IBL lessons in branches of geography where IBL would be applicable.

## REFERENCES

- Abbel, C. (2005). Pictorial Implicature. *The journal of Aesthetics and Criticism*, 63(1), 55-66.
- Adofu, S. (2017). *Teachers' perceptions about inquiry in science education* (Master's thesis, Itä-Suomen yliopisto).
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211.
- Akinoglu, O. (2005). History education and identity. *History Education Research Journal*, 5(1), 71-81.
- Alabdukareem, S. A. A. (2017). Saudi Science teachers' perceptions of implementing inquiry in science class. *Journal of Education and Training Studies*, 5 (12) pp. 67-78.
- Alise, M. A. & Teddlie, C. (2010). A continuation of the paradigm wars. Prevalence rates of methodological approaches across the social/ behavioural science. *Journal of Mixed Methods Research*, 4 (2), 103-126.
- Allen, V. G., Fontenot, J.P. & Brock, R.A. (2000). *Cooperate Governance and Competition: Theoretical and Empirical Perspectives*. Cambridge University Press.
- Altinyelken, H. K. (2011). Student-centred pedagogy in Turkey: Conceptualisation, interpretations and practices. *Journal of Education Policy*, 26(2), 137-160.
- Andrews, J.C. & Durvasula, S. (1990). A Framework for Conceptualising and Measuring the Involvement Construct in Advertising Research. University of Carolina.
- Armitage, C. J., & Christian, J. (2003). From attitudes to behaviour: Basic and applied research on the theory of planned behaviour. *Current Psychology*, 22, 187-195.
- Asego, W. & Mch Neil. (2012). A Road Map For Measuring Distance Learning: A review of Evidence and Emerging Practices. USAID.

- Asika, N. (2006). *Research Methodology in behavioural sciences*. Lagos: Longman Nig. Plc.
- Athuman, M. S. (2017). Comparing the effectiveness of an inquiry-based approach to that of conventional style of teaching in the development of students' science process skills.
- Athumani, M. S., Ahmad, I. S., & Rahman, N. S. N. A. (2021). Teachers' conceptual understanding of inquiry-based approach (IBA) at secondary schools in Tanzania. *International Journal of Education and Learning*, 3(3), 175-182.
- Athumani, M. S., Nordin, M. S., & Mustaffa, A. (2020). Confirmatory factor analysis of self-evaluation spatial thinking skills (SESS) measurement model. *International Journal of Education and Learning*, 2(1), 1-6
- Awases, C. L. (2015). Secondary school Geography teachers' understanding and implementation of learner-centred education and enquiry-based teaching in Namibia. *Unpublished Master's thesis. University of Stellenbosch*.
- Banchi, H. & Bell, R. (2008). The many levels of inquiry. *Science and Children*, 46(2), 26.
- Bertram, C. Christiansen, I. (2014). *Understanding Research: An Introduction to Reading Research*. Pretoria. Van Schaik Publishers.
- Biddulph, M. (2017). Primary and Secondary Geography: *Teaching Geography*, 43(3), 101-104.
- Biesta, G. J. (2015). *Good education in an age of measurement: Ethics, politics, democracy*. Routledge.
- Blaikie, A. (2006). *Visions of Later Life: Golden Cohort to Generation*. Sage Publications Ltd.
- Blanchard, C. M., Courneya, K. S., & Stein, K. (2008). Cancer survivors' adherence to lifestyle behavior recommendations and associations with health-related quality of life: results from the American Cancer Society's SCS-II. *Journal of Clinical Oncology*, 26(13), 2198-2204.
- Boyce, M. S. (2006). Scale for resource selection functions. *Diversity and Distributions*, 12(3), 269-276.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in*

*Psychology*, 3(2), 77-101.

- Brown, D., & Warschauer, M. (2006). From the university to the elementary classroom: Students' experiences in learning to integrate technology in instruction. *Journal of Technology and Teacher Education*, 14(3), 599-621.
- Bybee, R. W., Taylor, J. A., Gardner, A., Van Scotter, P., Powell, J. C., Westbrook, A., & Landes, N. (2006). The BSCS 5E instructional model: Origins and effectiveness. *Colorado Springs, Co: BSCS*, 5(88-98).
- Campbell, C., & Cornish, F. (2010). Towards a "fourth generation" of approaches to HIV/AIDS management: creating contexts for effective community mobilisation. *AIDS Care*, 22(sup2), 1569-1579.
- Capenter, C. (2013). Phenomenology and rehabilitation research. *Research methods in health: Foundations for evidence based practice* (2<sup>nd</sup> ed, pp. 115-131) South Melbourne, Australia: Oxford University Press.
- Cetin-Dindar, A. (2015). Student motivation in constructivist learning environment. *Eurasia Journal of Mathematics, Science and Technology Education*, 12(2), 233-247.
- Chichekian, T., & Shore, B. M. (2016). Preservice and practicing teachers' self-efficacy for inquiry-based instruction. *Cogent Education*, 3(1), 1236872.
- Clarke, V., & Braun, V. (2013). Teaching thematic analysis: Overcoming challenges and developing strategies for effective learning. *The Psychologist*, 26(2), 120-123.
- Cohen, S., Manion, L., & Morrison, K. (1972). 2011. *Folk Devils and Moral Panics*. Sage.
- Creswell, J. W. (2014). *A concise introduction to mixed methods research*. Sage.
- Creswell, J. W. (2013). *Steps in conducting a scholarly mixed methods study*. Sage.
- Darling-Hammond, L. (2007). Race, inequality and educational accountability: The irony of 'No Child Left Behind'. *Race Ethnicity and Education*, 10(3), 245-260.
- Davidson, L. (2002). Understanding and evaluating qualitative research. *Australian and New*



*Zealand Journal of Psychiatry*, 36, 717-732.

Demirci, C. (2012). A problem-based learning. Developing information literacy through real problems. *Knowledge Quest*, 30(1), 34-35.

Dobber, M., Branch, J. & Oberg, D. (2013). *Understanding by Design*. Alexandria, VA: ASCD Press.

Dudu. The Changing Roles of South African Natural Science Teachers in an Era of Introducing a Refined and Repackaged Curriculum. *International Journal OF Educational Sciences*, 7(3), 547-558.

Dweck, C. S. (2008). Can personality be changed? The role of beliefs in personality and change. *Current Directions in Psychological Science*, 17(6), 391-394.

Elias, M. (2006). Perceptions of Directly Targeting SEL learning Skills in Public Education. *Creative Education*, 12(11), 4-14.

Fessier, J.H., (2011). *Patterns of thinking: Integrating learning skills in content teaching*. Needham Heights MA: Allyn and Bacon.

Fieldman, S. (1999). *Once, Twice, Three Times the Money*. The Observer, Cash, 4.

Fleischman, H. L., Hopstock, P. J., Pelczar, M. P., & Shelley, B. E. (2010). Highlights from PISA 2009: Performance of US 15-Year-Old Students in Reading, Mathematics, and Science Literacy in an International Context. NCES 2011-004. *National Center for Education Statistics*.

Frankel, J. P., & Wallen, N. E. (2008). *How to Design and Evaluate Research in Education*. McGraw.

Gage, N. L. (1989). The paradigm wars and their aftermath. A historical sketch of research on teaching since 1989. *Educational Research*, 18 (7), 450.

Gall, M. D, Gall, J. P & Borg. (2003). *Educational research: An introduction* (7<sup>th</sup> ed). Boston: Allyn and Bacon.

- Gibbs. (1988). *Learning by Doing: A guide to teaching and learning methods*. Further Education Unit.
- Giroux, H. A. (2001). Cultural studies as performative politics. *Cultural Studies? Critical Methodologies*, 1(1), 5-23.
- Gubus, E. G. & Lincoln, Y. S. (2005). Paradigm Controversies, contradictions and emerging confluences' in the Sage Handbook of Qualitative research. 3<sup>rd</sup>. Edn. California: Sage.
- Hakala, C. (2017). The impact of inquiry based teaching on student learning outcomes.
- Harison, C. & Killion, J. (2001). What works in elementary schools: Results-based staff development. Oxford, OH; National Staff Development Council.
- Hollins, E. R. (2011). Teacher preparation for quality teaching. *Journal of Teacher Education*, 62(4), 395-407.
- Hellen, M. & Roberts, J. (2004). Linking teaching and research in disciplines and departments. United Kingdom: Educational Academy.
- Hwang, G. J., & Chang, H. F. (2011). A formative assessment-based mobile learning approach to improving the learning attitudes and achievements of students. *Computers & Education*, 56(4), 1023-1031.
- Jonassen, D. H. (2000). Toward a design theory of problem solving. *Educational Technology Research and Development*, 48(4), 63-85.
- Kaya, M. (2018). Technology supported learning innovation in cultural contexts. *Educational Technology Research and Development*, 58 (2), 229-243.
- Kember, D. (1997). The relationship among teaching concept and the instructional innovation. *Journal of Service Science and Management*, 7 (3), 255-275.
- Kincheloe, J. L (2008). Critical research in science education. *International Handbook of Science Education*, 54 (2), 1191-1205.
- Klink, C. The distributed nature of working memory: *Trends in Cognitive Science* 21 (2), 111-

124.

- Knapper, C. K. (2007). *Life Long Learning and Higher Education. New patterns of learning series.* Croom Helm.
- Kubiatko, M., Janko, T., & Mrazkova, K. (2012). Czech student attitudes towards geography. *Journal of Geography, 111(2)*, 67-75.
- Lambert, D. & Bladestone, D. (2010). *Learning to Teach Geography in the Secondary School: A companion to school Experience.* Routledge.
- Latans, R. (2005). *Field work for Human Geography.* London, UK: Sage.
- Leedy, P. D., & Ormrod, J. E. (2015). *Practical research.* Pearson.
- Leithwood, K. (2006). Transformational school leadership for large-scale reform: *Effects on students, teachers, and their classroom practices: School effectiveness and school improvement, 17 (2)*, 201-227.
- MacGrath, H. (2015). *PROSPER for student wellbeing: Positive Education pathways and Policy.* Springer.
- Makar, K., & Fielding-Wells, J. (2018). Shifting more than the goal posts: Developing classroom norms of inquiry-based learning in mathematics. *Mathematics Education Research Journal, 30*, 53-63.
- Maree. J. G. (2011). Research on life design in Africa: *Qualitative analysis. 45 (3)*, 10.
- Marshall, J. C. (2013). *Succeeding with inquiry in science and math classrooms.* ASCD.
- Martens, D. M. (2015). *Research and Evaluation in Education and Psychology.* 4<sup>th</sup> Edn. Los Angeles: Sage.
- McDonald, S. (2012). New frontiers in neuropsychological assessment: Assessing social perception using a standardised instrument, The Awareness of Social Inference Test. *Australian Psychologist, 47(1)*, 39-48.
- Milston, C. A. & Earlier, W. D. (2008). Teachers' attitudes, towards Web Questions as a method

- of teaching. *Computers in schools*, 20 (2), 122-145.
- Ministry of Education and Training(MoET) (2009). Curriculum and Assessment Policy: Education for individual and social development. Government Printing.
- Mischel, P. (1968). *Personality and Assessment*. New York. John Wiley & sons, Inc.
- Morgn, D. I. (2007). Paradigms. Lost and Pragmatism Regained: Methodological Implications of Combining Qualitative and Quantitative Methods. *Journal of Mixed Methods Research*, 1 (1), 48-76.
- Mouton, J. (2011). Doctoral production in South Africa: Statistics, challenges and responses. *Perspectives in Education*, 29(3), 13-29.
- Mpango, R. S., Kinyanda, E., Rukundo, G. Z., Levin, J., Gadow, K. D., & Patel, V. (2017). Prevalence and correlates for ADHD and relation with social and academic functioning among children and adolescents with HIV/AIDS in Uganda. *BMC psychiatry*, 17(1), 1-8.
- Mtitu, E. A. (2014). Learner-centred teaching in Tanzania: Geography teachers' perceptions and experiences.
- National Research Council. (2000). *Inquiry and the national science education standards: A guide for teaching and learning*. National Academies Press.
- Orth, D. (1985). *The Ray Bradbury Theater*.
- Pedaste, M., Mäeots, M., Siiman, L. A., De Jong, T., Van Riesen, S. A., Kamp, E. T., ... & Tsourlidaki, E. (2015). Phases of inquiry-based learning: Definitions and the inquiry cycle. *Educational Research Review*, 14, 47-61.
- Peters, J. M., & Stout, D. L. (2015). *Science in elementary education: Methods, concepts, and Inquiries*. Pearson.
- Phosisi, I. J. (2019). *Integrated curriculum in Lesotho: challenges encountered by learners through their teachers' views* (Doctoral dissertation) University of KwaZulu-Natal.
- Pillay, H. (2002). An investigation of cognitive processes engaged in by recreational computer.

- Implications for skills of the future. *Journal of Research on Technology in Education*, 34 (3), 336-350.
- Pozuelos, F., Travé González, G., & Cañal de León, P. (2010). Inquiry-based teaching: teachers' conceptions, impediments and support. *Teaching Education*, 21(2), 131-142.
- Pretty, R. E. & Caciopo, J.T. (1985). The Elaboration Likelihood Model of persuasion. *Advances in Experimental Social Psychology*, 31(3).
- Prince, J. M. & Felder, M. R. (2006). Inductive Teaching and Learning Methods: Definitions, Comparison, and Research Bases. *Journal of Engineering Education*, 95, 123-138.
- Putnam. (2012). How to be sophisticated. "Naïve Realist" In philosophy in an Age of science. Harvard University Press Cambridge. Mass.
- Rammarain, V. (2014). Recasting & rethinking Education 01 in South Africa: Imperatives for making education more relevant, responsive, and authentic. *Journal of Education*, 1(76).
- Richard, F. D. (2003). *One Hundred Years of Psychology Quantitatively Described*, 7(4) 57-79.
- Roberts, R. C. (2003). Emotions: An essay in aid of moral psychology. Cambridge University Press.
- Roehrig, G. H., & Kruse, R. A. (2005). The role of teachers' beliefs and knowledge in the adoption of a Reform-Based curriculum. *School Science and Mathematics*, 105(8), 412-422.
- Rump, M., Esder, W. & Wild, E. (2017). Individual differences in the effects of academic motivation on higher education students' intention to drop out. *European Journal of Higher Education*, 7(4), 341-355
- Salvin, R. (2003). Cooperative learning and achievement: Theory and Research. Handbook of psychology: *Educational Psychology*, Vol 7, pp.177-198. John Wiley & Sons, Inc.
- Scott, D. & Usher, R. (2004). Researching education: Data, methods & theory in educational enquiry. New York. Continuum.
- Searle, J. R. (2015). Seeing Things as They Are: A theory of Perception. University of

California, Berkeley. New York.

Sedgwick, P. (2013). Convenience sampling. *Bmj*, 347.

Selepe, C. M. (2016). *Curriculum reform in Lesotho: Teachers' conceptions and challenges* (Doctoral dissertation) University of the Witwatersrand.

Simasiku, F. S. (2012). Developing Action Competence Geography Learners via fieldwork: A Namibian case study.

Veloo, A, Perumal, S. & Vickneswary, R. (2013). Inquiry-Based Instruction, Students' Attitudes, and Teachers' Support towards Science Achievement in Rural Primary Schools. *Education. Procedia- Social and Behavioural Sciences*.

Wagoner, B. (2013). Bartlett's concept of schema in construction. *Theory & Psychology*, 23 (5), 553-575.

Weimer, J. (2013). *Learner-centered teaching: Five key changes to practice*. John Wiley & Sons, Inc.

Zion, M., & Mendelovici, R. (2012). Moving from structured to open inquiry: challenges and limits. *Science Education International*, 23(4), 383-399.

Zion, M., Cohen, S., & Amir, R. (2007). The spectrum of dynamic inquiry teaching practices. *Research in Science Education*, 37, 423-447.

## Appendices

### Appendix A

#### Interview Schedule

**Interviewer:**

**Teacher's biographic details:**

Date		Gender	
Participant code		Age range	
Teacher's Qualification		Subject major	
School		Interview duration	

#### Teacher's experiences

- a) When did you complete your training?
- b) How long have you been teaching Geography?
- c) How many classes do you teach and how many learners do you have in each class?

d) What other responsibilities do you have apart from teaching?

### **Teacher's perceptions on the use of Inquiry-Based Learning**

- What do you know about Inquiry-Based Learning?
- What are your views pertaining the inclusion of IBL in the Geography curriculum?
- What are some main focuses do you think are necessary in the implementation of IBL?
- What are necessary resources that you think a school should have in order to implement IBL properly? Does your school have such resources?
- Do you think approaches IBL provide learners with sufficient critical thinking skills?

### **Teacher's understandings, beliefs and experiences**

- What do you understand by IBL approach in the context of geography teaching/learning?
- Have you ever attended workshops regarding approaches of Inquiry-Based?
- What do you understand to be the benefits of IBL approach in geography?
- Which IBL teaching methods do you consider to be most appropriate in teaching geography in this school? Please explain.
- What approach do you prefer when teaching Geography? And why?

### **The use of inquiry-based in specific schools and classroom context**

- How does the Geography syllabus guide your teaching in Geography?
- What resources do you use when involving learners actively in Geography teaching?
- How do you align your teaching to the principles of Inquiry- Based Learning?
- Is the process of teaching/learning, are your Geography class activities shaped by the need and interest of learners? If yes, how?
- Which outdoor activities do you usually organise for your lessons? How often to do use such activities? in your teaching, for example; field work? Please explain.
- Do you include activities such as project learning, problem-based learning and collaborative learning in your Geography lessons?



- Which activities do you give learners, that show their high level of active control over context?

### **Challenges encountered on the use of IBL**

- What are school factors constraining the use of IBL in the context of geography?
- What problems do you encounter with learners when implementing IBL teaching activities?
- What kind of support do get from both parents and administration in IBL learning activities?
- What other challenges do you face in using IBL approaches?
- How have these challenges influenced your teaching style?

### **Strategies used in order to respond to the challenges**

- How do you cope with the challenges you face on implementing IBL?
- How do you minimise the negative impact of challenges you encounter when using IBL?
- How do you encourage your students to be interested in Geography learning or usage of IBL to solve their social issues?
- What do you think Geography teachers can do to improve learning process of geography through IBL?
- What goals do you have for your students in geography learning?

### Appendix B: Introduction Letter

# **The National University of Lesotho**

Telephone: +266  
22340601/3631

**FACULTY OF EDUCATION**

P.O. Roma 180  
Lesotho

**TO WHOM IT MAY CONCERN**

Dear Sir/Madam,

**A Letter of introduction to undertake research**

This letter serves to introduce Ms. Thembiswa Koekoe, who is a Master of Arts in Education (M.A.ED) student in the Faculty of Education at the National University of Lesotho (NUL). The student is undertaking research on Geography Inquiry-Based Learning approach. The study involves interviews with geography teachers.

Kindly accord him the necessary assistance and support in this important activity.

Your cooperation is highly appreciated.

Yours sincerely,

**Associate Professor M. Raselimo (Supervisor)**

