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DOMINANT PEDAGOGIES USED IN THREE RURAL GEOGRAPHY PRIMARY SCHOOL CLASSROOMS IN THE WEST COAST DISTRICT

by

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DECLARATION

I, Alan Felix, hereby declare that an investigation into the dominant pedagogies used in three rural Geography primary school classrooms in the West Coast District is my own work and that it has not been submitted for any degree in any other university.

Signed: .....

Alan Alistair Felix

Date: November 2015

ABSTRACT

The question arose whether the teaching of primary school Geography teachers could be a factor for the declining Grade 12 pass rate in Geography. It is within this context that the researcher decided to investigate the quality of Geography teaching and learning in three rural primary schools in Grades 4 – 6. The theories of Shulman's (1987) Pedagogical Content Knowledge (PCK) and Koehler and Mishra's (2009) Technological, Pedagogical and Content Knowledge (TPACK) framed this research. Although the Intermediate Phase curriculum provides a general education experience, the teacher needs to adopt teaching strategies that will deliver geographical knowledge, skills and values, which will enable all learners to function effectively and responsibly in space-place and time. A qualitative research design was employed for this study using interviews and observations. Six teachers were purposively selected for this study. These schools are in high poverty rural communities and the medium of instruction is Afrikaans. The data was both inductively and deductively analyzed. The findings indicate that the most used pedagogy by these six teachers was the Lecture Method in combination with the Question and Answer Method. It was found that teachers do not have adequate content knowledge about the different pedagogies. This research was an exploratory investigation into the pedagogies used in Geography and offer three recommendations: recommendations for teaching Geography in rural multi-grade classrooms, recommendations for WCED and further research.

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LIST OF ACRONYMS/ ABBREVIATIONS

AS	Assessment Standards
C2005	Curriculum 2005
CAPS	Curriculum and Assessment Policy Statement
CK	Content Knowledge
DoBE	Department of Basic Education
GET	General Education and Training Band
HEIS	Higher Education Institutions
IP	Intermediate Phase
LO	Learning Outcomes
MG	Multi-grade
NCS	National Curriculum Statement
PCK	Pedagogical Content Knowledge
PK	Pedagogical Knowledge
RNCS	Revised National Curriculum Statement
TCK	Technological Content Knowledge
TK	Technology Knowledge
TPACK	Technological, Pedagogical and Content Knowledge
TPK	Technological Pedagogical Knowledge
WCED	Western Cape Education Department

CHAPTER 1

1.1 INTRODUCTION

After examining the Grade 12 National Senior Certificate Examination results of Geography from 2008 – 2010, the researcher noticed there was a steady decline in the percentage pass rate. The results during that period according the Department of Basic Education (DoBE) (2010:58) are presented in Table 1.1.

Table 1.1 Grade 12 Geography National Senior Certificate Examination Results

Subject	Percentage Achieved		
	2008	2009	2010
Geography	80,3	72,3	69,2

The declining Grade 12 National Senior Certificate Examination results were a worrying factor for the researcher, who taught Social Sciences (particularly Geography) in primary schools. He constantly consulted books and journal articles about how to improve the pedagogical and content knowledge he and other rural primary school teachers needed. The question arose whether the teaching of primary school Geography teachers could also have been a factor for the declining Grade 12 pass rate? It is within this context that the researcher felt it was necessary to take a look at the quality of teaching and learning of Geography in primary schools in order to improve the results in the higher grades. The foundations for geographical skills need to be strengthened from the primary school.

The researcher has been a Geography teacher for the past thirteen years and a 'lead teacher' for the past five years for Social Sciences. The Western Cape Education Department's (WCED) Curriculum Advisor in the West Coast District invited the researcher to be a 'lead teacher'. In this capacity he conducted workshops on the content and pedagogical teaching of Social Science. Over the years he has assisted many teachers, specifically, to become better primary school Geography teachers. He discovered that there were four categories of teachers he worked with: i) there were new teachers, who majored in Geography, and came into the teaching profession with some content knowledge but had less experience in adapting pedagogical knowledge; ii) there were new teachers who taught Geography with no knowledge of Geographical content and pedagogical knowledge; iii) he experienced teachers who had been expected to teach Geography for the first time with no

content or pedagogical knowledge and finally iv) there were some experienced teachers who had the content knowledge but lacked pedagogical knowledge.

These experiences prompted the researcher to study this phenomenon further and to find out what pedagogical knowledge Geography teachers were using in their rural classrooms. A significant feature of rural schools is that they are characterised by the need for multi-grade (MG) classrooms. The term 'multi-grade' is not universal, but the practice is widespread. MG teaching, or multi-level teaching, refers to the teaching of children of different grade levels at the same time in the same setting (Joubert, 2010a:58; Mathot, 2001:14). Many terms are found in the literature to describe MG settings, such as mixed-age grouping, multi-age classes, family grouping, non-graded or un-graded education (Katz, 1995:11). For consistency and clarity, the term 'multi-grade' (MG) will be used throughout this study.

This qualitative study was conducted in 2012 as a strategy to observe and investigate different pedagogies and challenges six rural teachers faced when teaching Social Sciences (Geography). The data collection methodology was conducted through observations, one-on-one interviews and one focus group interview with the six teachers.

This chapter provides an introduction to research presented in the dissertation. It describes the origin and background of the study, importance of the problem, context of the study, the approach to the study, purpose and goals of the study. It introduces the research question to be answered, clarification of terms, significance, limitations, assumptions and finally the structure of the dissertation.

1.2 ORIGIN AND BACKGROUND OF THE STUDY

Three concepts have provided the origin and background of this study. These concepts include: pedagogy, Geography and rural multi-grade. There are a plethora of international and national academic journal articles written on general pedagogy skills (Lambrinos & Bibou, 2006; Varma, 2005; Cruickshank, Jenkins & Metcalf, 2009; Roberts, 2011; Leach & Moon, 2008). However there are even fewer international and national journal articles written on the pedagogy of teaching Social Science (Geography) (Roberts, 2011; Varma, 2005; Owen & Ryan, 2001; Fisher & Binns, 2000). However, the researcher found only one research article based on Geography teaching in rural and multi-grade settings (Van Harmelen, 1999) in South Africa. This indicates a gap in this particular research area into Geography teaching in rural multi-grade schools, hence one of the reasons for selecting this research topic.

To further understand the background of this study it is important to comprehend the term 'pedagogy'. Leach and Moon (2008:6) discuss the broad term 'pedagogy' as the following:

i. any understanding or theory of pedagogy must encompass all the complex factors that influence the process of teaching and learning;
ii. within any pedagogical setting the mind must be viewed as complex and multifaceted;
iii. learning is a social process and thus it follows that any attempt to influence learning has to go beyond the characteristics of any individual learner;
iv. the development of knowledge is inseparable from the process of participating in a culture of practise;
v. pedagogy needs to imaginatively consider the wide range of tools and technologies, to make sense in the world we live; and
vi. pedagogy must build self-esteem.

Van Manen (1991:28) and Loughran (2006:1) stated that the word 'pedagogy' is increasingly equated with teaching, instruction and curriculum. Van Manen (1991) claimed that 'pedagogy' is used to refer to specific approaches and methodologies on curriculum and teaching. These specific approaches, methodologies and teaching methods are needed to make geographical skills more efficient in the classroom (Vuk & Vranković, 2009:433). In fact, Howley, Rhodes and Beall (2009:254) argue that the types of traditional instruction that teachers use are far less challenging than the active and investigatory approaches to instruction. In rural schools, where traditional methods of instruction tend to be the norm have shown reluctance to differentiate (Howley et al, 2009:254).

Although the data for this research project was collected in 2012, it is necessary to study the historical changes in the Geography curriculum that have occurred since 1994, as illustrated in Table 1.2. Before Curriculum 2005 (C2005) the approach to Geography was one of a textbook behaviourist approach (Beets, 2008:70). C2005 opened up opportunities for introducing a social constructivist approach to Geography education (Van Harmelen, 1999:80). Van Harmelen (1999) suggested that more emphasis should be placed on consolidating the pupils' geographical knowledge and learning during the lesson. These changes have ostensibly been introduced to strengthen social sciences education in South Africa generally, and geography education more specifically (Beets, 2008:68).

Table 1.2 Changing education curriculum content topics in the Geography curriculum from 1997 – 2012 from grades 4 – 6

Issues	1997 C2005	2002 RNCS	2012 CAPS
Subject name in curriculum	Human and Social Science Geography	Social Science Geography	Social Science Geography
The pedagogy	Learner-centred constructivsim	Learner-centred constructivsim	Learner-centred constructivsim
Content knowledge	**Grade 4** Map skills Settlements Food production Resources Access to food and Water **Grade 5** Map skills Physical structure of South Africa Climate regions of South Africa Resources Population Health and Welfare **Grade 6** Map skills Trade and development Climate and vegetation around the world Population Environmental Issues	**Grade 4** Map skills Settlements Food production Resources Access to food and Water **Grade 5** Map skills Physical structure of South Africa Climate regions of South Africa Resources Population Health and Welfare **Grade 6** Map skills Trade and development Climate and vegetation around the world Population Environmental Issues	**Grade 4** Map skills Settlements Food and farming in South Africa Water in South Africa **Grade 5** Map skills Physical Features of South Africa Weather, climate and vegetation of South Africa Minerals and mining in South Africa **Grade 6** Map skills Trade Climate and vegetation Around the world Population

Specific outcomes Specific aims	1. Demonstrate a critical understanding of how South African society has changed and developed. 2. Demonstrate a critical understanding of patterns ofsocial development. 3. Participate actively in promoting a just, democratic and equitable society. 4. Make sound judgements about the development, utilisation and management of resources. 5. Critically understand the role of technology in social development. 6. Demonstrate an understanding of interrelationships between society and the natural environment. 7. Address social and environmental issues in order to promote development and social justice. 8. Analyse forms and processes of organisations. 9. Use a range of skills and techniques in the Human and Social Sciences context. (NDoE, 1997:2)	**Learning Outcome 1: Geographical enquiry** The learner will be able to use enquiry skills to investigate geographical and environmental conceptsand processes. **Learning Outcome 2: Knowledge and understanding** The learner will be able to demonstrate geographical and environmental knowledge and understanding. **Learning Outcome 3: Exploring issues** The learner will be able to make informed decisions about social and environmental issues and problems. (DoE, 2002a)	1. Are curious about the world they live in. 2. Have a sound general knowledge of places and the natural forces at work on earth. 3. Understand the interaction between society and the natural environment. 4.Think independently and support their ideas with soundknowledge. 5.Care about their planet and the well-being of all who live on it. 6.Understand and work with a range of sources – including maps, data and photographs. 7.Observe and engage with phenomena in their ownenvironment. 8.Find out about places, people, events, and issues using different sources, e.g. books, people, photographs, theInternet. 9. Communicate ideas and information. 10. Make informed decisions and take appropriate action. (DoE, 2012)

Surty (2011:1) describes ‘rural’ areas as places, which are remote and relatively underdeveloped. He argues that rural areas are characterized by various factors that negatively influence the delivery of quality education. These factors include: socio-economic realities of rural areas, rural areas are not attractive for teachers, inappropriate teaching methods and the correlation between language and performance. In these rural settings, multi-grade teaching will occur, with limited facilities and mostly on farms (Joubert, 2010a:6).

Joubert (2010a:6) describes multi-grade teaching as, where one teacher simultaneously teaches the subjects in two or more grades. Literature uses many different terms to describe this kind of teaching namely, 'multi-level', 'multiple class', 'composite class', 'vertical group’, and ‘family classes’ (Katz, 1995:11). For consistency and clarity, the term multi-grade will be used throughout this study. Most learners in multi-grade schools come from poor environments and many factors contribute to lower educational participation in rural areas (Mulkeen, 2006:3). Mulkeen (2006) identified four factors for low educational participation, these include: Firstly, the costs of attending schools are often higher in rural areas. Many rural households are dependent on their children for help during busy times of the agricultural year such as harvest time. Secondly, parents in rural areas often have a lower level of education and may attach a lower value to schooling. Thirdly, parents may be less able to help their children learning because they are less likely to be educated themselves. Finally, homes in rural areas are often ill equipped to meet the needs of children to study and often lack facilities such as electricity.

Mulkeen (2006:4) states that governments may find it more difficult to supply quality education services in rural areas. Three factors combine to weaken the quality of teaching in rural areas. Firstly, in many African countries, teachers prefer to teach in urban areas. The more experienced teachers find ways to move to more desired schools. Secondly, teachers in rural schools may teach less than their counterparts in urban areas. Any trip away from the rural area, to visit a doctor, to collect pay, to engage in in-service training, or to visit family may involve long journeys and involve missed school days. Thirdly, even when teachers are teaching, the quality of their work may be lower. Rural teachers have less access to support services than their urban counterparts, and fewer opportunities to attend in-service courses. Furthermore, Joubert (2010:4) stated that in South Africa teachers have never been trained for a multi-grade system, they still teach these classes as if learners were all in a single grade or monograde class. University teacher-training courses do not deal with multi-level schools, therefore teachers are ill prepared for rural schools. It is within this multi-grade setting that teachers need to teach and will ultimately have an influence in the quality of learning and the teaching of Geography.

Although there are challenges regarding multi-grade schools, there are many positive issues. Little (2004:6) found that friendship patterns, self-esteem, cognitive and social development are more favourable in multi-grade schools. Multi-grade classrooms are consequently ideal as teachers guide children and children guide their peers towards their own independent.

1.3 IMPORTANCE OF THE PROBLEM

The rapidly changing world has increased demands on teachers to prepare learners. In order to do this, teachers should focus on quality of instruction in their subjects and engage their pupils in cognitive and social tasks (Harris, 1999:31). Applying different pedagogies in the classroom can do this. Harris (1999:31) came to the conclusion that without the proper knowledge of teaching methods, the pedagogy will influence the classroom.

Although, in South Africa, the Department of Basic Education's (DoBE) focus is on improving languages and mathematical skills in primary schools classrooms, there is a tendency that Geography is neglected in schools (Van Harmelen, 1999:80). He stated that there has been a dearth in research in primary school Geography programmes. Hence, the main focus of this study is on the pedagogies of Geography teaching. Literature by Kent (cited in Smith, 2002:4) also confirmed this importance by saying:

> Geography is one of the most important school subjects and one of the most difficult to teach. Geography enables man to place himself in the world, and to know where he stands with regard to his fellows, so that he will neither exaggerate nor diminish his own importance.

By conducting this study, the researcher is hoping to contribute to enhanced Grade 12 Geography National Senior Certificate Examination results as described in Table 1.1. Another contribution will be to improve the effective teaching and learning in primary school Social Sciences (Geography).

1.4 CONTEXT OF THE STUDY

The context of the study was to locate six Geography teachers in three primary schools in the West Coast District. These teachers are all in rural schools and teach from Grade 4 to Grade 6. In choosing the schools for the data collection the researcher was under the impression that most of the teachers did not have Geography as their main subject in their final year of study. In the analysis it became clear that four of the six teachers had Geography in their final-year undergraduate study. The following paragraph gives a brief explanation of the schools and the teachers which were interviewed and lessons which were observed.

School A is a rural multi-grade school, 23 kilometres south east of Malmesbury which is the nearest big town. The total number of pupils at this school from Grade R to Grade 7 was 322 and their class numbers ranged from 20 to 52. T1 and T2 were the two Geography teachers at this school. T1 taught the Grade 4 class and T2 the Grade 5 class of the Geography curriculum. The class of T1 had an interactive whiteboard, computer and projector in his classroom although they did not work. The school consisted of 8 teachers including the principal. The principal teaches all subjects in the Grade 7 class. The building was neatly kept with educational drawings on the walls. These drawings were commissioned by an artist. There was no sports field. The learners walked to school from the surrounding homes which are next to the school.

School B is a rural school which was 20 kilometres south west of Malmesbury. T3 and T4 taught at this school. This school offers Grades R to Grade 7. The total number of pupils at this school was 360 and their class numbers ranged from 34 to 61. T3 and T4 were the two Geography teachers at this school. There were 7 teachers including the principal. This principal (T3) is also a full time teacher in a Grade 6 class teaching Geography. T4 taught Geography to the Grade 4 class. The buildings with 5 classrooms are made of asbestos material. A church building next to the school is used as the principal's classroom. This school is surrounded by sand yet the building is neatly kept. The learners live in the surrounding houses next to the school, so do not spend too much time traveling to school. The school did not have computers, but T3 used his own computer and data projector for his Geography lessons.

School C is a farm multi-grade school which was 13 kilometres east of Malmesbury. This school offers Grades R to Grade 7. The total number of pupils at this school was 112 and their class numbers ranged from 8 to 22. T5 and T6 were the two Geography teachers at this school. The school consists of 5 teachers including the principal. The school buildings were in a good condition and were neat. The learners were from surrounding farms and they were transported to school by bus. The school had a computer laboratory with twelve functional computers. Table 1.3 provides information of the teachers in the study.

Table 1.3 Teachers used in this research project

	Geography as major subject in their undergraduate studies	Years' experience teaching Geography	Grade/s taught in 2012	Subject taught at school
Teacher 1	Yes	5 years	4 and 5	Geography and 5 other subjects
Teacher 2	Yes	22 years	5 and 6	Geography and 5 other subjects
Teacher 3	Yes	20 years	6	All subjects
Teacher 4	Yes	2 months	4	All subjects
Teacher 5	No	6 years	4 and 5	All Subjects
Teacher 6	No	4 years	6 and 7	All subjects

1.5 APPROACHES TO THE STUDY

For this qualitative study, multiple methods of data collection which include interviews, observations and video recordings, were used. An initial meeting was arranged with the principals where the data was collected. The teachers who taught Geography were called in so that they could be briefed on the approach of the study. They were given a detailed explanation as to why their school was chosen and the importance of the study. The schedules for the interviews and observations were clarified and the necessary permission from WCED was explained. It was agreed that the researcher was going to conduct interviews after school and the observations of the lessons, during the Geography period. All six interviews took place after school hours on the school premises and were recorded. The teachers were relaxed and did not object to the microphone. All six interviews were conducted in Afrikaans, which was also the interviewer's home language. They were translated into English and back translated for language verification.

During the observations the researcher introduced himself to the learners and informed them about his presence. The learners in School A were well behaved and were not visibly conscious of the researcher's presence. However School B and C had some learners who constantly looked at the video camera.

During the time when the data was collected, 2012, the CAPS curriculum was being implemented in the Foundation Phase. The teachers in the Intermediate Phase (which are the introductory phase for Social Sciences) were still using the RNCS document. The researcher focussed on the Intermediate Phase as he himself is a Geography teacher in this phase. They introduced the CAPS document in 2013. In the analysis of the data (Chapter 4) both curricula will be referred to.

1.6 THE PURPOSE AND THE GOAL OF THE STUDY

By teaching Geography, as part of the Social Science learning area, in the primary school, the researcher developed an interest in the teaching methodologies used. Being the Cluster Coordinator for Geography, to support teachers in the Social Science learning, it became clear that many teachers had little knowledge in the teaching of Geography. Although they were teaching the learning area it was not one of their main subjects during their undergraduate studies. The researcher came to the conclusion that if this was the case, they would probably lack knowledge in the current teaching pedagogies used in the Geography classroom. The purpose of the study was to contribute to the limited information about teaching Geography pedagogies in the rural multi-grade context in South Africa. The goal was to give a detailed account of dominant pedagogies currently being used in classrooms and which pedagogies have the most influence on the teaching and learning of Geography. He was interested to research what challenges teachers' experienced when teaching Geography in rural classrooms.

1.7 THE RESEARCH QUESTION

The key focus question in this study is:
Dominant pedagogies used in three rural Geography primary school classrooms in the West Coast District.

Sub-questions

- What are the dominant pedagogies used in the Geography classroom?
- What are the challenges teachers' experiences when teaching Geography in rural areas?

1.8 CLARIFICATION OF TERMS

1.8.1 Pedagogy

Pedagogy, as describe in the literature, is a synonym for teaching. It is seen as a term for such things as teaching procedures, teaching practise, instruction and so on (Loughran, 2006:1). Loughran (2006:2) describes pedagogy as the art and science of educating children and focuses on the relationship between learning and teaching. More importantly is that teaching and learning are linked and teaching purposefully influences the learning and viceversa.

1.8.2 Lecture Method

According to Khan and Akbar (2008:50), the lecture method is a traditional method of teaching. This entails when knowledge is communicated by the teacher to the learner orally and the teacher is dependent on their own memory and transmits it to the student.

1.8.3 Question and Answer Method

According to Basha and Rao (2007:99), the Question and Answer Method is referred to as the Socratic Method. In this method an effort is made by the teacher to systematize the previous knowledge of the students. Making use of the Question and Answer Method an attempt is made to organize and systematize the previous knowledge of the students.

1.8.4 Project and Research Method

According to Prince and Felder (2006:14), the Research Method based teaching and learning begins with an assignment to carry out one or more tasks that lead to the production of a final product—a design, a model, a device or a computer simulation.

1.8.5 Presentation Method

Moore and Hansen (2012:184,240), describe the Presentation Method as one of the common methods in teaching and consists of telling and explaining.

1.8.6 Groupwork

According to Cruickshank et al (2009:251) Group Work task is to collectively learn or master content the teacher has previously presented.

1.8.7 Practical Method

Winkelmann and Erb (nd:2) defined practical work as ‘an activity which involves an intervention to produce the phenomenon to be observed or to test a hypothesis’. The goal of doing practical work is not only to manipulate things in general but to gain a better

understanding from it. Practical work can be used for several intentions, e.g. learning in-depth knowledge or enhancing experimental competencies (Winkelmann & Erb, nd:2).

1.8.8 Individual Method

Kumari and Rao (2004:105) describe the Individual Method as being characterised by a guided search encouraged by the teacher. The main emphasis is for the learner to learn at his own pace. This method is tailored to meet the student's interest, needs and abilities (Moore & Hansen, 2012:240).

1.8.9 Pedagogical Content Knowledge (PCK)

Cochran, King and De Ruiter (1991:1) describe Pedagogical Content Knowledge as a type of knowledge unique to teachers. PCK concerns the manner in which teachers relate their pedagogical knowledge to their subject knowledge in the school context.

1.8.10 Urban

Debertin and Goetz (1994:2) distinguish urban schools as schools located in and drawing students from medium-sized communities of 5,000 to 100,000 residents. However, McCracken and Barcinas (1991:31) gave a population number of more than 200,000 for urban areas.

1.8.11 National Curriculum Statement (NCS)

Meij and Sullivan (2003:1) state that the NCS try to realise the goals set out in the Constitution of the Republic of South Africa and aims to develop the full potential of each learner as a citizen of a democratic society. The principles that are set out and underline the NCS are: social justice, a healthy environment, human rights, inclusivity, outcomes based education, a high level of skills and knowledge for all, clarity and accessibility and progression and integration.

1.8.12 Lower-order questions

Lower order questions emphasize the recall of specific and universal methods, processes, structures, and settings (Freahat & Smadi, 2014).

1.8.13 Higher-order questions

Higher-order questions are more advanced, require knowledge of subject and require learners to engage in deep thinking processes. These questions will enable learners to: analyse, subdividing something to show how it is put up together; synthesize, creating a unique product; and evaluate, making value decisions about issues. Higher order questioning will promote critical thinking ability and skills in learners (Freahat & Smadi, 2014).

1.9 SIGNIFICANCE OF THE STUDY

This study is significant to Geography teachers, especially those in the Intermediate Phase in terms of highlighting the challenges experienced in rural multi-grade classrooms. Furthermore, this study could shed light on pedagogies which teachers, in rural schools, can use in their Geography classes. It will be of value to the schools and teachers who were involved in the current study, as it may allow them to reflect on their current classroom practices. The study will be useful to the DoBE, and lead teachers in terms of highlighting teaching pedagogies being used in the Geography classroom. Finally this study will be able to contribute to the effectiveness of teacher training in the subject Geography from Grades 4 to Grade 6. Lecturers will be informed about theory, content and a variety of pedagogies discussed in this study.

1.10 LIMITATIONS OF THE STUDY

This study was limited to three schools in the West Coast District in the Western Cape. It was therefore difficult to generalise the findings to the rest of the provinces and country. Due to time constraints and lack of proper funding only three schools were chosen. Since the researcher registered at an English speaking university, language was a limitation. The teachers, and the researcher involved in the study were Afrikaans speaking therefore the interviews needed to be translated and transcribed into English. The data collection was limited to two weeks from 23 April to 4 May 2012 during the second term because some of the schools indicated that it would not suite them in the third term. The WCED does not allow researchers or teaching students into schools during the fourth term. This study was limited to researching the subject Geography.

1.11 ASSUMPTIONS OF THE STUDY

The assumption was made during the study that all the teachers had extensive content and pedagogical knowledge of Geography. It was assumed that they were experienced rural multi-grade teachers. It was assumed that the six teachers liked to teach Geography at their schools. An assumption was also made that the participants would give honest responses and willingly participate in the research.

1.12 ORGANISATIONS OF DISSERTATION

Chapter 1: is the introductory orientation and formulation of the research problem. This chapter is an overview and states the origin and background of the study, importance of the problem, context of the study, approach to the study, purpose and goal of the study, the research question, clarification of terms, limitations of the study and assumptions of the study. The research question and two sub- questions have been stated. Key terms have been

clarified and the significance, limitations and assumptions were verified. This chapter placed the study in perspective and orientated the reader to the nature of the study.

Chapter 2: introduces the literature review. The focus in the chapter is regarding Geography in the Grade 4-6 classroom, what needs to be taught in the curriculum and discusses the pedagogies used to teach Geography. The chapter also examines the conditions in the rural multi-grade classroom. In the chapter a discussion is provided on the theoretical framework which includes Shulman's (1987) PCK and Koehler and Mishra's (2009) TPACK.

Chapter 3: outlines the research method by giving a thorough explanation of the qualitative approach which was used during this study. This chapter describes the research paradigm, the research approach. It gives details about the three rural schools and teachers where the data was gathered. In the chapter the data collecting techniques are described in detail and how the data had been analysed. The researcher gives an overview how trustworthiness is achieved and how ethical consideration is obtained.

Chapter 4: This chapter analytically discusses the findings, presents a detailed account of the research results, and serves as a discussion of the findings from the two research sub-questions.

Chapter 5: presents a discussion of the results and conclusions of the research. Recommendations are given for future research.

CHAPTER 2
LITERATURE REVIEW

2.1. INTRODUCTION

The overall aim of this research study was to investigate the pedagogies used in Geography rural multi-grade primary school classrooms in the West Coast Educational District. The researcher first discusses the literature review then reviews the theoretical framework, which was used to frame this study. Numerous government reports, peer reviewed journal articles, government policies and academic books were consulted. McMillan and Schumacher (2006:75) state that the aim of a literature review is to illuminate the related literature on the research problem. Similarly, Johnson and Christensen (2000:41) reiterate that a literature review conveys to the reader what knowledge and ideas have been established on a topic in order for the researcher to comment on the strengths and challenges and argue for further investigation in a particular field. A thoughtful and insightful discussion of the literature helps to build a logical framework and also contextualizes the research within the tradition of enquiry (Marshall & Rossman, 1995:3). This chapter focuses on a review of the related national and international literature in order to clarify and gain a deeper understanding of pedagogies used when teaching Geography.

The chapter is divided into the following sub headings:

- Section 2.2 Introduces the literature review;
- Section 2.3 Describes Shulman's (1987) PCK and discusses Koehler and Mishra's (2009) TPACK; and
- Section 2.4 Provides a summary of the chapter.

Four topics have guided the analysis of teaching Geography Intermediate Phase (IP) classrooms:

1. Firstly, teaching Geography in Grades 4 – 6 classrooms.
2. Secondly, Geography in the South African curriculum (RNCS and CAPS).
3. Thirdly, pedagogies used to teach Geography in the Intermediate Phase.
4. Finally, conditions in rural multi-grade Intermediate Phase classrooms.

Each topic will be discussed in more detail.

2.2.1 Teaching Geography in Grades 4 – 6 classrooms?

Geography provides learners with dynamic, inspirational, relevant and powerful ways of visualizing the world and those children will hopefully understand the significance of the planet and the world around them (Butt, 2011:1). By understanding the importance of the planet, Social Science (Geography), helps learners to be willing to participate in actions for change whether it is for a sustainable environment or economic change (NDoE, 2002a:5). Furthermore, it is argued by Fairhurst, Davies, Fox, Goldschagg, Ramutsindela, Bob and Khosa (2003:1), that Geography in the school curriculum is viewed as an important means of nurturing informed future citizens, and of providing a foundation for later study at tertiary level.

Therefore, to teach learners how to be future citizens, teachers need to be aware of the aims and objectives of Geography in the classroom. Hall, Khubana, Nightingale and Sekete (1991:2) state that some of the important aims and objectives of Geography in the primary school should be to acquire knowledge and skills. This involves the teaching of Geographical facts, relevant problem-solving scenarios and it is not just what they learn but how they learn the knowledge. The RNCS and CAPS Geography curriculum guides teachers in the aims and objectives of Geography in South African schools.

2.2.2 Geography in the South African curriculum (RNCS and CAPS)

The quality of Geography teaching and its pedagogy in the IP classroom is the main focus of this research study. Geography and History are taught in the Social Science subject in the General Education and Training Band (GET) from Grades 4 to 6 in all South African schools. Although the IP curriculum provides a general education experience, teachers need to adopt teaching strategies that will deliver Geographical knowledge, skills and values, which will enable all learners to function effectively and responsibly in space-place and time (Van Harmelen, 1999:1). The Geographical knowledge, skills and values are outlined in the RNCS as the Learning Outcomes (LOs) and Assessment Standards (ASs). These will be discussed in more detail on the next page.

Since the data for this research project was collected in 2012, the Geography curriculum in South Africa was driven by the RNCS curriculum. However, since 2013 there was a revision of the RNCS and it was repackage as the Curriculum Assessment Policy Statements (CAPS) for South African schools (NDoBE, 2011b:4). Therefore for this research project, the Geography curriculum in the RNCS will be compared to the new CAPS document which was introduced to Grades 4 – 6.

The RNCS built its outcomes on the critical and developmental outcomes that were inspired by the Constitution of South Africa (NDoE, 2002b:1). The outcomes encourage a learner-centred and activity–based approach to education. Its assessment, qualifications, competency, and skills-based framework encourage the development of curriculum models that are aligned to the National Qualification Framework (NQF) theory and practice (SAQA, 2001). The learning outcomes are the set of knowledge, skills, values and attitudes that need to be achieved in Geography. It is a description of what (knowledge, skills and values) learners should know, demonstrate and be able to do at the end of the GET band.

Each of the outcomes includes a set of Assessment Standards (ASs) (See Appendix 1) that set out how to achieve these outcomes in Geography. The ASs describe the level at which learners should demonstrate their achievement of the Geography LOs and the ways (depth and breadth) of demonstrating their achievement. They are grade specific and show how conceptual progression occurs in the teaching and learning of Geography. LOs and ASs do not prescribe content or method. Although the LOs do not prescribe content, each grade has its specific content framework for Geography in the primary school. This content will provide the context in which learners will achieve the LOs and ASs. Table 2.1 gives an outline of the RNCS's LOs for Geography in the IP.

Table 2.1 Social Science (Geography) learning outcomes

Learning Outcome (LO)	What needs to be achieved by the learners
LO 1 Geographical Enquiry	The learner will be able to use enquiry skills to investigate Geographical and environmental concepts and processes.
LO 2 Knowledge and Understanding	The learner will be able to demonstrate Geographical and environmental knowledge and understanding.
LO 3 Exploratory Issues	The learner will be able to make informed decisions about social and environmental issues and problems.

In 2013, to improve the implementation of teaching and learning in the classroom, a comprehensive CAPS document was implemented in the IP. In the CAPS document the previous Critical and Learning Outcomes were replaced by aims, concepts, content and skills from Grades R to 12 *(*NDoBE, 2011b*)*. Table 2.2 explains the Geography CAPS curriculum aims and examples of skills involved.

Table 2.2 CAPS Geography curriculum aims and examples of skills involved (NDoBE, 2011b)

The CAPS Geography curriculum aims to develop learners who:	Examples of the skills involved. Learners will be able to:
Are curious about the world they live in	1. Ask questions and identify issues 2. Discuss and listen with interest 3. Collect and refer to information (including newspapers books and, where possible, websites)
Have a sound general knowledge of places and the natural forces at work on earth	1. Read and use sources in order to assimilate information 2. Use information to describe, explain and answer questions-people/places/relationship between them
Understand the interaction between society and the natural environment	1. Consider, syndissertatione and organise information 2. Make links between cause and effect; change and continuity 3. Acknowledge and appreciate diverse lifestyles and world views
Think independently and support their ideas with sound knowledge	1. Use Geographical knowledge to solve problems 2. Discuss and debate issues 3. Recognise bias and different points of view 4. Develop own ideas based on new knowledge 5. Suggest solutions to problems
Care about their planet and the well-being of all who live on it	1. Engage with issues relating to the planet, its people and resources with knowledge and sensitivity 2. Act responsibly towards people and the environment
Understand and work with a range of sources – including maps, data and photographs	1. Use and draw maps 2. Identify and extract information from texts photographs 3. Work with data and statistics in the form of graphs, tables and diagrams 4. Cross-reference information using different sources
Observe and engage with phenomena in their own environment	1. Develop observation, interviewing and recording skills through fieldwork 2. Interview people and apply social skills 3. Process, interpret and evaluate data
Find out about places, people, events, and issues using different sources, e.g. books, people, photographs, the Internet	1. Devise and frame questions 2. Develop and apply research skills 3. Analyse, process and present information
Communicate ideas and information	1. Speak in a clear and informed way

	2. Write in a structured and coherent way 3. Draw maps, sketches, simple illustrations, graphs, and flow charts 4. Provide reasoned explanations
Make informed decisions and take appropriate action	1. Work co-operatively and independently 2. Plan and evaluate actions systematically and critically

In order for teachers to achieve quality in their teaching and learning in their classrooms, they need to understand what Geographical knowledge and skills are required. It is therefore necessary to understand the aims of the curriculum. In order to achieve quality in teaching and learning the NDoE (2002a:1) encourages a learner-centred and activity-based approach to education. Student-centred methods are deemed best practice in situations where the teaching objectives for the lesson include acquisition of independent study skills, greater student autonomy, working in groups, the construction of knowledge from first-hand experience, and the application of basic academic skills for authentic purposes (Westwood, 2008:27).

2.2.3. Pedagogies used to teach Geography in the Intermediate Phase

Before discussing possible pedagogies used in a Geography classroom, there are certain factors that may influence a teacher. These factors may influence teachers' decisions of which pedagogy to use to teach certain Geographical concepts. According to Cruickshank et al (2009:3) these factors include:

- Personal characteristics;
- Educational experience and preparation, and
- Context.

The research of Cruickshank et al (2009) describes more general factors relating to teaching. One's personal characteristics dictate what you will be like as a teacher. These include: gender, age, personality and beliefs. The second factor that will influence teaching is your educational experience and preparation. These experiences include the way you were taught, your preferred ways of learning, your preferred ways of teaching, your proficiency in your chosen teaching or academic field, and the kind and the amount of teaching preparation you have received (Cruickshank et al, 2009:7). The final set of factors influencing you as a teacher, according to (Cruickshank et al, 2009:11), is the context of your workplace. This includes the number and kind of learners you have, class and classroom size, the availability of instructional materials and equipment, time, nature of the lessons you must teach, and the national educational imperatives.

Best (2011) proposed a new way to think about factors to be considered when making judgements about effective teaching and learning. He created a model for teachers to ensure effective Geography teaching in classrooms. He called it the four hemispheres of effective Geography teaching as illustrated in Figure 2.1.

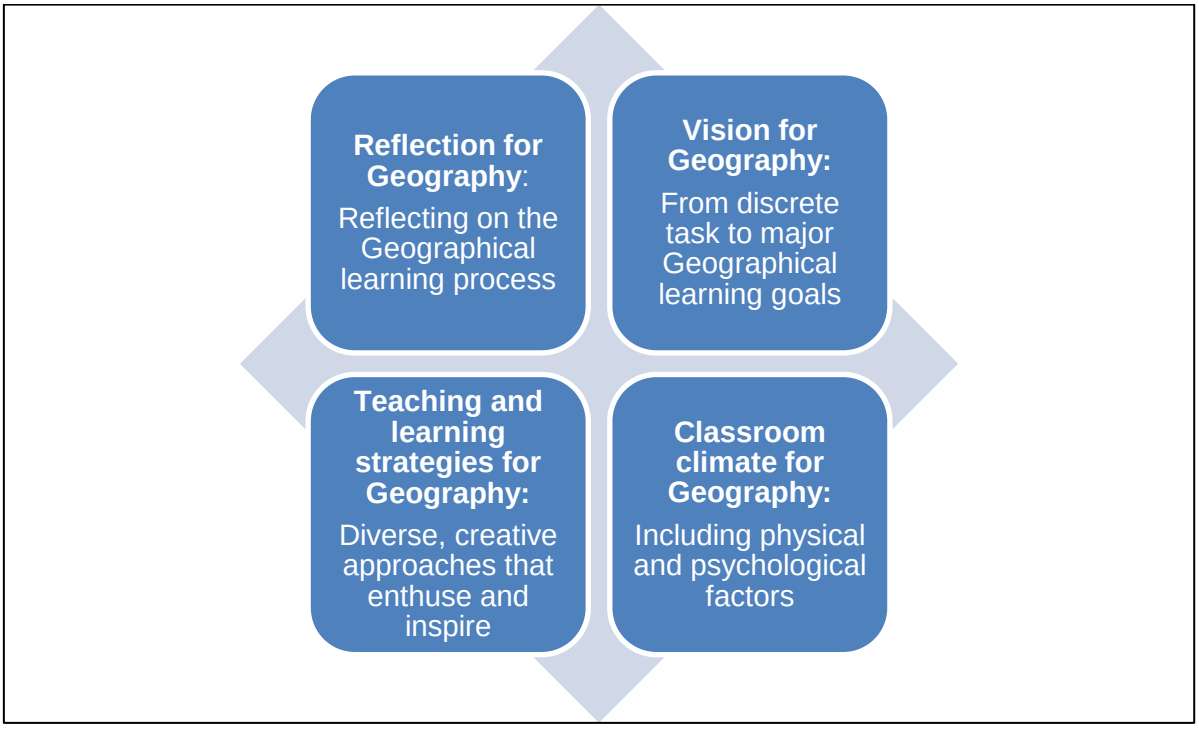


Figure 2.1 The four hemispheres of effective Geography teaching

(Adapted from Best, 2011:9)

This model focuses on four key elements in lesson planning and delivery, which include: vision, classroom climate, teaching and learning strategies and reflection. The result of excellent Geography teaching will be to produce learners who have exceptional Geographical knowledge, understanding and skills, make acceptable decisions affecting their lives and those of others (Best, 2011:20). A brief discussion of Best's four key elements follows:

1. Vision: whenever starting to plan your teaching, a teacher should have a clear idea of what you are aiming to achieve. The vision needs to correlate with the Geographical knowledge and skills you want your learners to develop.
2. Classroom climate: outstanding Geography lessons take place in a distinctive and effective classroom climate. This refers to both the psychological aspects (emotional needs of students) and physical resources (use of displays and models).
3. Teaching and learning strategies for Geography: teachers need to make the Geographical learning exciting, engaging, challenging, relevant, innovative and fun.
4. Reflection for Geography: teachers need to reflect on their lessons and think about what they might need to change in the future.

The choice of an appropriate teaching pedagogy is one of the main concerns in Geography teaching. Basha and Rao (2007:72) argue that the teacher needs to employ pedagogies but to keep in mind the psychological requirements of students. This coincides with Olusegun's

(2006:64) belief who argues that in any pedagogical practice, the teacher engineers the learning environment through their skillful, tactical and technical ways of imparting knowledge to learners. Therefore, teachers, as initiators or originators of the instructional communication process, should carefully select appropriate teaching pedagogies, techniques or strategies that will suit the learning environment for effective teaching and learning process to take place.

In the various national and international literature on 'pedagogies', different terms are used to describe the word 'pedagogy'. Loughran (2002:2) describes 'pedagogy' as a synonym for teaching, which means the same as teaching procedures, teaching practice and instruction. Cavanagh and Romanoski (2008:52) argue that 'pedagogy' can be viewed from three viewpoints. Firstly, it can be viewed as all aspects of teaching and not just of instruction. Secondly, it can be viewed as a political tool for the enculturation of learners. Finally, it can be viewed as the teaching and learning of learners. All these terms refer to the means of transmitting subject content to students (Khan & Akbar, 2008:49). In the literature on curriculum and teaching, Van Manen (1991:28) describes 'pedagogy' as a specific approach or methodology. It is a wider domain of teacher-child relationships, more than just the word 'teaching'. Balderstone (2000:7) explains that one of the main professional concerns for the Geography teacher is that they should learn how to set up activities and use different teaching strategies. In doing this they will bring about the desired learning.

Hence, a variety of methods of teaching and learning of Geography is the key to a good Geography lesson (Roberts, 2011:2). Different pedagogies for teaching and learning can be applied according to the diverse background of learners. Best (2011:12) argues that it is important to vary your teaching style, and the specific teaching and learning approaches that accompany it. In most cases the use of different styles or teaching pedagogies is to ensure that the content is best communicated to the learners for effective teaching and learning. Following on from this discussion, and after analysing the results, the following four pedagogies have emerged.

2.2.3.1. Lecture or Presentation method

Khan and Akbar (2008:50) describe the Lecture or Presentation method as a traditional method in teaching. The Presentation method is an enhancement of the normal lecture by using visual materials such as slide presentations, video, OHP and PowerPoint (Westwood, 2008:20). In using the Lecture or Presentation method, the teacher communicates the knowledge orally to the students. Students are the passive recipients of information (Westwood, 2008:17). A Lecture or Presentation method takes on various forms, ranging

from the typical 'talk-and-chalk' or PowerPoint lecture. According to Westwood (2008) a Lecture Method can take three basic forms:

I. Formal lecture – teacher takes all decisions to a pre-determined plan;
II. Informal lecture – teacher not only depends on the pre-determined plan but adds subject matter. Students may participate; and
III. Lecture commentaries – teacher uses a book, article or other material.

2.2.3.2. Question and Answer method

In this method, an effort is made by the teacher to systematize the previous knowledge of the students (Basha & Rao, 2007:99). The learner's previous knowledge is scattered and disorganized. By removing the doubts of the students, an attempt is made to bring them on the right track (Basha & Rao, 2007:99). Orlich, Harder, Callahan, Trevisan, Brown and Miller (2013:213) argue that questioning plays a critical role in teaching and the teachers must be knowledgeable in the process of framing questions. Basha and Rao (2007), Freahat and Smadi (2014:1804) state that good questioning leads to good understanding and helps to organize knowledge. The cognitive level of questions develops the interaction between the students and the text. Therefore, the types of questions should take into consideration the different ability levels amongst students. Lower-order questions emphasize the recall of specific and universal methods, processes, structures, and settings. Higher-order questions, on the other hand, are more advanced and require knowledge of subject matter. Moreover, they require students to engage in deeper thinking processes (Freahat & Smadi, 2014:1804).

2.2.3.3. Research or Project method

The Research method is described synonymously with Research-based learning. An approach that allows students to learn from their own active processing of information using a range of authentic resources (Westwood: 2008:35). Students learn effective skills from using library catalog, making electronic searches, using CD-ROMs, conducting interviews and writing up information. Westwood (2008) states that in many ways research-based learning shares many characteristics with Project-based learning. By using the above Research methods to obtain information relating to a certain topic and consolidate into an appropriate form of presentation. The Project method encourages purposeful activity on the part of the learner, which normally begins with an assignment (Varma, 2005:43). Learners need to carry out one or more tasks that lead to the production of a final product— which can be a design, a model, a device or a computer simulation (Prince & Felder, 2006:14). According the DoBE (2011b:15) there must a strong emphasis on Geographical projects which need to research the local environment.

2.2.3.4. Group work

According to Cruickshank et al (2009:251) the task of Group Work is to collectively learn or master content the teacher has previously presented. The purpose of Group Work learning is to encourage learners to work together for both common and individual goals. By working in groups, to solve a problem or work through a section of Geographical enquiry, learners may come up with learning approaches and actual answers to the enquiry question that would not have been possible had the same individuals been working alone. In Group Work the teacher designs social interaction structures as well as learning activities (Kagan, 1989:12). Learners work together to ensure that all members in their groups have learnt and assimilated the same content. They therefore maximize their own and each other's learning when they work together (Johnson, Johnson & Holubec, 1993).

2.2.4. Conditions in rural MG IP classrooms

The following six points will be discussed regarding the conditions in rural MG settings: a discussion on the term 'rural' and 'urban', what constitutes MG, resources, socio-economic issues, advantages and disadvantages of MG classrooms. Since all schools used in the data collection process were rural schools, it is necessary to discuss MG. The discussion can also contextualize the research project as MG teaching is often dismissed by policy makers (Joubert, 2010).

The terms 'rural' and 'urban' have a complicated history in South Africa. As stated in Chapter 1 there is still no agreement about what constitute 'rural' and 'urban' areas. In South Africa, colonialism and Apartheid left an indelible imprint on all aspects of rural life through land dispossessions, resettlement policies, and systematic exclusion from opportunities to improve personal and social well-being that made poverty the most endemic characteristic of rural areas (NDoBE, 2005:8).

Surty (2011:8) describes 'rural areas as remote and relatively underdeveloped'. As a result, many rural communities and their schools are poor and disadvantaged, lacking basic infrastructure for sanitation, water, roads and transport, electricity and Information and Communication Technologies (ICTs). According to Joubert (2010:58), more than eight million children can be found in rural school classrooms in South Africa. One of the major inequalities affecting the rural poor is their unequal access to quality education, which is important for social and economic development.

According to Beukes (2006:22) multi-grade teaching arises in one or more of the following conditions:

- Schools in areas of low population density where schools are widely scattered and inaccessible and enrolments low.
- Schools may have one or two teachers responsible for all grades;
- Schools that comprise a cluster of classrooms spread across different locations, in which classes are multi-grade for the same reasons as the above point, and some are mono-grade;
- Schools in areas where the learners and teacher numbers are declining, and where previously, there was mono-grade teaching;
- Schools in areas of population growth and school expansion, where enrolments in the expanding upper grades remain small and teacher numbers few;
- Schools in areas where parents send their children to more popular schools within reasonable travel distance, leading to the decline in the potential population of students and teachers in less popular school;
- Schools in which the number of learners admitted to a class exceed official norms of class size, necessitating the combination of some learners from one class grade with learners from another grade;
- Mobile schools in which one or more teachers move with nomadic learners spanning a wide range of ages and grades;
- Schools in which teacher absenteeism is high and supplementary teacher arrangements are non-effectual or non-existent;
- A school in which the official number of teachers deployed is sufficient to support mono-grade teaching but where the actual number deployed is less and;
- Schools in which learners are organised in multi-grade rather than mono-grade groups, for pedagogic reasons.

In Botswana, MG classrooms were implemented to increase access to schooling, progression in the school curriculum and cost effectiveness (Loeto 2010). In Zambia, Kayombo (2010) explains that MG classrooms were established by the government to provide universal education, provision of quality education, achievement of equity, provide education in places that is not easily accessible, provide education in an economic way (one teacher to teach Grades 1-4) and to improve quality of education. According to Little (2007:67) in most countries, MG teaching is not an educational preference but rather a response to a need that has come about as a result of local contexts with specific demographic features. In South Africa, according to the Centre for Multi-grade Education (Joubert 2010:58), MG teaching is used in approximately 7000 South African schools, with most of these schools located in rural areas.

2.2.4.1. Resources

Joubert (2010:140) stated that most of the MG schools are found in rural areas where the infrastructure is not well developed. Facilities are limited and influenced by poverty and have a negative effect on the teaching and learning of Geography. Classrooms in MG schools are generally in a poor condition. Broken doors, which cannot lock, broken windows, empty cupboards and soiled walls are common. In most rural schools there is a lack of teaching and learning material for educators and learners (Little, 2004; Siririka, 2010:84). According to Little (2004:16) most researchers and Geography practitioners agree that successful strategies for MG teaching depend on adequate supplies of learning materials to support learning. Maps are one of the important resources for a Geography teacher. The CAPS curriculum focuses on selected aspects of using and making maps and other visual sources in the classroom (DoBE, 2011:13). Learners must be exposed to different kinds of map use and geographical skills along with physical and human geography topics in each grade.

Rural MG schools experience shortages of human resources, such as educators and administrative staff (Taole & Mncube, 2012:158). Rural schools are often a long distance from city areas where staff are reluctant to travel or establish themselves in these remote areas. Some of the other reasons why teachers do not want to teach in rural areas, according to Taole and Mncube (2012:158) include:

- Workload (need to teach more than one grade);
- Teachers have to do everything themselves, such as planning and making resources;
- Teachers have to use their personal car as a taxi or ambulance; and
- Teachers need to teach a mono-grade curriculum in a MG class.

2.2.4.2. Socio-economic issues

Bouck (2004:38) argues that the location of a school, as in an urban, rural, or suburban setting, has been shown to affect various factors related to education. For example, the location of a school is often associated with the socio-economic status level of the school, or in other words the poverty of the school. The effect of poverty on Geography education in rural schools cannot be dismissed from the debate as parents struggle to assist their children with their homework. Schools in more rural settings are associated with high levels of poverty and consequently have a lower amount of money to spend per child on education (Anyon, 2003; Kozol, 1992 cited in Bouck, 2004:38). This affects the quality of the teaching and learning of Geography, especially when conducting fieldwork in other parts of their surroundings due to transport costs. Although rural MG can be a disadvantage, it also can be an advantage. Geography teachers need to make their lessons more practical by making the content connected to the learners own lives (Hall, Khubana, Nightingale & Sekete, 1991:3).

Monk and Haller (cited in Bouck, 2004:39) found that students from smaller schools are offered fewer educational opportunities than students in larger schools. Opportunities such as art courses and use of computers are neither available nor offered in the curriculum in rural schools.

Socio-economic issues contribute to lower educational participation in rural areas. At first, rural children may be less interested in attending school especially during harvest time. (Mulkeen, 2006:33). Many rural households are dependent on their children to help at busy times of the agricultural year. Schools are usually designed to follow rigid schedules both in terms of time of the day and term dates. They expect children to be in school during busy periods in the agricultural calendar (Taylor & Mulhall, 2001). Parents in rural areas often have a lower level of education, and may attach a lower value to schooling. The perceived lack of relevance of schooling may be enhanced by a rigid curriculum, often designed for a context (and sometimes culture) removed from that in rural areas. Rural schools rarely adapt the curriculum to make use of local examples, or to link the curriculum to local needs (Taylor & Mulhall, 2001). Even where parents place value on schooling, they may be less able to help their children learning.

Parents in rural areas are less likely to be educated themselves, and so have less ability to provide support for their children. Some report that they are embarrassed to discuss school topics with their children, because of parents own lack of knowledge. Homes in rural areas are often ill-equipped to meet the needs of children to study, and often lack facilities like electricity (Taylor & Mulhall, 2001). Children in rural areas may be considered more difficult to educate because they may find the curriculum less relevant to their lives, and find less support for their learning from the home environment. For this reason, the Norms and Standards for Educators, requires teachers to be flexible and able to adapt learning programmes so that they are appropriate for the context in which teaching will occur (Meintjes & Grosser, 2010:261).

2.2.4.3. Advantages and disadvantages of rural MG classes

There are advantages and disadvantages for both learners and teachers in Geography MG classrooms. The discussion of Veenman (1995) and Mason and Burns (1996) focus on the learner's academic and social development and teacher's capacity to teach effectively in a Geography MG classroom.

Veenman (1995:332) argues that there is no evidence for the assumption that student learning may suffer in MG classrooms. Mason and Burns (1996:313) however, oppose his argument and state that although MG schools are good for some learners, they are potentially

difficult for most. Although they do not dispute Veenman's (1995) findings that there are no differences in achievement between MG and mono-grade, they challenge the interpretation and explanations of his findings.

Veenman (1995) based his argument on research (56 studies from 12 countries) that he conducted to compare cognitive and non-cognitive effects between multi-grade and mono-grade classrooms. The cognitive focus included subject-area breakdowns, while the non-cognitive focus considered personal and social adjustment, self-concept, attitudes towards school, and motivation. In his studies, Veenman (1995) found no consistent differences in achievement with respect to reading, mathematics and language. He identified four factors that he believed were the reasons for minimal differences in learning between mono-grade and MG classes:

1. Grouping alone is unlikely to influence outcomes;
2. Conscious criteria may be used in selecting learners, so that learners, who can work independently and have fewer behavioural difficulties, may be selected;
3. Teachers receive no additional training for MG teaching, and may be negative about this teaching; and
4. Teaching MG involves more preparation, time and a greater workload for teachers. Teachers use most of their energy ensuring their learners achieve at a level they would manage in a mono-grade class.

Research, conducted by the Commonwealth Secretariat (Joubert, 2010b:13) and Kayombo (2010:106) highlighted the following advantages and disadvantages of MG classrooms:

Advantages of MG teaching:

1. In small countries, or in remote areas, with a small population, it is an economical way of providing an education for children in isolated communities;
2. MG classrooms are a powerful pedagogic tool that can promote individual self-study and independent learning thereby increasing self-esteem;
3. MG classrooms can develop high levels of cooperation between different age groups and positive attitudes towards helping each other;
4. MG alleviates teacher shortage;
5. Communities are established;
6. MG classrooms are economical considering the expenditure on human resource per school accommodation and classroom provision;
7. MG addresses the lack of classroom and accommodation challenges; and

8. MG teachers get to know their pupils well.

Disadvantages or challenges experienced in MG settings:

1. MG teaching requires more time for planning and preparation;
2. It is difficult to ensure the quality of teaching and learning in MG classes;
3. Teachers are not trained in MG teaching;
4. Teachers have to teach a mono-grade curriculum;
5. Professional and social isolation;
6. The methodology is more demanding;
7. There is a lack of economical collaboration from the community, due to poverty;
8. The principal is often a class teacher and hence there is inadequate time for administration;
9. Due to the remoteness there are inadequate social amenities;
10. Few teachers accept to teach in remote schools; and
11. Some schools still lack basic infrastructure and resources for teaching and learning.

Much research (Brunswic & Valerien, 2004; Howley, Rhodes & Beall; 2009) has been conducted on MG teaching and classrooms worldwide. Even in South Africa (SA) three major reports on rural schooling, the Human Rights Watch's - *Forgotten Schools Report: The Right to Basic Education in Farm Schools* (2004), the Mandela Foundation's - *Emerging Voices report* and the *Ministerial report on Education of Rural People* (2005) were produced and yet little has changed in the rural Geography classroom. Despite these research efforts MG schooling is still marginalised in SA (Chetty, 2010:148). Taole and Mncube (2012:154) argue that curriculum reform is a central constituent in the improvement of educational quality but the researcher has found no evidence that the DoBE has made any changes in adapting the SA school curriculum (CAPS) for MG classrooms.

2.3. CONCEPTUAL FRAMEWORK

A conceptual framework is described as a written or visual presentation (Miles & Huberman, 1994:18). It explains the main concepts, the key factors, and the presumed relationship amongst them either graphically, or in narrative form. The presentation of the conceptual framework provides an orientation to the study and reflects the stance the researcher adopts and enables him to make explicit assumptions about the interconnectedness of the way things are related in the world (Henning, van Rensburg & Smit, 2007:25). For this research project, the theories of Shulman's (1987) Pedagogical Content Knowledge (PCK) and Koehler

and Mishra's (2009) Technological, Pedagogical and Content Knowledge (TPACK) will be used as the conceptual framework. Each of these will be discussed in more detail. Figure 2.2 provides an overall conceptual framework for this study.

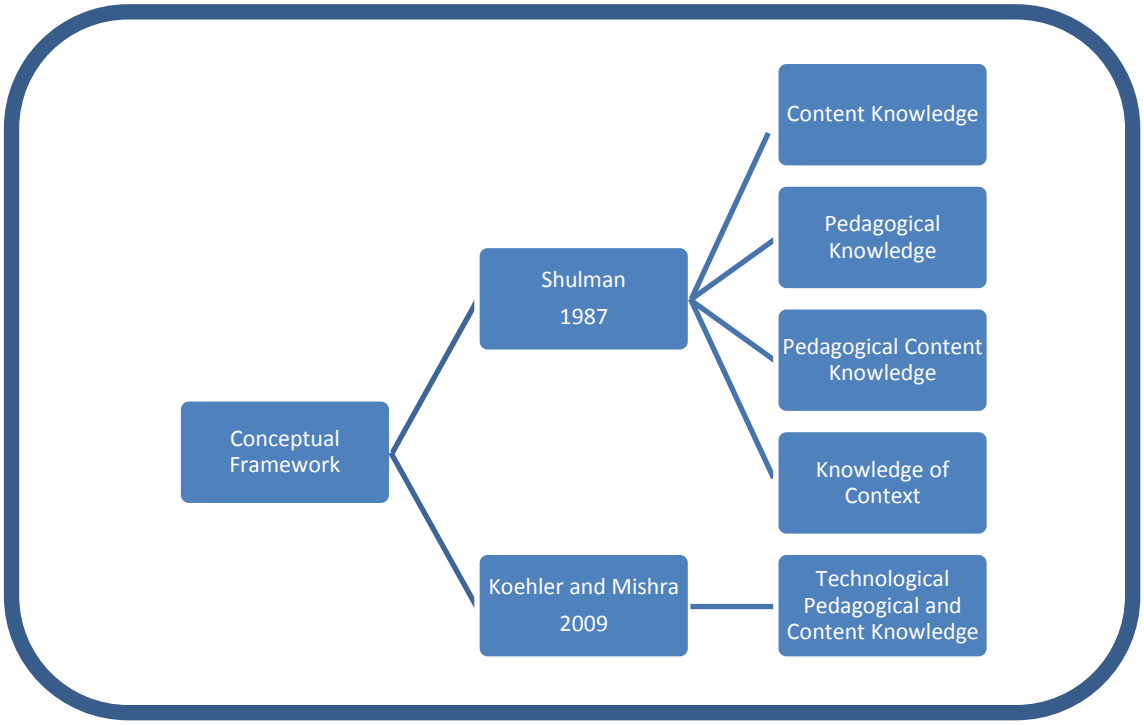


Figure 2.2 Conceptual framework used for this study

Shulman's (1987) theory argues that there is a knowledge base for professional teaching which frames teacher education. He called this knowledge base - Pedagogical Content Knowledge (PCK). PCK is the contributing theoretical framework underpinning this research. In the next paragraph the researcher discusses the origin of PCK and the three knowledge bases of Shulmans (CK, PK and PCK)

2.3.1. Origin of PCK

Since the 1980's there were several reports in the United States on how to improve teaching as both an activity and a profession (The Holmes Group, 1986; Carnegie Task Force, 1986). Their arguments were based on the belief that there exists a knowledge base for teaching (Shulman, 1987:3). What lacked was, although the knowledge base was growing there were no specific characteristics of what such knowledge consisted of. These authors did not say what teachers should know, do, understand, or profess. Shulman (1987:8) therefore, developed an explicit set of characteristics or categories for a knowledge base for effective teaching, these include:

- Content Knowledge (CK);

- General Pedagogical Knowledge (PK);
- Curriculum Knowledge;
- Pedagogical Content Knowledge (PCK);
- Knowledge of learners and their characteristics;
- Knowledge of educational context; and
- Knowledge of educational ends, purposes, and values, and their philosophical and historical backgrounds.

Amongst these characteristics, Shulman (1987:8) states that PCK is of special interest because it defines the distinctive bodies of knowledge for teaching. PCK has paved the way for understanding the complex relationship between the content of a subject and the teaching of a subject by using specific teaching and evaluation methods (Sothayapetch, Lavonen & Juuti , 2013:85). Concurring with Shulman (1987), Cochran, King and De Ruiter (1991:5) state that PCK is the type of knowledge that is unique to teachers and what teaching is about. For this research project, Shulman's (1987) PCK will be explained as the blending of content knowledge, pedagogical knowledge and the knowledge of context in the search for Geographical teacher knowledge. Figure 2.3 illustrates the operationalization of Shulman's (1987) PCK in this study.

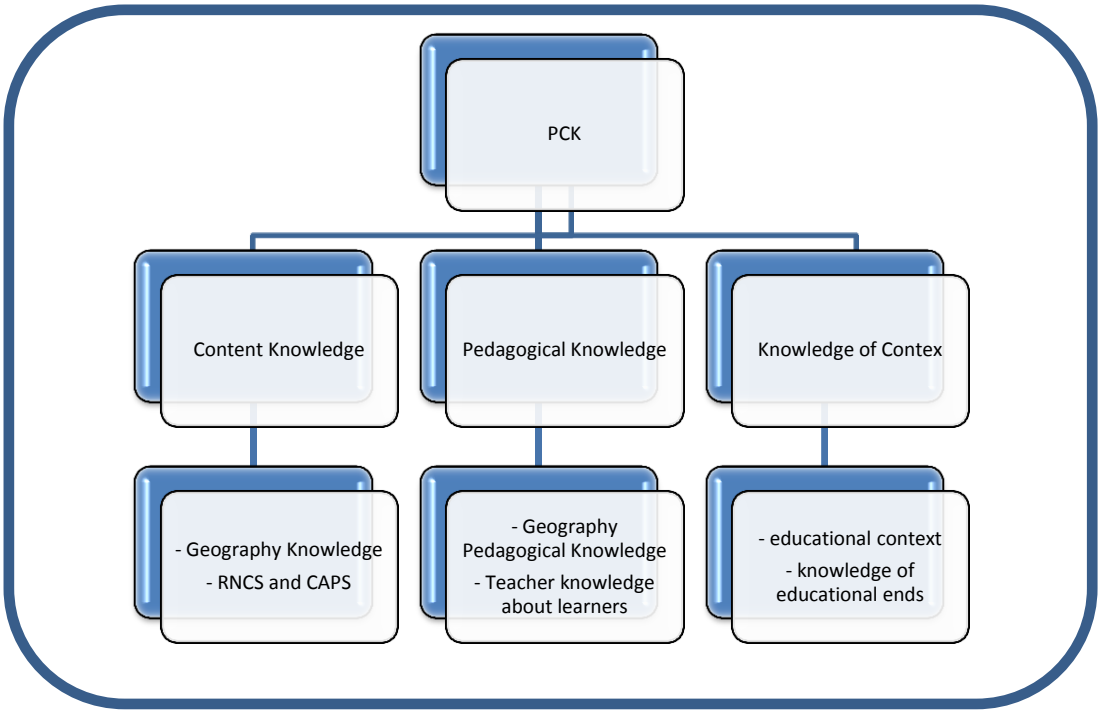


Figure 2.3 Operationalization of Shulman's (1987) PCK

The following paragraphs debate the literature regarding the concepts of content knowledge, pedagogical knowledge, and knowledge of context and the integration of these three knowledge's into PCK.

2.3.1.1. Content Knowledge (CK)

A teacher's CK is regarded as an important aspect of teaching (McNamara, 1991; Ireson, Mortimer & Hallam, 1999; Alexander, 2003, and McBer, 2002). Teachers with a strong CK may teach in more interesting and dynamic ways (Cogill, 2008:1). Shulman (1987:8) described CK as the knowledge, understanding, skill and disposition that are to be learned by school children and the teachers understanding of the subject being taught (Auseon, 1995:56; Koehler, Mishra, Kereluik, Shin & Graham, 2013:102). According to Tepner and Dollny (2010:1), CK is conceptualized as knowledge of subject-specific facts and concepts and is formed as a result of curriculum-related work. Curriculum related work refers to the designing and structuring of subject–specific contents for teaching (Baumert, Kunter, Blum, Brunner, Vos & Jordan 2010, cited in Tepner & Dollny, 2010:1).

Shulman (1987) further described that CK rests on two foundations: the accumulated literature and studies in the content areas, and the historical as well as philosophical scholarship on the nature of knowledge. In explaining the first foundation, he argued that a teacher should know their subject and be familiar with critical literature that applies to the subject. In explaining the second foundation, the teacher should understand alternative theories of interpretation, and how these might relate to issues of curriculum and teaching. The cost of not having a comprehensive base of CK can be prohibitive; for example, students can receive incorrect information and develop misconceptions about the content area (Pfundt & Duit, 2000).

2.3.1.2. Pedagogical Knowledge (PK)

Shulman (1987) uses the term general 'Pedagogical Knowledge' which is used to describe the broad principles and strategies of classroom management and organization that appears to transcend subject matter. This definition however, according to Cogill (2008:2), largely refers to general teaching activities such as, creating a relaxed and enjoyable atmosphere, controling classroom behaviour, making clear what learners are to do and achieving and building trust of learners. Geography lessons thus need to take place in a unique and effective classroom climate, to be effective, and need to be well managed (Roberts, 2011:2).

Cogill (2008) disagrees with this definition because it appears to lack any reference to how children learn. Furthering the debate of Shulman (1987) on the definition of PK, Reynolds and

Strom (cited in Auseon, 1995:56) define PK as the knowledge of teaching and learning theories, principles, and processes that cut across disciplines. Auseon (1995:56) added that PK is the skill of teaching methods and strategies that are not subject-specific. Therefore, for this specific research project, Shulman (1987) and Cogill's (2008) explanations of PK will be combined to give the researcher a more holistic approach to the definition of PK. This involves strategies of classroom management, as well as knowledge of teaching and learning.

According to Sothayapetch, Lavonen and Juuti (2013:86) classroom management is consistent in noting the general principles of teacher behaviour that promote student achievement. They state that classroom management focuses on three major components:

1. Content management - are those skills that cut across subjects and activities. It occurs when Geography teachers manage space, materials, equipment, the movement of people, and lessons that are part of a curriculum or programme of study;
2. Conduct management - refers to the set of procedural skills that teachers employ in their attempt to address and resolve discipline problems in the classroom; and
3. Covenant management - stresses the classroom group as a social system that has its own features that teachers have to take into account when managing interpersonal relationships in the classroom (Sothayapetch, Lavonen & Juuti, 2013:86).

According to Sothayapetch et al (2013:87) models of teaching have been grouped into families that share orientation toward human beings and how they learn. Brooks (1996) argues that teachers need to engage with Geography continually to ensure that their lessons are grounded in geographical meaning. If the goals for teaching and learning are not carefully considered in Geography, there is a danger of becoming 'morally careless'. The families emphasise different goals for teaching and learning and different types of social interaction. The families are: the social family, the information-processing family, the personal family, and the behavioural systems family. The families overlap, and a single teaching method could have characteristics of several families. Sothayapetch et al (2013:87) describe the families as follows:

1. The teaching models that belong to the social family emphasise the learning of social skills while learning CK. Examples of such models include social inquiry, the laboratory method, role-playing, and group investigation.
2. The information-processing family of teaching models emphasises enhancing human beings innate drive to make sense of the world by acquiring and

organising data, generating solutions, and developing concepts. Some models focus on providing the learner with the information, some emphasise concept formation, and some generate creative thinking, such as scientific inquiry, concept attainment, and inquiry training.

3. The personal family of teaching models focus on the unique character of each person and his or her struggle to develop as an integrated, confident, and competent personality. Human beings are able to develop and achieve a sense of self-worth and personal harmony, for example, non-directive teaching, and self-actualisation.
4. The behavioural system family of teaching models emphasises modifying the behaviour of human beings in order to allow them to respond to information about how successfully tasks are navigated, for example, social learning, simulation, and direct teaching.

2.3.1.3. Knowledge of Context (KC)

Shulman (1987:10) and Cruickshank et al (2009:11) state that the contextual conditions will either facilitate or inhibit Geography teachers teaching efforts. These contextual factors include: the number and kind of learners in a class, class and classroom size, the availability of instructional materials and equipment, time, nature of the lessons, national educational imperatives, teacher organizations, social change, government agencies from districts and general mechanisms of governance and finance. The availability of instructional materials and equipmentare of vital importance for Geography teachers. The tools, like maps and globes, for Geography help to understand places (Canadia Council of Geographic Education (CCGE), 1994:2). The resources need to be up-to-date. According to the CCGE (1994) the modern Geography classroom needs to be equipped with at least one computer with appropriate programmes. In the IP this might include simple computer games and map programmes.

The context of schools can influence the creativity of Geography teachers. Contextual factors, such as illiteracy or low literacy, lack of explicit attention to productive thinking at school and tertiary level, and inhibition of creative thinking during teacher training or at schools, may lead to inhibit creative thinking for teachers (Memmi, 1991:90; Mwamwenda, 1995:109;112;116; Chisholm, 2000; Tshikuku, 2001; Kirsten &Viljoen, 2004:9; Lombard & Grosser, 2004:215; and Shi, 2004). Since the world is rapidly changing, the needs of society are changing and the Geography teachers need to become more creative in their teaching. Since the parents' knowledge of Geography is limited they may not be aware of the changing needs in the Geography classroom.

2.3.1.4. Pedagogical Content Knowledge (PCK)

PCK concerns the manner in which teachers relate their PK (what they know about teaching) to their subject matter knowledge (what they know about what they teach), in the school context, for the teaching of specific students (Cochran, King & De Ruiter, 1991:5). This is, important for Geography because Brooks (2006:2) stated that a teacher's subject knowledge can affect how a teacher teaches Geography. Cochran et al (1991) further describe PCK as the integration or the syndissertation of teachers' PK and their subject matter knowledge that comprise Pedagogical Content Knowledge (PCK). Shulman (1986:9) explain that PCK:

> … embodies the aspects of content most germane to its teachability. Within the category of pedagogical content knowledge include, for the most regularly taught topics in one's subject area, the most useful forms of representation of those ideas, the most powerful analogies, illustrations, examples, explanations, and demonstrations - in a word, the ways of representing and formulating the subject that make it comprehensible to others… It also includes an understanding of what makes the learning of specific concepts easy or difficult.

Bukova-Güzel, Cantürk-Günhan, Kula, Özgür and Elçí (2013:4) state that the components or linkages (Turner-Bisset, 1999; Cogill, 2008) of PCK are defined differently. Below is the discussion of various author definitions on PCK. PCK includes components such as knowledge of instructional strategies, instructional representations, classroom explanations, students' ideas, and curriculum (Shulman, 1986). Research conducted by Tamir (1988) identified five more components that can be added to PCK: i) orientation to teaching, ii) knowledge about students' understandings, iii) curriculum knowledge, iv) knowledge of assessment; and v) knowledge of teaching strategies. Grossman (1990) suggested an even more elaborated categorization for PCK:i) teachers' knowledge and beliefs about the purposes for teaching a subject to students of different levels, including their conceptions regarding the nature of the subject and what topics are important for students to learn; ii) knowledge of students' prior knowledge, preconceptions, possible misconceptions and alternative conceptions; and iii) knowledge of curriculum and curricular materials. This special knowledge held by teachers requires what is being referred to as a transformation of subject knowledge and PK. Bukova-Güzel (2010) further developed a comprehensive framework of PCK consisting of three main categories and their components as shown in Table 2.3.

Table 2.3 Bukova-Güzel's (2010) framework of PCK

Knowledge of teaching strategies and multiple representations	Knowledge of learner	Knowledge of curriculum
Using appropriate activities in instruction	Having knowledge of students' prior knowledge	Being aware of the elements of the mathematics curriculum (its conception, purposes, etc.)
Using real life examples and analogies in instruction	Having knowledge of possible difficulties students may experience during learning	Being aware of the variety of instructional tools presented in the mathematics curriculum and how to use them
Utilizing different instructional strategies in presentations	Having knowledge of possible student misconceptions	Being aware of the instruments to assess student learning and how to use them
Making use of different representations in instruction (graphics, tables, formulas, etc.)	Having knowledge of student differences	Having both horizontal and vertical programme knowledge of a topic

Sothayapetch et al (2013:13) state that many scholars have used PCK (Shulman, 1987) as a main organizing concept of teachers' knowledge in research. PCK is used because it is a syndissertation of knowledge domains that distinguishes teachers from other subject specialists (Shulman 1987; Carlsen, 1999).

McNamara (1991, cited in Cogill, 2008) similarly suggests that it is not the case that CK is simply added to PCK but that a Geography teacher needs to reflect on the pedagogies used in their classroom practice. This will then enable teachers to create their own PCK for Geography to enhance the teaching and learning for their learners.

2.3.2. Technological, Pedagogical and Content Knowledge (TPACK)

Information and Communication Technology (ICT) is growing at an accelerated pace around the world. Geography teachers need to exploit the current technologies, which are already being used by our learners, for teaching and learning (Prensky, 2001). Barrett, Ali, Clegg, Hinostroza, Lowe, Nikel, Novelli, Oduro, Pillay, Tikly and Yu (2007:1) and Chigona (2011) argue that ICTs have the potential to support teacher's professional development and classroom practice. Explicit ICT-based classroom activities should produce sustainable changes in Geographical pedagogical practices and student learning outcomes (Barrett et al, 2007:13). ICT use can only be successful in the Geography classroom if pedagogical principles are taken into account (Harris & Hofer, 2009:393). Teaching with technology is

complicated considering the challenges newer technologies present to teachers (Koehler & Mishra, 2009:61) Therefore Koehler and Mishra's (2009) TPACK can provide Geography teachers with a framework to incorporate technology in their teaching practises.

TPACK integrates technology in teaching and learning. Koehler and Mishra (2009:66) define TPACK as the 'interaction between content, pedagogy and technology'. With TPACK, teachers, teaching Geography with technology require an understanding of how to represent concepts using technology. Furthermore, teachers need to apply pedagogical techniques that use technologies in a constructive way to teach content. This will result in an optical learning situation where the Geography teacher succeeds in capturing the attention of learners (using technology, for example) and where the learners are motivated to concentrate on the learning task (Bester & Brand, 2013:5). Many research studies indicate that teachers use computers to support teacher transmission of knowledge (Gao, Choy, Wang & Wu, 2009; Lim & Chai, 2008; Selwyn, 2008). Furthering these studies, Koehler and Mishra (2009), provided teachers with a broader framework for technology integration into the classroom, which they called 'Technological, Pedagogical and Content Knowledge (TPACK)'.

TPACK, which was originally known as TPCK, built on Shulman's construct of PCK to include Technology Knowledge (Koehler & Mishra, 2009:60). Therefore TPACK is an extension of Shulman's (1986) Pedagogical Content Knowledge — the specialized knowledge required to teach differently within different content areas using technology. TPACK has revolutionized our understanding of teacher knowledge and its development (Harris & Hofer, 2009:99).

Koehler and Mishra (2009) describe the TPACK framework for teachers, as a complex interaction amongst three bodies of knowledge: Content, Pedagogy, and Technology (see Figure 2.4). The interaction of these bodies of knowledge both theoretically and in practice, produce the types of flexible knowledge needed to successfully integrate technology use into teaching and learning in Geography.

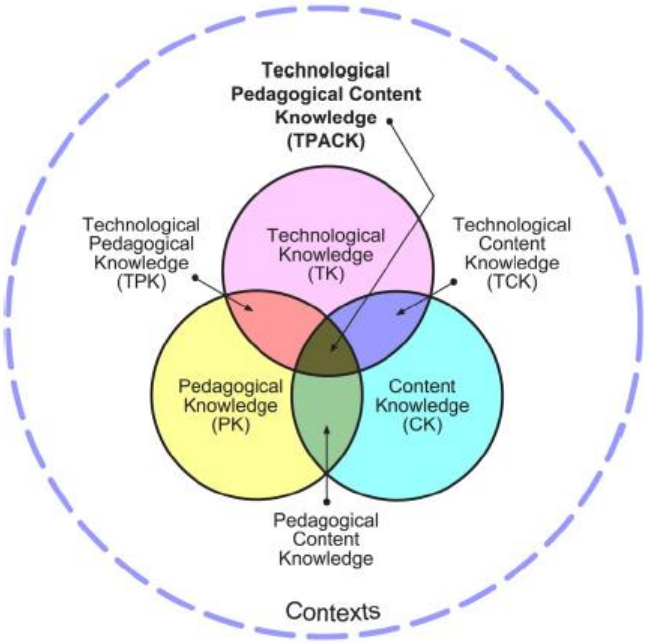


Figure 2.4 TPACK framework and its knowledge components

Taken from Koehler and Mishra (2009:63)

The knowledge basis of Shulman (CK, PK and PCK) which is now part of TPACK has been discussed earlier in this chapter. Since Koehler and Mishra's (2009) Technological Knowledge bases juxtapose Shulman's Knowledge bases a further concise explanation will be provided of the four components of TPACK.

2.3.2.1. Technology Knowledge (TK)

According to Koehler and Mishra (2009) their definition of TK goes beyond the traditional notions of computer literacy. The requirement is that teachers understand information technology broadly enough to apply it productively in the Geography classroom, to recognize when information technology can assist or impede the achievement of the aim of the Geography lesson, and to continually adapt to changes in information technology.

2.3.2.2. Technological Content Knowledge (TCK)

Koehler and Mishra (2009: 65) described TCK as follows:

> TCK must be understood as the way in which technology and content influence and constrain one another. Teachers need to understand which specific technologies are best suited for addressing subject-matter learning in their domains and how the content dictates or perhaps even changes the technology or vice versa.

With TCK teachers need to master more than their subject matter in Geography. They must have a deeper understanding of how technologies can be used to represent the subject. Teachers need to understand which specific technologies are best suited for addressing the

content. Harris and Hofer (2009) demonstrated activity types that can be used in the Geography classroom, as seen in Table 2.4.

Table 2.4 Activity types for Geography

Activity Type	Description	Possible Technologies
Create an illustrated map	Students use pictures, symbols, graphics to highlight key features in creating an illustrated map	Google Earth, PowerPoint
Create a picture/mural students	Students create a physical or virtual image or mural	Paint, Photoshop
Create a map	Students label existing maps or produce their own; print based materials or digitally	PowerPoint, Google Earth
Complete charts/tables	Students fill in teacher-created charts and tables or create their own in traditional ways or using digital tools	Word, Inspiration, PowerPoint

2.3.2.3. Technological Pedagogical Knowledge (TPK)

Koehler and Mishra (2009:65) and Harris and Hofer (2009:100) defined TPK is an understanding of how teaching and learning can change when particular technologies are used in particular ways. This includes the pedagogical affordances and constraints of a range of technological tools. The Geography teacher can use a variety of technological tools in their teaching. When teaching 'maps', teachers can for example use Google Earth so that the learner can visually see the maps. This will lead to the deepening in their understanding of concepts being taught.

To build TPK, a deeper understanding of the constraints and affordances of technologies and the disciplinary contexts within which they function is needed. Harris and Hofer (2009:102) emphasize that the use of technology in a Geography classroom can only be successful if pedagogical principals are taken into account. Before a teacher decides to use technology they should verify pedagogically, which content should be taught in differentiated ways, according to students' learning needs? Which concepts are difficult to learn, and how technology can overcome conceptual challenges. Teachers can make a selection from the Social Science CAPS document and select certain concepts to incorporate technology.

The most significant aspect of this conceptual framework is a combination of all the previously discussed knowledge's – the development of TPACK.

2.3.2.4. Technology, Pedagogy, and Content Knowledge (TPACK)

TPACK is an emergent form of knowledge that goes beyond the components of content, pedagogy and technology. It is seen as the basis of effective teaching with technology. To accomplish effective teaching in Geography by using TPACK, Koehler and Mishra (2009:66) acknowledge the understanding of the following:

- the representation of concepts using technologies;
- pedagogical techniques that use technologies in constructive ways to teach content;
- knowledge of what makes concepts difficult or easy to learn and how technology can help redress some of the problems that students face;
- knowledge of students' prior knowledge and theories of epistemology; and
- knowledge of how technologies can be used to build on existing knowledge to develop new epistemologies or strengthen old ones.

Teachers need to develop fluency and cognitive flexibility not just in each of the key domains (Content, Pedagogy and Technology), but also in the manner in which these domains and contextual parameters interrelate (Chigona, 2015), so that they can construct effective solutions in the Geography classroom.

Using TPACK in this research project as a conceptual framework helped the researcher to understand the phenomena that he was investigating – the teaching of Geography in rural schools. Following data analysis key concepts began to emerge. The researcher needed to understand the relationships between these concepts to improve his own teaching and learning in the Geography classroom. Since he is a Geography specialist and provides workshops to local teachers in his district, he wanted to be aware of the latest pedagogies and how he could integrate the complexity of using technology in Geography teaching and learning.

2.4. CHAPTER SUMMARY

This chapter presented a review of national and international literature which provides an description of how to teach Geography in rural MG IP classrooms. Different pedagogies are used in the teaching of Geography in the IP classrooms. No specific pedagogy is prescribed to be used in the Geography classroom, however, whatever pedagogy is chosen, needs to be one that extends the learners. What needs to be taken into consideration is that there are factors that influence teachers choice of pedagogy. It is important to vary ones teaching style, and the specific teaching and learning approaches that accompany it, to appeal to the widest possible range of learners. This section concludes with a desscription of the conditions in MG

IP classrooms. In the MG schools there are many advantages and challenges for both learners and teachers.

The theories of Shulman's (1987) PCK and Koehler and Mishra's (2009) TPACK were used to provide an orientation to this study. Shulman and Koehler and Mishra's theories provided characteristics of what knowledge is needed to improve teaching as both an activity and a profession.

CHAPTER 3
RESEARCH DESIGN AND METHODOLOGY

3.1. INTRODUCTION

The following chapter will explain the research topic, which involves the application of various procedures and methods (John, 2008:5; Kumar, 2005:2). All the steps in the process to achieve the anticipated outcome will be explained and discussed in detail. The discussion includes the research paradigm, the research approach, the site selection, sample, data collection techniques (including interviews, focus group interviews and observations), data analysis and trustworthiness (including validity, reliability and triangulation). The discussion concludes with a conversation on ethical considerations and provides a chapter summary.

A qualitative research design was employed for this study because it takes place in naturally occurring situations (Wiersma & Jurs, 2009:13; Hesse-Biber & Leavy, 2011:4). The aim of the study was to develop insights into the pedagogies used in natural situations in the Geography classrooms. The research design will give the researcher a manner for proper execution to answer the research questions in the project. Furthermore, the research design will provide a guide to obtain results that are judged to be credible (McMillan & Schumacher, 2010:102). De Vos, Strydom and Fouche (2007:268) state that various designs differ depending on the purpose of the study, nature of the research question, and the skills and resources available to the researcher. They further state that the research process reflects the procedures of the chosen design. Two basic purposes of research design are identified by Wiersma and Jurs (2009:119). The first it is provide the answers to the research question and secondly to control variance.

3.2. THE RESEARCH PARADIGM

The research project was situated within an interpretive paradigm because it aims to understand (Hesse-Biber & Leavy, 2011:17) and to gather deeper insights into the teaching of the Geography teacher in the rural Geography classroom. Punch (2009:18) and Schwandt (1994:118) noted that an interpretive paradigm focusses on people bringing meaning to situations and which they use to understand their world. Neuman (1997:68) agrees with Schwandt's (1994:118) definition and points out that the key focus of an interpretive approach is the search for meaning and an understanding of how others see the world in which they live. Cohen, Manion and Morrison (2007a:21) state that the interpretive paradigm is the concern for the individual and the focus is on the action. The interpretive researcher realises that observations are fallible and and that all theory is revisable (Henning et al, 2007:1). Since the measurement is fallible; the interpretive researcher encourages varieties of data and different sources and analysis methods in order to strive for validity.

In this study the aim is to represent, describe and understand particular views of teachers teaching Geography in rural schools (Coe, 2012:10). Qualitative data was collected in order to reach an understanding and to interpret people's social world. This is considered an interpretive approach.

3.3. THE RESEARCH APPROACH

Accordingly, qualitative research deploys a wide range of interconnected methods, 'hoping always to get a better fix on the participants matter at hand' (Denzin & Lincoln, 1994:2). Wiersma and Jurs (2009:13) describe qualitative research as a phenomenological model in which multiple realities are rooted in the subjects' perceptions. A focus on understanding and meaning is based on verbal narratives and observations rather than numbers (Creswell, 2009:3). According to Berg (2001:3) qualitative research thus refers to the meanings, concepts, definitions, characteristics, metaphors, symbols, and descriptions. Therefore it relies primarily on human perception and understanding (Stake, 2010:11).

Berg (2001:6) continues by stating that 'the purpose of research is to discover answers to questions through the application of systematic procedures'. Thereby qualitative research seeks answers to questions by examining various social settings and the individuals who inhabit these settings, and also how these inhabitants make sense of their surroundings. Denzin and Lincoln (2011) argue that since reality is of a socially constructed nature it is underlined by qualitative research. The representation of the participants is usually not controlled because it is this freedom and natural development of action and representation that the researcher wishes to capture (Henning et al, 2007:3). They therefore seek answers to questions that emphasise how social experiences are being created and given meaning and it consists of interpretive, material practices that make the world visible.

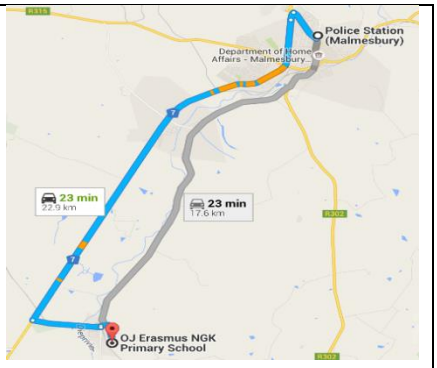
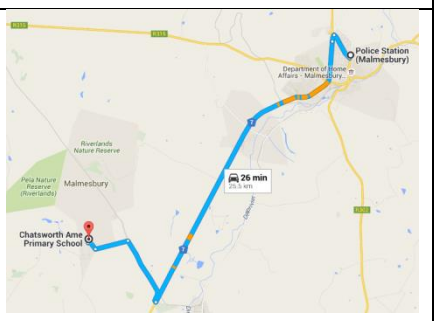
Qualitative research designs, according to Silverman (2010:104), tend to work with small numbers of cases. Generally speaking, they are prepared to sacrifice scope for detail. Qualitative researchers rarely simplify what they observe; instead they recognize that the issue they are studying has many layers and dimensions (Leedy & Ormrod, 2005:133). In a qualitative design the researcher wants to understand, and explain in argument, by the use of evidence from the data and from the literature, what the studied phenomenon is. Henning et al (2007:4) argue that in a qualitative design, the studied phenomena, must not be placed in the boundaries of an instrument beforehand because this will limit the data to those boundaries. Berg (2001:3) states that qualitative research is associated with the participant observation and interviewing. However, popular qualitative research additionally includes

such methods as observation of experimental natural settings, photographic techniques (including videotaping), historical analysis (historiography), document and textual analysis.

3.4. SITE SELECTION

The research took place in three rural primary schools. These three schools fall under the West Coast Education District, in the Western Cape. The schools are situated in the Swartland Municipal area. They will be referred to as School A, School B and School C. All three schools are in the proximity of 17 to 25 kilometers from the researcher's home and located just outside the rural town of Malmesbury. Table 3.1 provides maps of the three areas.

Table 3.1 School route and distance from Malmesbury

School A Teachers 1 and 2 were in rural multi-grade classrooms	
School B Teachers 3 and 4 Teachers 3 and 4 were in a rural classroom	
School C Teachers 5 and 6 were in rural multi-grade classrooms	

Six participants in the study were drawn from these three schools. These schools are in high poverty communities where the medium of instruction is Afrikaans. These schools were

chosen on the basis of convenience because two of them were close to one another and the other one was only a few kilometres away from the researcher's home.

According the National Norms and Standards for School Funding (South Africa, 2006:44) the South African government used a strategy to alleviate the effects of poverty and redress the imbalances of the past by categorizing schools according the poverty distribution income of the community. This has been done by categorizing all public schools in South Africa. The 5 categories are called 'quintiles'. Quintile 1 is classified as the poorest and quintile 5 the least poor. The schools in quintile 1, 2 and 3 may not levy compulsory school fees and have been declared 'no-fee schools'. The no-fee policy exempts certain schools from charging fees, based on the poverty levels of the area they serve (James, 2001). Schools in quintiles 4 and 5 are 'fee-paying schools'. All three schools in this study were quintile 1 schools.

3.5. SAMPLE

Silverman (2010:104) and Hesse-Biber and Leavy (2011:45) argue that the logic will be to work with small samples in a qualitative research design. For this reason the researcher chose a small purposive sample of only six teachers for this study. Based on situational and contextual analysis (Henning et al, 2007:71) purposive sampling was used in a non-random manner, based on member characteristics and specific criteria relevant to the research problem (Wiersma & Jurs, 2005:491). Since the researcher wanted to explore the teaching pedagogies of Geography classrooms, six Geography teachers in three primary schools were chosen.

Cohen et al (2003:103) point out that purposive sampling cases are 'hand-picked on the basis of their typicality and that the sample is for a specific purpose'. In this study, the researcher 'hand-picked' six teachers from three schools, close to his home. Purposive sampling is a non-probability sample technique which derives from the researcher targeting a particular group and it is frequently used in case study research (Cohen et al, 2003:12). Since the researcher was targeting a specific group, the participants in the study would be teaching Geography in Grades 4, 5 and 6 in three rural primary schools. The reason for choosing the Intermediate Phase, which falls in the General Education and Training Phase, was because it provided the learners with the conceptual development and skills they required for a foundation for future educational choices (Van Harmelen, 1999:80). Table 3.2 provides more details regarding the teachers in the research.

Table 3.2 Teachers 1 to 6's biographical information, educational and teaching background, including the distance their school was from Malmesbury

Site and Sample	School A Teacher 1	School A Teacher 2	School B Teacher 3	School B Teacher 4	School C Teacher 5	School C Teacher 6
Gender	Male	Male	Male	Male	Female	Male
Age	27	44	45	23	28	41
Home Language	Afrikaans	Afrikaans	Afrikaans	Afrikaans	Afrikaans	Afrikaans
Years teaching experience	5 years	22 years	23 years	2 months	6 years	15 years
Years teaching Geography	5 years	20 years	18 years	2 months	6 years	3 years
Geography: major subject at undergraduate level	Yes	Yes	Yes	Yes	No	No
School km from Malmesbury	22,9 km	22,9 km	25,5 km	25,5 km	18,6 km	18,6 km

3.6. DATA COLLECTION TECHNIQUES

The aim of research methodology is to describe and analyse the methods used in the process of data-gathering and to help understand not the products of scientific enquiry but the process itself (Cohen et al, 2003:44). According to Bryman (2008:31), research methodolgy provides a framework for the collecting and analysis of the data. 'Methodology' refers to the coherent group of methods that complement one another and have the 'goodness to fit' to deliver data and findings that will reflect the research question and suit the research purpose (Henning et al, 2007:36). A qualitative approach was used in the dissertation including semi-structured interviews, a focus group interview, and observations. This approach was used to not only find out how the teaching of Geography happened, but more importantly, why it happened the way it did (Henning et al, 2007:3).

3.6.1. One-on-one Interviews

Cohen et al (2007b:267), De Vos, Strydom, Fouche and Delport (2011:342) and Kvale (1996:14) describe an interview as an interchange of views between two or more people on a topic of mutual interest. They give three views of an interview. First, it is a means of pure

information transfer and collection. Secondly, the interview is that of a transaction and inevitably has bias. Thirdly, they see interviews as an encounter sharing features of everyday life. In this study the researcher found that interviews gave him rich data. To prevent bias the researcher asked the original interviewees to check the transcriptions for accuracy. During the interviews, he found that the teachers reflected on their normal everyday teaching lives.

In this research project, the researcher used all Stake's (2010:95) interpretations of interviews. Unique information about the pedagogies from the six Geography teachers were gained from the interviews.

According to Bryman (2008:196) semi-structured interviews, as was done in this research, typically refer to a context in which the interviewer has a series of questions that are in the general form of an interview schedule but able to vary the sequence of questions. By using a semi-structured interview schedule (Appendix 2) it allowed the researcher, according to Patton (2002:343), to build a conversation, and to establish a conversational style with the participants, to make them at ease, and keep the focus on the pedagogies used in the Geography classroom. By using an interview schedule, the researcher could gather information on the teacher's daily classroom teaching practises. This assisted the researcher to gain a deeper understanding of the pedagogies used in six primary schools Geography classrooms. A microphone was used to record the interviewee responses and to analyse the collected data at a later stage. This allowed the researcher to pay more attention and be more mindful of the participants' responses during the interviews.

Open-ended questions were included in the interview schedule so that the participants could interpret the questions to the best of their ability. Open-ended questions, which do not provide any structure for answers, allowed the researcher to use probing questions for clarification. It also allowed the researcher to rephrase questions in order to obtain clearer answers, which were free from ambiguity. Probing questions were asked to obtain in-depth data, when the verbal probing questions were vague or the researcher wanted the participants to elaborate and to meet the research objective. According to Flick (2011:112) the intention of the probing questions were to help the participants think more extensively about the issue at hand and to stay focussed on the research topic.

The one-on-one interviews were scheduled with the six teachers from 23 April 2012 until 25 April 2012. These semi-structured interviews were conducted afterhours in various venues, such as the classrooms and admin office, on the school grounds. The researcher did not want to interrupt the teaching programme of the teachers. The interviews of the teachers at

the same school were conducted on the same day because the researcher did not want the participants to discuss the questions beforehand. The researcher agrees with Henning et al (2007:53) that he did not want the data to become 'contaminated'. The interviews were conducted in Afrikaans because it was the teacher's and the interviewee's home language and the language of instruction in the classroom. This was encouraged by the researcher because the teachers could express themselves better. Table 3.3 provides more detail regarding the interview schedule.

Table 3.3 Interview schedule

School	**School A**		**School B**		**School C**	
Teacher	T1	T2	T3	T4	T5	T6
Date	23/04/12	23/04/12	24/04/12	24/04/12	25/04/12	25/04/12
Time	14h15	15h00	14h15	15h00	14h15	15h00
Venue	Classroom	Classroom	Admin Office	Classroom	Classroom	Classroom

Guba and Lincoln (1981) state that an interview is ideal where the researcher is dealing with subjects who have special status and knowledge. In this research project, the subjects were educators who taught Geography. Curtis and Curtis (2011:32) indicate that interviews provide an opportunity to gather richer data. By using interviews, in this research project, the data collected came directly from the teachers who were teaching Geography in rural primary schools.

Although there are no specific disadvantages to interviews, this type of data collection method needs careful planning and precisely worded questions to yield the kind of data the researcher needed to answer his research questions (Curtis & Curtis, 2011).

Although most of the interviews went according to plan, the one interview which was challenging was that of Teacher 3 (principal) in School B. Although the interview was in his office there were some disturbances. He needed to give his attention to staff members who were planning a function in a room next door and they wanted his input. The researcher stopped the interview and asked the principal to rather attend to the staff members and the interview continued when he could give his full attention to the interview. The principal arrived back after about ten minutes and the interview continued without any disturbances. When interviewing T5, in School C, there was a great deal of noise outside because the learners were waiting for their bus to take them home. It was late in the day, and the learners were playing outside. The interviewee apologised and suggested that they move to another classroom, where there was less noise.

The next section focuses on using a focus group interview to generate data. The advantages and disadvantages of this type of data collection will be interrogated.

3.6.2. Focus group interviews

Bryman (2008:473) and Kelly (2003:50) describe a focus group as an interview with several people on a specific topic or issue and to elicit perceptions, information, attitudes and ideas from the group. Kelly (2003:50) continues that the key to focus group data is capturing participants' ideas and attitudes as they develop through group interaction and exchange. By using a focus group it helped the researcher to understand the participants' beliefs and experiences about the pedagogies they used in their Geography classrooms that may have been missed in the individual interviews. The focus group interview allowed the participants to clarify and modify their ideas through discussions and challenges with the other participants. The focus group interview was based on the assumption that group interactions would be productive in widening and diversifying the range of responses, and activating forgotten details of experience (Nieuwenhuis, 2007:90).

The researcher scheduled his one focus group interview after the six one-on-one interviews and twelve observations on the 3rd of May 2012. This was conducted after hours in the library conference room in Malmesbury. The location was convenient for the teachers, as they were all from Malmesbury.

The focus group interview was conducted in Afrikaans. The researcher wanted the participants to be able to express themselves with ease and comfort and answer the questions confidently. Open-ended questions were given so that the participants could debate the questions amongst themselves (Bryman, 2008).

Bryman (2008:475) suggests a few points of the focus group with which the researcher concurred with:

- The people in the focus group interview had had experience of primary school Geography and they could be interviewed in a relatively unstructured way;
- The focus group interviews allowed the researcher to develop an understanding about why the participants felt the way they did about using a variety of pedagogies in their Geography classrooms;
- The participants were able to bring the discussion topics that they deemed to be important and significant;
- This focus group interview process allowed the participants to argue and challenge each other's' views and gave the researcher a more realistic account of what they thought; and

- This process gave the researcher the opportunity to study the collective ways in which the participants made sense of pedagogies in the Geography classroom.

Although the researcher was aware of the limitations of focus group interviews beforehand, it was a challenge organizing the focus group interview. Henning et al (2007:74) state that the social interaction that occurs during interviews 'can progress if the researcher has managed the logistics of the venture well'. In this research project the researcher gave the participants two dates to choose from. There were many challenges with the first date. Eventually all the participants agreed on the second date. This was unnecessarily frustrating and time consuming (Henning et al, 2007)

Interviews may develop in unexpected ways (Henning et al, 2007:74). In this research project, the researcher attempted to 'build' intimacy that is common for mutual self-disclosure. However the following challenges were experienced, which had the potential to disrupt the intimacy: one participant arrived late, some spoke at the same time, it was difficult to keep to interviewees focused and one of the participants remained withdrawn.

The next section focuses on using observations to generate data while posing as a non-participatory observer.

3.6.3. Observations

To give the researcher an opportunity to gather data from real situations, six teachers in three primary school Geography classrooms were observed. The twelve observations were conducted from 23rd April 2012 till the 1stMay 2012. Once the researcher received permission from all the stakeholders, he visited the three schools to discuss the observation schedules and what the teachers could expect. Since the teaching periods were 30 minutes long, the observation times were also 30 minutes long. Rosters were obtained beforehand, so that the time frames for the observations were adhered to. Table 3.4 provides more detail regarding the dates and times of the observations.

Table 3.4 Observation schedule

	Teacher	Date/Time Lesson 1	Date/Time Lesson 2	Period L1/L2	Grade
School A	T1	23/04/12 8:00 to 8:30	26/04/12 8:00 to 8:30	1	4/5
	T2	23/04/12 9:30 to 10:00	26/04/12 9:30 to 10:00	3	5/6
School B	T3	24/04/12 11:00 to 11:30	30/04/12 11:00 to 11:30	5	4
	T4	24/04/12 12:00 to 12:30	30/04/12 12:00 to 12:30	6	6
School C	T5	25/04/12 9:30 to 10:00	01/05/12 9:30 to 10:00	3	4/5
	T6	25/04/12 11:00 to 11:30	01/05/12 11:00 to 11:30	5	6/7

The researcher observed, as a non-participant observer, the pedagogies the teachers use in their Geography classroom (Henning et al, 2007). The idea for non-participant observation was not to hinder the teachers in performing their tasks but to give the researcher the opportunity to observe teacher constraints in the classroom. Bryman (2008:257) argues that this 'non-participant' is a term that is used to describe a situation in which the observer observes but does not participate in the social setting. In order to objectify and systemise the process of observation, the researcher used a checklist (Appendix 3) and video recorded all the lessons. Video recordings, according to Fraenkel, Wallen and Hyun (2012:449) enabled the researcher to repeatedly view the behaviour of teachers and the class as a group at a later, more relaxed and convenient time. The researcher could carefully listen to the conversations, interactions and behaviours of the teachers and learners (Bloor & Wood, 2006:71). The researcher attempted to disrupt the class as little as possible, wanting to capture, on the video, the teacher and learners engaged in their teaching and learning activities.

As a non-participant observer in this study, there were various advantages. Firstly, the natural setting, the classroom, could be seen by the researcher thus avoiding biased interpretations. Secondly, the researcher took a seat in the back of the classroom, since he did not want to interupt the classroom processes. Thirdly, the researcher could observe the teaching pedagogies as they occurred in the classroom, rather than through the indirect or secondary accounts.

Moyles (2005:179) argues that although all researchers try to remain as objective as possible, observer bias is difficult to avoid. This occurs because of selective attention, selective encoding, selective memory and interpersonal factors. Moyles (2005) explains that by selective attention our sensory mechanisms are themselves subject to bias. By selective coding the observer will have certain expectations of what is likely to be seen and will make unconscious and subconscious judgements about them. By selective memory he explains that it is vital, that if not written immediately, notes are written up as soon as possible. Interpersonal factors are unavoidable since the non-participant researcher is trying to obtain a distance between himself and the subject, being in the same room or setting as those observed inevitably raises relationships.

According to Cocodia (2010:3) attached to this mode of research is the limitation of access to what can be fully observed. Since as a non-participant observer, the researcher observed only those activities he had the opportunity to watch. This handicapped the ability of the researcher to give a full and accurate analysis of the event. To minimize bias during the observations for this study, the researcher made video recordings to compliment the observations to assist with more accurate analysis of the data. The observation sheets were not shown to the participants before the video recordings because the researcher did not want the teachers to give lessons according to the set criteria which may have influenced the trustworthiness of the data.

3.7. DATA ANALYSIS

Schurink, Fouche and De Vos (2011:397) state that data analysis is the process of bringing order, structure and meaning to the mass of collected data. Data analysis is a process which requires analytical craftsmanship and the ability to capture data comprehension in transcription. Similarly, Wiersma and Jurs (2009:237) describe data analysis in qualitative research as a process of successive approximations leading to a precise description and interpretation of the phenomenon. Maxwell (2005:95) suggests that the data analysis process is the most mysterious aspect of qualitative research. The process of analyses in this research, involved examining words, sentences and paragraphs in order to organise, decode,

interpret and theorise data on an on-going, emerging basis (Henning et al, 2007:127). They stated that with deductive and inductive analysis the researcher can elicit meaning from the data in a systematic, comprehensive and rigorous manner.

This study embraces adeductive as well as an inductive approach where in-depth qualitative data was analysed. The data collection techniques used in the data collection process for analysis were a focus group interview, twelve observations and six one-on-one interviews.

In this study, Shulman's PCK and Koehler and Mishra's TPACK, were used to deductively analyse some of the data. A deductive study works from the general to the specific. 'Coding', according to Henning et al (2007:131) represents the operations by which data is broken down, conceptualised, and put together in a new way. This allowed the researcher to work systematically, while comparing the data and grouping it together under similar conceptual labels as explained above.

The researcher opted for an inductive approach for this study because he wanted to draw conclusions from the raw data that had been collected in the six one-on-one interviews, one focus group interview and twelve observations. By using this data, the researcher, could build a theory. He did not want to be limited by theory or framework to be able to see issues holistically and to see the unobvious things in the data (Henning et al, 2007). This type of analysis will result in a more in-depth understanding of the pedagogies used in the Geography classrooms. Creswell (2009:63) explains that in an inductive study the theory becomes the end point. The logic of the deductive and inductive process is shown in Table 3.5.

Table 3.5 Comparing deductive and inductive logic of research in a qualitative study

STEPS	DEDUCTIVE PROCESS	INDUCTIVE PROCESS
Step 1	Researcher uses theory and literature	Researcher gathers information (interviews, observations).
Step 2	Hypodissertation is drawn	Researcher asks open-ended questions of participants or records field notes.
Step 3	Researcher gathers information (interviews, observations).	Researcher analyzes data to form themes or categories.
Step 4	Researcher analyzes data	Researcher looks for broad patterns, generalizations, or theories or categories.
Step 5	Confirmation or rejection of theory	Researcher poses generalizations or theories from past experiences and literature.

The data from the *interviews* were collected in Afrikaans, and then translated into English. The rationale behind this was that if the interviews were going to be held in English, the participants may struggle to express themselves clearly. The transcripts were returned to the teachers to check for accuracy of translation. The interviews were then transcribed and the researcher looked for common themes that arose from the data. The data collected in the interviews was thematically analysed which entailed attentive listening to the audio recording, searching through the transcripts and syndissertationing the data into codes, categories and themes. Different codes (L/PM – Lecture and Presentation Method, QA – Question and Answer Method, RP – Research Project and GW – Group Work Method) and themes (PCK – pedagogical content knowledge, R – resources, MG – multi-grade teaching, SEB – socio economic barriers, WCED – WCED support) were compared and contrasted to test relationships.

Data from the *observations* were gathered through making continuous notes and use of an observation checklist. The researcher used a checklist for the observations in English so translations were not necessary. The video recordings were not transcribed. All notes, checklists and video recordings were read and examined repeatedly to obtain an overall impression of the teaching pedagogies used by the six teachers.

3.8. TRUSTWORTHINESS

3.8.1. Validity

'Validity' is described as the accurate interpretability of the results, integrity of the conclusions and the generalizability of the results (Wiersma & Jurs, 2009:8; Bryman, 2008:32). According to Cohen et al (2000:5), 'validity' can be addressed through honesty, depth, richness and scope of the data achieved, the participants approached, the extent of triangulation, and the objectivity of the researcher. Henning et al (2007:146) state that the way in which evidence was captured during the collection of data as well as data analysis procedures ensure the status of clear, reliable evidence.

Validity in this study was achieved through three processes: Firstly the researcher continuously checked, compared and interpreted all the results and findings. Secondly, the correctness of the interview transcriptions were checked and clarified by all six teachers. Finally, to increase the validity of this research study, triangulation was used. Multiple sources of data were collected in the form of observations, one-on-one in-depth interviews and one focus-group interview. The researcher used video recordings and field notes, which gave him rich and thick description of data.

3.8.2. Reliability

Wiersma and Jurs (2009:9) and Bryman (2008:31) describe 'reliability' as the consistency of the research and the extent to which studies can be replicated or repeated. It is therefore, both a concept and a practical measure of how consistent and stable a measurement instrument may be (Bertram & Christiansen, 2014:186; Davies, 2007:241). 'Reliability' indicates the researcher's approach, if it was consistent across different researchers and different projects (Cresswell, 2009:190). As indicated by Salkind (2009:110), if something is 'reliable', it will perform in the future as it has in the past.

When attempting to achieve 'reliability' in this study, the researcher observed six Geography lessons, taught by six different teachers in three different rural schools. Conditions for observations were standardised (the researcher used an observation checklist as in Appendix 3) as well as notes and video recordings which were taken across all six classrooms.

3.8.3. Triangulation

Triangulation may be defined as the use of two or more methods of data collection to enhance the rigour of the research in a study of human behaviour (Henning et al, 2007:140; Robson, 2011:158; Cohen et al*,* 2000:112). By using triangulation the sources of evidence can be compared to verify the accuracy of the information (Kane & O'Reilly-de Brun, 2001:108). Using more than one type of data collection method enabled the researcher to study the same subject from more than one point. This provided greater confidence in the final findings.

Cohen et al *(*2007b:142) distinguishes between six types of triangulation:

- Time triangulation: this is to take into consideration the factors of change and process;
- Space triangulation: attempts to overcome the parochialism of studies conducted in the same country or within the same subculture;
- Combined level of triangulation: uses more than one level of analysis from the three principle levels, namely, the individual, interactive (groups), and the level of collectiveness;
- Theoretical triangulation: draws upon alternative or competing theories;
- Investigator triangulation: engages more than one observer; and
- Methodological triangulation: uses either the same method on different occasions, or different methods on the same object of study.

In this study, a combination of two types of triangulation methods were used: theoretical triangulation and methodological triangulation. By using a combination of triangulation

methods, the researcher attempted to bring order, structure and meaning to the collected data, which was inductively and deductively analysed. Theory triangulation has been created by using multiple theories, those of Shulman's (1987) PCK and Koehler and Mishra's (2007) TPACK, throughout the research process. Methodological triangulation was achieved by six one-on-one interviews, a focus group interview and twelve lesson observations.

3.9. ETHICAL CONSIDERATIONS

Cohen et al *(*2007b:51) state that a major ethical dilemma is that which requires researchers to strike a balance between the demand placed on them as professional scientists in pursuit of truth, and their subjects' rights and values, potentially threatened by the research. In attempting to keep a 'balance' in this research project the researcher was mindful of the following:

Before he could access the schools, written consent was needed from WCED and the West Coast Education District to access the three schools. Both consent letters are included in Appendices 4 and 5. Consent letters were sent to, and returned by the three school principals and the six teachers. Consent needed to be granted from the parents of the learners as they were too young (Appendix 6). This was done because the researcher was using video recordings in the classrooms where he observed the teachers. In these consent letters, the parents were guaranteed of their children's confidentiality and that the videos would not be reproduced for any other purpose other than this research. The participants were assured that they could withdraw at any time (Cohen et al, 2007b).

Gregory (2003:49) explains that at times consent will not be forthcoming unless confidentiality can be guaranteed. That is why all the participants were assured of the principle of privacy, anonymity and confidentiality and to honour that agreement the researcher refers to them as T1, T2 etc. When discussing the results and findings in this dissertation, the schools have been referred to as School A, B or C. All participants were thoroughly briefed before the observations and interviews to explain the goals, procedure and the advantages of the study.

3.10. CHAPTER SUMMARY

This chapter has introduced the research paradigm, the research approach, the site selection, sample, data collection techniques (including interviews focus group interviews and observations), data analysis and trustworthiness (including validity, reliability and triangulation). The chapter concludes with a dialogue on ethical considerations. In Chapter 4 the results and analysis of the research will be presented.

CHAPTER 4
FINDINGS AND DISCUSSIONS

4.1. INTRODUCTION

The aim of the research was to explore the pedagogies being used in the Geography classroom in three primary schools in the West Coast District. Therefore the main research question was: **What are the dominant pedagogies used in three rural Geography primary school classrooms in the West Coast District?** An inductive and deductive approach to the study was employed to answer the research question.

The research question was answered by analysing the six one-on-one interviews, one focus group interview and twelve lesson observations. The findings and discussions will be presented juxtaposing current literature and theory.

4.2. Research sub-question 1

What were the dominant pedagogies used in the Geography classroom?

After analysing the one-on-one interview transcripts and observations, only four significant themes become evident, which can be seen below and in Table 4.1. The themes have been presented from the most significant results to the least significant. The results are presented by providing evidence firstly from the observations, followed by the interviews. Each pedagogy will be discussed in more detail.

Table 4.1 Teaching pedagogies used in the classroom

Pedagogies	T 1		T 2		T 3		T 4		T 5		T 6		TOTALS
	Observations	Interviews	Observations	Interviews	Observations	Interviews	Observations	Interviews	Observations	Interviews	Observations	Interviews	
Lecture or Presentation Method	x	x	x	x	x		x	x	x	x	x		**10**
Question and answer			x		x			x		x	x	x	**6**
Research/ Project									x	x		x	**3**
Group work						x	x						**2**

4.2.1 Lecture or Presentation Method

After deductively analysing the collected interviews and observations, it became clear that the most significant teaching method used was the Lecture or the Presentation Method. According to Khan and Akbar (2008:50), the Lecture Method is a very traditional method of teaching. This entails knowledge communicated by the teacher to learners orally and the teacher is dependent on his own memory and transmits this knowledge to the student. The Presentation method is an enhancement of the normal lecture by using visual materials such as slide presentations, video, OHP and PowerPoint (Westwood, 2008:20). The requirement is that teachers understand information technology broadly enough to apply it productively at work and in their everyday lives, to recognize when information technology can assist or impede the achievement of a goal, and to continually adapt to changes in information technology (Koehler & Mishra, 2009). Moore and Hansen (2012:184,240) describe the Presentation Method as one of the common methods in teaching (telling and explaining).

The response from T1 during the one-on-one interview was as follows:

> T1: So you have to stay at their level. That's why I say I would rather use the Lecture Method to explain or tell them about it and try to make it as simple as possible and I go over it on the blackboard.

From the observations of the first lesson T1 (who had 5 years Geography teaching experience and who majored in Geography) gave a lesson to the Grade 4 class about Services and Resources in Settlements. He explained the lesson for more than 15 minutes of a 30 minute period. At the end the learners completed an activity from the textbook.

The CAPS (NDoBE 2011:13) Social Science curriculum document requires learners to develop certain skills. Therefore it is the duty of the teacher to adopt certain pedagogies that will develop these skills in their learners in their teaching lessons. In the case of T1s lesson on Services and Resources in Settlements, the CAPS document state that the following skills should have been his ultimate aim to achieve – and these include:

1. Read and use resources in order to assimilate information;
2. Use information to describe, explain and answers questions about people, places and the relationship between different settlements;
3. Engage with issues relating to the planet, its people and resources with knowledge and sensitivity;
4. Act responsibly towards people and the environment.

In the observations of T1, he did not read and use resources to assimilate the knowledge of the learners. He did, however, explain the services and resources found in settlements. However, there were no explicit connections between the services and resources between different settlements. Since T1 chose to use the Lecture Method, this pedagogy limited the learner's development of skills. In this lesson there was no evidence of learners reading, describing, explaining, answering, engaging or acting responsibly.

Khan and Akbar (2008:50) argue that the Lecture Method can be used for introducing the topic or for linking old knowledge with new knowledge. In the second lesson T1 used the Lecture Method to teach the whole lesson which lasted for 20 minutes. Cruickshank et al (2009:273) explain that when using a direct method, such as the Lecture Method, it is to help learners learn basic academic content in the most efficient, straightforward way. T1 used the Lecture Method, as Cruickshank et al (2009:273) suggested to teach the content, as he felt it would produce the best understanding for his learners. Ironically T1 did not give the learners any time to become engaged in his lesson. The learners did not, according to the observations, describe nor explain any of the information nor concepts. According, Shulman's (1986) PCK the selected methods used need to make the learning of a specific topic easy.

In the one-on-one interview T2 stated that:

> T 2: ... sometimes I also needed to use the Lecturing Method where I just explain to the learners …

During T2's first lesson, (who had 20 years Geography teaching experience and who majored in Geography), gave a lesson on Climate Regions in South Africa for the Grade 5 class. The space in this class was limited due to the class size of 48 learners. The teacher made use of a hand drawn map of the climate regions in South Africa. The researcher observed the learners facial expressions that they were excited for what was coming. The teacher began his lesson with appropriate questions to identify the learner's prior knowledge (Khan & Akbar, 2008:50). The body of the lesson continued with T2 asking questions:

> T 2: What is a climate region?
> L : It is a place, sir.
> T 2: No, but think a bit further.
> L : [no one answers]
> T 2: It is places that are grouped together which has the same weather, do you understand? The weather is the same. [Teacher wrote definition of 'climate' on the board].
> T 2: Take a look at the map on the board.
> T 2: Which regions can you see on the map? Which colours match which region?
> L : [Learners responded to questions].

During the rest of the lesson the teacher explained the content, but this did not provide the learners with enough time to complete their expected activity. This lesson can be categorized as a Lecture Method since the lesson was dominated by the teacher's discussion of content with few questions posed to the learners. T2 dominated the lesson according to the following criteria of Cruickshank et al (2009:273):

- Task orientation - the teacher taught only the basics which was important for academic learning; and
- Teacher centrality – the teacher exerted strong direction and control over what was learnt and how the knowledge was learned.

T3 did not mention in his interview that he was using the Lecture Method however the researcher did observe him using it in his lesson. In the lesson of T3, (who had 18 years Geography teaching experience and who majored in Geography) which was on map work for a Grade 6 class, he used a data projector and white board, while explaining the concepts (more than 20 minutes of a 30 minute period) to the learners. For most of the lesson the learners were listening to the teacher explaining concepts and sometimes what was showing on the board. At the end of the lesson T3 asked a few questions and asked the learners to write the notes he had written on the adjoining white board.

According to Koehler and Mishra's (2009) TPACK model requires an interaction between content, pedagogy and technology. T3 attempted using this TPACK model when he started his lesson by showing learners the earth and continents using Google Earth. The learners were interested in observing the technology during the lesson. They were focused on what T3 was explaining and they freely answered the teachers' questions. T3 presented his whole lesson using Google Earth while making notes on an adjoining white board. He engaged the learners by explaining the content by referring to Google Earth and towards the end of the lesson he asked a few questions. In the observed lesson the teacher used computers to support his transmission of knowledge (Koehler & Mishra, 2009). Although the questions were sometimes confusing for the learners, he continued. Some of the questions which were asked by T3 include:

T 3: Which provinces could you see on the map? [Shows map].
L : Western Cape and Eastern Cape.
T 3: What is Pietermaritzburg known for?
L : [no answer].
T 3: Think about the comrades' marathon.
T 3: Which ocean do you see here [shows on map].
L : Atlantic Ocean.

According to Koehler and Mishra (2009) teachers need to apply pedagogical techniques that use technologies in a constructive way to teach content. Although T3 used technology in his presentation, there was little interaction between the content, pedagogy and technology with the learners (Koehler & Mishra, 2009). T3 merely explained what was on the board.

According to the interviews, T4 and T5 mentioned they used the Presentation Method. T4 had 2 months Geography teaching experience and who majored in Geography. T5 had 6 years Geography teaching and did not major in Geography. This transformation of subject matter knowledge connects to Koehler and Mishra's (2009) TPACK. However the researcher did not observe T4 use the Presentation Method during the observed lessons. They stated that:

T 4: I use the Presentation Method more but then I'm used to asking them directly afterwards what it is that I have just explained to them.

T 5: I want to incorporate presentations in my lessons but resources are limited.

In the interview, T4 did not state that he was using the Lecture Method. However in the observation of the first lesson of T4 which was about Natural Resources for a Grade 4 class of 34 learners he used the Lecture Method. Despite only having two months teaching experience, he was at ease with his class and enthusiastic about the lesson. At the beginning of the lesson T4 explained to the learners what the lesson was about and what the learners were going to do. Afterwards T4 asked a question, he gave long explanations which in some cases were not needed. The learners sat passively listening to him. The only resource that T4 referred to was the Grade 4 Geography textbook. After the introduction of the lesson, he continued like this:

T 4: Do you know what resources are?
L : [No reaction from the learners].
T 4: [Teacher gave lengthy explanation, for about 15 minutes].
T 4: What do we need to live?
L : Food, water and plants.
T4 : [Teacher explained why we need food, water and plants]
T 4: Where do we get the food?
L : At the shop and from the ground.
T 4: Let's read in the textbook about the activity and then you must do it.
L : [Read the activity and started working on it]

[The researcher observed that there was about 5 minutes left when the learners needed to start with the next activity from the textbook. After the bell rung, the learners were not finished with the activity].

Shulman (1986:9) stated that in PCK the most useful forms of pedagogy will make the learning of specific topics easy or difficult. The pedagogy T4 chose for this lesson did not encourage group work nor any engagement from the learners on a deeper and more active level, therefore making the achievement of the outcomes more difficult. In this case, it was observed that, the learners were merely answering T4s questions. They did not take part in constructively developing activities that were used to understand the content.

T6 (who had 3 years Geography teaching experience and who did not major in Geography) did not mention in the interview that he was using the Lecture Method. However, in the lessons observed he used the Lectured Method. T6 gave a lesson about Co-ordinates for a Grade 6 class which the researcher observed. In this lesson T6 explained the definitions and content specific to this lesson. The learners passively sat throughout the lesson, listening to T6. The following is an extract from the observed lesson:

T 6: We get different lines on the maps and also on the continents in the world. Who can tell me the name of the lines?
L : [no one answers].
T 6: Open up your textbooks. Take a look at the lines. These lines [shows with textbook and on map] are called latitude.

The teacher explained the whole lesson using this format whereby the learners did not give the answers. The teacher answered his own questions and continued his explanations. At the end of the lesson the learners were given an activity where they needed to give the co-ordinates of different places on a map, in the textbook.

In this lesson, the content was explained by the teacher and the learners sat unresponsively attending to what the teacher was saying. To conclude the lesson, T6 assumed that the learners understood the work and gave them an activity. It was clear, to the researcher that the learners did not understand because they constantly asked questions amongst themselves about the content and how to complete the activity. This pedagogy of teaching is typically evident of the Lecture Method as described by Tulasi and Rao (2007:38):

> The lecture method is a teacher centred method, and the learners are just passive listeners most of the time, very few teachers allow questions and the teacher is the main actor for 85 percent of the time.

Westwood (2008:17) posits that the Lecture Method can be an effective pedagogy when teaching young children necessary competencies and skills when used as ‘mini-lectures’ of about 10 – 15 minutes in a 45-60 minute periods. He suggests the purpose of the mini-lectures may be to:

- introduce a new topic, provide an overview, and arouse learner interest;
- bring learners up to date with recent information;
- present information in a quick, concise and integrated way; and
- provide opportunities for review and revision of material.

However, if teachers use this Lecture Method to lecture for whole lessons, it may lead to long periods of unsustained listening on the part of the learners and this will reduce the efficacy of the lesson.

In summary, from observing the lessons of Ts 1 - 6, it was clear that these teachers used the Lecture Method in a teacher centred class environment. It was surprising that T5, who had not majored in Geography, engaged the learners more in her lesson. She used the textbooks and computers to make the lesson more interesting. With the other teachers, the learners hardly engaged with the content or the teachers, and often sat passively listening to the teacher. It is evident that these teachers only used Grossman's (1990) definition of PCK in their knowledge of the curriculum. They did not draw on the learner's prior knowledge, preconceptions, or possible misconceptions of the content covered in the lessons. Table 4.2 describes Westwood's competencies and skills. These competencies and skills are compared to those observed in Ts1- 6 lessons.

Table 4.2 Westwood's competencies and skills

Westwood's (2008:17) necessary competencies and skills identified in a Lecture Method	
Competencies and skills	**In which teachers' lessons these competencies and skills were observed**
Planning the content	evident in T1,T2, and T5's lesson
Managing the availability of time	T1-5 spoke too much at the beginning of the lessons. This resulted in learners not being able to complete their activities
Presenting the content in an interesting and motivating way	Evident in T2, T3 and T5s lessons
Knowing when and how to explain key points in more detail	Observed in most of the lessons. But the explanations were in too much detail and the learners lost concentration
Using appropriate questioning to focus students' attention	Questions evident in T2 and T6s lesson but some of the questions were not appropriate.
Dealing with questions raised by students	Evident in T1, T4, T5 and T6s lessons
Evaluating students learning and participation;	Not observed in any of the lessons
Giving feedback to students	Not observed in any of the lessons

4.2.2 Question and Answer Method

Three teachers (T4, T5 and T6) mentioned in their one-on-one interviews about using the Question and Answer Method and three teachers (T2, T3 and T6) were observed using the Question and Answer Method.

When T4, T5 and T6 were asked what method they used in their classes – they answered:

T 4: … I'm used to ask them questions during the lesson…
T 5: … just the question and answer method.
T 6: … and I also make use of question and answer method.

According to Basha and Rao (2007:99) in the Question and Answer Method an effort is made by the teacher to systematize the previous knowledge of the students. Their previous knowledge is scattered and disorganized, by removing the doubts of the students, an attempt is made to bring them on the right track (Basha & Rao, 2007:99). In the observed lessons the questions which were asked by some of the teachers were used to introduce the content while other questions were low ordered questions. Orlich et al (2013:213) argue that questioning plays a critical role in teaching and the teachers must be knowledgeable in the process of framing questions. Shulman (1986) furthers this argument by stating in PCK that the content must be represented in the most useful form to make it comprehensible to others. He further stated that teachers need to manage question and answer sessions to make the learning related to the concept being taught.

The observed lesson of T2 was on Climate Regions in South Africa for a Grade 5 class. The lesson was a follow-up of his first lesson. The learners engaged in the lesson, although only basic level questions were posed to the learners. Part of the lesson was observed as follows:

T 2: Do we get the same weather all over the country? What kind of weather do we normally get in the Western Cape?
L : No, in winter it rains more and the summers are hot.
T 2: What climate regions do we get in the country?
L : [No one answers].
T 2: [Writes word, ''climate'', on the board].
T 2: Let's go and look for the answer in the textbook.
[Give learners time to read in the textbook].
Anyone who would like to tell me what a climate region is?
L : [One learner responded to the question, with the correct answer].
[The teacher asked 5 more questions and then explained some content for about 10 minutes. The learners got a blank map which they needed to colour in the different climate regions].

T3s lesson gave a follow-up lesson on Map work. The learners engaged in the lesson by answered the questions posed by T3. Part of the lesson was as follows:

T 3: How do we know where you live?
L : Because we got street names and numbers.
T 3: Good, very well.
T 3: Who can come and draw a map from where you are living to the school.
L : [no response from learners].
T : Okay, let me show you how it is done. [Teacher draws map on board].
T 3: Now let's put more info on the map. What do you think can we put on the map?
L : [One learner answered] Directions, Sir.

[After more questions, which the learners answered, the teacher asked the learners to draw their own maps individually].

T6s lesson was also a follow-up lesson about Coordinates. Part of his lesson unfolded like this:

T 6 : Whom of you can show me where New York is in the Atlas?
L : [One learner put up his hand and show in Atlas where New York is].
T 6 : Very good.
T 6 : Where is New York from Cape Town?
L : [One learner put up his hand]. It is North, Sir.
T 6 : No, try again. Take a look at the directions on the page.
L : It is more North-West.
T 6 : Can someone in the class come and show me the coordinates as we did it the last time on the map infront.
L : [None of the learners came forward]
T 6 : Okay, let me show the first one then you will do the rest.

[Teacher shows the answer on the map. After that he asked the learners for more coordinates which they had to come and point to on the board].

The questions which were asked by T2, T3 and T6 (who had the most teaching experience) were not high-order questions which would have helped the learners to understand the content. The learners did not need to give explanations to any of the answers they gave. According to Chandra and Sharma (2004:84) and Orlich et al (2013:213) questioning needs to be appropriate and stimulating to the learner. The teacher needs to have complete awareness of the purpose of asking a particular question. In doing this the teacher needs to possess accurate and comprehensive knowledge of the subject, ability to analyse the subject, knowledge of the learner, experience, mental ability, decisiveness and power of expression. Despite these teachers having the longest teaching experience, they lacked in-depth questioning skills.

4.2.3 Research or Project Method

According to Prince and Felder (2006:14) Project based teaching and learning begins with an assignment to carry out one or more tasks that lead to the production of a final product—a design, a model, a device or a computer simulation. The culmination of the project is normally a written and/or oral report summarizing the procedure used to produce the product and presenting the outcome. Bukova-Güzel's (2010) framework of PCK added that teachers need to have knowledge of different multiple representations in instructions to cater for different learners in the classroom. Only T5 and T6 responded in the interview that they were using Research Method. Their responses were as follows:

T 5: I mostly make use of research skills and then afterwards I will use spoon feeding. I give them the actual information that they are supposed to know.

T 6: I use the research method.

Although T5 and T6 mentioned in the interviews that they are using the Research Method, only T5 was observed using it in her lesson. T5 gave a lesson on the Climate regions to a Grade 5 class. The lesson was presented in the computer lab. For the introduction of the lesson the teacher asked the learners' questions from the textbook which they needed to read before they continued with their research project in groups. The introduction began like this:

T 5: How do you feel in summertime?
L : Warm and like to swim.
T 5: What do you know about climate regions?
L : [only one boy put up his hand] Desert region, mam.
T 5: Anyone else? Now, let's find out more about these regions.
[Teacher asks learners to get in groups of 2. Teacher guides learners to internet and to look for websites for information].
[After a while, the teacher asks questions again]
T 5: Who can tell me something about climate regions?
L : We get a desert region, Mediterranean region.
[Learners name all the regions].
T 5: Each group read me one sentence from the computer about a region.
L : [Each group of learners read a sentence].

After the above introduction and group work the learners were given an activity in the textbook about the climate regions. In this lesson the teacher promoted peer learning, giving attention to individuals, and facilitating learning. The activity was one where the learners needed to do research from the internet, discuss the information and needed to make a chart with information of the different climate regions. T5 applied her technology knowledge productively (Koehler & Mishra, 2009) to achieve her goal for the lesson. According to the description of Prince and Felder (2006:14) regarding research, the activity had a task which needed to be carried out. At the end the learners needed to produce a product in the form of

a chart. The learners needed to find information on the internet and write it down. The learners were interested in finding the information on the internet (Koehler & Mishra, 2009). Although T5 had only 6 years of Geography teaching experience, she was unexpectedly confident working with computers.

4.2.4 Group work Method

According to Cruickshank et al (2009:251) the group work task is normally to collectively learn or master content the teacher has previously presented. The purpose of group work is to encourage learners to work together for both common and individual goals. By working in groups to solve a problem the learners may develop their own learning approaches and answers to the enquiry question. Learners work together to ensure that all members in their groups have learnt and assimilated the same content. They therefore maximize their own and each other's learning when they work together (Johnson et al, 1993).

According to the one-on-one interviews T3 made use of group work. His response was as follows:

> T 3: A nice thing about this subject is that pupils can work in groups which I normally do.

T4 was observed using group work. He gave a lesson about resources to a Grade 4 class of 34 learners. He gave a short description of the lesson at the beginning and told them what the lesson was going to be about. The teacher continued as follows:

> T4: [Read out the names from the class list of the one group]. Now all six of you go and sit there in that desk. [Teacher read out six names again]. You all are in that group go and sit there.
> [Teacher continued reading all the names and placed them in groups].
> L: Sir, in which group am I?
> T4: Didn't you listen to what I said? You are in the group with Peter and Mark.
> T4: Now listen you all. In your groups you must take the pamphlets and cut out all the resources and placed them in the right groups. Do you all understand?
> L: Yes, sir. [Learners start working on their task in their groups. After a few minutes some of the groups were finished].

T4 grouped learners from the class list. He handed out pamphlets and a sheet with 2 columns. The groups were expected to cut out and paste the resources in the correct group (for example clothing, food, etc.). The learners were loud and the researcher observed that some of the learners did not participate in their groups. Some of the groups were finished in 5 minutes and then they began to throw papers at each other. The management of the class by the teacher during group work was not good. Perhaps this was due to the fact that he had

only two months of teaching experience. According to Shulman (1987), good classroom management will excel the teaching and learning in a classroom.

The aim of this section was to analyse the data which was collected from the one-on-one interviews and the lesson observations to answer the research question about the pedagogies being used in the Geography classroom. The researcher only highlighted and consolidated the main results as follow. It was clear from the observations, the video analysis and the interviews that six teachers used the Lecture Method and this was seen as the dominant pedagogy being used in the Geography classroom. There was a disconnection between what the teachers said in the interviews and what the researcher observed. Many of the Geography teachers reported to have been using multi-methods of teaching Geography while the researcher only observed the Lecture Method. Both the observations and interviews indicated that the Geography teachers were confident that the Lecture Method would get the appropriate results in the classroom. Although the teachers named some of the pedagogies they were using, the researcher felt that their understanding and details of the teaching pedagogy continued to remain unclear. When reviewing all the data it was evident that the six teachers struggled to ask high order questions to ascertain the students understanding. This was evident throughout all four teaching methods outlined in Table 4.1.

4.3 Research sub-question 2

What are the challenges teachers' experiences when teaching Geography in rural schools?

The research for the dissertation was conducted in rural schools and it became clear when inductively analysing the data that the six teachers were facing many pedagogical challenges. From the data the following five challenges were evident:

1. Pedagogical and Content Knowledge (PCK);
2. Lack of resources;
3. Multi-grade teaching;
4. Socio-economic barriers; and
5. WCED training and support.

4.3.1 Pedagogical and Content Knowledge

Cochran et al (1991:1) describe pedagogical content knowledge (PCK) as a type of knowledge unique to teachers. It concerns the manner in which teachers relate their pedagogical knowledge to their subject matter knowledge in the school context, for the teaching of specific learners. They further describe it as the integration or the syndissertation of teachers' pedagogical knowledge (PK) and their subject matter knowledge, also called

content knowledge (CK), which comprises pedagogical content knowledge. PCK includes components such as knowledge of instructional strategies, instructional representations, classroom explanations, learners' ideas and curriculum (Shulman, 1986).

The schools that were used in this research project were all rural schools and according the Department of Basic Education (DoBE), the teaching methods that teachers use in rural schools are, in many instances, inappropriate for their particular context (Surty 2011:9). The teachers stated in their interviews that they were using the Lecture, Question and Answer, Research and Group work methods in their teaching. The data from the six observations showed that the teachers were generaly using the Question and Answer Method in combination with the Lecture Method. Although these methods can be useful, for example to systematize the previous knowledge, they limit the creativity of learners and inhibit different types of learning (Westwood, 2000:11). One of the challenges emerging from the collected and analysed data is that some of the teachers admitted they lacked pedagogical knowledge of how to teach Geography or which methods to use in their teaching. This is interesting as four of the six teachers had majored in Geography, although some as many as twenty years previously. They were unclear what they understood about different pedagogies and only used one or two different teaching methods. Shulman (1987) stated that teachers should understand alternative theories of interpretation, and how these might relate to issues of curriculum and teaching.

Three of the teachers did not know what pedagogies (or teaching methods) were when the researcher asked a question regarding their pedagogies. The researcher needed to explain to Ts 1, 4 and 5 what they meant by teaching methods. Some of the teachers did not have corrective measures if a lesson did not work out or the learners' responses in the class were not appropriate. The responses of some of the teachers regarding their pedagogies been used were:

Researcher:	What teaching methods do you use to teach Geography and why do you use them?
T1:	In what respect? What…um. What I usually do, you have to do it yourself there's not much you can really do.
T4:	Um. Can you explain what you mean about the methods?
T5:	I am not sure what you mean can you explain to me, please.

In the interview, four of the teachers said that they still need to learn more about the content knowledge to teach Geography. This is intriguing since five of the six teachers had been

teaching Geography from five to twenty years. Shulman (1987) argued that a teacher should know their subject and be familiar with critical literature that applies to the subject. He regarded a teacher's content knowledge as an important aspect of teaching. Researchers such as, McNamara (1991), Ireson, Mortimer and Hallam (1999), Alexander (2003), and McBer (2002) add that teachers with strong CK may teach in a more interesting and dynamic way whilst those with little CK may shy away from the more difficult aspects of the subject, or approach their teaching in a didactic manner.

In most of the lessons the teachers were only transmitting the content as in the textbook. The explanations, although lengthy, were not comprehensible for the learners. From the observations it was clear that the teachers were not sure about the content which they discussed in the lessons. In one of the lessons the teacher asked the observer if he was teaching the content correctly. This gave the researcher an understanding that the teacher was unsure of the content well enough and was not also sure what to teach according to the curriculum. Ts 4, 5 and 6 indicated in their interviews, that they did not possess enough Geographical content knowledge.

Some of the responses regarding the teacher's content knowledge were:

T4: I think there is always room for improvement and I feel there's still a lot that I could learn for example if I go to workshops to observe how I can teach a specific concept then that will aid me.

T5: Schools shouldn't give teachers one subject this year and then another the next year. In the first place I don't like Geography at all … when I have to prepare my Geography lessons I have to look far in order to have enough knowledge.

T6: Not at all … I get my knowledge of Geography from reading up on things and try to gain knowledge about the subject in order to teach what I've learned to the pupils …

The content which must be taught for the lesson of T6 on longitude and latitude is described in the CAPS (NDoBE, 2011:29) document as shown in Table 4.3 below.

Table 4.3 Content and skills adapted from the Social Sciences CAPS document

CONTENT AND SKILLS
❖ LATITUDE AND LONGITUDE (degrees) – 4 hours ➢ Latitude and longitude on a globe ➢ Concept of hemisphere ▪ Northern and southern hemispheres – divided by equator ▪ Eastern and western hemispheres – divided by Greenwich Meridian ▪ Any place in the globe is in two hemispheres ▪ Location of South Africa in southern and eastern hemispheres ➢ Latitude and longitude on a map – from globe to a flat map ➢ Locate selected countries and cities in degrees of latitude and longitude

According to the CAPS document (NDoBE, 2011:29) the lesson on Latitude and Longitude is supposed to be taught for four hours, but this was conducted in only two periods by the T5. The concept of 'hemisphere' was not taught by the teacher and that is why the learners did not get a basic understanding of the concept. Evidence given in a survey by the Office for Standards in Education (2009:4) reported that where there was a weakness in the teachers' subject knowledge, it was evident that the pupil's achievement was not as high as it might have been. It was clear, in the observations that the teachers were teaching the content as described in the textbook. There was no evidence where the content was extended for learners in the classroom. In the class when the teacher explained a concept they used one scenario to make the explanation clearer to the learners.

4.3.2 Resources

Brunswic and Valerien (2004:53) state that multi-grade schools experience learner failure due to a lack of strong political will, lack of teacher motivation as well as a lack of educational resources, such as worksheets and additional workbooks. Leach and Moon (1999, cited in Cogill, 2008) consider that CK can be changed by the resources that are used in teaching. The availability of instructional materials and equipment will help the teacher reach their aims regarding the effectiveness of the lesson (Shulman, 1987). With the lack of resources, schools are becoming as, Shulman (1987) calls it, 'a day care' where some learners have far fewer hours devoted to learning. Since some of the teachers acknowledged that they did not have enough Geographical content knowledge, Shulman (1987) argues that teachers without CK will not be in a position to make appropriate choices of new resources. Additionally, when using new resources it may potentially affect teachers existing CK.

During the classroom observations the researcher looked at the resources the teachers used in their lessons. Table 4.4 shows the different resources observed during the Geography lessons.

Table 4.4 Resources observed being used during Geography lessons

Teacher	Lesson	Resourcesbeing used in Geography lessons
Teacher 1	1	Textbook / picture
	2	Textbook / own drawing / worksheet
Teacher 2	1	Atlas / textbook
	2	Textbook
Teacher 3	1	Computer / data projector / internet
	2	Maps / own drawings on board
Teacher 4	1	Textbook
	2	Pamphlets
Teacher 5	1	Computer / textbook / internet
	2	Computer / textbook/ internet
Teacher 6	1	Map / textbook / atlas
	2	Atlas / globe / textbook

The teachers used atlases, textbooks, maps, globes, worksheets, pamphlets, internet, pictures and their own drawings in their Geography lessons. The textbook was the most used resource by T1, T2, T4, T5 and T6 which were provided by the WCED. What was concerning, was that the teachers were only teaching the content that came directly from the textbooks. Teachers used these books for showing pictures or maps. The researcher observed that when the teachers referred the learners to these textbooks, the learners could see pictures or maps of the concepts being taught, it appeared from their facial features that they understood the concepts better.

In the interviews, all the teachers acknowledged the importance of resources in Geography lessons. Butt (2002:45) claims that resources would make the learning of subjects topical, relevant and exciting. He further states that it is vital that in our selection and use of resources for teaching Geography we consider how student motivation can be realized and sustained. By improving Geography lessons the NDoBE (2011:8) suggest the following resources to be used:

- Each learner should have a quality textbook and a neatly kept notebook;

- Every Social Sciences (Geography) classroom should have wall maps, a globe, access to a set of atlases and a dictionary, as well as access to a variety of reading books and visual material suitable for the grade;
- Have magazines and newspapers available in the classroom for learners to use in their activities and acquire sets of pictures for classroom activities;
- Try to obtain access to a TV/DVD and/or a CD player to present appropriate audio and audio-visual materials to learners; and
- Try to use the internet wherever possible.

Although during the interviews, the teachers said they did not have resources available for them to use during their Geography lesson, the researcher observed 11 of the 12 lessons which had resources. Some of the responses regarding the use of resources were as follows:

T1: One can achieve a lot in a smaller class and with effective resources one can do much more with Geography in the classroom. The availability of resources is a problem. The pupils can't go to the library to do assignments and one cannot tell them to bring anything from home because they do not have anything so I have to bring it ...

T2 : …it is the availability of resources that is important …….we are working with a rural learner.

T6: … but the availability of resources is not the same as with big schools, but if you can use what has been made available to you … There are resources but you don't have everything you want.

According to T4 and T5, the lack of resources inhibited their teaching efforts. Research from Shulman (1987:10) and Cruickshank et al (2009:11) state that the contextual conditions will either facilitate or inhibit teaching efforts. Koehler and Mishra (2009) further this argument in stating that social and contextual factors complicate the relationship between teaching and technology. Social and institutional contexts are often unsupportive of teachers' efforts to integrate technology into the work. According to the interviews, T4 and T5 wanted to use the Presentation Method, with technology, but the schools did not have the proper resources. They responded as follows:

T4: …if we could have technology because technology plays a crucial role in the teaching of Geography... As the curriculum requires that the teachers give adequate exposure to the pupils with different types of resources…

T5: … I can perhaps add that a lot of the time teachers don't have technology in rural areas that can help them. In our case we do have a computer lab, but it will be better to have it in the class. One who is in an urban area has everything they can quickly set up a big screen and show all those tornadoes and the like.

In the 12 lessons observed, 9 of the teachers used a textbook as a resource. Two teachers used a computer in their lessons and in 4 of the lessons the teachers used atlases, maps and globes. However, what the teachers said during the interviews and what was observed was sometimes different. The teachers which were interviewed acknowledged the importance of using resources in the Geography lesson, especially the use of technology (Koehler & Mishra, 2009). In the interviews T1, T2, T3, T4, and T5 all acknowledged the importance of using technology as a resource in the classroom for improving their lessons. To accomplish effective teaching by using TPACK, Koehler and Mishra (2009) emphasize that technologies can be used to build on existing knowledge to develop new epistemologies or strengthen old ones. Technology can make concepts easy to learn and it can help redress some of the problems that leaners face. During the interviews, many of the teachers referred to using technology and yet only T3 and T5 were observed using technology in their classes. This may be because the researcher was the technology trainer and the teachers may have wanted to please him by telling him how much technology they were using in their classes. The teachers' responses regarding the importance of technology were as follows:

T2 It is the availability of resources that is important, availability of technology and then also the learner's background. Look we are working with a rural learner, can I say, for example if the learner is going to do research and it also depends upon the available funding in the school.

T3: Very much so especially with delivering this particular lesson technology can do wonders. And one can basically give any lesson with different apparatus and resources.

T4: Technology plays a crucial role in the teaching of Geography. As the curriculum requires that the teachers give adequate exposure to the pupils with different types of resources…

T6: …resources are very important, especially on a technological level because it plays a large role in our everyday lives.

Surty (2011:14) acknowledges that if teachers want to provide quality education in rural areas, rural teachers and their learners must get access to the internet. If teachers have ICTs available, they can download lessons and lesson plans, they can interact with their colleagues in different places to discuss and solve similar issues and challenges (Chigona, 2011). Surty (2011) stated that it is the task of Education department to provide ICT platforms that are live, vibrant and interactive

T4, who was the least experienced teacher, used no resources in his first lesson. However, in his second lesson, about Food and farming in South Africa, he used pamphlets. The learners had to cut out the food and put them in groups according to how people were acquiring food.

Although five of the six teachers had taught for many years, they had not developed their own resources for explaining new Geographical concepts in-depth. This could maybe be due to a lack of knowledge of how to use the resources or what kind of resources to use in a Geography lesson. Only two teachers made use of technology in their lessons. Only T6 integrated TPACK satisfactorily. The other teachers, who did not use technology, acknowledged the importance of technology to improve their lessons.

4.3.3 Multi-grade classes

The teaching of rural multi-grade classes was a challenge for many of the teachers in this research study (Shulman, 1987; Cruickshank et al, 2009). Shulman (1987) argues that teachers need to be knowledgeable about the context they are teaching in. Knowledge of the context can have an influence on the creativity of teachers. In sparsely populated areas, multi-grade teaching is a reality and in South Africa we have about 7000 multi-grade schools.

Current teacher training does not prepare teachers to organize a multi-grade class or how to manage group work and resources (Surty, 2011:9). According to the teachers some of the classes were too big (amount of learners), there was not enough time to complete lessons when both grades were in one lesson and the teacher needed to give all the subjects in a multi-grade class. Gasperini (2000:23) states that attempting to complete the national curriculum within the time given; in a multi-grade environment is a challenge. In the observed lessons the teachers struggled to finish the lessons in time before the bell rang for the next period or to start with another subject. In the first observed lessons of Ts 1, 2, 4 and 6 they did not finish their Geography lesson within the required time. From what the researcher observed, the explanations of the teachers were too long and this left little time for the learners to finish their activities. In the case of T2, he talked for 23 minutes before the learners could begin working on their actual activity. The learners were left with only 7 minutes to complete the activity before the bell rang.

From theinterview data the responses of the teachers regarding multi-grade were as follows:

> T1: ... If you take a look at this class, it's a big class; you can't really do what you want to say for example you want to do group work. You also need to consider the time of lessons because you do not get time to help all the pupils.

T2: … in rural schools it does not get enough attention because in the rural schools the teacher needs to give all the learning areas and it is obvious that we are not all schooled in giving all the learning areas. The learning area that you do not like will be neglected. The teachers in the rural schools do not get the chance to give only the learning areas that they were trained in during the college.

T4**:** … I know some schools have periods in such a way that one can't accomplish what you wish to as time is always a factor and sometimes it gets you.

T5: Factors may be I have a multi-grade class (Gr.4 and 5). When teaching the Grade 5 learners the Grade 4 learners are listening in during the lessons which distract them to write in their note books and the time gets lost. Also the time is not enough to finish a lesson to the learners in one period.

Multi-grade teachers teach a number of grades in one thirty-minute period. It is almost impossible getting through the different content levels within the given time. The limited time allows very little time for input, activities, assisting and explaining the content to the more needy learners. However, what the researcher noted was that the teachers spoke too much and allowed too little time for the learners to begin engaging in their own work. Since the teachers were not trained in multi-grade it could have been that this is a time management problem. The researcher did not ask how many years the six teachers had been teaching multi-grade classes.

4.3.4 Socio-economic barriers

The teachers, who were interviewed, regarded the socio-economic background of the learners as a negative factor which influenced the Geography lessons. It put a strain on the learning and development of the learner. However, five of the six teachers had been teaching for many years, in schools where learners come from poor backgrounds and were used to these socio-economic conditions. The NDoBE (2011:2) asserted that barriers can be located within the learner, within the centre of learning, within the education system and within the broader social, economic and political context and that the relationship between education provision and the socio-economic conditions in any society must be recognised. Furthermore, Surty (2011:8) expands that socio-economic conditions invariably play a role in quality education and that the socio-economic realities of rural areas put learners at a disadvantage (Shulman, 1987; Cruickshank et al, 2009). In addition, many rural communities lack the professional help and support, governance structures, books and learning materials that they need to provide the necessary parental support and care for their children.

During the interviews, four teachers commented on the socio-economic barriers they experienced in their Geography classrooms as challenges. They had the following to say:

T2: …then also the learner's background… we are working with a rural learner …their conditions are not the same as other learners.

T1: ... especially social factors. Kids who are for example wealthy, if you assign a project to them they have the resources at home but not some of these children and that basically affect your teachingmethod that you really want to utilise in the classroom.

T5: ... that they get to take their work home but their parents don't help them…

FG: ... also noticed in a lot of my subjects because they grow up in different households everyone doesn't have the same type of knowledge so now you have lots to do as a teacher to help them.

The socio-economic backgrounds of the learners posed as limitations to the Geography teachers. The learners did not have access to books, computers and resources at home. Nor could their parents assist them. This meant that the teachers had to take on the full responsibility of teaching.

4.3.5 WCED training and support

All the teachers commented that they wanted more training and support from the WCED in teaching multi-grade classes. Although there is support from the WCED, it was not relevant support for increasing quality teaching (Chigona, 2015). It was clear from the data that the teachers were not too happy about the support, including resources, pedagogies, administrative support that they received from the WCED. Although most of them were attending workshops given by the curriculum advisors, the teachers themselves said they needed more input on how to teach multi-grade classes. According to the teachers, which were interviewed, the support which they were getting from the curriculum advisors was primarily about planning (work schedules and lesson planning) and setting up formal assessment tasks. T4, who was a new teacher, did not receive any training from the curriculum advisors nor the school.

T1, T2, T4, T5 and T6 indicated in their interviews that they wanted more specific training regarding teaching Geography in the multi-grade (Auseon, 1995). In the 21st century teachers should acquire knowledge of the components of PCK which include instructional strategies, instructional representations, classroom explanations, learners' ideas, and curriculum.

Despite attending many workshops during their years of teaching offered by the WCED, the teachers stated that they were not receiving workshops specifically on the pedagogies of

teaching Geography in rural schools. The responses from the one-on-one interviews regarding their training were as follows:

T2: Yes, I attend standard setting workshops from the district. In the workshop they talked to us about the new developments in assessments, etc. They do not show us how to approach certain topics in the classroom, training to do that, we did not get. … I will say practical workshops, to show teachers practically how to approach topics and where teachers can share good practices because most of the time a teacher is sitting with a good idea which he achieved successfully in his class and school and the other teachers do not know about that.

T4: I think there is always room for improvement and I feel there's still a lot that I could learn for example if I go to workshops to observe how I can teach a specific concept then that will aid me.

T5: I think the workshops are useless because they just give you orders on what to do but it doesn't work for multi-grade classes …

T6: … offer useful workshops where the focus is on the work required to do for the term for example working with a map for the first time…

Surty (2011:12) argues that multi-grade schools represent a large and important portion of all primary schools in South Africa. The NDoBE agrees that multi-grade teaching should become one of the focus areas of teacher development. The support programmes from the NDoBE comprise of infrastructure development, teacher training, a incentive for rural teachers, curriculum and connecting rural schools to the internet. The NDoBE wants to create a suitable classroom environment for multi-grade teaching as part of their infrastructure development (Surty, 2011). They have developed a training centre for multi-grade teaching at the Cape Peninsula University of Technology. In order to attract teachers to rural areas, the DoBE has provided a rural incentive, and a skills incentive for scarce skills. Since accommodation for teachers in rural areas is challenging, the NDoBE, are looking at including an accommodation allowance.

One of the factors that needs to be addressed is the curriculum. It needs to be adapted to address success factors in a manner that is relevant and appropriate to the rural context. The other factor that still needs to be addressed is connectivity to the internet. The NDoBE are trying to persuade provincial departments to provide laptops to teachers in multi-grade classrooms, because they need the connectivity the most. They furthermore want to provide all multi-grade schools with laptops or tablets and other ICT possibilities (Surty, 2011:13).

From the interview data it was clear that the teachers want and need more support from the WCED. It appears that the workshops they attend have not been tailored to multi-grade

environments. Although they are benefiting and learning new information they are finding it difficult to transfer this information and implement it in multi-grade situations. The teachers need practical pedagogical advice from the curriculum advisors on how to teach multi-grade classes.

4.4 CHAPTER SUMMARY

The aim of the chapter was to present the analysed data. The following is a summary of the findings:

- The dominant pedagogies used by the six teachers were the Lecture Method in combination with the Question and Answer Method.
- The Research or Project Method was only used by two teachers.
- The least dominant pedagogy used by the teachers was Group work.
- Throughout the observed lessons, the teachers asked questions to the learners, not expecting a high level of discussion.
- Teachers do not have enough knowledge about the different pedagogies available to make teaching and learning more effective.
- The teacher's knowledge of the integration of technology and content was inadequate (TPACK).
- Teachers experienced challenges regarding resources to teach Geography lessons. Although some of the teachers used resources in their lessons, they did not have enough in order to improve the quality of the teaching and learning. The participants responded that resources are one of the key elements to enhance the aims of their Geography lessons.
- Rural multi-grade classes were a problem for teachers. The teachers were uncertain of how to teach different grades in one class. The time-management of the teachers was poor because most of them did all the talking which left little time for the learners to complete their activities.
- They regarded the training from the WCED as inappropriate for their needs, especially in the rural multi-grade classes. Training needs to be more practical focussed on the multi-grade environment, content and a variety of appropriate pedagogies.

Chapter 5 will interpret the findings, offer a few recommendations and provide a conclusion to this study.

CHAPTER 5
5. DISCUSSION, RECOMMENDATION AND CONCLUSION

5.1 INTRODUCTION

The purpose, as stated in Chapter 1, of this research was to investigate the pedagogies and their challenges used in the Geography classroom at rural primary schools in the West Coast District. The following two research questions guided this particular study:

- What are the dominant pedagogies used in the Geography classroom?
- What are the challenges teachers' experiences when teaching Geography in rural school?

In this chapter the researcher will discuss the findings that have emerged from the study regarding the pedagogies and their challenges used in six rural Geography classrooms. Then recommendations are offered for teaching Geography in rural classrooms, for the WCED and HEIs and for further research in this field. The chapter ends with a final conclusion to the study.

5.2 DISCUSSION

In the previous chapter the findings were presented and discussed analytically. This chapter discusses four further interpretations and insights that have emerged from this study. These are: pedagogy and content knowledge used in the Geography classrooms, TPACK, rural multi-grade settings and teacher training. These debates will be juxtaposed by literature in relation with the theoretical framework as outlined in Chapter 2.

5.2.1. Pedagogy and Content Knowledge (PCK) used in the Geography classrooms

Cruickshank et al (2009:3) state that the following factors influence a teacher's decision on which pedagogies to use in the classroom: personal characteristics; educational experience and preparation, andcontext. It became clear in the findings that some teachers were not confident to use a variety of pedagogies and their content knowledge was lacking. Ironically the most experienced teachers were the ones who lacked PCK. These teachers could not use their Geographical knowledge to make their lessons interesting or to optimize the learner's learning.

Auseon (1995) stated that teachers need to be aware that the pedagogy they choose to teach, must be one that enables learners to make sense of the world by acquiring and organising data, generating solutions, and developing geographical concepts. Shulman's (1986) teacher knowledge framework (PCK) will help teachers to choose and use pedagogies

to optimize learners teaching and learning in Geography. By using PCK, teachers will develop an understanding of how particular topics, problems, or issues are organized, represented, and adapted to the diverse interests and abilities of learners.

In Chapter 4, the interview and observation data indicated that the Lecture Method was the most dominant and the Group work method, the least dominant method used by the six Geography teachers. Table 5.1 indicates the frequency of teaching methods used by the teachers in the research project.

Table 5.1 Frequency of teaching methods used by teachers according interviews and observed lessons

Teaching Method	No.
Lecture or Presentation Method	10
Question and Answer Method	6
Research/ Project Method	3
Group work	2

According to Best (2011) the teaching and learning strategies of the Geography teacher need to make geographical learning exciting, engaging, challenging, relevant, innovative and fun. Best (2011) proposed a new way to think about factors to be considered when making judgements about effective teaching and learning. He created a model for teachers to ensure effective Geography teaching which include four key elements: vision, classroom climate, teaching and learning strategies for geography and reflection for geography.

In the observed lessons of the teachers which used the Lecture Method, the learners were too passive. The teachers used the Lecture Method because, according to the interviews, they thought it would have the best possible outcome for the understanding of the content. The focus or vision of the lesson was therefore merely for the learners to know the content knowledge. Best (2011), argues that teachers need to have a vision for their lesson that connects the geographical knowledge and the skills you want the learners to adopt. Some of the teachers created an engaging classroom climate, while some did not use exciting pedagogies and neither did they reflect on the outcome of their lessons.

T4 and 5 used the Group Work and Research Method, respectively in their lessons. In the lesson of T4, some of the learners did not participate in their groups and the group work was chaotic, probably due to a lack of classroom management (Shulman, 1987). In the lesson of T5 the learners engaged in the content by working collectively with the task at hand. T5 had a clear vision for the lesson which she wanted to achieve in her Geography lesson. She explicitly used the computers for classroom activities (Koehler & Mishra, 2009) which produce sustainable changes in the learning outcomes of the lesson (Barrett et al, 2007:13).

5.2.2. TPACK

Extending the above concept of PCK, since two of the Geography teachers were teaching with technology, this paragraph discusses TPACK. This is a framework developed by Koehler and Mishra (2009) for teachers which describes the interaction between content, pedagogy and technology as discussed in Chapter 2. TPACK is not formed by simply adding computers into teaching content. The pedagogical techniques use technology in a constructive way to teach content.

T3 and T5 used technology in their lessons. T3 used his technological knowledge in an attempt to integrate technology into his teaching and learning. In T3s lesson, he used the computers to support teacher transmission of knowledge (Koehler & Mishra, 2009). Although the learners answered questions, there was no activity-based interaction (collaboration between content, pedagogy and technology) between the technology and the learners (Harris & Hofer, 2009).

T5 applied her technology knowledge productively (Koehler & Mishra, 2009) to achieve her goal for the lesson. She used technology both in her lessons. The learners needed to find information on the internet by themselves and used the information to make maps of the different climate regions in South Africa. She used the activity types (Harris & Hofer, 2009) to build the learners understanding of the content and therefore one can say she used TPACK effectively in her classroom.

5.2.3. Rural multi-grade settings

During the presentation of the findings of this research project, the researcher thought that the following issues regarding rural multi-grade teaching were important for further discussion: multi-grade groupings, resources and poor socio-economic issues. Each factor will be discussed in more detail.

Mason and Burns (1996:313) state that although rural MG schools are good for some learners, they are potentially difficult for most and for the teachers. Teaching in a rural MG

setting can be challenging when dealing with multi-groupings as was apparent from the lesson observed from T5. The Grade 4 and 5 learners were in the same class. He stated that the time was not enough to complete the lesson in one period. According to T5 he needed to explain the Geographical content to the Grade 4 learners as well as different Geographical content to the Grade 5 learners. This did not give him enough time to complete both lessons in one 30 minute period (Shulman, 1987). In this case the contextual conditions inhibited the Geography teachers' teaching efforts (Shulman, 1987; Cruickshank et al, 2009).

The research of Vuk and Vranković (2009:433) indicate that some schools are missing necessary geographic teaching materials and aids. Students should be enabled to learn geographic content with the help of multiple resources. Lambrinos and Bibou (2006:245) indicate that teachers deserve better resources for their classrooms. In the lessons observed, three of the teacher's primary and only resource was the Geography textbook. Ts 3, 4 and 5 used the textbook as supplementary content to their own input. According to Best (2011) teachers need to have a distinctive and effective classroom climate which will comply with the physical needs (use of resources displays) of the learners. Teachers need to use differentiated geographical resources in order to portray a positive classroom environment.

Four of the six teachers indicated that they wanted to use technology as a resource in their Geography lessons to make their lessons fun, exciting and relevant (Best, 2011). T3 and 4 mentioned how using technology as a resource could help them in their classrooms.

> T3: Very much so especially with delivering this particular lesson technology can do wonders.
>
> T4: Technology plays a crucial role in the teaching of Geography. As the curriculum requires that the teachers give adequate exposure to the pupils with different types of resources…

All three schools were in poor rural areas where the learners came from underprivileged socio-economic environments where parents were illiterate. Although all three schools provided a caring environment, the socio-economic issues contributed to lower participation in the Geography classrooms. The parents could not assist their children with their Geography tasks and homework due to their own illiteracy. According to Meintjes and Grosser (2010) to overcome working in poor socio-economic environments, teachers need to be flexible and adapt learning programmes so that they are appropriate to the context in which teaching occurs.

5.2.4. Teacher training

In this section the following further insights became necessary to discuss: multi-grade settings, more training in PCK and the need for sharing of good practices. Kayombo (2010)

highlighted that the disadvantages of rural multi-grade teachers include not being trained in teaching multi-grade classes, how to manage group work and poor resources (Surty, 2011). T4, who was a new teacher, had not received training in a multi-grade setting from his undergraduate training, the WCED nor his current school.

In the interviews all six teachers indicated that they wanted more specific training regarding the pedagogical and content knowledge of teaching Geography. T2 indicated that he wanted more practical workshops on Geography teaching from the WCED. T2 mentioned that it would be a good idea if teachers shared good practices. However the communication to share good practices was not visible in his school. During the interviews T2 stated:

> T2: … where teachers can share good practices because most of the time a teacher is sitting with a good idea which he achieved successfully in his class and school and the other teachers do not know about that.

5.3. RECOMMENDATIONS

This research was an exploratory investigation into the pedagogies used in Geography classrooms in six rural schools. Since this research is not a conclusive study, the following recommendations may serve as a starting point for further investigation. Three recommendations are offered: recommendations for teaching Geography in rural multi-grade classrooms, recommendations for WCED and for further research**.**

5.3.1 Recommendations for teaching Geography in rural multi-grade classrooms

- A more practical approach where the gap between the real world and the Geography classroom needs to be narrowed.
- Teachers should be encouraged to use textbooks in collaboration with other resources.
- Geography teachers need to be equipped with more than one method to be able to satisfy the diverse learners in the classrooms (Shulman, 1986). They need to be aware of the different learning styles of their learners.
- Teachers need a variety of different pedagogical approaches they can use in the classroom.
- Harris and Hofer (2009) suggest that Geography teachers use different activities for instructional Geographical planning. They can select to choose or combine different activities, to teach and assess content knowledge.

- According to Best (2011), teachers need to develop a positive and effective classroom climate which includes the physical need of all learners. Using appropriate and differentiated geographical resources helps build a positive classroom environment.
- Teachers share good practices between each other and neighbouring schools.
- Teachers need to ask higher order questioning skills to challenge their learners.

5.3.2 Recommendations for WCED and Higher Education Institutions (HEIs)

- It is recommended that both the WCED and HEIs train teachers in the development of PCK in different subjects in primary schools.
- The development of TPACK is crucial. Since technology is currently being incorporated in all classrooms the training, of undergraduate and post graduate training, must not only be about technology knowledge. The challenge for teachers will be how to incorporate the technology in their teaching and learning.
- A caveat to both the WCED and HEIs is that technology training does not become 'techno-centric'. According to Harris and Hofer (2009), 'techno-centric' training focuses on the technologies more than the students who are trying to use them to learn. Only once the learning goals, the pedagogical decisions, contextual realities and assessment strategies have been selected, then the appropriate technological tools can be selected.
- It is recommended that the WCED Education Districts limit the amount of generic training and focus more on content and pedagogical specific workshops.
- When developing the teacher/pupil ratios for schools, it is recommended that the principal not be incorporated in the establishment of the school. This will leave principals free to manage their schools.

5.3.3 Recommendations for further research

- The sample size of three schools and six teachers was sufficient for a small scale study like this. For a much more in-depth study more schools and teachers would be appropriate.

It is recommended that the study form part of a larger research project which focuses on developing of TPACK of Geography teachers.

5.4. CONCLUSION

The focus of the study was on pedagogies Geography teachers used in six rural classrooms.

Four main conclusions can be drawn:

First, Since the subject Geography ‘enables man to place himself in the world and to know where he stands with regard to his fellows, so that he will neither exaggerte nor diminish his own importance’ (Kent, 2002), it is important that primary school teacher’s content knowledge is appropriate from primary school through to high school. Hopefully this will have a positive impact on the Geography Grade 12 National Senior Certificate Examination results. Resources such as textbooks, maps, globes, atlases should be provided to all schools, but should not be seen as the only resource. If schools do not have these resources they should be ordered from the WCED.

Second, from the extensive literature, theory and results in this dissertation, the researcher believes that teachers need to be made aware of the different pedagogies to enhance their teaching and learning. HEI’s lecturers should train their students in the importance of TPACK.

Third, as the WCED prioritizes technology use in classrooms, all in-service and pre-service teacher training needs to focus on using technology in classrooms effectively. All personnel involved in training should be aware of the necessity of integrating TPACK in their teaching and learning.

Fourth, the impact that illiteracy and poverty have on rural multi-grade schools must be acknowledged. The NDoBE, need to prioritize this sector of schooling. Teachers teaching in rural schools need very specific training on how to teach multi-level grades, time management, and how to use resources appropriately.

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APPENDIX 1

INTERMEDIATE PHASE SOCIAL SCIENCES

LEARNING OUTCOMES & ASSESSMENT STANDARDS GRADES 4-6

GEOGRAPHY

Learning Outcome 1: GEOGRAPHICAL ENQUIRY

The learner will be able to use enquiry skills to investigate geographical and environmental concepts and processes.

The enquiry processes in Geography and History are closely linked in this outcome. Asking key questions is critical to this process.

	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
Enquiry process	**Assessment Standards** **We know this when the learner:**	**Assessment Standards** **We know this when the learner:**	**Assessment Standards** **We know this when the learner:**	**Assessment Standards** **We know this when the learner:**	**Assessment Standards** **We know this when the learner:**
Finds sources relevant to the enquiry: teacher/ learner	Finds information on people and places using a range of sources [finds sources].	4.1.1 Identifies information from various sources (maps, atlases, books) [finds sources].	5.1.1 With guidance, selects and uses sources of useful geographical information (including graphs, maps and fieldwork outside the classroom) [finds sources].	6.1.1 Identifies sources of information, including simple statistics, to help answer the question about a social or environmental issue or problem [finds sources].	Identifies a variety of geographical and environmental sources relevant to an enquiry [finds sources].
Works with the sources: asks questions, finds information, organises, analyses,		4.1.2	5.1.2 Distinguishes between facts and opinions [works with sources].	6.1.2	

and dissertations for information		4.1.3 Organises information under given headings [works with sources].	5.1.3 Categorises information [works with sources].	6.1.3 Selects and records relevant information from sources for specific purposes (including recording and observing in the field) [works with sources].	Organises and interprets information relevant to the enquiry from simple graphs, maps and statistical sources [works with sources].
		4.1.4 Identifies symbols used in different kinds of maps (including plan view, grids and map keys) [works with sources].	5.1.4 Draws sketch maps and/or plans from field observation and measurements [works with sources].	6.1.4	Measures distances on globes, atlases and maps using line scales [works with sources].
		4.1.5 Locates places using a simple grid referencing system and directions [works with sources].	5.1.5 Uses an index to find places on global atlas maps [works with sources]. ***These assessment standards are closely interlinked***	6.1.5 Locates relevant places on maps using latitude and longitude (degrees and minutes) [works with sources]. ***These assessment standards are closely interlinked***	Uses local maps and/or orthophoto maps to locate and investigate the issue and its context (compares with field observations) [works with sources].
		4.1.6 Identifies important political boundaries and key human and physical features on large-scale maps [works with sources]. ***These assessment standards are closely interlinked***			
Makes decisions / finds alternatives, seeks solutions	Answers questions about key features of people,	4.1.7 Uses information from sources (including own	5.1.7 Identifies and explores possible solutions to	6.1.7 Uses information to propose solutions to	Uses information to suggest answers, propose

(Answers the question)	places, resources and changes in the environment [answers the question].	observations) to answer questions about people and places (e.g. 'Why is it like that?') [answers the question].	problems [answers the question].	problems [answers the question].	alternatives and possible solutions [answers the question].
Communicates geographical and environmental knowledge and understanding	Uses symbols and identifies basic features of a place on a simple map [communicates the answer].	4.1.8 Uses geographical and environmental concepts and terms to report on enquiries in different ways (e.g. writing a paragraph, using a poster, artwork) [communicates the answer].	5.1.8 Demonstrates knowledge and understanding of the issue through projects, discussion, debate and charts [communicates the answer].	6.1.8 Reports on enquiries through discussion, debate, structured writing, graphs, tables, maps and diagrams [communicates the answer].	Reports on the enquiry using evidence from the sources including maps, diagrams and graphics; where possible, uses computers in the presentation [communicates the answer].

Learning Outcome 2: GEOGRAPHICAL KNOWLEDGE AND UNDERSTANDING

The learner will be able to demonstrate geographical and environmental knowledge and understanding.

Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
Assessment Standards **We know this when the learner:**	**Assessment Standards** **We know this when the learner:**	**Assessment Standards** **We know this when the learner:**	**Assessment Standards** **We know this when the learner:**	**Assessment Standards** **We know this when the learner:**
Observes and names different ways land is used in the local area and compares with examples from other places [people and places].	4.2.1 Describes the features of the local settlement, including land uses, and compares them with examples from other places [people and places].	5.2.1 Identifies and describes major physical features of South Africa, including those of the home province [people and places].	6.2.1 Explains why more people live in some places than others [people and places].	Describes and explains how natural hazards such as volcanoes, earthquakes and flooding occur, and their impact on human lives and socio-economic activities [people and places].

Explains where different products are made and grown in the local area and how they are used [people and resources].	4.2.2 Describes the importance of access to resources and services for people living in settlements [people and resources].	5.2.2 Identifies links between natural resources and economic activities in South Africa [people and resources].	6.2.2 Identifies how access to different kinds of resources influences development in different places [people and resources].	Investigates and explains why some people face a higher risk than others with respect to natural hazards [people and resources].
Describes how and why places are changing in the local environment [people and the environment].	4.2.3 Describes how basic human needs were met in the past and at present [people and the environment].	5.2.3 Describes ways in which the physical environment influences human activity and how human activity is influenced by the physical environment [people and the environment].	6.2.3 Describes some ways in which society has changed the environment [people and the environment].	Identifies how risks and hazards can be managed [people and the environment].

Learning Outcome 3: EXPLORING ISSUES

The learner will be able to make informed decisions about social and environmental issues and problems.

	Grade 3	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**
Process of exploring issues	**Assessment Standards** **We know this when the learner:**	**Assessment Standards** **We know this when the learner:**	**Assessment Standards** **We know this when the learner:**	**Assessment Standards** **We know this when the learner:**	**Assessment Standards** **We know this when the learner:**
Identifies the issue - by either teacher and/or learner	Identifies one or more pollution issues in a particular context (e.g. wasting water, energy or physical resources; safe disposal of refuse or chemicals) [the issue].	4.3.1 Identifies issues associated with resources and services in a particular context [identify the issue].	5.3.1 Identifies challenges to societies and settlements, with a focus on the spread of diseases [identifies the issue].	6.3.1 Identifies inequalities within and between societies [identifies the issue].	Identifies challenges to societies and settlements, with a focus on population growth and change [identifies the issue].

Factors affecting the issue	Describes the factors leading to the pollution problem in the local context [factors affecting the issue]. Identifies the impact of the pollution on the local environment [factors affecting the issue]. Suggests ways to reduce the pollution problem being investigated [factors affecting the issue].	4.3.2 Identifies the factors that influence why some people have better access to resources compared to others in a particular context [factors affecting the issue].	5.3.2 Explains the factors that cause some people to be more at risk of disease than others [factors affecting the issue].	6.3.2 Analyses some of the factors that lead toward social and environmental inequality at different geographical scales and in different places [factors affecting the issue].	Identifies the factors that contribute to population growth and change [factors affecting the issue]. Identifies processes that affect population growth and change in various places [factors affecting the issue].
Makes choices / decisions / provides alternatives	Proposes solutions to reduce the pollution problem being investigated [making choices].	4.3.3 Suggests ways to improve access to resources in a particular context [makes choices].	5.3.3 Suggests the best way, from a range of alternatives, to reduce risks of disease [makes choices].	6.3.3 Evaluates actions that lead to the sharing of resources and reducing poverty in a particular context [makes choices].	Suggests ways of responding to issues associated with population growth and change in a particular context [makes choices].

APPENDIX 2

SEMI-STRUCTURED INTERVIEW QUESTIONAIRRE

1. How much do you enjoy teaching Geography?
Geniet jy om Geografie te onderrig?

2. What do you feel about Geography's role in the modern society?
Hoe voel jy oor Geografie se rol in die moderne samelewing?

3. Did you do Geography as your main subject in your final year of study? Why or why not?
Het jy Geografie as hoof vak in jou finale jaar van studie ingesluit?

4. How long have you been teaching Geography as part of the Social Science learning in the primary school?
Hoe lank onderrig jy Geografie in die primêre skool?

5. Did you receive any training in the Social Science learning area? If yes, what kind of training and from who? If no, did you have the chance to go for training?
Het jy enige opleiding ontvang in Sosiale Wetenskap leeraea?Indien ja, watter soort opleiding en deur wie?

6. Was it your choice to teach Geography as a subject? Explain.
Was dit jou keuse om Geografie te onderrig? Verduidelik.

7. Do you think that the use of different pedagogies / teaching methods is useful in the classroom? Why?
Dink jy die gebruik van verskillende onderrigmetodes is bruikbaar in die klaskamer? Hoekom?

8. Do you think Geography is important for learners? Why?
Dink jy Geografie is belangrik vir die leerders? Hoekom?

9. Give me the teaching methods you are using for teaching Geography? Why are you using these methods?
Watter onderrigmetodes gebruik jy om Geografie te onderrig? Hoekom gebruik jy hierdie metodes?

10. What factors influenced the choice of using the different teaching methods in your Geographylesson?
Watter faktore beinvloed die keuse van 'n onderrigmetode in die Geografie les?

11. How have the learners reacted to the different methods of teaching Geography?
Watter impak het jy waargeneem in die leerders se leer wanneer verskillende onderrigmetodes gebruik word?

12. Do you only use one teaching method for all your Geography lessons? Why or why not?
Gebruik jy net een onderrigmetodevir al jou Geografie lesse?Hoekom of hoekom nie?

13. Do you think you have adequate skills to teach Geography? Explain you answer.
Dink jy, jy het genoegsame vaardighede om Geografie te onderrig? Verduidelik jou antwoord.

14. What do you think could be done to improve Geography teacher's efficiency and effectiveness in teaching Geography?
Wat dink kan gedoen word om onderwysers se doeltreffendheid in Geografiese onderrig te verbeter?

15. From your teacher training education, do you think you were prepared enough to effectively teach Geography? Explain.
In jou onderwysopleiding, dink jy, jy is doeltreffend toegerus om Geografie effektief te onderrig?

16. What can you say about the quality of teaching Geography in primary schools in rural areas?
Wat kan jy sê rondom die kwaliteit van onderrig van Geografie in primêre skole in landelike gebiede?

17. How can the quality of teaching Geography be improved?
Hoe kan die kwaliteit van onderrig van Geografie verbeter?

18. What can you say about quality learning in Geography in the school?
Wat kan jy sê rondom die kwaliteit van leer van Geografie in die skool?

19. What do you think could be done to improve quality learning?
Wat dink jy kan gedoen word om die kwaliteit van leer teverbeter?

20. What is your teaching experience in years? And in Geography?
Wat is jou onderrigervaring in jare? Spesifiek in Geografie?

Lesson related:

1. What did you want to achieve with this lesson?
2. Why did you use the specific teaching method for this lesson?

APPENDIX 3

OBSERVATION CHECKLIST

Teacher _____

School: _____

Date and time of class visit:……..

O = Observed NO = Not Observed

	O	NO	Comments
Teacher			
• Teachers talk and explain all information			
• Breaks up complex information			
• Invites pupils to participate in conversation			
• Teachers give all the answers			
• Give learners a chance to participate in an activity			
• Informs pupils of different concepts			
• Uses visual aids in the class			
• Ideas are shared between teacher and pupil			
• Gives special attention to individuals			
• Fosters higher-order thinking			
• Promotes learning from and with peers (group work)			
• Pupils need to come to own conclusions (discover)			
• Facilitates learning			
• Scaffolding takes place			
• Makes goals of the lesson clear			
Learners			
• Work on their own most of the time			
• Engages in authentic activities			
• Engages in active learning			

• Do not understand the questions			
• Do not exchange ideas during group work			
• Formulates their own questions			
• Are passive in class			
• Engages with different concepts			

OTHER INFORMATION

APPENDIX 4

WCED Consent

Western Cape Government
Education

Directorate: Research

Audrey.wyngaard2@pgwc.gov.za
tel: +27 021 476 9272
Fax: 0865902282
Private Bag x9114, Cape Town, 8000
wced.wcape.gov.za

REFERENCE: 20120228-0057
ENQUIRIES: Dr A T Wyngaard

Mr Alan Felix
Riverlands Primary

Dear Mr Alan Felix

RESEARCH PROPOSAL: EXPLORING THE PEDAGOGICS IN THE GEOGRAPHY CLASSROOM IN THREE PRIMARY SCHOOLS IN THE WEST COAST DISTRICT

Your application to conduct the above-mentioned research in schools in the Western Cape has been approved subject to the following conditions:

1. Principals, educators and learners are under no obligation to assist you in your investigation.
2. Principals, educators, learners and schools should not be identifiable in any way from the results of the investigation.
3. You make all the arrangements concerning your investigation.
4. Approval for projects should be confirmed by the District Director of the schools where the project will be conducted.
5. Educators' programmes are not to be interrupted.
6. The Study is to be conducted from **23 April 2012 till 04 May 2012**
7. No research can be conducted during the fourth term as schools are preparing and finalizing syllabi for examinations (October to December).
8. Should you wish to extend the period of your survey, please contact Dr A.T Wyngaard at the contact numbers above quoting the reference number.
9. A photocopy of this letter is submitted to the principal where the intended research is to be conducted.
10. Your research will be limited to the list of schools as forwarded to the Western Cape Education Department.
11. A brief summary of the content, findings and recommendations is provided to the Director: Research Services.
12. The Department receives a copy of the completed report/dissertation/thesis addressed to:

    The Director: Research Services
    Western Cape Education Department
    Private Bag X9114
    CAPE TOWN
    8000

We wish you success in your research.

Kind regards.
Signed: Dr Audrey T Wyngaard
for: **HEAD: EDUCATION**
DATE: 02 March 2012

APPENDIX 5

West Coast Education District Consent

Wes-Kaapse Regering
Onderwys

Kantoor van die Direkteur
WESKUS ONDERWYSDISTRIK

Verwysing: 20120228-0057
Navrae: JA Mouton

Geagte mnr. Felix

NAVORSING IN SKOLE IN WESKUS DISTRIK

U skrywe in die voormelde verband verwys.

Bykomend tot die goedkeuring wat deur Hoofkantoor verleen is, word toestemming verleen dat u wel die navorsing in die volgende skole in die Weskus Onderwysdistrik mag onderneem:

Primêre Skool OJ Erasmus
Primêre Skool Chatsworth
Primêre Skool Welgemeend

Let asb. daarop dat hierdie goedkeuring onderhewig is aan dieselfde voorwaardes soos gestel in die goedkeuringsbrief deur dr. AT Wyngaard.

U word voorspoed toegewens met u navorsing.

J BEUKES
DIREKTEUR
DATUM: 2012.03.08

Hospitaalstraat 6, Paarl, 7646
tel: +27 21 8601200 fax: +27 21 8601231
Veilige Skole: 0800 45 46 47

Privaatsak X3026, Paarl, 7646
Indiensneming- en salarisnavrae: 0861 92 33 22
www.westerncape.gov.za

APPENDIX 6

Parent Consent

Mnr.A.A. Felix
Mimosalaan 5
Malmesbury
7300
Datum: 8 Maart 2012

Insake: Toestemmings vorm om u kind in die klaskamer te observeer.

Geagte Ouer / Voog

Indien u toestemming gee om u kind in die navorsing in te sluit, voltooi en teken asseblief die vorm en besorg dit aan die prinsipaal.

'n Selfgeadresseerde koevert is ingesluit vir u gerief. Alternatiewelik kan ek dit kom optel by 'n afgespreekte plek.

Ek (ma/pa/voog) …… ..... gee

Toestemming / gee nie toestemming dat my kind, …….. in die navorsing (onderstreep die korrekte een):

'n Ondersoek na die onderrigmetodes in die Aardrykskunde klaskamer in 3 primêre skole in die Weskus Distrik

gebruik mag word.

Baie dankie.

Die uwe

Handtekening