

**TEACHERS' EXPERIENCES OF TEACHER-LED PROFESSIONAL DEVELOPMENT PROGRAMS: AN
EXPLORATORY STUDY OF TWO CLUSTERS IN THE MTHATHA DISTRICT**

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**A thesis submitted to the University of Fort Hare, Faculty of Education in partial fulfilment
of the requirements for the
Doctor of Philosophy Degree**

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DEDICATIONS

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ABSTRACT

Professional growth of teachers is not new, but in recent years, the way in which it is structured and delivered has been reconceptualised. As part of the education reform process, many nations are investing in teacher education as a major engine for driving the changes in the classrooms to ensure learners' academic success. South Africa is no exclusion to this trend of education reforms, hence, the founding of many professional growth initiatives. Most of these initiatives are aimed at Science and Maths teachers. This was mostly because the majority of Science and Maths teachers in South Africa are considered either under-qualified or not qualified to teach the subject. Yet, despite the efforts and enthusiasm, very little seems to have shifted in the teachers' practices. Much of the literature still shows that even clusters are not effective in changing the situation completely. Using a qualitative case study design, the researcher explored teachers' views on their clustering experience, and the benefits such participation and experience brings to their classroom instruction. The major findings of the study show that teachers find clustering as a tool that enriches their teaching, thus, both the content knowledge as well as their pedagogical strategies. The findings also show a consensus of teachers who need the cluster programs done continuously. The researcher concludes that teachers are still not happy with the professional development that is offered to them, and therefore recommends that such programs be offered according to teacher's need.

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ACRONYMS

OECD	Organisation for Economic Co-operation and Development
DOE	Department of Education
JICA	Japan International Cooperation Agency
CPD	Continuing Professional Development
TPD	Teacher Professional Development
MSSI	Mpumalanga Secondary School Initiative
CI	Curriculum Implementers
USA	United States of America
UK	United Kingdom
NGO	Non-Governmental Organisations
TO	Transvaalse Onderwysersvereniging
TTA	Transvaal Teachers' Association
SAOU	Suid-Afrikaanse Onderwysersunie
SADTU	South African Democratic Teachers' Union
IPET	Initial Professional Education of Teachers
CPTD	Continuing Professional Teacher Development
NPF	National Policy Framework
NRC	National Research Council

LDC	Least Developed Countries
LARC	Logo Action Research Collaborative
ARP	Action Research Physics
NIED	Namibian Institute for Educational Development,
MST	Science and Technology
TIMSS	Trends in International Mathematics and Science Study
MLA	Monitoring Learning Achievements
SACMEQ	Southern Africa Consortium for Monitoring Educational Quality
PISA	Performance in International Student Achievement
TLC	Teacher Learning Communities
FET	Further Education and Training
GET	General Education and Training
AIMSSEC	African Institute for Mathematical Science in Secondary

CHAPTER ONE

1.1 INTRODUCTION

Many educational systems all over the globe have experienced extended changes and innovations (Hargreaves, 2000; Webb, Miller, Pierce, Strawser, and Jones 2004). This has been in response to many factors, least of which is the desire to respond to the rapid economic and social changes that penetrate every sphere of public life. Education reform has thus become common in most societies (Villegas-Reimers, 2003). As part of the education reform process, many nations are also investing in teacher education as a major engine for driving the changes in the classrooms to ensure learners' academic success (Darling-Hammond, Wei, and Andree, 2010). Moreover, in many countries, the role and functioning of schools are changing and so is what is expected of teachers. The teachers are asked to teach in increasingly multicultural classrooms; to place greater emphasis on integrating students with special learning needs in their classrooms; to make more effective use of information and communication technologies for teaching; to engage more in planning within evaluative and accountability frameworks; and to do more to involve parents in schools (OECD, 2009).

In a review of international literature on teacher professional development, Villegas-Reimers (2003) considers the professional development of teachers as one of the key elements in most of the educational reforms currently in progress in most countries. The European Union, focusing on high quality teaching as a central prerequisite for high calibre education and training, highlights the school's responsibility to provide young citizens with

the competencies they need to adapt to globalised, complex environments, where creativity, innovation, initiative, entrepreneurship, and commitment to continuous learning are equally important as knowledge (Council Resolution, 2007 and 2008). Similarly, Guskey (2002) contends that high quality professional growth is a central component in nearly every modern proposal for improving education. Other scholars have established the case that policy makers increasingly recognize that schools can be no better than the teachers and administrators who work within them (Ibid 4).

South Africa is no exclusion to this trend of education reform that is sweeping across many countries. To transform education in this country, South African teachers therefore need to be appropriately equipped to meet the evolving challenges and needs of the country (Steyn, 2008). King and Newman (2001) believe that teachers have the most direct, sustained contact with students, as well as considerable control over what is taught and the climate of learning. It is reasonably assumed, therefore, that improving teachers' knowledge, skills and dispositions are one of the most critical steps to improving student achievement (ibid 1). Moreover, in these times of a technological led society, Hooker (2009) asserts that even such changes associated with the rhetoric of the global information society require staff development activities.

Professional development of teachers is not new, but in recent years, the way in which it is structured and delivered has been reconceptualised (Kriek & Grayson, 2009). Professional development of teachers, often called in-service education or staff development, has recently taken different forms to achieve different purposes. In earlier times, the

importance of involving teachers in professional development programs has long been favoured as the benefits discovered through various research reports done on such activities pointed towards the prosperity it conveyed to schooling at large. For example, it has long been stated by the OECD (1998) that the development of teachers beyond their initial training can serve a number of objectives, including: to update individuals' knowledge of a subject in light of recent advances in the area; to update individuals' skills, attitudes and approaches in light of the development of new teaching techniques and objectives. Furthermore, it also enables individuals to apply changes made to curricula or other aspects of teaching practice and schools to develop and apply new strategies concerning the curriculum and other aspects of teaching practice. Hopkins, Ainscow and West (1994) also have long stated that the following strategies have been found to be generally effective in promoting improvement in schools, especially when used together:

- Concrete, teacher-specific, and extended training;
- Classroom assistance from local staff;
- Teacher observation of similar projects in other classrooms, schools and districts;
- Regular project meetings focusing on practical issues; teacher participation in project decisions;
- Local development of project materials; and
- Principals' participation in training.

Recent studies have shown that the education systems still strives to achieve an effective teaching and learning environment (Archibald, Coggshall, Croft and Goe, 2011). Scholars endorse that still in today's education, an increasingly diverse student population requires

teachers to learn new ways to personalize their instruction and to do so, teachers need opportunities and support to become skilled at using new forms of assessment data to address the unique needs of individual learners and at implementing linguistically and culturally responsive instructional practices. For example, in various countries internationally, such as the USA, the policy has increasingly focused on bolstering teacher effectiveness and pressing states and districts toward ensuring that all students have access to effective teachers through such programs as Race to the Top, School Improvement Grants, the Teacher Incentive Fund, and the State Fiscal Stabilization Fund (Archibald et al., 2011). Basing on a review of various literatures, the scholars validate that high-quality professional development exhibits the following five characteristics:

1. Alignment with school goals, state and district standards and assessments, and other professional learning activities including the formative teacher evaluation - It is reasonable to assume that teachers who receive consistent messages regarding what to teach and the best ways to teach it are most likely to improve in their practice. Alignment helps build the shared vocabulary and common goals required to sustain instructional improvements through rigorous feedback. It also reduces confusion and uncertainty about what and how to teach.

2. Focus on core content and modelling of teaching strategies for the content - Researchers have provided evidence for the causal chain of teacher and student learning: enhanced teacher knowledge followed by explicit changes in teaching practice leads to improvement in student learning.

3. Inclusion of opportunities for active learning of new teaching strategies - Research has shown that teachers report greater changes in their instructional practice because of

professional learning activities. These involve their active participation and engagement (e.g. practicing what they learned in their classrooms; observing other teachers; conducting demonstration lessons; leading group discussions; and reviewing student work with colleagues, professional development providers, or both) (Desimone, Porter, Garet, Yoon, and Birman, 2002; Garet, Porter, Desimone, Birman, and Yoon, 2001).

4. Provision of opportunities for collaboration among teachers - Another feature of high-quality professional development is a learning strategy that teachers commonly employ with their students: group learning. Hill, Stumbo, Paliokas, Hansen, and McWalters (2010) summarize this collaboration well: Teachers develop expertise not as isolated individuals, but through job-embedded professional development, and as members of collaborative, interdisciplinary teams with common goals for student learning.

5. Inclusion of embedded follow-up and continuous feedback - In addition to opportunities for teachers to actively learn strategies and collaborate with their colleagues, follow-up and feedback support sustained change in teacher practice.

Villegas-Reimers (2003) for example, identifies four categories of in-service education: for certification of unqualified teachers, to upgrade teachers, to prepare teachers for new roles, and curriculum related dissemination or refresher courses. The South African national policy framework identifies four types of professional development, which are:

- School-driven activities;
- Employer-driven activities;
- Qualification-driven activities; and

- Others offered by approved organisations (South African national policy framework, 2007).

These may be compulsory or self-driven and according to the South African national policy, (2007) the former is paid for by the education authority involved, while teachers may receive bursaries for self-selected PD (DoE, 2007). Regardless of the purpose, traditional in-service education/teacher professional development programs are delivered in the form of workshops, seminars, conferences or courses (Collinson & Ono, 2001; Villegas-Reimers, 2003). Darling-Hammond and McLaughlin (1995) highlight that today, professional development also includes providing occasions for teachers to reflect critically on their practices and to fashion new knowledge and beliefs about content, pedagogy, and learners.

Various scholars have given meaning to the term *professional development*. For example, looking at previous definitions in the early times, Fullan (1990) states that the professional development of teachers is a broad area which includes any activity or process intent on improving dexterity, attitudes, understanding, or involvement in current or future roles. According to Sparks and Loucks-Horsely (1990) in the earlier times, professional development is defined as the entire process that improves knowledge, dexterity, or teacher attitudes. Professional development implies the improvement of control skills of the actual working conditions, a progression of professional status within the teaching career (Oldroyd and Hall, 1991). Recently, Bredeson (2002) has viewed it as work opportunities that encourage creative and reflective skills in the teachers, thus, enabling them to improve

their practices. The professional development of teachers is the professional growth the teacher acquires as a result of his/her experience and systematic analysis of his/her own practice (Villegas -Reimers, 2003).

Examining the foregoing definitions, one immediately observes that, both the most recent as well as the older definitions interpret professional development as a process, which can be either individual or collective, but which should be contextualised within the teacher's workplace, i.e. the school. Furthermore, it is a process that contributes to the development of the aforementioned professional competencies, through of a variety of formal and informal experiences (Marcelo, 2009).

Over the years, if provided at all, as many countries ignored the programs due to budget constraints (Mukeredzi, 2009) in-service teacher education/teacher professional development has relied on occasional large-scale centralized cascade or multiplier workshops or courses. Cascade or multiplier workshops are large centralized training workshops that provide a large audience of participants with information of relevance to their practice where participants are intended to return to their districts or schools and multiply the number of people having the information they obtained at the workshop (Leu, 2004). The South African Department of Education (DoE) used to run workshops, which were frustratingly ineffective 'one size fits all' set of professional development as distinguished by Graven (2004), but later adopted the cascaded multiplier approaches to reach many participants in a short space of time (Harley and Wedekind, 2005; Ono and Ferreira, 2010).

The Cascade or multiplier workshops, according to Boyle, While, and Boyle, (2003); Ono and Ferreira (2010) and Villegas-Reimers (2003), have some of the following characteristics: (i) they reach just a low share of teachers, (ii) they rely on those who attend the workshops to pass new information on to their colleagues through the cascade or multiplier mechanism, (iii) there is rarely a mechanism in space for the cascade or multiplier to work. In addition, the workshops or courses are expert-driven in that a desk-bound specialist typically transmits abstract information to teachers; workshops or courses are often established on a series of presentations or lectures and therefore provide negative examples of passive learning. Furthermore, they tend to be ad hoc in content and rarely provide a comprehensive learning plan for teachers; they lead to little change in teachers' classroom approaches, in part because they depend on exhortation rather than modelling, process, and structured practice in which teachers play an active part (Boyle, While, and Boyle, 2003; Ono and Ferreira, 2010, Villegas-Reimers, 2003).

These efforts of the cascade model of professional development have been criticised by many other researchers as also being brief, fragmented, incoherent encounters that are decontextualized and isolated from actual classroom situations (Collinson and Ono, 2001; Feiman-Nemser, 2001; OECD, 2005; Villegas- Reimers, 2003). Furthermore, Leu (2004) maintains that the cascade or multiplier approach to teacher in-service is particularly ineffective under the conditions of present reform programs.

Reforms introduced over the last decades were therefore, based on a fresh style of teaching and learning (Leu, 2004). The scholar further states that these reforms, include an increased

stress on active-learning, student-focused, critical-thinking and problem- figuring out approaches. The entire teaching force, including living and new teachers, must understand and be educated to enforce these new advances in their classrooms, and therefore, finding effective and cost-effective ways of encouraging teacher understanding and change therefore has become a priority for many governments (Leu, 2004). Teddlie and Reynolds (2000) found that school improvement approaches, which weigh the long-term goal of going towards the ideal type of self-renewing school at the heart of change, rest on a series of assumptions. Such assumptions as reforms, tender to the situations of individual schools, have improvement efforts needed to take up a 'classroom-exceeding' perspective, without brushing off the classroom.

In summation, a systematic approach to change, which must be carefully contrived and done over the years; must focus on inner conditions of schools: teaching-learning activities, but also school procedures, role allocations and resource uses; accomplishing educational goals associated with the particular school mission – not only student scores, but also developmental needs, professional development needs and community demands.

The proposed study emerges out of an interest in the forms of professional development where teachers take leadership to learn and develop them. As Stacy (2013) asserts, teacher empowerment can emerge within the current system through teacher-led professional development. This has emerged as one of the most common strategies of professional development the South African education system uses to reach and develop teachers throughout the country. Teacher-led professional development creates opportunities to

enhance professional autonomy, emphasizes professional judgment, and provides space to validate teacher voices, all essential components of teacher empowerment (Stacy, 2013). Stacy further asserts that teachers in a collaborative setting have opportunities to share their expertise as classroom professionals, develop common practices, and assess how those practices improve student learning (ibid 2013).

There are a number of examples of teacher-led professional development programs. Lesson study is one example long favoured by teachers in Japan that has recently gained attention in many parts of the United States (Hurd and Licciardo-Musso, 2005). Teachers participating in lesson study immerse themselves in a cycle of instructional improvement focused on planning, observing, and revising “research lessons” (Lewis and Tshuchida, 1998). In response to a request, for assistance by the former President Nelson Mandela, the Japan International Cooperation Agency (JICA) conducted studies for project formulation, which led to the official inception of the Mpumalanga Secondary School Initiative (MSSI) in 1999. Consequently, the MSSI aimed to improve the quality of mathematics and science education by enhancing the teaching skills of in-service teachers (Ono and Ferreira, 2010). More specifically, although not stated in the project document, it aimed to institutionalise lesson study, which is a form of school-based, continuing professional development commonly practiced in Japanese schools (ibid).

In response to the recommendation from by Japanese experts, cluster leaders (CLs), who are practicing teachers, were selected together with Curriculum Implementers (CIs) to attend training sessions in Japan in 2004 and 2005 (Ono and Ferreira, 2010). The training

program in Japan was redesigned to focus on lesson study. These study visits helped the CIs and CLs to enhance their curriculum development skills and exposure to relevant Japanese practices that would later be useful in developing teacher and learner support materials back in South Africa (Mokhele, 2013).

The other example of teacher-led professional development is teacher clusters. Teacher clusters represent one such recent experimental approach to the professional development of teachers in South Africa (Jita and Ndlalane, 2009). In other countries and contexts, clusters are also referred to as 'teacher communities of learning' or 'teacher networks,' and have a relatively long history (Adams, 2000). Jita and Ndlalane (2009) highlight that, although the teacher network approach has gained popularity in countries such as the United States of America (USA) and the United Kingdom (UK), research on its usefulness in changing teachers' knowledge and practices is not conclusive. Lieberman and Grolnick (1996) on the other hand had long argued that, little is known about how such networks are formed, what they focus on, and how they develop teachers. Even less research on clusters has been done in Africa and other developing countries.

These observations, regarding the dearth of knowledge, and research on clusters, also apply to South Africa, in spite of the fairly rich history of clustering in the 1980s and early 1990s among a number of non-governmental organisations (NGOs) and teacher organisations, including the Transvaalse Onderwysersvereniging (TO), the Transvaal Teachers' Association (TTA), the Suid-Afrikaanse Onderwysersunie (SAOU), and the South African Democratic Teachers' Union (SADTU) (Jita and Ndlalane, 2009).

The South African government has by far responded to the need for professional development of teachers. Granting to the National Policy Framework for teacher education (2007), all teachers registered at the South African Council for Educators (SACE) have to earn professional development (PD) points by selecting approved professional growth activities that fill their growth needs. Desimone, Smith, and Ueno (2006) further note that accumulating PD points is also an internationally acceptable technique to recognise members' continuing professional growth.

The national policy, for functions of analytic thinking and planning, considers teacher education in terms of two complementary sub-systems: Initial Professional Education of Teachers (IPET), Continuing Professional Teacher Development (CPTD) (National Policy Framework for teacher education, 2007). The aim of the new CPDT is to equip instructors to see the challenges and demands of a democratic South Africa in the 21st century (National Policy Framework for teacher education, 2007). As such, professional development (PD) programs should emphasise the integrated development of learning area/subject content knowledge and pedagogical skills; teachers' competence in the language of teaching and learning; the Continuing professional development for teachers in South Africa is changing social character of schools; and skills required for the teaching of diverse classrooms (National Policy Framework for teacher education, 2007).

The ultimate aim of CPDT is to enable learners to "learn well and equip themselves for further learning and for satisfying lives as productive citizens, for the benefit of their

families, their communities and our nation” (National Policy Framework for teacher education, 2007). The new CPDT system, therefore:

- Ensures that current initiatives devoted to the professional development of teachers contribute more effectively and directly to the improvement of the quality of teaching;
- Emphasizes and reinforces the professional status of teaching;
- Provides teachers with clear guidance about which Professional Development (PD) activities will contribute to their professional growth;
- Protects teachers from fraudulent providers; and
- Expands the range of activities that contribute to the professional development of teachers.

However, Mokhele (2013) observes that in South Africa, the skilling of the nation’s workforce is a relatively new agenda that has major political, economic and social implications. As a result, the South African government has adopted a range of programs and approaches that are designed to support political stability, economic growth and educational development (Fletcher and Zuber-Skerritt, 2007). Most of these education and professional development initiatives are aimed at Science and Mathematics teachers (Grayson and Ngoepe, 2003; Southwood, 2002). This was mostly because the majority of science teachers in South Africa were considered to be either, under-qualified or not qualified at all to teach the subjects (Kahn, 1995; Taylor and Vinjevold, 1999).

Despite the efforts and enthusiasm that has seen many teachers improve their qualifications on paper, very little appears to have changed in the teachers' practices (Kahn, 1995; Jansen, 1999). Professional development therefore continues to be of interest in South Africa in order to improve teaching and learning in the schools. The present study, therefore aims at exploring teacher's experiences specifically with the teacher-led professional development programs in Mathematics and Science. Teacher clusters have been chosen as one example of such teacher-led professional development programs.

1.2 PROBLEM STATEMENT

Many professional development programs have been suggested, and all of them vary widely in their format (Mokhele 2013). Nevertheless, many scholars agree that reviews of professional growth, research constantly point to the ineffectiveness of most of these programs (Mokhele & Jita, 2012). According to the National Research Council (NRC, 2007), many teachers express dissatisfaction with the professional development opportunities made available to them in schools and insist that the most effective development programs they have experienced have been self-initiated.

Jita and Ndlalane (2009) bring to view that the search for more effective strategies for the professional growth of teachers continues in many nations round the globe. These scholars add that, South Africa, has over the past few years, been engaged in various approaches to teacher development, and the development of science teachers in particular. These include the teacher led cluster programs that are of interest in this proposed study. Despite the

popularity the teacher network approach (Teacher led clusters) has gained in countries such as the United States of America (USA), the United Kingdom (UK) as well as South Africa, research on its usefulness in changing teachers' knowledge and practices is not conclusive (Jita and Ndlalane, 2009).

Literature still shows that these clusters are not effective in changing the situation completely, and both formal and informal anecdotes from teachers suggest that these clusters may be failing teachers (Jita and Ndlalane, 2009.) Steyn (2008) further argues that the current emphasis on professional development (PD) as an imperative for continuous improvement of teachers' skills has an inherent danger of becoming nothing more than a state-funded skills development program in the South African context.

Hence, this study, seeks to explore teacher's experiences of teacher-led for professional development with a specific focus on clusters in Mathematics and Science within the Mthatha district, especially from the perspectives of the participating teachers. Mokhele (2011) argues that very little research has been done to understand the teachers' experiences with professional development programs from their own perspectives.

1.2.1 Main Research Question

1.2.1.1 What are teachers' experiences of teacher- led professional development programs?

1.2.2 Sub-research Questions

1.2.1.1 What are the teachers' views and on teacher-led professional programs?

1.2.1.2 What are their views about teacher-led professional development practices for Maths and Science?

1.2.1.3 How can their views and opinions be understood and explained?

1.3 AIMS AND OBJECTIVES

1.3.1 To explore teachers' experiences of teacher-led professional development programs

1.3.2 To explore the teachers' views and on teacher-led professional programs.

1.3.3 To explore their views about teacher led professional development practices for Maths and Science.

1.3.4 To explore how their views can be understood and explained.

1.4 SIGNIFICANCE OF THE STUDY

The study will be of significance to teachers, learners, policy makers, the Department of Education (DoE), and the government at large in reviewing and improving the existing professional development programs for teachers. The study hopes to contribute to the discovery of more effective ways of implementing professional development through the

process of listening and explaining the views of teachers on teacher –led professional development in general, and on teacher clusters in particular.

1.5 DELIMITATION OF THE STUDY

The study was conducted through focusing specifically on teacher led professional development, particularly teacher clusters, for Mathematics and Natural Sciences, identified in the Mthatha district in the Eastern Cape Province. The study was confined to interviewing teachers who are participating in these clusters. This research excludes focus on teachers teaching other learning areas as well as those from other clusters other than the ones stated. No focus was given to stakeholders such as parents, students or departmental officials.

1.6 OPERATIONAL TERMS

Teacher professional Development: Work opportunities that encourage creative and reflective skills in the teachers, thus, enabling them to improve their practices (Bredeson, 2002).

Teacher-led Professional Development: Professional development led by teachers themselves in helping one other improve the quality of teaching and learning in education (Stacy, 2013).

Teacher Clusters: Grouping of schools within the same geographical location aimed at improving the quality and relevance of the education in the schools (Chikoko, 2007). Each cluster normally consists of between five and seven schools.

In the next chapter, I present the literature as well as the conceptual framework adapted to look at the phenomenon under study.

CHAPTER TWO: LITERATURE REVIEW

2.1 INTRODUCTION

This chapter presents a review of literature other scholars have written about professional development which the researcher has found to be relevant to this study. The study is based on teacher's experiences of teacher led professional development programs known as teacher clusters. Therefore, the following sections are the literature reviews the researcher has found to be important and relevant in this study:

- Conceptualization of Professional Development;
- Models of professional development;
- An overview of professional development teacher programs;
- Teacher- led professional development;
- Clusters in an African context;
- Conceptual framework; and
- Adult learning theories.

Conceptualization of Professional Development

Professional development (PD) is not new but has been previously known as pre-service and in-service education or staff development. In support of the above statement, Bredeson (2000) highlights that the term *professional development*, ubiquitous in current literature, is often used interchangeably with such terms as *staff development*, *in-service*, *skills training* and *continuing education*. Fletcher and Zuber-Skerritt (2007) define it as a significant issue in all workplaces in dealing more effectively with the complexity of modern society view of professional development. Such significance is a result of many reasons such as the unprecedented technological advancements in recent times, which mean that changing workplace demands and a need for current knowledge results in on-going economic imperatives that professional development seeks to address (Fletcher and Zuber-Skerritt, 2007). Professional development is, therefore, according to the scholar, a costly part of what governments, professions, companies, and individuals must do in order to respond to contingencies and build platforms for sustainable growth in reaction to continuous change.

Collinson and Ono (2001) indicate that in countries like the USA and Japan, teachers have engaged in formal and informal professional development for many decades. Harewell (2003). in her paper 'Teacher Professional Development: It's Not an Event, It's a Process', argues that ever since the publication of "A Nation at Risk" (1983), the American education system has also been fixated on raising student performance through professional development. South Africa itself has over the past few years been engaged in various approaches to teacher development (Jita and Ndlalane, 2009a). However, professional

development as a field of study is a relatively recent phenomenon with most policy changes and research occurring since the mid-1980s (Collinson and Ono, 2001).

Many scholars have given various definitions of teacher professional development for example, earlier, Griffin (1983) defined teacher professional development as any systematic attempt to alter the professional practices, beliefs, and understandings of school persons toward an articulated end. Professional development consists of all natural learning experiences and those conscious and planned activities which are intended to be of direct or indirect benefit to the individual, group or school, which constitute, through these, to the quality of education in the classroom (Day, 1999b). More recently, scholars like Guskey (2000) have defined professional development as those processes and activities designed to enhance the professional knowledge, skills and attitudes of educators so that they might, in turn, improve students' learning. Day's recent definition of professional development being the process by which teachers review, renew and extend their commitment as change agents to the moral purposes of teaching (2004).

Villegas-Reimers (2003) defined the professional development of teachers as the professional growth the teacher acquires because of his/her experience and systematic analysis of his/her own practice. Bredeson (2000) believes that a more inclusive definition is professional development referring to learning opportunities that engage teachers' creative and reflective capacities to strengthen their practice.

Furthermore, the DOE and SACE in South Africa (2008) collaborate many aspects and broadens teacher professional development to be activities undertaken individually or collectively by teachers throughout their careers. These activities are to:

- a) Enhance their professional knowledge, understanding, competence and leadership capacity; and
- b) Increase their mastery of the curriculum and their teaching areas, their skill in teaching and facilitating learning, their understanding of children and young people and their developmental needs, and their commitment to the best interests of their learners and their schools, the wellbeing of their communities and the ethics of the education profession.

Observing both the previous terminology (pre-service and in-service education or staff development) and the recent one (professional development) various terms are used to define PD. However, always at the core of such terms is the understanding that professional development in the education system is about teachers learning, learning how to learn, and transforming their knowledge into practice for the benefit of their students' growth (Avalos, 2011). Most importantly to note, professional development is a process of general growth which includes long-term goals and seeks to facilitate growth of teacher's understanding of teaching and of themselves as teachers (Richards and Farrell, 2005).

Hismanoglu (2010) brings to view that, this term does not refer to only one concept; it includes many different principles and dissecting the collective definitions, drawing from Clarke's (1994, 2001, 2003) list that it:

- Involves groups of teachers rather than individuals from a number of schools, and enlist the support of the school and district administration, students, parents and the broader school community;
- Recognises and addresses the many impediments to teachers' growth at the individual, school and district level. Using teachers as participants in classroom activities or students in real situations, model desired classroom approaches during in-service sessions to project a clearer vision of the proposed changes;
- Allows time and opportunities for planning, reflection, and feedback in order to report successes and failures to the group. This allows time to share "the wisdom of practice," and to discuss problems and solutions regarding individual students and new teaching approaches;
- Enables participating teachers to gain a substantial degree of ownership by their involvement in decision-making and by being regarded as true partners in the change process;
- Recognises that change is a gradual, difficult, and often painful process, and afford opportunities for on-going support from peers and critical friends; and
- Encourages teachers to set further goals for their professional growth.

Similarly, Avalos (2011) acknowledges the complexity of PD when also argues that it is a complex process, which requires cognitive and emotional involvement of teachers individually and collectively, the capacity and willingness to examine where each one stands in terms of convictions and beliefs and the perusal and enactment of appropriate alternatives for improvement or change.

Earlier, scholars such as Cheng (1996) found that having high quality teachers is important for the enhancement of quality education with Guskey (1994) viewing that teachers are the cornerstone as they hold prominent positions which therefore dictate to us that we cannot improve schools without improving the skills and abilities of the teachers within them. Recent literature therefore shows that such discoveries as of the earlier scholars are being prominent as according to Barber and Mourshed (2007) an increasing attention is being paid to the professional development of teachers as they are seen as having the greatest influence on student outcomes. With student learning and achievement being so greatly impacted by the quality of teaching, effective teacher development is important for any educational system to remain competitive in a global arena and the continuity on teacher professional development has become one of the most common central concerns in educational studies over the past several decades (Bayar, 2014).

Moreover, the Organisation for Economic Co-operation and Development (OECD) has also stated that 'at the level of the education system, professional development of teachers is a key policy lever' (OECD, 2005). Bayar, (2014) brings to light that that the impact of high quality teachers on student learning and achievement has been debated and the benefits

accepted over the last several decades by many researchers, educators, policymakers, and teachers' unions.

Wiliam (2007) writes that teachers are required to make enormous shifts in the way they teach math, science and language arts, and within each discipline, students are expected to develop and demonstrate critical thinking skills: analyzing and making sense of nonfiction text, carrying out scientific investigations rather than just remembering science facts, and constructing viable mathematical arguments. It is within an understandable debate that therefore the Bill and Gates Foundation (2014) states that teachers want and need support to develop their practice so that their students can succeed. In most places, that support falls under the auspices of professional development, a broad umbrella that includes everything from one-time workshops to online research, coaching, and collaborative time teachers spend with each other in professional learning communities. Moreover, teaching is viewed as a complex activity that calls for emphasis on both content knowledge and pedagogical content knowledge (Ramatlapanana, 2009.)

Teacher Professional development is seen as of high significance to teachers as it is said that it plays an important role in changing teachers' teaching methods and assisting teachers to move beyond comprehension of the surface features of a new idea or innovation, to a deeper understanding of a topic (Pitsoe and Maila, 2012). Komba and Nkumbi (2008) further add that professional development provides teachers with opportunities to explore new roles, develop new instructional techniques, refine their practice and broaden themselves, both as educators and as individuals. For Zakaria and Daud (2009), good

teachers constitute foundation of good schools and improving teachers' skills and knowledge is one of the most important investments of time and money that local, state and national leaders can make in education.

According to Soleimani and Khaliliyan (2012), professional development usually takes place after finishing formal training for keeping up to date with advancements in different fields and it can be said that professional development is a never-ending process, a continuous process. Starkey, Yates, Meyer, Hall, Taylor, and (2009) and Rogers, Abell and Lannin (2007) also note that, professional development programs are necessary not only for new teachers but also for veteran teachers with an emphasis on the importance of professional development programs to veteran teachers being for self-renewal. Moreover, ongoing research conducted in many countries has shown that professional development activities within and beyond the school day affect teachers positively (Carver & Katz, 2004; Easton, 2008; McLaughlin & Talbert, 2006).

Visser, Coenders, Terlouw and Pieters (2010) contend that in the actual design of the professional development program, a number of essential characteristics as suggested below need to be considered:

- Teachers should develop their knowledge. Teachers should be given ample opportunities to acquire new knowledge and skills, for example science content, instructional strategies, and assessment methods. Experts, colleagues, and specific literature can provide this knowledge.

- Teachers should cooperate with colleagues. Teachers should first be given opportunities to exchange and discuss experiences and ideas with colleagues;
- Discussion topics can be teaching methods and content, but also practical issues such as how to use a specific activity in class. Cooperation can be intensified by having teachers develop additional material or assessment instruments;
- Teachers should network. The result of the professional development program should be a well-organized network in which teachers from different schools participate in collaborative activities;
- The module should be made relevant and attractive for students. Teachers can design stimulating curricular elements to increase students' interest and motivation; and
- Teachers should be well prepared and organized for their lessons. In the professional development program, teaching and learning difficulties can be discussed, and good practices exchanged, how to prepare practical activities and where to obtain certain equipment and materials also need to be addressed.

Similarly, Borko, Jacobs and Koellner (2010) identify three characteristics of high-quality professional development. The first one is content characteristics, which relates to situating the content of the professional development in practice and focused on learners' learning. It also includes engaging teachers in inquiry about the concrete tasks of teaching, assessment, observation, and reflection, and provides them with the opportunity to make connections between their learning and their classroom instruction. Secondly is the process characteristics, which is about teachers modelling preferred instructional processes,

engaging teachers in active learning, and building a professional learning community. The last is structural characteristics, which represent structuring the activities of the professional development to be on-going, sustainable, and provide teachers with opportunities to engage in cycles of experimentation and reflection.

Professional development of teachers as the above characteristics describe does not take place in a once-off workshop but rather scholars agree that it is a continuous and dynamic process of learning opportunities (Murtaza, 2010). The Bill and Melinda Gates Foundation (2014) also mentions sustainment over time as professional development needs to be something that you keep working on for a semester or a year.

Guskey and Yoon (2009) on a study they conducted on the effectiveness of professional development brought to view the importance of continuity that they term follow up in order to achieve the best results. The scholars explain their findings on this aspect by sharing that for decades professional development experts have stressed the importance of follow-up activities as Educators at all levels need just in time, job embedded assistance as they struggle to adapt new curricula and new instructional practices to their unique classroom contexts. They stated that their analysis confirmed the vital importance of follow-up as virtually all of the studies that showed positive improvements in student learning included significant amounts of structured and sustained follow-up after the main professional development activities.

Correspondingly, the European Commission (2011), also found that the role of follow-up and 'at the elbow' coaching appears to be noteworthy together with the importance of school context. These are believed to be a vital ingredient as effective CPD is a substantial level of professional community where teachers have time to think, analyse and talk about what students are learning and doing, and where principals and administrators expect evidence of professional development and value teacher learning.

Guskey and Yoon (2009) advocate that professional development advocates have long lamented the lack of sufficient time for staff members to engage in high-quality professional learning. They scholars therefore claim that educators need time to deepen their understanding, analyse students' work, and develop new approaches to instruction. However, they warn that simply providing more time for professional development yields no benefit if that time is not used wisely. As Birman, Desimone, Porter and Garet (2000) and Garet et al. (2001) advocate it thus seems clear that effective professional development requires considerable time, and that time must be well organized, carefully structured, purposefully directed, and focused on content, pedagogy, or both. This substantiates the National Staff Development Council (2001), as it contends that the most effective professional development comes not from the implementation of a particular set of best practices, but from the careful adaptation of varied practices to specific content, process, and context elements.

The following scholars, Desimone (2009); Hunzicker (2011); Lieberman and Pointer Mace (2010) all echo professional development to be relevant and effective when long-term. The

much higher need of continuity in a professional development has therefore led to an establishment of a Continuing Professional Development (CPD). Continuing Professional Development (CPD) of teachers is increasingly becoming a priority in most countries throughout the world Mokhele (2011). It is according to Fraser, Kennedy, Reid and Mckinney (2007) extensively regarded as the most effective approach to prepare teachers adequately, and to improve their instructional and intervention practices, for when they enter the workforce. Mokhele (2011) therefore establishes that CPD programs are therefore viewed as systematic efforts to change the practices of teachers in the classroom, to change their attitudes and beliefs, and to change the learning outcomes of students.

Whitehouse (2011) states that an agreement between the reviews on the characteristics of an effective CPD stresses six major characteristics that should be identified which are:

- Driven by identified learning needs - Based on their review of studies of CPD that produced positive student outcomes, (Timperley, Parr, and Bertanees, 2009) recommend that the students' learning needs be identified first. This involves an audit along the lines of what students currently know and how this is measured, followed by a statement of what the students need to know and a strategy for moving from the current state of students' knowledge to the desired state.
- Sustained - In their review of CPD that led to improved student outcomes, Timperley et al. (2009) found the CPD needed to last for at least a year. However, a long duration, in itself, was not sufficient to produce positive student outcomes; how the time was utilized was just as important. Time was needed to challenge teachers'

theories of practice, to apply new practices in their classrooms and to measure the effects (if any) of the new teaching practices.

- Subject specific - Research shows that CPD is more likely to bring about improvements, particularly in teacher efficacy and pedagogical content knowledge, when it is subject specific (Bolam and Weindling, 2006; McCormick, Banks, Morgan, Opfer, Redder and Storey, 2008).
- Based in the classroom - Basing CPD in what goes on in the classroom presents teachers with opportunities to consider their existing theories of teaching practice and how to change these in the light of new learning about their subject and its pedagogy.
- Collaborative - One of the strongest findings from the research is that teacher CPD needs to be collaborative in nature. Teaching is a reflective practice that improves with discussions that challenge personal theories of practice in safe, non-judgmental environments. This can be achieved by a number of means such as: lesson observations with feedback provided by colleagues in the same and other schools, participation in networks of professional learning or projects aimed at professional development through the improvement of students' outcomes (Cordingley, Bell, Thomason, and Firth, 2005). This also includes networking through subject associations, the encouragement of research and investigation throughout a school or department (GTC for England, 2006), coaching and mentoring.
- Uses external expertise - All of the studies of CPD selected for review by Timperley et al. (2007) received input from external experts. Generally, the experts provided up to date knowledge of pedagogy and ongoing support in transferring pedagogical

knowledge into the classroom. They were also in a position to challenge current orthodoxies in the schools they worked with (Doolittle, Sudeck, and Rattigan, 2008) and act as an independent 'honest broker.

- Effective organizational structures for effective CPD- At the school level, CPD needs to be planned and organized. Without this, teachers are effectively left to organize their own professional learning, which will only work for those who are highly self-directed. The individual reflective practitioner may also find that their learning goals are misaligned with those of their colleagues, their schools, education policy or best practice. Even where collaboration and learning communities are encouraged within subjects or topics, teachers may experience resistance to developing new practices in their classrooms when the school environment is not open to innovation.

A number of other scholars have touched a lot on some of these various aspects of effective CPD stated above for example, Erickson, Brandes, Mitchell and Mitchell (2005) and Lieberman and Pointer Mace (2008) have pointed that professional development is most relevant when it focuses on teachers existing needs; teachers personal needs. Reviewing collaboration, involving teacher's inputs according to Wikeley (2005) creates a strong sense of ownership and encourages active learning. Jones, Asensio and Goodyear (2000) also argue that collaborative involvement with teachers of different schools in an interactive process can create a network, where teachers support and inspire each other and professionalise themselves. The same sentiment on needs and collaboration is shared by Desimone (2009) and Lieberman and Pointer Mace (2010) writing that in addition to

collaborative, school-based approaches are used to focus on the learning of all students that are linked to teachers' daily school practice, and teachers prior knowledge.

Emphasizing collaboration as well, Meirink et al. (2007) share that as it is assumed that exchanging ideas, conceptions, opinions, and people can generate or create knowledge that could not have been generated by one individual. However, summarily when a CPD program is designed, it is important to note what Guskey and Yoon (2009) suggest that those responsible for planning and implementing professional development must learn how to critically assess and evaluate the effectiveness of what they do.

2.2 MODELS OF PROFESSIONAL DEVELOPMENT

Models for Teacher Professional Development (TPD)

Various models for teacher professional development have been identified and used in various countries around the world. Before looking into the various models of TPD it is important to first look at what Gable and Burns (2005) consider to be categories in which a TPD can be divided. Drawing from other scholars these writers identify three broad categories which are:

- 1. Standardized TPD:** The most centralized approach, best used to disseminate information and skills among large teacher populations;

2. **Site-based TPD:** Intensive learning by groups of teachers in a school or region, promoting profound and long-term changes in instructional methods; and
3. **Self-directed TPD:** Independent learning, sometimes initiated at the learner's discretion, using available resources that may include computers and the Internet.

Hooker (2009) further expands the meanings of the categories in more detail as described below.

1. Standardized TPD

Standardized TPD typically represents a centralized approach, involving workshops, and training sessions and in many cases the cascade model of scaled delivery. Standardized, training-based approaches generally focus on the exploration of new concepts and the demonstration and modeling of skills. When employed in accordance with best practices standardized approaches can effectively expose teachers to new ideas, new ways of doing things and new colleagues disseminate knowledge and instructional methods to teachers throughout a country or region and visibly demonstrate the commitment of a nation or vendor or project to a particular course of action.

Pros:

- Standardized TPD can be very effective in building awareness about computers, learner centered instruction and/or new curricula.

- In the cascade model (training the trainer), a small group of teachers are selected to receive intensive training before returning to their own institutions to provide ICT training for their peers – serving as champion teachers or a vanguard team.
- The cascade model has tremendous potential particularly with regard to support provision at school level.

Cons:

- The model tends towards a technical rationalist approach (Schön, 1983 cited in Butler and Leahy 2003).
- The approach hovers on a 'one fit for all' principle for upgrading teachers' knowledge base that is independent of context.
- Teachers are constructed as *knowledge consumers* with the responsibility to bring what they have learned back to their classrooms and put it into practice
- Workshops taking place at one time and in one location without on-going support rarely result in effective changes for teaching and learning.
- Weaknesses in the cascade approach are linked with a tendency to develop the vanguard team's *user* skills as opposed to their *provider* skills.
- Cascade training flows down through levels of less experienced trainers until it reaches the target group; in the process, complex information tends to be lost.

- Without incentives to motivate teachers to participate, collaborate and experiment with new strategies, teachers may be unwilling to take advantage of their more knowledgeable colleagues in the TPD vanguard teams.

2. Site-based TPD

Site based TPD often takes place in schools, resource centres or teachers colleges. Teachers work with local (“in house”) facilitators or master teachers to engage in more gradual processes of learning, building master of pedagogy, content and technology skills. Site based TPD often focuses on the specific, situational problems that individual teachers encounter as they try to implement new techniques in their classroom practices. Site-based models tend to bring people together to address local issues and needs over a period of time, encourage individual initiative and collaborative approaches to problems, allow more flexibility, sustained and intensive TPD and provide ongoing opportunities for professional learning among a single set of teachers (Gaible and Burns, 2006).

Pros:

- Many studies have pointed to the importance of site-based TPD programs which can be linked to change and innovation in the classroom and school level (Somekh and Davis, 1997; Potter and Mellor, 2000; cited in Pelgrum & Law, 2003).
- Study findings also suggest that site-based TPD can be most effective when delivered “*in connection with a school development plan*” (ibid).

- The tendency in site-based TPD is to support the establishment of teacher communities as communities of practice in order to foster the development of the new learning culture desired (Wenger, 2000).

- The focus is on aiding the project participants to not only implement new approaches, but to *unlearn the beliefs, values, assumptions and culture underlying their practice* (Dede, 1999: cited in Butler and Leahy, 2003). Butler and Leahy point to value of incremental learning associated with site-based communities of practice - where every participant has their own perspectives, values and assumptions that become part of the process of constructing new understandings, as in forming and reforming frameworks for understanding practice: how students and teachers construct the curriculum...(Cochran-Smith and Lytle, 1999).

Cons:

- Site-based approaches are time- and labour intensive, requiring locally-based TPD providers skilled in facilitation, instruction, content, curriculum, assessment and technology
- as well as in mentoring teachers to find solutions in low-resource environments appropriate to their needs and contexts.

- The establishment and maintenance of a network of facilitators to meet the needs of large-scale TPD programs would be a challenge for any educational system. In the teacher-poor education systems of the LDCs, the challenge is magnified (Gaible and Burns, 2005).

3. Self-directed TPD

In self-directed TPD, teachers are involved in initiating and designing their own professional development and would share materials and ideas as well as discuss challenges and solutions.

Pros:

- This approach to professional development helps teachers to become models of lifelong learners.
- Informal versions of self-directed TPD find teachers seeking out experienced colleagues for advice or searching for lesson plans on the Internet.
- The emergence of online communities of teachers to provide support in professional development across a range of subject areas and themes (Pelgrum and Law, 2003).

Gaible and Burns (2005) further consider that while teachers should certainly be encouraged to participate in on-going, self-motivated learning, self-directed activities should not be used as the primary means of providing TPD. Instead, they should be used to complement and extend standardized and/ or site-based TPD.

Villegas-Reimers (2003) has also identified a number of other models used across the globe, which are many alternatives that exist today in the field of education to enhance teacher's professional development (TPD). The scholar defines a professional development model as a

specific process and opportunity that is planned to provide professional development for teachers from the beginning of their preparation (Villegas-Reimers, 2003).

The models are categorized by the Villegas-Reimers into two groups of organizational or inter-institutional and small scale or individual models. The first group comprises of professional- development schools, other university- school partnerships, school's networks, teacher networks and distance education. The second group is comprised of supervision, student performance assessment, workshops, case based study, self-directed development, observation of excellent practice, teacher's participation in new roles, skills development, reflective models, project based models, portfolios, action research, use of teacher's narratives, cascade model and coaching/mentoring. The models, however, according to Villegas-Reimers (2003) are separated just for clarity and distinction as mostly professional development initiatives use a combination of models simultaneously and the combinations vary from setting to setting.

For this study, I will discuss in detail a few of these models which are the most protruding in today's TPD literature. These are:

Organizational or Inter-institutional made up of:

- a) Professional-development schools and
- b) Teacher's networks

Small scale or individual models made up of:

- a) Action research,
- b) Coaching/Mentoring
- c) Teacher's narratives

2.2.1 Organizational or Inter-institutional models

a) Professional- development schools

Professional development schools are defined by Villegas-Reimers (2003) as partnerships between teachers, administrators and university faculty members created in order to improve teaching and learning on the part of their respective students, and also in order to unite educational theory and practice. Trachtman (2007) describes professional development schools (PDSs) as collaborative organizations in which participants support student learning; provide a professional induction program for teacher candidates; develop the skills, knowledge, and dispositions of practicing teachers; and systematically inquire into and on practice so that it can be improved.

In the 1980s, with school reformers clamouring for change, the PDS emerged as the innovation that could effectively link teacher and student learning (Trachtman, 2007). School-university partnerships have been forwarded as an avenue for improving teaching, learning, and teacher preparation for almost 20 years (Holmes Group, 1986; Levine, 1992). The potential impact of the PDS is related to one of its unique features which is an

institution positioned strategically at the intersection of teacher education and school reform (Trachtman, 2007). The scholar further asserts that the two sectors of education have traditionally found it difficult to bridge their differences, although each has a large stake in the success of the other and much to contribute to that success. Therefore, the PDSs create bridges between higher education institutions and the public schools (Levine & Trachtman, 2005).

Villegas-Reimers (2003) transcribes that the evaluations of PDSs until now have been very positive as noted below:

- a) The children in schools in schools benefit from the experiences of the mentor teachers and the university faculty, as well as from the new knowledge and energy that student- teachers bring into the classroom.
- b) The experienced teachers keep themselves informed of the latest research and theories in teaching because of their connections with the universities and they further learn to become mentor teachers and faculty members in university based programs.
- c) The student teachers are introduced to the profession in the setting where they will implement their knowledge and skills, and have the support of experienced teachers and theory-based knowledge.
- d) The university or college faculty also benefit from this collaborative model as they develop partnerships with practitioners in the field which allow them to be more informed about the daily practices and situations encountered in classrooms, feel

supported in their work with student teachers and also have the opportunity to link theory with practice more naturally and frequently.

However, Villegas-Reimers (2003) brings to view that not all reports have been positive. Glass and Wong (2003) substantiate that as colleges of education and urban school districts have established collaborative Professional Development Schools (PDSs) to meet the particular needs of under resourced urban schools, they have discovered unexpected challenges that exacerbated the already difficult issues that they set out to address. For example, PDS programs are intensive for teacher candidates in terms of time and energy and are expensive for universities in terms of faculty load (Glass and Wong, 2003). Those involved in PDSs attest to their value; yet because of their complexity, connections between PDS activities and their impact on teaching have been hard to make (Castle, Fox and Souder 2006). However, the scholars further assert that, given the current policy environment in which the No Child Left Behind Act of 2001 has defined, teacher quality as subject area knowledge and in which teacher shortages have led to fast-track teacher licensure programs, and given the resource intensive nature of PDS work, PDS programs must show value added evidence of their impact on the teachers they prepare (Castle, Fox and Souder 2006). PDSs, like other inter-institutional partnerships, succeed only when partners believe that the returns on their investments of time, energy, and financial resources are sufficient (Trachtman, 2007).

According to Villegas-Reimers (2003), new developments with regard to professional development schools have been made which include the implementation of the model in its

traditional form, but with the added use of technology (Burley, Yearwood, Elwood-Salinas, Martin and Adler, 2001). The model is labelled ePDS and has been quite successful as it has all the advantages of the regular partnerships and professional development schools, but with a supplementary cyberspace dimension, which allows even closer and more frequent communication between all the members of the partnership.

b) Teacher's networks

Teacher's networks are defined by Niesz (2007) as groups of teachers organized for purposes related to teacher learning, inquiry, support, or school improvement. Teacher's networks bring teachers together to address the problems which they experience in their work, and thus promote their own professional development as individuals and as groups (Villegas-Reimers, 2003). In recent years, Teacher's networks have been embraced to teacher professional development in contrast to such traditional professional development approaches as workshops or in-service days as networks often reflect a social or constructivist orientation to teacher learning Niesz (2007). The scholar further conditions that many teacher's networks are based on the premises that contexts for teacher learning should endure over time, build on teachers' knowledge and experiences, provide opportunities for critical dialogue and inquiry, and foster the public sharing of practice and understandings.

Teacher's networks can be implemented in various forms in which a number of scholars have written about such as professional learning communities, teaching communities of practice, inquiry groups, cyber networks and many other networks with other labels (Schlager, Farooq, Fusco, Schank and Dwyer, 2009). Schlager et al. (2009) further view that teacher network, in different forms, are effective alternative and supplemental interventions to traditional workshops and institutes for learning content and pedagogy. Villegas- Reimers (2003) also endorses that there are many examples of effective teacher networks in different parts of the world. Mentioning a few, Villegas-Reimers (2003) acknowledge the teacher networks created by many Finish schools to support the professional development of teachers; the cross-national network of teachers which includes a collaboration of national networks from Spain, Colombia and Mexico; an Inquiry Group illustrated by the project 'Mathematics Tomorrow' and many others.

In the United States, informal teacher networks exist within many P-12 schools where teachers collaborate with one another to prevent isolation, offer emotional support, and share teaching ideas around social justice themes. This commonly takes place between classes, at lunch, and before or after school as teachers gather to check in with one another and share resources (Ritchie, 2012). McDonald and Klein (2003) suggest a number of functions that networks can play to advance serious school reform. These functions include the following:

- Developing teachers' content knowledge important to reform;
- Enhancing teachers' pedagogical content knowledge in ways that accommodate reform;

- Providing teachers access to content-focused expertise otherwise not available to them and scaffolding the emergence of new practice with respect to content;
- Providing sustained professional development to teachers such that new content-focused practice may have time to emerge and become established;
- Creating a common discourse and norms for the development and maintenance of a community of practice within and across schools, one tuned to larger perspectives on content and the teaching of it;
- Enhancing members' sense of teacher efficacy even in the face of predictable difficulties in implementing content-focused reform; and
- Providing leadership opportunities for teachers whereby their sense of the complexities of reform in practice may affect the development of policies within and beyond the school, particularly policies affecting what gets taught and how.

2.2.2 Small scale or individual models

a. Action Research

In the 1960s and 1970s, scholars began conducting research with a more humanistic approach as a counter to what they viewed as a positivistic worldview that ignored human subjectivity (West, 2011). Elliott (2002) explains that as part of this emphasis on the 'whole person,' educational research broadened to include Action Research, Ethnography, Narrative Inquiry, Critical Theory, Feminist Inquiry, and Postmodernism. Drawing from

various earlier scholars, West (2011) advocates that during this time, a movement emerged advocating the recognition of school teachers as authorities in their own right, rather than as mere recipients of university-generated knowledge, compelling many to advocate the use of action research. Frabutt and Holter (2012) also endorse that Action research has had a long and distinguished pedigree that spans over 50 years across several continents. Mills (2013) contributes that historically, the term action research has been long associated with the work of Kurt Lewin, who viewed this research methodology as cyclical, dynamic, and collaborative in nature.

Various scholars, for example, define action research Stringer (2007) as a process of systematic inquiry that enables people to find effective solutions to real problems encountered in daily life. Stringer (2008) is of the opinion that action research is based on the proposition that generalized solutions may not fit particular contexts or groups of people and that the purpose of inquiry is to find an appropriate solution for the particular dynamics at work in a local situation. Drawing from a number of scholars Hine and Lavery (2014) derive that within the teaching profession, action research can be defined as the process of collaborative inquiry conducted by stakeholders to understand and improve the quality of actions on instruction.

Villegas-Reimers, (2003) views action research as a process of investigation, reflection and action which deliberately aims to improve, or make an impact on, the quality of the real situation which forms the focus of the investigation. The goal of educators conducting action research is gaining insight, developing reflective practice, effecting positive changes in the school environment (and educational practices in general), and improving student

outcomes and the lives of those involved (Mills, 2013). Hine (2013) validates that through the recurrence of cycles of planning, observing, and reflecting, individuals and groups engaged in action research can implement changes required for social improvement.

Villegas-Reimers (2003), grounding on O'Hanlon (1996), establishes that three reasons explain why action research can be an effective model for teachers' professional development, which are that it:

1. Is inquiry-based;
2. Allows teachers to investigate their own worlds;
3. Is aimed at the improvement of teaching and learning in schools; and
4. Leads to deliberate and planned action to improve conditions for teaching and learning.

According to Ado (2013), this cycle rests on the beliefs that educators better serve their students when they examine and reflect upon their practice and when they specifically consider ways to address challenges that exist in their practice. All action researchers, regardless of their particular school of thought or theoretical position, are committed to a critical examination of classroom teaching principles and the effects that teachers' actions have on the children in their care (Mills, 2013).

The impact that action research has had on teacher preparation and professional development is so significant that the image of teacher-as-researcher is increasingly common in literature (Villegas-Reimers, 2003). This is pointed out by Stokes (2001) pronouncing that as a result, teachers are now beginning to be considered not only as professionals who consume the knowledge created by 'expert researchers', but as creators of that knowledge. Implementing a model of action research for professional development does not imply a process of individual inquiry or research in isolation as most initiatives that have promoted action research have used at least one of the following formats: whole-school projects; small-group action research projects; and individual reflection with small-group support (Villegas-Reimers, 2003). Burbank and Kauchack (2003) also agree that advocates of the action research model tend to suggest that it has a greater impact on practice when it is shared in communities of practice, or inquiry, and indeed, many communities of practice will engage in action research. Villegas-Reimers (2003) mentions a number of such collaborative initiatives such as Multicultural Collaborative for Literacy and Secondary Schools (M-CLASS); the Logo Action Research Collaborative (LARC), Namibian Institute for Educational Development and many others.

Hine and Lavery (2014), explicating on what other academics have written earlier and recently, claim that Action research offers many benefits for educators committed to a critical, investigative process of improving school practice, policy, or culture which are that:

- 1) Action research can be used to fill the gap between theory and practice (Johnson, 2012) and helps practitioners develop new knowledge directly related to their classrooms (Hensen, 1996).

- 2) Action research facilitates teacher empowerment (Fueyo and Koorland, 1997).

Teachers are empowered when they are able to collect their own data to use in making decisions about their schools and classrooms (Book, 1996; Erickson, 1986; Hensen, 1996, Zeichner and Noffke, 2001). Moreover, when teachers are allowed to take risks and make changes related to teaching and learning, student achievement is enhanced (Marks and Louis, 1997; Sweetland and Hoy, 2002), and schools become more effective learning communities (Detert, Louis and Schroeder, 2001).

- 3) Third, action research is an effective and worthwhile means of professional growth

and development (Osterman and Kottkamp, 1993). Traditional teacher in-service are often ineffective (Barone, Berliner, Blanchard, Casanova and McGown, 1996) and generally do not give teachers sufficient time, activities, or content to increase their knowledge or affect their practice (Birman, Desimone, Porter, and Garet, 2000). Teacher in-service on action research offer a way for teachers to reflect critically on their practice (Cain and Harris, 2013; Darling-Hammond and McLaughlin, 1995; Hodgson, 2013), stimulate change in their thinking and practice (Furlong and Salisbury, 2005; Zeichner, 2003), and promote self-improvement and self-awareness (Judah and Richardson, 2006).

- 4) The solutions-based focus, emphasis on fostering practitioner empowerment, and

pragmatic appeal of action research collectively render this research methodology a worthwhile professional development activity for teachers (Hine, 2013). There is unlimited scope for teachers wishing to develop 'customized' action research projects of their own, as topics for investigation are as multifarious as the daily vignettes evidenced in the teaching profession (Hine, 2013).

Rietdijk, Grace and Garrett (2013) endorse such benefits action research provides on a study they did of Teacher professional development in action research in the secondary physics classroom: evaluation and impact, as they found how the approach taken by the Action Research Physics (ARP) in the United Kingdom (UK) benefited teachers who participated in the program. The scholars relate that providing physics teachers with research-informed guidance, while allowing them to develop their own action research intervention within their own school context over a period of time, demonstrated increased teacher self-efficacy and confidence in engaging students in physics and making physics relevant. Moreover, it is advocated by the scholars that most teachers reported that as a consequence of the ARP course they had started adopting new teaching strategies as advocated by the ARP tutors, and they also conveyed increased motivation and enthusiasm towards teaching physics, and that was matched with students generally reporting positive changes in their engagement with the subject.

However, Hancock (2001) notes some challenges and areas of difficulty that teachers encounter in action research which are:

- i. Lack of expectations that teachers should research and write about their professional practice;
- ii. The demanding nature of teaching which leaves little time and energy for research;
- iii. The current lack of professional confidence and marginalization of teachers from government change agendas;

- iv. The mismatch between many available research methodologies and teachers' professional ways of working in classrooms.

b. Coaching/Mentoring

In essence, both coaching and mentoring are complex activities closely associated with the support of individual learning with mentoring implying an extended relationship involving additional behavior such as counselling and professional friendship (Rhodes, Stokes and Hamton, 2004). Mentoring is when you talk to a more experienced colleague about things you want to do, about career opportunities (Harrison, 2001). Mentoring is a structured, sustained process for supporting professional learners through significant career transitions (Lofthouse, Leat and Towler, 2010). Coaching is on the other hand where you have a person observing you in your particular area of activity, commenting, and feeding back on what you are doing well, strategies for improvement and so on, and then perhaps observing you again (Harrison, 2001). Coaching differs from mentoring in its focus on the technical aspects of instruction, rather than the larger personal and non-academic features of teaching (Rowley, 2005).

In some contexts, coaching and mentoring are used almost as interchangeable terms, without doubt they are both valuable processes and it is true that the boundary between them is somewhat permeable and that often the same individuals in schools carry out or participate in both processes (Lofthouse, Leat and Towler, 2010). The coaching/mentoring

model covers a variety of CPD practices which are based on a range of philosophical premises; however, the defining characteristic of this model is the importance of the one-to-one relationship, generally between two teachers, which is designed to support CPD (Kennedy, 2003). Rhodes and Beneicke (2002) observe that both coaching and mentoring share this characteristic, although most attempts to distinguish between the two suggest that coaching is more skills based and that mentoring involves an element of 'counselling and professional friendship'.

The mentoring or coaching relationship can be collegiate, for example 'peer coaching' and key to the coaching/mentoring model is the notion that professional learning can take place within the school context and can be enhanced by sharing dialogue with colleagues (Kennedy, 2003). The scholar further maintains that in direct contrast, where the coaching/mentoring model involves a more equitable relationship, it allows for the two teachers involved to discuss possibilities, beliefs and hopes in a less hierarchical threatening manner. Interestingly, depending on the matching of those involved in the coaching/mentoring relationship, this model can support either a transmission view of professional development, where teachers are initiated into the status quo by their more experienced colleagues or a transformative view where the relationship provides a supportive but challenging forum for both intellectual and affective interrogation of practice (Kennedy, 2003).

Rhodes, Stokes and Hamton (2004) are of the opinion that the coaching /mentoring model holds the following benefits:

- The encouragement of collaboration may also be viewed as a tool of teacher empowerment;
- The engagement of support using coaching, mentoring and networking activities may assist in the transfer of teacher learning to pupil or student learning, resulting in greater impact within the classroom and the increased potential to raise standards and attainment;
- The locus of control of professional development may change beneficially, allowing teachers greater ownership of professional development and its potential impact, rather than professional development and change being seen as an imposition by others;
- Enhanced individual, team and organizational performance may emerge by sharing and developing practice within an atmosphere of mutual trust and respect; and
- It is important to note though what Rhodes and Beneicke (2002) charge that regardless of the fundamental purpose of the coaching/mentoring model as mutually supportive and challenging or hierarchical and assessment driven, the quality of interpersonal relationships is crucial and in order for the coaching/mentoring model of CPD to be successful, participants must have well-developed interpersonal communication skills.

c. Teacher's narratives

In recent years, narrative inquiry has been put much attention to, which is considered as a way to carry out research. Narrative inquiry is the interdisciplinary study of the activities involved in generating and analyzing stories of life experiences (e.g., life histories, narrative interviews, journals, diaries, memoirs, autobiographies, and biographies) and reporting that kind of research (Ma and Ren, 2011). According to Clandinin (2007), narrative inquiry, or narrative research, is a research methodology that is growing in acceptance and practice in such disciplines as nursing, medicine, and law, and especially organizational studies, therapy in health fields, social work, counselling, psychotherapy, and teaching.

In educational research, narrative has emerged as both a method in and an object of inquiry in teacher education; for example, in descriptions and analyses of teachers' knowledge and to trace beginning teachers' voice and identity within the social, cultural, and historical milieu of teacher education Golombek and Johnson (2004). The researchers conceptualize narrative inquiry as systematic exploration that is conducted *by* teachers and *for* teachers through their own stories and language. They further claim that their conceptualization reflects Dewey's (1920) claim that inquiry takes into account: observation of the detailed makeup of the situation; analysis into its diverse factors; clarification of what is obscure; discounting of the more insistent and vivid traits; tracing the consequences of the various modes of action that suggest themselves; regarding the decision reached as hypothetical and tentative until the anticipated or supposed consequences which led to its adoption have been squared with actual consequences.

An earlier scholar, Sarbin (1986) argued that narratives are understood as being part of a constructive process in which humans interpret and reinterpret their experiences according to 'narrative structures'. In agreement, Lyons and LaBokey (2002) and many other writers echo that two decades of educational research argue that teachers' knowledge is largely structured through stories and that story, for many, is epistemologically the most authentic way to understand teaching from the viewpoint of the teacher. Such inquiry is driven by a teacher's desire to understand that experience, to reconcile what is known by that which is hidden, to confirm and affirm, and to construct and reconstruct understandings of themselves as teachers and of their own teaching (Johnson and Golombek, 2002).

The writers continue that narrative inquiry enables teachers to organize, articulate, and communicate what they know and believe about teaching and who they have become as teachers. It gives them increasing control over their thoughts and actions, grants their experiences enriched, deepened meaning; and enables them to be more thoughtful and mindful of their work (Johnson and Golombek, 2002).

The narrative gives shape to the lived experiences in education and often grants them the title to reality which renders narrative inquiry a fitting form for studying and giving expression to the educational experience (Bruner, 2002 and Latta and Kim, 2009). Golombek and Johnson (2004) share that one of the critical contributions of this narrative-based research on teachers' knowledge has been the recognition of emotional, moral and relational dimensions of this knowledge.

Dunne (2003) also claims that research into teaching is best served by narrative modes of inquiry since to understand a teacher's practice (on her own part or on the part of an observer) is to find an illuminating story (or stories) to tell of what she has been involved in with her students (Dunne, 2003). By becoming a good storyteller and a good listener to other people's stories, both teachers and students can see the lives of others and their own lives as a whole into which the fragmented parts of narratives can be integrated and embodied (MacIntyre and Dunne, 2002).

Villegas-Reimers (2003) mentions significant cases that embrace teacher narrative model, for example, one in the USA known as the US National writing project, another similar project in Colombia and many others in various countries around the world. Villegas-Reimers, drawing from other academics, endorses that The National Writing Project is guided by a number of principles which are: Teachers learn by teaching others; teachers learn from making their work public and having it discussed and critiqued by a group of peers; learning to write and learning to teach have a great deal in common which is to teach/write and publicly expose their work, be critiqued and revise; there are strong value commitments but methods are non-ideological; teaching is accepted as being messy, uncertain and unfinished; teachers learn by taking on different roles and seeing the world from different perspectives and lastly networks provide powerful contexts for teacher learning, community and enhancement of teacher's confidence and self-esteem.

Latta and Kim (2009) contribute that narrative inquiry into teaching and learning has significant implications for classroom pedagogy, and pedagogy for professional

development in particular. It works as a pedagogical medium that invites teachers and students to look at their school experiences from multiple perspectives, helping each other interrogate their assumptions and taken-for-granted ideas and questioning the disabling contexts of teaching and learning Latta and Kim (2009). Johnson and Golombek (2002) believe that ultimately, narrative inquiry enables teachers not only to make sense of their professional worlds but also to make significant and worthwhile change within themselves and in their teaching practices.

2.3 AN OVERVIEW OF PROFESSIONAL DEVELOPMENT TEACHER PROGRAMS

According to Harewell (2003), over the last two decades, we have witnessed the coming and going of many initiatives designed to achieve that end of an improved student performance and an effective professional development. This has been through the restructuring of schools and programs and the development of standards, curricula, teaching materials, and, yes, standardized assessments (Harewell, 2003). Programs that have contributed towards professional development and teacher change have occurred in various contexts of being formal or informal settings. These range from structured classes during the summer of informal discussions during lunch, but most important teachers learn new ideas and strategies through a variety of venues (Glazer and Hannafin, 2006).

Similarly, Ganser (2000) compliments that professional development includes formal experiences such as attending workshops and professional meetings like cluster systems

and mentorship. However, in spite of the billions of dollars spent, student performance has been affected very little (Harewell, 2003). There are two main types of professional development activities: traditional (scientific/positivist) and non-traditional (constructivist/post positivist) (Bayar, 2014). Bayar further asserts that the international literature has compared traditional professional development activities- consisting of short workshops, conferences etc. to non-traditional professional development activities consisting of mentoring, coaching, peer observation, and so on (Bayar, 2014).

In the scientific paradigm, teacher professional development activities adopted a positivist approach which at a philosophical level, among others, influenced and guided teacher professional development by traditional or positivist principles, behaviourist and objectivist traditions in which both curriculum and instruction are broken down into small, sequential steps dictated by the teacher (Pitsoe and Maila, 2012). In the traditional and the scientific paradigm of teacher professional development, teachers are often perceived as bureaucrats, implementing a carefully specified curriculum and instructional procedures to produce standard products, referred to as students (Pitsoe and Maila, 2012). The scholars further emphasize that it is also underpinned by the idea of cascading model that was widely used and which is based on the idea of the transfer of knowledge rather than the construction of knowledge. Universally, most countries, both developed and developing, have used the traditional in-service education/teacher professional development programs which Kelleher (2003) calls adult pullout programs, which have shown to be less likely to result in the improvement of teaching.

Countries used the cascade or multiplier approach as it is popular for reaching many participants in a short time (Leu, 2004). Conveyed in the form of workshops, seminars, conferences or courses, these efforts of the cascade model have been criticised by many researchers as being brief, fragmented, incoherent encounters that are decontextualized and isolated from real classroom situations (Collinson and Ono, 2001; Feiman-Nemser, 2001; Villegas-Reimers, 2003). Even earlier, conferring Fullan (1991) nothing has promised so much and has been so frustratingly wasteful as the thousands of workshops and conferences that led to no significant change in practice when the teachers returned to their classrooms.

Deliberating from Ono and Ferreira (2010), the cascade or multiplier approach transmits the knowledge or information from the top to the lower stratified groups of teachers. These scholars maintain that the approach consequently entails training-the-trainer to ensure that the message “flows down” from experts and specialists, eventually to the teachers. One of the advantages considered by the countries in using this training model is that it allows training in stages so that progress can be monitored and information can be disseminated quickly and to a large number of teachers as more and more of them receive training (Ono and Ferreira, 2010).

However, the danger of this approach lies in the fact that when transmitted to the next level, chances are high that the crucial information may be watered down or misinterpreted (Fiske and Ladd, 2004). This is the approach that the South African Department of Education adopted and relied on when OBE and C2005 were introduced (Ono & Ferreira, 2010). The

model was designed and operated under the same paradigm of teacher professional development criticised in developed countries in which learners were passive receivers of knowledge (ibid 1). This led to a series of complex and costly, but failing programs of professional development, from which teachers frequently complained that even the district trainers, they did not always understand the curriculum (Ono and Ferreira, 2010).

Harewell (2003) argues that professional development can succeed only in settings, or contexts, that support it. The scholar further establishes that the main reason for the failure of many professional development approaches is that too little attention has been paid to what actually goes on in the classroom. The failure and criticism of the traditional approach to teacher professional development, coupled with other factors have led to a rise of more research and reviews and alternative paradigms of professional development. Vescio, Ross and Adams (2008) also contribute that over the past twenty years there has been a paradigm shift gathering momentum with regard to the professional development of teachers. This is fuelled by the complexities of teaching and learning within a climate of increasing accountability and this reform moves professional development beyond merely supporting the acquisition of new knowledge and skills for teachers (Vescio et al., 2008).

This most recent model of professional development ultimately requires a fundamental change in the institutional structures that have governed schooling as it has traditionally existed and now involves teachers in the dual capacities of both teaching and learning and creates new visions of what, when, and how teachers should learn (Vescio, Ross and Adams, 2008). In support, Marcelo (2009) pronounces that the development of the teaching

profession concept has changed over the last decade, as a result of an evolution in the understanding of how the teachings to learn processes are produced. For example, the rise of the constructive approach developed in the 1990s (Collinson and Ono, 2001; Ono and Ferreira, 2010).

Villegas-Reimers (2003) also advocated a number of assessments on how a new perspective of professional development should be, which are that it should be:

- Based on constructivism – Teachers are treated as active learners who engage in the concrete tasks of teaching, assessment, observation, and reflection as compared to the transmission-oriented model;
- Perceived as a long-term process – It acknowledges the fact that teachers learn over time with regular support as an indispensable catalyst of the change process;
- Perceived as a process that takes place within a particular context – Based in schools and is related to the daily activities of teachers and learners where schools are transformed into communities of learning, communities of inquiry, professional communities and caring communities;
- Intimately linked to school reform – In this case teachers are empowered as professionals, and therefore should receive the same treatment that they themselves are expected to give their students;
- Based on teachers conceived as reflective practitioner – Someone who enters the profession with a certain knowledge base, and who will acquire new knowledge and experience based on that prior knowledge;

- Conceived as a collaborative process – Even though there may be some opportunities for isolated work and reflection, most effective professional development occurs when there are meaningful interactions not only among teachers themselves, but also between teachers, administrators, parents and other community members; and
- Look and be very different in diverse settings and even with a single setting – There is not one form or model of professional development better than all others which can be implemented in any institution, area or context. Schools and educators must evaluate their needs, cultural beliefs and practices in order to decide which professional model would be most beneficial to their particular situation.

According to Bransford, Brown and Cocking (2000), the constructivist theory of learning is backed up by brain research for rethinking what is taught, how it is taught and how learning is assessed. The scholars maintain that professional development programs should be learner centred, knowledge centred, assessment centred, and community centred to optimise teacher learning. In recent years, much has been written about constructivist learning theories and their application to outcomes-based teaching and learning environments in South Africa (Pitsoe and Maila, 2012). These reforms, as Chauraya (2013) deduces, originally introduced in 1997, reviewed in 2002 leading to the Revised National Curriculum Statements (Grades R-9) (RNCS) and the National Curriculum Statements (Grades 10-12) (NCS), and the recently introduced Curriculum and Assessment Policy Statements (CAPS) created the need for inducting teachers into each new reform.

However, the scholars claim that little, if any, has been said about the implications of these ideas and practices for teacher professional development and teacher education. The introduction of the National Curriculum Statement (NCS) later reviewed to CAPS policy embodies a significant number of challenges (Pitsoe and Maila, 2012). Among others, it requires the acquisition of new skills, knowledge, attitudes and values; and it requires teachers to employ a wide variety of teaching strategies, in order to enable students to construct their own knowledge (ibid). Pitsoe et al. (2012) argues that teacher professional development programs should be underpinned and guided by principles that are compatible with the emerging paradigm.

Mathematics, Science and Technology (MST) education has been a national priority in South Africa for several years, as evidenced, for example, by the National Strategy for Mathematics, Science and Technology Education devised by the Department of Education in 2001 (Department of Education (DoE), 2001a). Chauraya (2013) notes that recommendations such as: restructuring the mathematics curriculum; improving mathematics textbooks; improving learning conditions; use of technology; teaching thinking skills and problem solving; and preparing teachers adequately to teach mathematics have been made for improving learner achievement in mathematics.

International studies on learner performance have raised a number of issues pertaining to learners' performance in mathematics and science (Chauraya, 2013). Reddy (2005) notes that some of these studies are: the Trends in International Mathematics and Science Study (TIMSS); the Monitoring Learning Achievements (MLA); the Southern Africa Consortium for

Monitoring Educational Quality (SACMEQ), and Performance in International Student Achievement (PISA). South Africa participated in the first three studies, but did not participate in PISA (Chauraya, 2013).

Chauraya (2013) further adds that government departments, non-governmental organizations, and research institutions such as universities have also mounted various in-service professional development programs and projects to support improvement in instruction and learners' performance. However, there is an emerging consensus that current professional development programs have failed to result in significant improvements in teachers' teaching and learners' learning (Chauraya, 2013). Kriek and Grayson (2009) also dispute that although it is widely acknowledged that changes are needed; only limited information is available about the factors that contribute to effective professional development in mathematics and science.

Effective professional development experiences are designed to assist teachers in developing a new understanding of teaching and learning (Zakaria and Daud, 2009). Therefore, the scholars argue that, to be effective, professional development must provide teachers with a way to apply that which they have learnt directly to their teaching (ibid). High quality professional development, according to Guskey (2002) is a central component in nearly every modern proposal for improving education. Ifanti and Fotopoulou (2011) further state that the investment in teacher professional development programs and activities appear to be crucial not only for the teaching and learning process but also for the teachers themselves.

This is due to the fact that teachers need to strengthen their knowledge base, identify the appropriate support, in order to accomplish their educational duties, and meet successfully their educational demands and vocational needs (Ifanti and Fotopoulou, 2011). Little and Houston (2003) claim that various scholars concur that professional development is goal-oriented and argue that it needs to be continuous, supported through a variety of techniques, and adapted to the specific needs of the teachers and students it affects. Harewell (2003) and Pitsoe and Maila (2012) agree that professional development is not a static concept, but a social construct and fluid in nature.

The emergent paradigm of professional development in a constructivist setting is also based upon a situational viewpoint and may be typified as fluid, systemic, integrative orders and largely hierarchical in nature (Pitsoe and Maila, 2012). Fraser et al. (2007) allude that in education, Continuing Professional Development (CPD) is increasingly becoming a priority in most countries throughout the world. In agreement, Stoll, Bolam, McMahon, Wallace and Thomas (2006) confirm that it is widely viewed as the most effective approach to prepare teachers adequately, and to improve their instructional practice. In a more precise modus, Mokhele and Jita (2012) expound that the CPD of teachers is one of the key factors in ensuring that education reforms, at any level, are effective. International evidence seems to suggest that the progress of educational reforms depends on the individual and collective capacity of teachers and its link with the school- wide promotion of the education of pupils (ibid).

McNeil (2004) explains that finding alternative, effective, relevant and cost-effective means of providing ITPD that will reach all teachers has thus become a priority for many governments, particularly those that are introducing new paradigms of teaching and learning. The scholar further states that, ensuring that teachers understand the meaning of such reforms, are competent in the subject matter they teach, know a range of appropriate methodologies, and approach their work with professionalism and high morale are issues that demand urgent attention.

Leu (2004) summarizes the characteristics of the two approaches to teacher professional development in the Table 2.1.

Table 2.1: Approaches to teacher development

Previous approach	Alternative form of professional development
The goal is to have to have teachers who are competent in following rigid and prescribed classroom routines	The goal is to have to have teachers who are practitioners who can make informed professional choices
Teachers are trained to follow patterns	Teachers are prepared to be empowered professionals
Results in passive learning	Results in active and participatory learning
Cascade model runs as centralized workshops or programs	School-based model in which all teachers participate

"Expert" driven	Teacher facilitated (with support material
Little inclusion of "teacher knowledge" and realities of classroom	Central importance of "teacher knowledge" and realities of classrooms
Positivist base	Constructivist base

Source: Leu (2004)

Archibald, Coggshall, Croft and Goe, (2011) further asserts that in order to ensure the effective implementation of high-quality professional development, states, and districts must have a plan for financing the costs of professional learning activities. European Commission (2011) also agree that in seeking to meet teachers' professional development requirements, policy makers and practitioners need to consider both how to support and encourage participation and how to ensure that opportunities match teachers' perceived needs. The commission states that, there must be a balance with the cost in terms of both finance and teachers' time as the current economic climate has reduced the discretionary resources that states, districts, and schools have at their disposal. Budget cuts have become the norm, dampening the availability of funds and hindering efforts to enhance classroom practice through content focused, long-term, job-embedded professional development (Archibald, Coggshall, Croft and Goe, 2011). The scholars further write that, states, districts, and schools often cut professional development and the positions that support it in times of shrinking budgets. They claim that this is because of the perception that doing so does not compromise the basic operation of the school's teaching and learning.

However, the writes caution that if the teaching in some classrooms is not at a level that allows students to achieve at least one year of growth, this perception is false, and resources need to be reallocated accordingly so that they are directly linked to improving teaching and learning. Given the importance of teacher quality to student learning and the link between improving teacher quality and professional development, the greater investment is likely to lead to greater levels of student learning (Archibald, Coggshall, Croft and Goe, 2011).

Nevertheless, while most developed countries have an established history of professional development, in South Africa, the systematic skilling of the nation's workforce is relatively new and has major political, economic and social implications (Mokhele and Jita, 2012). As a result, the South African government has also adopted a range of programs and approaches, which are designed to support political stability, economic growth and educational development (Fletcher and Zuber-Skerrit, 2007). However, the curriculum of this study is on teacher-led professional development, therefore the section that follows conceptualises the in-depth of such professional development.

2.4 TEACHER-LED PROFESSIONAL DEVELOPMENT

Stacy (2013) explains that teacher empowerment can emerge within the current system through teacher-led professional development. This entails professional development led by teachers themselves in helping one other improve the quality of teaching and learning in education.

Teacher-led professional development creates opportunities to enhance professional autonomy, emphasizes professional judgment, and provides space to validate teacher voices, all essential components of teacher empowerment (Stacey, 2013). Teachers in a collaborative setting have opportunities to share their expertise as classroom professionals, develop common practices, and assess how those practices improve student learning (ibid).

Dyer (2013) in her paper, *'Redefining Professional Development as Teacher-Led Professional Learning'* states that there are four critical elements that help make teacher professional learning meaningful and worthwhile:

1. Choice: Teachers are like students because they need and appreciate choice. Choice within a given framework or focus allows teachers to determine their personal priorities.
2. Flexibility: In addition to choice, teachers need to be allowed to make modifications to make the new learning work best in their own classrooms.
3. Incremental steps: Learning is incremental. It takes time to change a practice, and to be lasting it must become a part of the teacher's routine. Professional learning for teachers that allows them to practice, in small steps, supports this idea.
4. Supportive accountability: Change in teaching practice is challenging and requires both support and accountability. Teacher Learning Communities (TLCs) provide teachers the opportunity to develop personal action plans, report to the group what happened as a result of implementing those plans, reflect and receive feedback (support) from colleagues who are working on the same changes in practice.

Teacher-led professional development centres can provide longer-term stability needed to allow the profession to flourish (NFIE, 2000). According to Stacy (2013), teacher-led professional development can help overcome standardization by providing opportunities to enhance professional autonomy. The scholar further states that rather than being forced to embrace the fabricated person as described by Webb (2009), teacher-led professional development serves to unite the two personas by giving teachers the power to shape curriculum and generate student assessments based on analyses of local needs.

Through their professional development, teachers can restore their identity as autonomous, creative teachers and provides teachers a voice in the decision-making process regarding curricula by facilitating dialogue that focuses on assessing student achievement within the curricula (Stacy, 2013). Meidl and Meidl (2011) emphasizes that even if teachers are mandated to implement scripted curricula, teacher-led professional development can enable curriculum adaptation or integration. Various initiatives such as the Lesson Study, teacher clusters and many others are worldwide initiatives recognised as a teacher-led professional development programs.

Lesson study is a form of professional development long favoured by teachers in Japan that has recently gained attention in many parts of the United States (Hurd and Licciardo-musso, 2005). Lesson Study Team, UPI (2006) argues that historically the Lesson study was originally developed in Japan at the beginning of the 20th century and it was derived from the Japanese word *jugyokenkyuu*, which can also be translated as researching lesson, indicating the level of scrutiny applied to individual lessons. Lewis and Tshuchida, (1998) assert that

teachers participating in lesson study immerse themselves in a cycle of instructional improvement focused on planning, observing, and revising research lessons.

Lesson study places teachers in the role of researchers in their classrooms through a teacher-led process of professional development (Lewis, 2002). Many countries like Indonesia, as well as in South Africa have adopted the lesson study, but have been termed in various ways depending on various contexts of the country. In South Africa, the Lesson study is popularly known as The Mpumalanga Secondary Science Initiative (MSSI). Mokhele and Jita (2012) narrate that it was launched in 1999 as a province-wide initiative aimed specifically at promoting a more collaborative approach to teacher development in the province of Mpumalanga in South Africa.

This project aims at improving mathematics and natural science teachers. The MSSI project sought to improve the quality of teaching and learning in Mathematics and Natural Sciences by enhancing the knowledge and experiences of the teachers (Mokhele and Jita, 2012). Coupled with this goal, the project promoted school-based or on-the-job in service training (INSET) where teachers from neighbouring schools came together to prepare lessons and share mathematics knowledge and skills(ibid).

Teacher clusters also are examples of teacher led professional development, also focussing on bringing together teachers from neighbouring schools, for professional development

programs. However, the clusters are the focus of this study and therefore will be discussed in detail in the following section.

2.4.1 Teacher Clusters

Chikoko (2007) views, clusters, as grouping of schools within the same geographical location aimed at improving the quality and relevance of the education in the schools. (Giordano 2008) also acknowledges school clusters, as a grouping of schools in the same neighbourhood that are brought together for a common purpose. More precisely, Mendelsohn and Ward (2001) and Dittmar, Mendelsohn and Ward (2002), elaborate that school clusters are a group of schools that are geographically as close and accessible to each other as possible; each cluster normally consists of between five and seven schools; one school in each group is selected to serve as the cluster centre; the cluster centre is centrally and accessible as possible to its satellite schools.

In other countries like the United States (US) and the United Kingdom (UK), another terminology regarding clustering has been used, such as networks, partnerships and joint planning (Mphahlele, 2012). In agreement, (Adams, 2000; Lieberman and Grolnick, 1996; Lieberman and McLaughlin, 1992) supplement that, in other countries and contexts, clusters are also referred to as ‘teacher communities of learning’ or ‘teacher networks,’ and have a relatively long history.

Levine (2010) writes that an impressive array of scholars and reformers have called for teachers to overcome their historic isolation through the development of teacher professional community (McLaughlin and Talbert, 1993), Instruction of the professional learning communities (Dufour, Eaker, School of Education and Dufour, 2005), inquiry communities (Cochran at the University of Smith and Lytle, 1992a), schools as communities of learners (Barth, 1984), instructional communities of practice (Supovitz, 2002), and similar variations on the theme of learning communities (McLaughlin and Talbert, 2001; Sergiovanni, 2000). The scholars further state that some calls for teachers to work as part of a larger community beginning in pre-service teacher education (Dinsmore and Wenger, 2006; Koeppen, Huey, and Connor, 2000; Kosnick and Beck, 2003).

Maphosa, Mutekwe, Machingambi and Wadesango (2013) argue that the common purpose of clusters or teacher communities is to operate on the premise that learning is a social process and it requires people to collaborate and share information and ideas. Essential features of effective professional development include teacher involvement, collaborative problem solving, and continuity and support (Borko, 2004; Vescio, Ross and Adams, 2008). Turkey (2004) also concedes school clusters, as a tool that schools can use to promote collaboration, reflection, sharing and learning among the teaching fraternity. Sharing and collaboration of information to upgrade and improve each teacher's knowledge and skills are therefore the key factors of a cluster.

School clustering has emerged as one of the most common strategies as a reform for professional development used to reach and develop teachers in many countries. Avalos,

2000; Villegas-Reimers, (2003) augment that, many countries have developed or are currently developing school-based or cluster-based in-service programs (SITPD) as an important means of updating teacher skills and providing professional support. It is widely recognised in many international states such as the United States of America (USA) and the United Kingdom (UK) as an alternative strategy to reach teachers due to the failure of the traditional approach programs used for decades.

The same context for African states such as Zimbabwe, Namibia, Republic of Guinea and South Africa led to clusters being introduced so that all elementary teachers could benefit from on-going in-service professional development programs (Mphahlele, 2012). Cluster system has been seen as an alternative professional development which, according to Mphahlele (2012), could serve as an innovative network to support, promote and inspire teacher development leading to quality education. MacNeil (2004) supports that school and cluster-based, in-service teacher professional development programs have been offered as promising alternatives. Moreover, the scholar highlights that pilot activity and innovations, some taken to scale, have proliferated around the world in both developed and developing countries.

The purpose of the school cluster system is thus for teacher development because clusters support teacher capacity to teach effectively according to the new active-learning based curriculum and could serve as an innovative network to support, promote and inspire teacher development leading to quality education (Mphahlele and Rampa, 2014). Garet et al. (2001), for example, found that teachers reported greater change in their knowledge and

skills when professional learning activities are built on what the teachers had already learned in related professional learning activities; emphasized content and pedagogy aligned with national, state, and local standards, frameworks, and assessments; supported teachers in developing sustained on-going professional communication with other teachers who were trying to change their teaching in similar ways.

The idea is for teachers to come together for sustained periods of time to engage in collaborative inquiry around problems of practice and to jointly plan and reflect on, teaching all in the service of improving student learning (Nelson, 2009). Giordano (2008) accentuates that; teachers need support to accomplish their tasks, to reflect on their day-to-day experiences and to improve their skills; they also need to exchange with others. Therefore, according to (Maphosa et al., 2013) the importance of school clusters in ensuring the provision of necessary platform for teacher professional development through collaboration and sharing is, therefore, an important function of clusters of practising teachers.

There are collegiality and collaboration where group members take responsibility for each other's growth and co- ordinate individual knowledge and expertise to advance the collective work of the group (van Es, 2012). Long before, Darling-Hammond (1999) has stated that teacher-learning communities provide an environment for long-term collaboration with colleagues focussing on issues related to the day-to-day practice of teaching. They can also have different goals for their work, such as developing pedagogical knowledge, learning content more deeply or analysing student work or district or statewide assessment data (McLaughlin and Talbart, 2006).

Cluster systems need to be clearly presented and explained to build awareness and a clear understanding of their requirements, representations, processes, and potentials (Dittmar, Mendelsohn and Ward. 2002). Mphahlele (2012) advises that this can be done through information campaigns, workshops and media releases with people working in the education system- teaching staff, cluster committees, subject facilitators and regional education office staff and community as the most important target audience.

2.4.2 Clusters in an African context

Clustering in African states such as Zimbabwe, Namibia, Republic of Guinea, Ethiopia and many more has emerged as one important form of reaching teachers on professional development. In agreement, MacNeil (2004) endorses that school-and cluster-based TPD programs have proliferated in recent years in Asia, Africa, and Latin America. Commonly, according to various scholars for all these states, the purpose of establishing this type of teacher led professional development is for an alternative strategy to reach teachers due to the failure of the traditional approach programs used for decades (Maphosa et al., 2013; Mphahlele, 2012; Jita and Ndlalane, 2009b; MacNeil, 2004).

Various findings in these African states have emerged in studies conducted in clusters. For example a study conducted by Mendelsohn and Ward (2001) in Namibia, showed that, clustering improved quality of teaching and learning, efficiency in terms staff training and development, co-planning and access to schooling. In Zimbabwe, the same notion of

improvement was shown by Chikoko (2007), who found that adequate representation of all the stakeholders concerned in the cluster committees brought about the smooth running of schools, thus ideal as an instrument for capacity development. However, Maphosa et al. (2013) in a study conducted in Zimbabwe recently, still conclude the same notion as Chikoko, but bring to view that whilst teachers were afforded the opportunity to engage with the curriculum the issues tackled in clusters failed to result in major improvements to the curriculum.

In South African schools, cluster systems are in operation, but solely used in moderation of teachers and learners' portfolios; teachers received little or no professional support and lack of partnering of teachers within a geographic location of the school (Mphahlele, 2012). Findings that emerged from studies done in these South African clusters, for example by Mphahlele, (2012), Mphahlele and Rampa (2013) and Jita and Ndlalane, (2009b) show a consensus that clusters system may serve as innovative programs that can bring quality education but has not been used as expected.

Pitsoe and Maila (2012) argue that for the purposes of effective training and implementing outcomes-based curriculum policy, they propose that a future teacher professional development policy and, more specifically, in educational management and leadership, policy implementation, curriculum issues, interrelationships with the organisation and quality assurance, aimed at the South African education system, should be:

- Influenced and guided by contingency theories;

- Underpinned by Kriek and Grayson (2009) HPD Model;
- Contextualised and adopting a bottom-up approach;
- Consider teachers' beliefs and experiences as the starting point of professional development;
- Integrated with district goals and guided by a coherent long-term plan;
- Driven by disaggregated data on student outcomes and designed in accordance with teacher-identified needs; and
- Primarily school-based.

Jita and Ndlalane (2009) further argue that although the teacher network approach has gained popularity in countries such as the United States of America (USA), United Kingdom (UK), and many African states such as South Africa, research on its usefulness in changing teachers' knowledge and practices is not conclusive. Similarly, Lieberman and Grolnick (1996) support that little is known about how such networks are formed, what they focus on, and how they develop teachers. Literature has also shown that less research on clusters has been done in Africa and other developing countries which also applies to South Africa, in spite of the fairly rich history of clustering in the 1980s and early 1990s among a number of non-governmental organisations (NGOs) and teacher organisations Jita and Ndlalane (2009). Such dearth of knowledge of whether this clustering is effective or not is what has set a scope for this study.

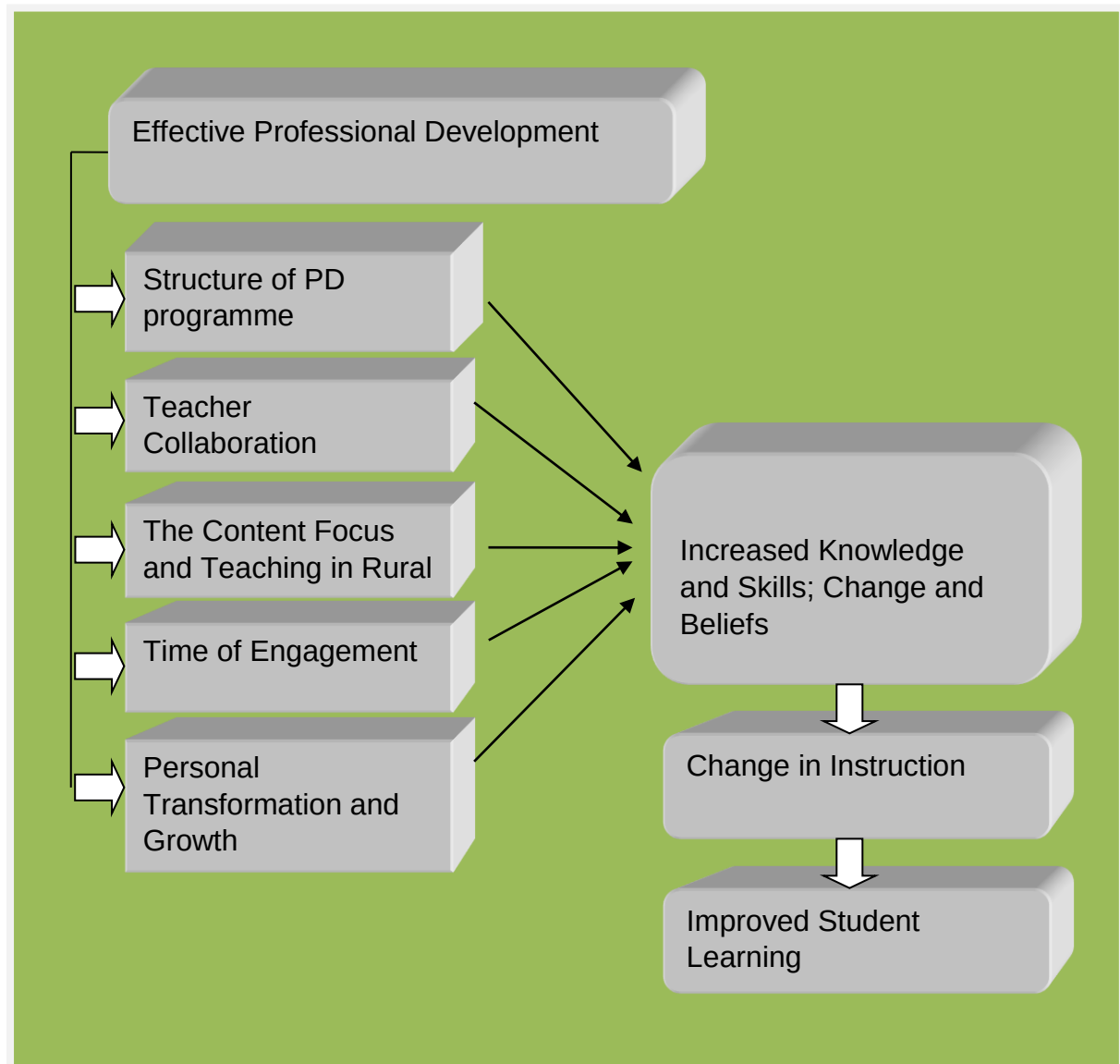
2.5 CONCEPTUAL FRAMEWORK

Literature on professional development has been written, reviewed for further developments, and has reflected various findings showing effectiveness or ineffectiveness of various professional development programs. Many programs used in the teacher professional development programs have been criticised as ineffective, for example, the traditional approach, which mostly used the cascade model.

Responding to the failure and ineffectiveness of these programs, many professional development programs have been proposed, (Mokhele, 2013) , with various models viewed as ones that can enhance the effectiveness being developed. Numerous scholars have made contributions of various models, for example, Guskey's model, Desimone's model, and many others. Various components in these models believed to have the potential to augment the desired effectiveness have been covered.

A professional development model of an effective professional development for teachers by Mokhele (2013) will serve as a framework of this study. The model is presented Figure 2.1.

Figure 2.1 Professional Development Model



Adopted from Mokhele (2013:80)

Mokhele views the model as an alternative model of an effective continuing professional development for teachers specifically in the South African context. This model illustrates key features of a successful professional development program. Such features as:

(1) Structure of PD program - This feature refers to the way a professional development program is structured. The way a professional development program is structured is of importance in determining the effectiveness of the program for example the scholar highlights that the form of the activity used may be of a reform type, such as a study group or a teacher network, as opposed to the traditional workshop or conference.

(2) Teacher collaboration – This feature explains the importance of teachers from different schools meeting and conducting many of the activities as a group. Besides the specific content knowledge that the teachers discuss in their clusters, they also share and discuss their problems regarding pedagogy and classroom practice.

(3) Content focus - Focusing on subject matter content in a professional development program is viewed in the model as of importance.

(4) Teaching in context of teaching in the rural settings – This feature emphasises that an important variation on the content theme lies in the recognition that a professional development program does not have to be one- size-fits-all, as teachers have different needs. It is important for a CPD program to be modified to suit the needs of the participating teachers. For example, some schools may be rural while others may be urban and, as such, the focus should be varied to suit the individual needs of those schools.

(5) Time of engagement – In this feature the model promotes that the amount of time spent in professional development activities must receive consideration because professional development, by its nature, should happen while the teachers are engaged in their work and profession. The scholar further argues that, longer activities, as noted by Desimone (2009) are more likely to encourage in-depth discussions of content, student conceptions and misconceptions. Also drawing from Garet et al. (2001), Mokhele emphasises the

emerging consensus in literature regarding teacher learning and professional development calls for professional development to be sustained over time.

(6) Personal transformation and Growth - The researcher's sixth and the final feature in the model suggests that personal transformation and growth are important for teachers who participate in a professional development program. Teachers are attracted to the professional development programs not only because of the four aspects discussed earlier, but also because such programs have the potential to fundamentally change them for the better.

All these components as the model shows are alleged to increase knowledge and skills, change and beliefs, change in Instruction and an improved student learning (Mokhele, 2013.) Literature contends that professional development leaders, for example, often attempt to modify teachers' beliefs about certain aspects of teaching or the desirability of a particular curriculum or instructional innovation (Mokhele, 2013). They presume that these changes will lead to specific changes in teachers' classroom behaviours and practices, which in turn will result in improved student learning (ibid). As this study sets to find out the experiences of teachers in teacher clusters, the framing by Mokhele (2013) will be engaged to aid as a guide to measure what, when and how teachers experience teacher-led professional development programs, specifically in the Mthatha district of the Eastern Cape.

2.6 ADULT LEARNING THEORIES

In order to enrich professional behaviour, one needs to understand how adults learn. Adult learning theories, embedded in constructivist and problem-based learning approaches, provide a potent framework for the professional growth of teachers. According to Karagiorgi, Kalogirou, Theodosiou, Theophanous and Kendeou (2008), teaching strategies are established to ensure that learning methods among adults match the learning process they are expected to engage in with their students, so that they are able to understand these processes themselves. They are expected to engage in with their students, so that they are able to see these procedures themselves. These theories offer a comprehensive framework for seeing how adults learn and write, especially in professional developmental programs. Trotter (2006) points out the following theories have an impact on professional growth programs: Trotter (2006) points out the following theories have an impact on professional development programs:

2.6.1 Cognitive development theory

Cognitive theorists believe that the intellectual maturation of adult moves from concrete to lift. In other words, adults run through stages, for instance, the most advanced stage operates more from internal than external standards. Likewise, experienced teachers are more probable to be devoted to self-affirmation than externally generated successes. Hence, it is worthwhile for professional growth activities to put into cognisance the different demands of their teachers in order to attain the development process more meaningful and transferable to the classroom (Trotter, 2006).

2.6.2 Functional theory

The theory states that self-directedness is vocal in adult learners. According to the theorists, adults are said to be preferring to plan their education path, choose topics, as well as, developmental programs which they apply in their class rooms. Thus, professional development programs should focus on the content and skills that are transferable in the classrooms(Trotter, 2006)

2.6.3 Age and stage theories

The rivals of the age theorists point that the issues adults face change according to their chronological years chronological age. As an individual gets older, they become increasingly reflective of their spirits and life histories, making more informed conclusions about their destiny. Thus, Professional development programs should consider the practical knowledge of teachers; provide chances for reflection through discussion or journaling, which permits teachers to show themselves. Yet, Stage theorists believe that adults go through distinct yet different stages. They pick up news as something that evolves as adults try to make sense of the universe (Trotter, 2006).

On the other hand, Allen (2007) discusses the following theories in exploring adult learning:

2.6.4 Cognitivism

The process of viewing learning from a learners viewpoint is termed cognitivism. Teachers in linking news ideas, prior knowledge, and experience assist learners. In other words, this experience involves creating opportunities for learners to be active learners in the classroom, with a focus on real life issues. A theory close to cognitivism is the developmentalism.

2.6.5 Developmentalism /Transformative learning

This theory is similar to cognitivism in that it closely examines the learner's system of creating meaning. When individuals critical examine or reflect their situation and learning, we term that as transformative learning. In simple terms, individuals transform their thinking and perceptions of the world through deep reflection.

It has become a critical point in adult learning throughout the years as Taylor (2008) notes that such transformation is unique and grounded in human communication. Therefore professional development growth should be designed with the objective of fostering change in the teaching environment and attitudes of learners and teachers. Other scholars such as Slavich and Zimbardo (2012) point that transformative learning is a process of effecting change in a frame of reference that defines the world of adult learners. This includes, feeling and acting; habitual ways of thinking, and beliefs and judgements. On the other hand, Mezirow (1997) states that adults acquire various kind on experiences, which define their

world. Mezirow (1997) theory is grounded in cognitive and developmental psychology, the process of making meaning from critical reflection, experiences and through self-reflection.

Taylor (2008) suggests three alternatives to Mezirow's psycho-critical perspective of transformative learning. A psychoanalytic view, regarded as a process of individuation, a life-long journey to understanding oneself through reflecting on psychic structures such as ego and persona. A psycho-developmental view reaches across a lifespan, reflecting continuous, incremental, and progressive growth: the view of epistemological change is central. In these two views, the individual is the unit of inquiry with minimal thought of the role of context and social change in transformative understanding. A social-emancipatory view regards people as subjects who constantly reflect, and act upon, the transformation of their world.

2.6.6 Behaviourism

Agreeing to the behaviourists, learning is pushed by a stimulus and response. They view behaviourism as a mechanistic approach to learning, which excludes feelings or anything not observable. The main purpose is to bring about a modification in conduct.

2.6.7 Social learning

This perspective emphasizes the need for instructors to model desired behaviours.

2.7 RESPONSIBILITY IN PROFESSIONAL DEVELOPMENT

Every stakeholder has a responsibility to enhance professional training. This means teachers as well, the school and the Department of Education, as well as higher institutions. It is common that when everyone becomes involved, then change can impact positively in teacher practice as well as learners. Nevertheless, it is the responsibility of employers to create a conducive environment for professional development, as well as, ensuring that proper training is performed to their employees. Furthermore, teachers have a duty to identify the areas, which they need to grow professionally.

2.7.1 Factors that affect the implementation of professional development

In order for professional development to be considered high quality, it must generate a positive direct impact on teacher practices (Archibald, Coggshall, Croft & Goe, 2011). According to Bertram (2011), many professional development initiatives do not lead to teacher-learning or improved teacher practice. Furthermore, they have no clear purpose of developing professional practice, although they are not informed by how teachers learn. Scholars point that successful professional development activities result in enhanced understanding and teaching. Steyn (2010) points to these factors:

2.7.2 The role of principals and teachers

Principals in schools should engage with teachers in setting up professional development programs and facilitating actively in professional development for their employees. At the same time, teachers should be committed to their development and take responsibility for their development. The DoE (2007) points that teachers should be committed and willing to learn and draw experiences. Thus, highlighting the need for teachers to seek professional development. The policy on teacher development affirms the need for teachers to be committed, willing to draw on their own experiences and learn from others (DoE, 2007).

2.7.3 Recognition of teachers' needs

In professional development, teachers should be actively determining their needs and be partners in the process of their professional development. This includes attending, implementing, and providing feedback on programs, as well as, evaluating.

2.7.4 Choice of facilitators or presenters

When conducting a professional development program, the person facilitating a professional development activity should be a specialist in his or her field with expertise based on experience. This will help in making the professional development meaningful for the teacher.

2.7.5 Feedback and monitoring

Feedback and mentoring are vital in ensuring that a professional development program is improved. Having feedback helps in making an activity successful, and it helps organisers to monitor the activity or programs. As noted by Ingvarson, Meiers and Beavis (2005), participants in professional development programs usually receive feedback or assistance in their classrooms. This is perhaps the important or challenging phase in implementing and experimenting new practises. Ingvarson, Meiers and Beavis (2005) found that few participants in professional development activities received assistance or feedback in their classrooms during the important and challenging phase of implementing and experimentation of new practices.

2.8 SUMMARY

Scholars define professional development of teachers in various ways but most importantly, they all agree that it means expanding the knowledge and skills of teachers for an enhanced student achievement. Today, a more constructivist-based paradigm of professional development programs are used with a number of various models such as clusters etc. used to run the programs. A conceptual framework has been used as the foundations the study is laid on with a few theories discussed to enhance the credibility of the research. The next chapter presents the methodology followed in doing this research study.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter outlines the method used to conduct this research study, which focuses on teacher's experiences of teacher-led professional development programs with particular focus on clusters. The following sections below reflect all the aspects covered to define the methodology that was followed to reach the desired end:

- Research paradigm
- Research approach and research design
- Sampling procedure
- Research instruments
- Data analysis process
- Credibility /Trustworthiness of the study
- Ethical consideration

Recapping, the study explored teachers' experiences of teacher- led professional development programs specifically to the teacher clusters, with an aim of hearing the perspectives of teachers who have and presently are involved in teacher cluster activities. The study was guided by the following research questions.

- **Main Research Question**

What are teachers' experiences of teacher-led professional development programs?

- **Sub-research Questions**

1. What are the teachers' views and on teacher-led professional programs?
2. What are their views about teacher-led professional development practices for Maths and Science?
3. How can their views and opinions be understood and explained?

3.2 RESEARCH PARADIGM: INTERPRETIVISM

A paradigm is a set of assumptions or beliefs about fundamental aspects of reality, which give rise to a particular world-view (Creswell, Ebersohn, Ferreira, Ivankova, Jansen, Nieuwe, Pietersen, Pano Clarke, and Van der Westhuizen, 2010). A basic set of beliefs that guide action, shape both what we see and how we understand them (Gerring, 2007 and Hennink, Hutter and Bailey, 2011). Basit (2010) views them as models, perspectives or conceptual frameworks that help to organise our thoughts, beliefs, views and practices into a logical whole. Mukherji and Albon (2010) add that they bring about a reflection of our underpinning assumptions about the nature of knowledge and the best ways of understanding the world around us.

Paradigms are the conscious and subconscious beliefs which lie beneath the questions we ask and ways we carry out research, and which shape the kind of conclusions, which emerge from our investigation (Lambert, 2012). This, therefore, means it serves as a lens or organising principle as it addresses fundamental assumptions taken on faith, such as beliefs about the nature of reality, the relationship between knower and known and assumptions about methodology.

The study was based on the interpretive paradigm. This is a paradigm seeks to understand the following; people-lived experiences from the perspective of people, the meanings that people attach to their experiences rather than focusing on facts (Hennink et al., 2011). Lambert (2012) shares that interpretivist paradigm or naturalistic or phenomenological researchers do not believe that there is an external reality waiting to be discovered, instead they believe that, what we accept as real arises from the different perceptions of different people, interacting with complex social and physical environments. The scholar further states that truth is socially constructed and picks multiple perspectives in natural field settings and all this is an integral part of the study as the study sets to explore naturally lived experiences of teachers on cluster programs and therefore it be fitted to use this paradigm. The study followed a qualitative research approach as discussed in the following section.

3.3 RESEARCH APPROACH: QUALITATIVE

The study aimed at bringing the realities rooted in what the teachers constitute as their experiences on Teacher Led Professional development, particularly clusters. Such

information was accessed from the teachers' verbal narratives of their involvement in the practical and natural settings of the programs. Hence, I adopted a qualitative research approach as it offers a number of advantages for the study to reach its conclusions and insights.

The qualitative research approach is a complex approach that forms an umbrella of various phenomena. In a generic context of the definition, this approach is a situated activity that locates the observer in the world, as it consists of a set of interpretive material practices that make the world visible (Denzin and Lincoln, 2008). It locates the study within particular settings, which provide opportunities for exploring all possible social variables, and set manageable boundaries. This is based on the belief that reality contains mysteries to which the researcher must submit, and can do no more than interpret (Holliday, 2007).

Qualitative research is an approach that stresses a phenomenological model in which multiple realities are rooted in the subject's perception and a focus on understanding and meaning is based on verbal narratives and observations rather than numbers (McMillan, 2008). In agreement, Brynard (2014) and Lichtman (2013) explain that the qualitative approach produces descriptive data – generally the participant's own written or spoken words pertaining to their experience or perception and usually no numbers or counts are assigned to these observations. McMillan and Schumacher (2001) argue that qualitative research methods are more suited to improving the understanding of human behaviour and experience, especially in more complex systems of integrated life processes. The participants explored and integrated their experiences of cluster programs by creating

meaning of what they saw and felt led to them assigning meaning to such exploration, and as such, this helped the researcher in attempting to understand and reach conclusions concerning the study at hand. Creswell et al. (2010) also purports that qualitative research approach focuses on how individuals and groups view and understand the world and construct meaning out of their experiences.

Leedy and Omrod (2005) maintain that the qualitative approaches focus on phenomena that occur in natural settings – that is the ‘real world’. It allows the researcher to know people personally to see them as they are and to experience their daily struggles when confronted with real life situations (Brynard, 2014). Silverman (2011) shares that being in the field gives us exposure to the categories that members actually use in their day-to-day activities. This means that qualitative researcher studies things in their natural settings attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them (Denzin and Lincoln, 2008; Lichtman, 2013). Qualitative approaches enable the researcher to take an open-ended, exploratory approach where little is predefined or taken for granted (Hughes, 2003). This means it allows the researcher to pay attention in each phenomena being studied which helps bring more insight on what is being studied. Such aspects have helped the researcher in the study to compile an in-depth study as the approach allows a deep exploration as the teachers shared their experiences of teacher clusters which are their natural settings because they are hands on involved in them.

This study focused on the experiences of teachers, hearing and bringing in their voices with meaning constructed from what they say about clusters, as a teacher led professional

development as qualitative methods provide an insight into how people make sense of their experience, which is not easily achieved with other methods (Raid, 2004). As qualitative research occurs in more natural and less controlled research settings, it often uses special methods to collect data such as case studies and ethnography (Lauer, 2006). Denzin and Lincoln (2008) further explained that this is done in various practices that transform and turn the world into a series of representations, including field notes, interviews, conversations, photographs, recordings, and memos to the self. In addition, McMillan (2008) writes that ethnographers spend extensive time in the setting being studied and use observations, interviews and other analyses to understand the nature of the culture. Therefore, I found it befitting to use this approach as moreover the study used a case study design defined in details in the section below.

3.4 RESEARCH DESIGN: CASE STUDY

Research design is the logical sequence that connects the empirical data to a study's initial research questions and, ultimately, to its conclusions (Yin, 2003). More precisely and in detailed words the scholar further explores more specifically that a research design is a logical plan for getting from here to there, where here may be defined as the initial set of questions to be answered, and there is some set of conclusions (answers) about these questions (ibid). Between here and there may be found a number of major steps, including the collection and analysis of relevant data (Yin, 2003). Punch (2005) supports that it is a plan for carrying out a study, situating the researcher in the empirical world, and connecting research questions to data. In agreement with Punch, Terre Blanche and Durrheim (2002)

had put it as a strategic framework for action that serves as a bridge between research questions and the execution or implementation of the research.

Flick (2014) suggests that to construct a concrete research design for a study, it is important to consider the following aspects below:

- The goals of the study;
- The theoretical framework;
- Its concrete questions;
- The selection of empirical material;
- The methodological procedures;
- The degree of standardization and control;
- The generalization goals; and
- The temporal, personal, and material resources available.

As the study was set to explore teacher's views towards cluster programs in order to answer its objectives, a case study design was used as the means of achieving the goals of the research study. The decision to adopt a case study design adhered to all the aspects. Flick (2014) suggested, as a research design summarizes the various procedures that a researcher employs to collect, analyse, interpret and present his/her research data, a case study enables the researcher to gain greater insight and understanding of the dynamics of a specific situation (Creswell and Clark, 2007). A case study is an approach to research, which seeks to engage with and report the complexity of social and educational activity in order to

represent the meanings that individual social actors bring to those settings and manufacture in them (Somekh and Lewin, 2011).

Furthermore, case studies assume that social reality is created through social interaction, albeit situated in particular contexts and histories and seeks to identify and describe before trying to analyse and theorize i.e. it places description before explanation (Somekh and Lewin, 2011). The above statement justifies the fact that the research study had to follow a case study design.

Additionally, in a case study, an in-depth examination of a particular case or several cases observed at a single point in time or over a period (Lichtman, 2013; Gerring, 2007). Gerring (2007) further asserts that it is understood as the intensive study of a single case where the purpose of that study is – at least in part – to shed light on a larger class of cases (Gerring, 2007). Similarly, according to Leedy et al (2005) and Punch (2005), a case study is a research design that is widely used in the social care and in the social science field because it allows the researcher to study, in detail, the relationships of individuals and small groups, in their natural setting and studied in depth over a defined period of time. In support, Lambert (2012) also agrees that a case study research involves in depth investigation of an individual, group, event, or system, usually within its real life context and sometimes over a period (called a longitudinal study).

However, a criticism levelled at case studies is that, concentrating on one case often leads to problems of generalization in a statistical than in a theoretical understanding (Flick, 2014). Moreover, some scholars according to Stake (2005), argue that case studies appeal to the capacity of the reader for naturalistic generalization, that is, the reader recognizes aspects of their own experience in the case and intuitively generalize from the case to their own situation, rather than the sample (of one) being statistically representative of the population as a whole (Somekh & Lewin, 2011).

3.5 SAMPLING PROCEDURE

Leedy and Omrod (2005) define sampling as a process in which a particular sample for particular entities is selected. Similarly, Punch (2006) identifies that sampling is about deciding the place or site and the respondent or person from whom the data will be selected. Somekh and Lewin (2011) emphasizes that social science research can focus on a specific population or complete set of units being studied when time; costs and accessibility often prohibit the collection of data from every member or about every item. The scholars further state that in these situations it is necessary to select a representative sample of the population, one in which the same range of characteristics or attributes can be found in similar proportions.

Furthermore, participants in a qualitative research are chosen because they have particular characteristics or experiences that can contribute to a greater understanding of the phenomena studied (Hennink, et al. 2011). A purposive recruitment was, therefore, used in

this study, as it is both deliberate and flexible in selecting on purpose, people who are information rich on the study topic (Hennink et al., 2011). Silverman (2011) asserts that purposive sampling allows us to choose a case because it illustrates some feature in which we are interested.

The study selected teachers attending cluster programs, which makes it difficult to collect data from each member. Moreover, Flick (2014) views that sampling in a case study is purposive. It was therefore befitting to use purposive sampling as it serves a context of selecting a representative sample of the population, one in which the same range of characteristics or attributes can be found in similar proportions (Somekh and Lewin, 2011).

a) Sampling the respondents

- Respondents that were sampled in this study for semi-structured interviews were teachers attending Mathematics, Natural Sciences or teacher clusters for the General Education and Training Band in the education system. However, some schools, due to the new rationalization process of schools in the former Transkei, have since fused grade 8 and 9 into the high school level (FET) and, as such some participants, as outlined in the sample characteristics table that follows later, serve both GET and FET bands.
- Six Teachers were chosen as respondents as they were the ones who are involved in the clusters as their views and experiences needed to be identified in

the study. Also, they are the ones who know the aspects entailed in a teacher cluster program which is an insight that had to be identified.

b) Sampling of clusters

- Two teachers-led clusters, one in Mathematics and the other for Natural Science
- Three teachers from the Maths cluster and three teachers from a Science cluster from were sampled as they served the purpose of being involved in teacher cluster programs as a teacher led professional development programs being researched by the study.

c) Sampling of district – I chose to conduct the study in the Mthatha district as it is a district within easy reach for me as I am also working as a teacher in the district. Mthatha is a town situated in the Eastern Cape Province with about 321schools to serve as a district under King Sabata Dalindyebo municipality.

d) Sampling of circuits – The circuits chosen had to serve a purpose of being under Mthatha district but there was no specification of which circuit as all the circuits in the district have teacher clusters. The sample characteristics of participants are illustrated in Table 3.1.

Table 3.1: Sample characteristics

Teacher	Teaching experience	Current position	Subjects taught	Grades	Circuit teacher cluster attended	Citizenship
Mrs Tuma	29 yrs	Principal	Maths and Natural Sciences	7,8&9	5	Black South African
Mr Somiso	20 yrs	Principal	Maths	4,5,6&7	4	Black South African

Mr Bryson	26 yrs	Deputy principal	Maths	8&10	4	Black South African
Mrs Katongo	3 yrs	Educator	Maths	4,5&6	1	Ghanaian
Mr Louw	12 yrs	Educator	Natural Science, Life Orientation and English	4,5,6,7 7 7	10	Zimbabwean
Mrs Luzongo	16 yrs	Head of Division	Natural Sciences and Physical sciences	8, 11&12	5	Black South African

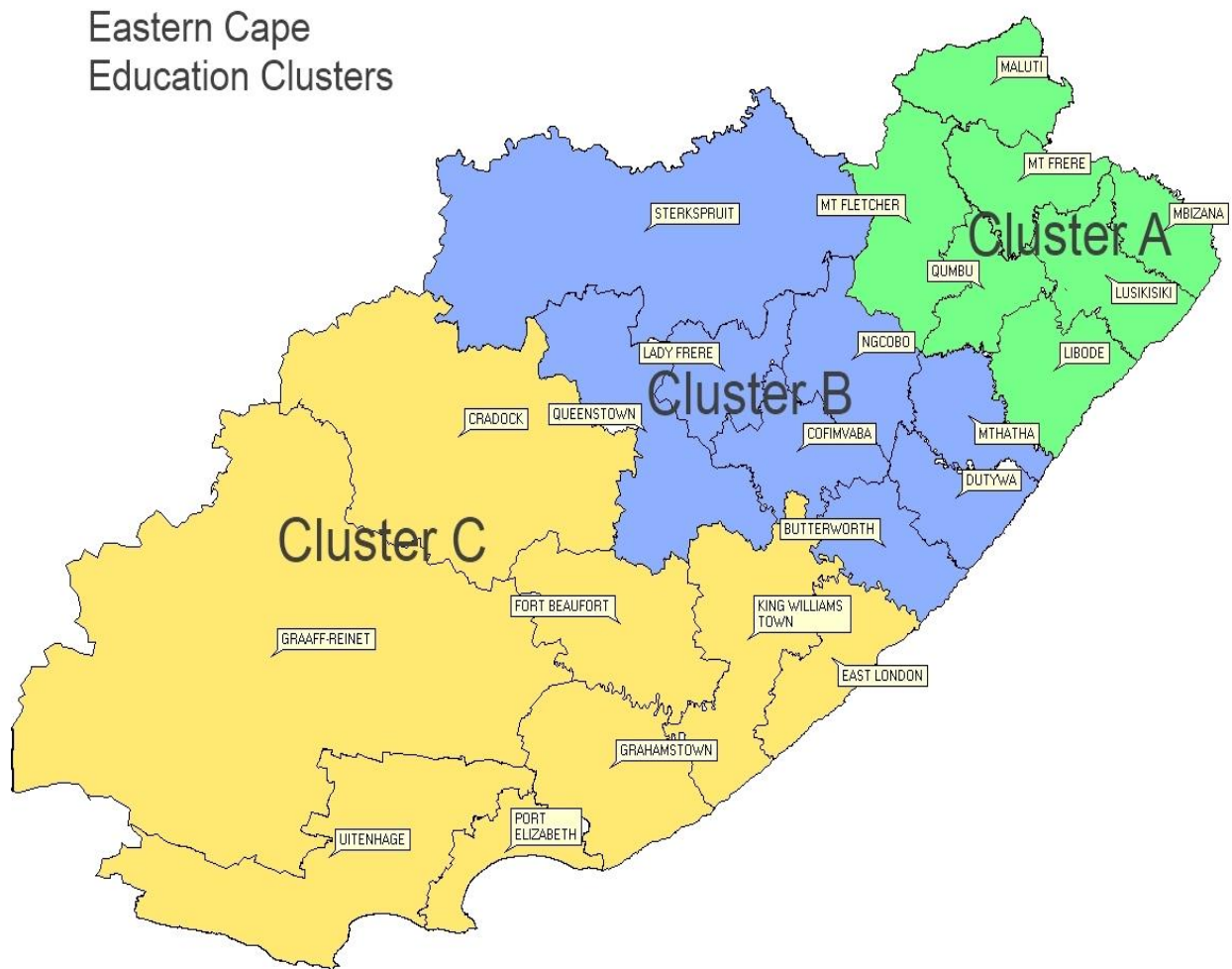
Table 3.1 summarily illustrates the variations in teaching experience of the sampled teachers in the various circuit clusters of Mthatha district. Two teachers are from countries outside South Africa, while the other four are South African citizens. The table also illustrates the various positions held by the participants, with two of them holding high-ranking positions of being school principals, one deputy principal, one HOD and two educators. The respondents were all from the Eastern Cape Province in South Africa. Figure 3.1 illustrates the location of the province.

Figure 3.1: Map of the Eastern Cape Province



The Eastern Cape Province is one of the nine provinces of South Africa located in the eastern escarpment of the country with a number of towns merged under various municipalities with the town of Mthatha under the King Sabata Dalindyebo municipality. It is a province known for its wild coastline that lies in the Indian Ocean. However, it is one of the provinces embedded with a high dropout rate and poor matric results, especially in Mathematics and Science. A number of interventions are underway to help improve the situation, including the teacher cluster programs for both GET and FET bands.

Figure 3.2: Education Cluster Demarcation in the Eastern Cape



The Figure 3.2 shows a map of how the towns in the Eastern Cape are demarcated for educational purposes. There are three clusters, which are Cluster A, B, C, and Mthatha is located under Cluster B forming the central part of the Eastern Cape as the map reveals. Same as the other towns in the cluster, Mthatha is a town surrounded by a few urban and many rural schools.

Figure 3.3: Map of Mthatha District



Figure 3.3 shows just a glimpse of a few areas (townships and locations) that form the Mthatha district. The schools located in these areas are, therefore, grouped to form circuits led by Circuit Managers. The circuits then form the teacher clusters in which the respondents of this study are involved. The district has about 249 schools which are either urban, township or rural. As the schools are grouped into various circuits, the schools, therefore, that are under each circuit, are the ones clustered into the teacher clusters. There are 15 circuits in the district, which makes them to form 15 teacher clusters.

3.6 DATA COLLECTION PROCESS

There are a variety of methods used by qualitative researchers to gather data such as observations, documentary analysis and interviews (Lichtman, 2013). According to Yin (2003) data for case studies can come from many sources of evidence such as documentation, archival records, interviews, direct observations, participant observation and physical artefacts. The data for this research study was collected by making use of semi-structured interviews of six teachers and an analysis of documents received. The most important point in using these instruments was to make sure that the questions that drive the study are answered in order to reach sound conclusions and such adherence is termed by Yin (2003) as the chain of evidence, where it is stated that there must be explicit links between the questions asked, the data collected and the conclusions done.

This study used the semi-structured interviews to collect the verbal narratives from the participants. Visits to each of the different participants were done with the questions asked based on a prepared interview protocol guide. A tape recorder was used to record the conversations with a few field notes taken for a later presentation in chapter four.

Documentation analysis was also used in the data collection process to help triangulate the study and corroborate information from other sources (Yin 2003) which were interviewed in this study. Documents that assisted me in this research study were documents provided by the participants, which also detail what the teachers alleged concerning the way their teacher clusters operate. More detailed information is presented in the listed appendices.

3.6.1 Research instruments

3.6.1.1 Semi structured interviews

According to various scholars such as Brown, Lyndsay and Durrheim (2009) and Roulston (2010), interviewing is the primary way that qualitative researchers gather data. Qualitative interviewing is particularly useful as a research method for accessing individual's attitudes and values- things that cannot be necessarily be observed or accommodated in a formal questionnaire (Byrne, 2004). Furthermore, Byrne (2004) further notes that qualitative interviewing is able to achieve a level of depth and complexity that is not available to other, particularly survey-based approaches. Interviews are a conversation between the researcher and the interviewees, usually with the researcher asking questions which the interviewees answer or discuss (Lambert, 2012). Such interviewing varies from being structured, semi structured, in-depth or unplanned (Lichtman, 2013).

In semi-structured interviews, the entire process is improvised and conversational, while key points and answers are recorded on a form designed to evaluate and sort answers, and this gives the person being interviewed a chance to give a lot of good information, while making the entire process seem more like a normal conversation than a question session (Saez, 2010). Most importantly, such interviews, although the general structure of questions is the same for all individuals being interviewed, the interviewer can vary the questions, as the situation demands (Lichtman, 2013). This means that in semi structured interviews the researcher prepares the main questions beforehand, but during the interview may ask additional questions or discuss additional topics not specifically planned (Lambert, 2012).

This kind of interviewing was relevant to this study, because the study itself aimed at hearing what the teachers had to say are their experiences of participating in the clusters.

The semi-structured interviews, with the help of an interview protocol, were conducted among six teachers who are the sampled number for this research study. The set of questions in the interview protocol summed up the teacher's personal information, their educational backgrounds and the teacher clusters they are attending according to their circuit clusters. Further probing, as the interview protocol is a guide that allows further questioning, was done as the interview sessions were in progress with a follow up telephonically for any clarity of further input needed from the interviewees.

Lambert (2012) further notes that interviews have the following advantages:

- They allow you to explore interviewees' attitudes, opinions and feelings; and
- They allow you to discuss these in depth, especially if you are prepared to interrogate closely.

However, in the light of the above advantages of an interview, the following are the limitations to them:

- When interviewing, you can easily be drawn into agreeing with your interviewee and lose your neutral stance. The question guide was prepared beforehand and piloted by a few people before use to overcome such challenges;

- Recording your data can be problematic. Taking notes and voice recording can both be difficult. To overcome this limitation, I tested my recorder before use and when the conversation was in process, the recorder picked up the conversation, giving me enough time to interact with the interviewee and making a few notes down; and
- People often enjoy talking- it can sometimes be hard to keep the interview on track. Focus and probing more on responses overruled this limitation.

In justifying more the use of the instrument, regardless of the limitations, it is important to note that the world never speaks directly to us, but always encoded via recording instruments like field notes and transcripts. As such, the use of interviews in this study is determined by need to hear the voices of the teachers themselves describing and constructing meaning of their experiences of teacher clusters as the phenomena being.

3.6.1.2 Document Analysis

Leeds (2001) defines document analysis as a detailed and systematic examination of documents on a particular organization for a purpose of identifying patterns. Document analysis is about examining what people have written or created and using the results of your analysis as data and the documents may include minutes, letters etc. (Lambert, 2012). For case studies, the most important use of documents is to corroborate and augment evidence from other sources and because of their overall value, documents play an explicit

role in any data collected in doing case studies (Yin, 2003). Yin (2003) further notes that documents have strengths of being:

- Stable as they can be retrieved repeatedly;
- Unobtrusive as they are not created as a result of the case study;
- Exactly as they contain exact names, references and details of an event; and
- Broad coverage as they reflect a long span of time, many events and many settings

Document analysis was used to gather data from this study to corroborate and augment evidence from interviews. These were various written documents which were consulted to validate the study (see appendices). In this instrument, the researcher negotiated with the teachers for documents that would give any information concerning the teacher-led cluster programs and policies of the clusters. The documents that the researcher analysed were the ones made available, which the researcher was given access to (refer to appendices).

A set of advantages of using documents are highlighted by Lambert (2012) below, namely, they:

- Can give you factual information;
- Allow you to make use of data which already exists;
- It can tell you about cultural values and practices; and
- You can compare data from documents with data from other sources.

However, it is also believed by Lambert (2012) that documents can be disadvantageous as:

- Access to relevant information may be restricted because of confidentiality or copyright. As such, the researcher negotiated entry and applied for ethical clearance;
- Data from documents are second-hand and may not reflect actual situations. The data collected from the documents was backed up by one-on-one interviews;
- Data from other research may not be usable because the researcher relies on others having done their investigations well. The documents used in this research were a first-hand production of the cluster meetings and not taken from another research.

3.7 DATA ANALYSIS PROCESS

Flick (2014) expounds that data analysis is the interpretation and classification of linguistic (or visual) material with the following aims, namely, to make statements about:

- meaning can also be located beyond what the individual is aware of (which would refer to subjective meanings); and
- structures of meaning making in the material and what is represented in it – locating beyond what the individual is aware of, for example, unconscious aspects of individual or social activities.

Lichtman (2013) inscribes that data analysis is about the process and interpretation of data collected of the material. Often, qualitative data analysis combines rough analysis of the material (overviews, condensation, summaries) with detailed analysis (development of categories or hermeneutic interpretations) (Flick, 2014). Flick believes that the ultimate goal

pursued by analysis of data may be in two opposite goals, which may be applied either alternatively or successively depending on what the research project aims to achieve, which are to:

- Reveal and uncover statements or put them in their context in the text that normally leads to an augmentation of the textual material; for short passages in the original text, page long interpretations are sometimes written; and
- Reduce the original text by paraphrasing, summarizing, or categorising.

However, the final aim of data analysis is to arrive at statements that can be generalized in one way or the other by comparing various materials or various texts or several cases (Flick, 2014).

The study analysed data with the content analysis approach. This is a research method for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns (Hsieh & Shannon, 2005). It is an analysis based on a process of looking at data from different angles with a view to identifying key in the text that will help us understand and interpret the new data (Creswell et al, 2010).

Silverman (2011) remarks that this is an analysis that involves establishment of categories and then counting the number of instances when those categories are used in a particular item of text as it pays particular attention to the issue of the reliability of its measures (ensuring that different researchers use them in the same way) and to the validity of its

findings (through precise counts of word use) as the crucial requirement is that the categories are sufficiently precise to enable different coders to arrive at the same results when the same body of material is examined.

Similarly, according to Leedy and Omrod (2005) a case study analysis follows the same procedure as it focuses on organization of details about the case categorisation of data, into meaningful groups, interpretation of the single instance's identification of patterns of underlying themes and other patterns that characterize the case more broadly in order to synthesise and make conclusions. The study fell into a case study research design as it studied the experiences of teachers on clusters as a teacher led professional development programs, therefore, patterns and themes or categories had to be developed that speak together and creating a more meaningful presentation of what the teachers shared. This type of analysis was, therefore, chosen to be used for the study on the premise that it suited all the aims and procedures the study wanted to follow in order to synthesise and make conclusions of what the teachers expressed as their views and experiences of these cluster programs.

3.8 CREDIBILITY /TRUSTWORTHINESS OF THE STUDY

Qualitative inquirers mindfully employ a variety of techniques to increase the trustworthiness of the research conducted, that is, how much trust can be given that the researcher did everything possible to ensure that data was appropriately and ethically

collected, analysed and reported (Carlson, 2010). According to Seale (1999), trustworthiness of a research report lies at the heart of issues conventionally discussed as validity and reliability. In addition, Golafshani (2003) also offers that reliability and validity are conceptualized as trustworthiness, rigour and quality in qualitative paradigm. According to Joppe (2000), reliability is the extent to which results are consistent over time and if the results of a study can be reproduced under similar conditions repeatedly. It deals with reliability, the question whether or not some future researchers could repeat the research project and come up with the same results, interpretations and claims (Silverman, 2011). In order to satisfy reliability criteria in this research study the researcher has followed Silverman (2011) suggestions of sufficiently detailing the research strategies and data analysis methods in the research report in order to provide a transparent process.

Validity, however, is defined as ensuring that the study reflects the credibility and truth of what was investigated, I used triangulation also known as crystallization, member checks.

3.8.1 Triangulation

Robinson and Lai (2006) defined triangulation as a concept that refers to a navigational and survey technique where the precise location of a point is established by the convergence of observations taken from the different angles. In educational research, a conclusion reached based on one set of methods or sources of evidence confirmed by the use of at least one additional method or source or evidence.

Termed as crystallization by Alvesson and Skoldberg (2000), it combines multiple forms of analysis and multiple genres of representation into a coherent text or series of related texts, building a rich and openly partial account of a phenomenon that problematizes its own construction. Furthermore, it highlights researchers' vulnerabilities and positionality, makes claims about socially constructed meanings, and reveals the indeterminacy of knowledge claims even as it makes them. Flick (2014) also emphasizes that triangulation means:

- Researchers take different perspectives on an issue under study or, more generally speaking, in answering research questions;
- Combining different sorts of data on the background of the theoretical perspectives which are applied to the data; and
- Allowance of a principal surplus of knowledge, which means insights that go beyond the knowledge made possible by one approach and thus contribute to promoting quality in research.

As literature suggests that crystallization or triangulation involves the use of different methods, the researcher triangulated the study by also using two kinds of instruments to collect the data, which were semi structured individual interviews, and document analysis. Both instruments played a role of supplementing the findings and conclusions.

3.8.2 Member checks

Member checking is defined by Doyle (2007) as an opportunity for members to check particular aspects of the interpretation of the data they provided. It is a way of finding out

whether the data analysis is congruent with the participant's experiences (Curtin and Fossey, 2007). According to Carlson (2010), commonly in member checking, participants are given transcripts or particles from the narratives they contributed during interview sessions and are asked to verify their accuracy. However, for this research study, I followed what Creswell (2009) stresses, which is doing member checking with polished interpreted pieces, such as, themes and patterns emerging from the data rather than the actual transcripts as this way is viewed by the scholar as the best way to do the member checking. Creswell and Miller (2000) suggest that procedures for trustworthiness, including member checking, should be largely determined by incorporating three lenses: of the self, of the participants and of the external readers of the final research report.

The study was written and authenticated by the researcher which represents the lens of self, followed by being checked by the participants sampled in the study and lastly submitted for final approval to the external examiners (external readers) provided by the university.

3.9 ENTRY IN THE FIELD

3.9.1 Access to teachers

As explained in the section for ethical considerations above, it is ethically imperative that access to conduct research be requested and granted before any step towards the research process is taken. As the participants were all teachers, certain rules and regulations as

stipulated by the Department of Education (DoE) had to be followed. The researcher therefore initiated the access to interview the teachers by asking for ethical clearance from an Ethics board from the university (Appendix 2). Furthermore, the researcher wrote to the head offices of the DoE, and a written response was granted to use the teachers with all the rules, and regulations to follow as specified in the document (Appendix 3). A letter to the District Director (Appendix 4) was sent; however, there was no written response from the district director as he brought to my knowledge that the letter from the head office covered his office as well. A letter to the circuit managers (Appendix 5) was sent for their acknowledgement of the study. Lastly, the researcher sent letters to the sampled teachers (Appendix 6) explaining the whole research process and the teachers verbally agreed and signed their consent forms (Appendix 7). After the consent forms were signed, teachers assisted with setting times to meet for the interview, subsequently, helping with the interview process.

3.9.2 Access to documents

This was the most difficult part of the whole research procedure. The difficulty was on finding the relevant documents from the teachers that evidently speak more to the teacher clusters. I discovered that teachers do not keep records, for instance, from these meetings such as invitation letters, programs, etc. The reason is that meetings are not regular, and when teachers are cleaning their cupboards at any stage, they destroy the unnecessary papers. Moreover, they alleged that they write on any paper or book they bring to the meeting at that given time, which means that there is no standard book used by the teachers on which to scribble a few notes of the program. The participants who were once

cluster leaders also did not have any documents to give of the meetings held at any cluster meeting held as they also destroy them due to the change of positions as teachers take turns to be cluster leaders. Furthermore, they alleged that the department was mostly interested in the credentials of the teachers who attended a meeting, which they submitted at the end of each cluster meeting.

However, one cluster participant who used to be a cluster leader was able to find the minutes of a cluster meeting that was held in 2013 for Mathematics (Appendix 8). I also got hold of an itinerary for the GET Band moderations that were held for term one to term four, for all the subjects (Appendix 9 & 10). A program for a natural sciences training was also presented (Appendix 11). Lastly, one of the respondents presented an itinerary of cluster meetings for Life Orientation (LO) (Appendix 12) as a sample of the documents they usually receive for cluster programs. The teacher explained that they did not receive one document for Maths and Science, but, the LO document also gives evidence of the cluster meetings held for all the subjects.

3.10 ETHICAL CONSIDERATIONS

Ethical behaviour represents a set of moral principles, rules, or standards governing a person or profession (Lichtman, 2013). Ethics are important to consider in research studies as they tell us what is morally good, bad, and right/wrong (Wysocki, 2004). Ethics serves to protect participants from possible harm by the researchers (Birch, Birch and Miller, 2002). Lambert (2012) summarises by saying that being ethical means that your project does not

bring harm or disadvantage to anyone who takes part, including yourself. Ethical decisions, therefore, are the result of a weighing up of a myriad of factors in the specific complex social and political situations in which we conduct research with frequent sets of principles drawn up to protect the rights of participants in research as well guide the researcher's actions in the field (Somekh and Lewin, 2011). As the researcher, I had to follow various sets of criteria or rules and standards, for me to be recognised as ethically considerate. Such criteria are discussed in the paragraphs that follow as indicated by the literature.

Individuals participating in a research study have a reasonable expectation that they will be informed of the nature of the study and may choose whether to participate or not (Lichtman, 2013). Such an ethics guideline is known as informed consent. Informed consent means that the research subjects have the right to know that they are being researched; the right to be informed about the nature of the research; and the right to withdraw at any time as deception is only acceptable if discomfort is believed to vanish by itself or removed by a debriefing process after study (Ryen, 2004). This means that those interviewed or observed should give permission in full knowledge of the purpose of the research and the consequences of them taking part field (Somekh and Lewin, 2011).

I informed and explained the purpose of the study to the participants who were involved and made a request to obtain their permission to conduct the study. A letter was written to them beforehand asking for their consent with all the details of the study stated as frequently a written informed consent form has to be signed by the intending participant (Appendix 7) (Somekh and Lewin, 2011). I had to adhere to this ethical standard as it is

viewed as unethical to either lie about one's identity or engage in research without the knowledge of the participants (Wysocki, 2004). Furthermore, I received ethics clearance letter from the university (Appendix 2) as well as wrote letters to the Heads of the education department, for example, the Superintendent General in Bisho (Appendix 3), District Director (Appendix 6) and Circuit Manager (Appendix 5) requesting consent to use the participants.

Participants in a research study have protection over their rights, with one being the right to privacy and confidentiality (Wysocki, 2004). Confidentiality is a principle that allows people not only to talk in confidence, but also refuse to allow publication of material that they think might harm them (Somekh and Lewin, 2011). When publication of the material developed in this research is put for publication, the participants will be consulted. Moreover, the transcripts from the interview process were also sent back to the participants in order to for them to ensure that only what they shared was used.

Confidentiality is often used together with anonymity. Anonymity is a procedure, which offers some protection of privacy in its inspiration not to identify people (Somekh and Lewin, 2011). Such protection, according to Silverman (2011), is required even when we are not dealing with matters that seem to be particularly delicate or intimate. The scholar further notes that, the importance of confidentiality is important because we should never assume that people have understood our research sufficiently in order to give truly informed consent to describing their accounts or behaviour in our reports (Silverman, 2011). To adhere to this ethical issue, I made use of pseudo names as one of the ways of

confidentially using participants, as anonymity occurs when the researcher knows who the respondents are, but their identities not revealed.

It is important as a researcher to be responsible and minimize harm to the study participants as well as the research team (Hennink et al., 2011). As suggested by various writers, where a research study may have a negative impact on the physical or mental health of a participant, even to the extent of temporarily upsetting them, I have to fully inform them about the risk. According to Lambert (2012), it is important to prevent harm and in the context of teacher research; harm that occurs during the research process itself is usually associated with the public exposure of previously sensitive issues, with embarrassment, or with the stress that results from additional effort and time constraints. Such prevention of harm involves taking every possible step which would be dropping the study or changing the design and data gathering instruments to minimise any harm coming to them (Wysocki, 2004).

Furthermore, I had to maintain honesty and integrity throughout the study. This means data gathered carefully, findings reported honestly, and any problems, errors or distortions acknowledged. The researcher in the study was transparency and presented precise data, as researchers must never falsify data (Wysocki, 2004). The transcripts of the interviews were sent back to the respondents to read and verify that what is transcribed is what they said.

A research must have a positive contribution to knowledge and human understanding (Wysocki, 2004). According to Wysocki (2004), I was therefore obliged to report both positive and negative findings to add new knowledge to human understanding.

The principle of pre-publication access as related in the paragraph for confidentiality adherence above was also considered to be as of importance. The study, before it is publicised, will be given to the participants read, as such an act adheres to the principle of respect for persons (Somekh and Lewin, 2011). This step will offer an opportunity for the participants to comment upon and possibly add to the report as this demonstrates greater respect for potential difference of interpretation and the right to a fair voice (Somekh and Lewin, 2011).

3.11 SUMMARY

The study followed a constructivist paradigm and used a qualitative research approach as the data was based on narratives given by teachers. The stories of the participants were approached as case studies with the help of semi structured interviews and document analysis as research instruments. A purposive sampling of six teachers involved in teacher cluster programs for Mathematics and Science was followed. A content analysis approach was used to analyse the data. The study made use of more than one form of collecting data in order to ensure credibility of the study. As it important to adhere to various rules when

conducting research, a number of ethics were considered in this study such as anonymity, consent and many others.

CHAPTER FOUR: PRESENTATION AND ANALYSIS OF FINDINGS

4.1 INTRODUCTION

The aim of the study was to understand the views of teachers on clusters as a teacher led professional development program. This study interviewed around six participants in order to gauge teacher insights about the cluster program. Each participant has been presented as a full case study, and therefore resulting in six cases being presented. The narratives of these six participants, Mrs Tuma, Mr Somiso, Mr Bryson, Mrs Katongo, Mr Louw and Mrs Luzongo contain stories of what the teachers revealed in the conversations held. Participants' names have been changed, and the use of pseudo names adhered to the principle of anonymity. However, the real gender identification remains preserved.

Each narrative has been categorised into four segments: (a) Background, (b) Views towards professional development programs, (c) Participation in Clusters and (d) Teacher's views towards clusters. These segments communicate with the elements of the primary research questions.

4.2 SECTION A: TEACHER'S STORIES

4.2.1 Case Study One: Mrs Tuma

Background

Mrs Tuma is a female teacher who holds an Honours degree in education from the University of Pretoria and is employed as a school principal of a senior primary school in the Mthatha district. She started teaching in Cape Town in 1986, teaching grade 7-9, giving her an experience of 29 years in the teaching career. However, in 1989, she came to work in Mthatha in the school, to teach Mathematics and Natural Sciences for the same grades but has since changed to teach grade 4, 5, 6 & 7 due to rationalisation of schools in the circuit. The lady showed great love and passion for what she is doing, especially with natural sciences and technology, but also mentioning an obstacle of having to deal with a huge load of work due to a shortage of teachers as a result of school rationalisation:

Teaching is my thing. I love it so much. I have great love, especially for NS (Natural Sciences), I have even copied a project I read from a book. Its on energy and change where I am making bags that save energy using those things you get in shops for clothes, I am sorry I have forgotten what they are called. The bags save energy in the sense that you just boil for example stamped mealies (umngqusho) while you are busy getting ready for work and then take it off when you are finished and put it in the bag. The bag continues to cook the meal while you are at work the whole day. When you come back, the meal is cooked. I am using the idea as a business to

make money for the school and many people have made orders. It saves a lot of energy. You can use it to cook anything, for example, meat, rice, etc. The only thing that, eh., demoralises us as teachers is the workload, teaching a lot of subjects for many grades. Worse part of it, I have to play the role of being a principal and make submissions, it is a lot of work really which takes much of the teaching time.

4.2.2 Views towards professional development programs

Mrs Tuma stated that she has attended a number of various professional development programs even when she was still teaching in Cape Town. She explained that she had an opportunity of attending workshops while still teaching in Cape Town that motivated her a lot in the career she had chosen. One was when they were trained in natural sciences by a team of facilitators coming from Singapore. Such trend was followed by a series of other professional development programs here in Mthatha:

Oh, I have attended a lot of programs, I would have to sit down and list them because they are so many. While in Cape, Town I attended a science project for grade 7 teachers, where we were trained how to conduct science experiments on electricity. A team of facilitators from Singapore then trained us and we were given material to refer to when we came back to our class. When I came to Mthatha, I attended a Science Education Project (SEP). We were also trained in doing experiments in general science, the then Biology and Physics and we were given science kits to go and show other teachers at school how to conduct all the experiments in the syllabus. I've been trained by ESKOM on electricity and many more.

As the issue of what inspires a teacher to attend a professional development program is of interest and critical to the programs in place for teacher's professional development, I explored in the discussion how Mrs Tuma was nominated to attend the programs and this is what she shared:

The department of education organised the training in Cape Town. They nominated us as science teachers by clustering schools so that we were not overcrowded. They transported all the teachers teaching science in this grade to Bellville after school. And the one in Mthatha was for a few science teachers chosen by a circuit manager who was very interested in the teaching of science.

Appreciating the enthusiasm she showed in the involvement she has had on professional development programs I inquired her to share what exactly it is that is so important in attending professional development programs:

What I am trying to say or show in this is that attending such programs or workshops have made me who I am today in terms of teaching. Professional development programs play a big role in the life of teaching because the syllabus changes every now and then and most importantly, you learn new ways of teaching concepts considered to be difficult for learners in a much easier way, for example division in Maths or balancing of equations in science.

4.2.3 Participation in clusters

Mrs Tuma acknowledged that she has been in the district cluster programs and is currently involved in the circuit cluster program. For both clusters, she has had the privilege of

experiencing the participation first hand either as a co-ordinator or as a representative of other teachers in a program. She shared this for her participation:

I have been involved in district cluster for NS, being a co-ordinator, been selected by the other NS teachers. I have also been selected by the district to attend CAPS training in Stutterheim for NS. I am also involved in a cluster at the circuit for NS grade 7. I look at the analysis of results after June and we decide where the difficulty was and try to improve that area. The other principals in a principal's meeting have selected me.

The above discussion showed that the selection to participate in the programs is upon a democratic election by the other members, for example, by teachers and by principals. The statement showed that a criterion used by the department is electing the representatives that have already been elected by teachers. In the discussion, Mrs Tuma further detailed that she had a role of having to come back to the teachers and circulate the information after attending a program.

I've run district clusters on content coverage for NS under all four themes. For the CAPS training as well, I had to then come back and train other teachers in the district. Even with the one for ESKOM I mentioned earlier, I was expected to give feedback to all the teachers of Mthatha district. As I have said also for NS I have run many workshops for all the 15 clusters after each program I attend on the themes.

From the discussion, it was distinct that the cluster leaders played a role of having to come back and divulge their knowledge gain to their circuit clusters. Following the issue of clusters further, it became important to explore how the programs are organised and operated. In the conversation, Mrs Tuma shared that:

We decided at district level to form circuit clusters and have cluster leaders. We are busy trying to engage with circuit clusters for the way forward to tackle problematic areas in our subjects. We organise a gathering for teachers for the various circuits at different times and share the content knowledge or teaching style we have received.

Going further with the discussion, Mrs Tuma further discussed how the cluster activities are run by alleging that:

In the programs, it depends, sometimes and most of the time, we work as groups, where we are given something to write and present, a task, you know. Someone who is good in the area to show us how to teach it would lead the workshop, for example, we also make a lot of misconception on terms, so we correct those misconceptions. One time, for example, we attended a workshop, as we usually call them, on balancing equations by a Mrs Zamdela from one of Mthatha schools. We were then expected to go and use her method of teaching back at our school and this helped us a lot.

The above conversation showed that the cluster programs are run by experts to cover the content gap as well as improve the pedagogical styles of teachers and improve teaching and learning in schools. The information is then disseminated to all the teachers through cluster activities. Clearly, the cluster activities at both district and circuit level play an important role in the teacher's development.

Having heard from Mrs Tuma how the cluster activities are run as well as the fact that they learnt in groups and collaborated with each other, I pursued further on the issue of clusters by exploring more about what is discussed in the clusters and how much time is spent in the

gatherings. Mrs Tuma shared that the programs usually take a day or two at circuit clusters, although it may be more for the district gatherings.

Oh, yes, when we attend for a district, like for CAPS workshop, we take a week or maybe two or three days most of the time, except if it is a short program where we would take a day maybe. But for the circuit clusters, it is most of the time a day. It was only in the CAPS workshop that took a week, simply because it was a change of syllabus. Otherwise, normally our workshops for content gap, for example, run for a day only.

As Mrs Tuma continued with the conversation, she granted a greater depth of how the cluster activities functioned by further sharing that the content covered in the cluster activities is based on the themes prescribed for NS in the GET band:

In the programs, a lot is covered. Like I said, we come together and discuss a theme as NS has four themes. We take one theme, although the time becomes against us sometimes, but we make sure we cover the whole information needed to be known from a child on a theme. Per se, it is the curriculums, the teaching styles, remember some of us we teach in rural areas with no resources, so we are showed how to improvise so that a lesson is simple. Sometimes we plan together one thing as we write common papers in June and December, set by the department, so we need our kids to be on the same level, though we are still struggling.

From the experience Mrs Tuma has with cluster activities, it also came into view that although the programs focus on developing the teachers on knowledge of content as well as improve their teaching styles, the collaboration and help gained by the teachers also develop the teacher's personality. She evidenced this by saying that:

Nevertheless, you know what these gatherings grow us. You grow as a person; you gain more confidence with your teaching, especially with us in our disadvantaged schools. A teacher, no matter how experienced you are, you need such confidence to improve your student's work and to stay motivated because iteaching sisi (sister) iyagugisa (makes one old).

Evidently, the ultimate aim of the clusters was to bring teachers together to learn from one another. Most importantly, clusters prioritised gain in subject matter, and how it can be effectively taught to improve teaching and learning. Comprehending the transformational change clusters brought to the teachers, I was then interested in finding out the significance clusters have at classroom level and its relevance to teaching and learner performance. Mrs Tuma evidenced that:

Clusters are very important because it is where one voices their difficulties and it is where they get advices and they go back to classes being refreshed and revived. As we are facing the problem of shortage of teachers, especially in Maths and Science, having clusters help the disadvantaged schools because the teachers who teach those subjects get some advices on how to teach certain topics. I also teach Mathematics at grade 4, 5, 6 & 7 because they have no Maths teacher. I attended a cluster for Maths at my circuit for numeric patterns, it helped me to teach it at school, and my learners enjoy the lessons.

Evidently, Mrs Tuma had a very strong belief on cluster programs as a tool that can create change and bring an effective atmosphere of teaching and learning, which would lead to an improved student performance. She strongly saw it fit that cluster programs create a wealth of knowledge and advancement in the nature of teaching and growth in schools.

4.2.4 Teacher's views towards clusters

The ultimate aim of the study was to understand the teacher's own views of clusters as a professional development program. I therefore asked Mrs Tuma to share her opinions on clusters in pursuit of achieving the aim. Mrs Tuma fairly had an immerse trust in clusters, however, she had issues she felt needed to be considered to improve the effectiveness of clusters as a teacher professional development. She mentioned a need for a continuous running of clusters within specific intervals, issuing of material such as CDs of the programs for teachers to use and listen to at school:

OK, my general opinion towards clusters is that... eh clusters are very important. We need them as teachers to be done more often and be monitored better than the department of education is doing now. They must make it a priority as a professional development of teachers. For example, as CAPS has arranged the themes per term, e.g. term 3 in NS we teach Energy and Change, I would advise that a cluster training be done before we go and teach that area and be given ways and methods of teaching certain areas. Be given types of assessment, we can give to learners prior the teaching of this theme.

Mrs Tuma further shared that:

The only problem we face when running the cluster is that, while we are at cluster meetings, the kids are left alone and since there are a few teachers in our schools due to rationalisation, the school becomes chaotic and the kids become unruly. I

would advise the department to give each school a CD to run on the computer where the training will be viewed at school instead of only just attending it at Trinset.

Mrs Tuma obviously viewed the cluster activities as a critical factor that can build and improve the desired outcomes of better teaching and improved student performance. However, as beneficial it can be, it was of importance that it becomes regular and continuous. Much more importantly, for teachers to be effective and efficient in their work, resources are an issue that needed to be highly considered in the planning of cluster activities.

4.3 CASE STUDY 2: MR SOMISO

4.3.1 Background

Mr Somiso has been in the teaching career for a long time. He started teaching in 1995, giving him an experience of 20 years now. He started by teaching Mathematics, but later, after the curriculum changed, he added a new subject termed Life Skills which came with the OBE curriculum. He is the principal of the school currently teaching Mathematics in grade 4, 5, 6 & 7 as well as Life Skills for the same grades. He had started teaching IsiXhosa, as well, as from 2012 to the same grades due to shortage of teachers.

Asked to share his teaching experience at his current school, Mr Somiso highlighted that it was strenuous for him now as it used to be previously because of the workload. He

mentioned that they have multi-grades, which made teaching very difficult. However, he shared that generally he liked the contribution and change he made to the children in all the difficulties they experience:

Teaching is good and I love it. I love the fact that I am contributing and changing their lives. But I won't lie to you, you are a teacher yourself, the workload, we are faced with makes one tired and not inspired to love and enjoy teaching at all.

Mr Somiso also shared that the atmosphere in his school and the support he received from his small staff motivated him:

I have a supportive staff. We are very few, only 6 teachers responsible for grade R-7, but you never hear my staff complaining. Like we do not teach only, we also do extra mural activities and they are very helpful. You know our school is very involved in cricket, so we are co-operating with each other very well.

4.3.2 Views towards Professional Development Programs

Mr Somiso has had a great deal of opportunity like Mrs Tumi of being involved in many development activities. Some of the development programs have been self-initiated and has gained a lot of support and growth from all the development programs:

I have attended workshops that are organised by students that are attending certain universities around the country for Mathematics. I have attended trainings organised by a professional body based in Cape Town called AIMSEC. I have also attended workshops organised by the department of education.

Asked about what is done in the professional development programs he has attended, Mr Somiso commended that they have been rooted in the Mathematics curriculum, pedagogical styles of teaching Mathematics and the relation thereof to a child. The programs according to Mr Somiso had also taken into account the issues of diverse backgrounds children bring to their Mathematics classroom or schooling at large:

Basically, in all these programs what has been shared was mostly the strategies on how to teach Mathematics to the children and with specific reference to the development of a child and how does the development of a child relate to Mathematics knowledge of a child. As well as how Mathematics relates to the background of the child, the context from which the child comes from.

In the discussion, as Mr Somiso shared his involvement in such a variety of professional development programs, the issue of how he was nominated to be involved in these programs came into context. Mr Somiso mentioned that the programs were mostly organised by the universities, the cluster leaders of the DoE, by the DoE itself, in which he himself had also had an opportunity of being a cluster leader for his circuit, however at times the programs were organised by the teachers themselves:

Ok, most of the time, it has been teachers and lecturers from such universities if it is a university organised workshop. But most of the workshops are organised by cluster leaders of the circuits for Mathematics to be specific. Because I had a period when I was a cluster leader, myself, until 2013, so I used to attend workshops organised by the DoE as a cluster leader so that I can be able to filter the information to the other teachers at large. It is always the DoE and I as the cluster leader and other cluster leaders, like in each circuit you would find that there are

four cluster leaders assisting in terms of dissemination of information in each circuit.

As it appeared before with Mrs Tumi, Mr Somiso also as a representative as well as a cluster leader in his circuit at the time, he had a responsibility of making sure that the information and knowledge gained in the various workshops he attended was dispersed to all the teachers in schools. This was evidently a general expectation of the cluster leaders. Delved further on the matter of being a cluster leader who had to go back and share with fellow teachers the knowledge gained, Mr Somiso lamented how uneasy and challenging the expectation was. He shared that:

Well, I will be honest with you, not all the time did I share the information back with the teachers because sometimes you find that you attend a workshop, and you still have your own load at school, and because there's no follow up with the department to make sure that indeed the workshop that was supposed to be organised is organised. Sometimes you just go to that workshop, it becomes your own information and development, and you never find time to call other teachers to come to a workshop. So that is the reality of it and I would say that out of maybe five workshops that would maybe attend, you only end up calling one workshop for the teachers,. The next you will not be able to call.

Mr Somiso had shared that he had even attended some professional development programs out of his own interest as a teacher, mentioning an example of workshops organised by universities and independent bodies such as AIMSEC. I was fascinated by this and therefore decided to go further and find out how he came to attend such programs.

Ok, not all of them, I attended in a similar way. First one I attended was in fact two of those workshops I attended were out of my own interest. I felt that I needed to

develop myself so that my learners could be able to learn Mathematics better. In fact, I was having challenges with my learners understanding what I am teaching. They had many questions and once I saw that there were those programs within those universities then I started to initiate a process of joining them. Then there is another one that I mentioned a body that is in Cape Town, AIMSEC, with that one I been invited by the department to attend, I was willing, and then I attended the program.

Pursuing the issue of these programs further, the discussion explored what exactly is covered in the programs, their operation and the role played by the teachers. Mr Somiso specified that they almost work the same way. The focus of all the programs was basically Mathematics and its teaching and learning. The teachers were alleged to be very much involved as they also brought to the collaboration their experiences and challenges of exploration amongst the groups with an aim of developing each other. Mr Somiso also distinguished that there was a continuous link between the teachers and the group of experts provided by each development program.

Well, it is different programs, but I will just give you briefly one. With AIMSEC, they bring professionals from England to come and share their experiences. So basically once they have shared some of their experiences they allow us to work in groups, share our ideas. Then, once an idea has been shared, we discuss it as a group. Even with the university organised ones we share as groups. What is important with all these programs is that you are getting thorough information as they run for a longer time unlike with the departmental ones. You are able to go back to class and see what works well and what does not. You are able to come back and say for me this is not working. At the end of the day they will have an assessment of how to

tackle the various problems we experience in our schools. We give each other advices here and there.

Several professional development programs repeatedly lacked to consider the ultimate end, which is the learners and learning in general, and focused solely to the teachers. The effect the influence of the programs Mr Somiso had attended on teacher's classroom practices and most significantly on learner involvement and the bigger picture of learning in general began to be of significance to the discussion. Mr Somiso revealed that the obstacle in getting an effective and desired outcome in the classroom was the lack of resources their school experienced:

They do relate to our classrooms, but I would say partly. Why do I say partly, because you'd find that you attend a program and you find that in order to for the learners to understand certain concepts you need resources and yet there's no provision out of what you have been developed in terms of having subject resources. So that is why I'm saying partly because at the end of the day some of these strategies need resources, so without them you are just dropped.

Despite the benefits the professional development programs provided for teaching and learning, but Mr Somiso fingered that teachers did not have adequate resources to enhance their teaching in their classrooms. This evidenced a continuous factor that has been viewed by literature as a critical factor that hinders learning in schools and therefore needs to be considered in the planning of professional development programs.

4.3.3 Participation in Clusters

Mr Somiso mentioned earlier that he had been a cluster leader for Mathematics in his circuit, but stopped being one since 2014 and according to his knowledge; no cluster leader had been elected since. In playing his role as a cluster leader, Mr Somiso mentioned that it had been his sole responsibility to organise and run the cluster meetings with the help of officials from the department of education:

Ok, yes, during my time as a cluster leader that is, up until 2013, as you know we need to alternate the position after some time, although a new person has not been elected yet, it used to be my sole responsibility as the cluster leader that once you have attended a program from the department, then you must organise a meeting for the teachers, with the help of course of a departmental official, who at times and would indicate the deadlines for feedback to other teachers. On the day of the meeting he or she would also be present to see and guide in terms of what was delivered in the workshops.

It became interesting to understand how Mr Somiso played the role during the time of his leadership as a cluster leader:

I'll talk about my experience of doing it because what I used to do was I was responsible for writing the letters. What I would do is take the letters and find if I could be able to some teachers that are teaching Maths and give them the letters of the invitation. I would go even to the extent of sending the letters to the department of education so that when principals attend they are able to get those letters, which of course I think it gave me lots of problems because sometimes you would expect the letters would be delivered.

However, Mr Somiso expressed how he experienced a lot of hurdles in organising the programs. Evidently, the main issue around the problems he experienced was upon poor co-ordination created fairly by a poor co-operation between him as a cluster leader and the DoE officials.

But if the principals do not go to the office then we are in trouble, then they won't be delivered. If I see a teacher and give that teacher a letter and it becomes a problem when the teacher submits the letter to the principal because one it is not seen as seen as an official letter because you write it without the departmental logo. So at times, you find that there would not be good attendance; there would poor attendance because of those reasons or logistics in terms of organising the workshops. So once the workshop is organised and teachers come to the workshop, the cluster leaders become the sole drivers of the workshop or program, with the agenda and organising all the materials and running up the workshop.

It was noticeably from the discussion that organising and running the cluster development programs laid solely upon cluster leader's shoulders to carry. The discussion alleged a situation where a co-operative networking between the cluster leaders and the DoE officials hugely lacked and therefore creating obstacles too huge for the cluster leaders to overcome on their own. Therefore, the long-term sustainability of a professional development program for each teacher and school at large remained challenged. This was one of the critical factors, which informed the challenges regarding an effective professional development program. This therefore clearly challenged their ability to organise the cluster programs.

Regardless of such, the cluster programs continuously ran as Mr Somiso shared. That therefore led the conversation to one of the important factors around a professional development program, which was the relevance to the classroom.

Well, my experience is that, when you attend these programs and get new information and new strategies, they are relevant to what we are teaching.

Mr Somiso noted its relevance, but also brought to view that it had its fair share of being clouded with problems as well:

But what becomes of no relevance, from the feedback you get from the teachers, is that the strategies are timely delaying and at the end of the day the department has a... What is it... ndifuna Lanto yexesha (pace setter). There's a time frame that states that by first term, for example, you should have done so much work. Now when you use these strategies you have sometimes to allow the children free room in terms of doing the activities and now you are spending more time on those activities, yet at the end of the day you still have the task to ensure work coverage is covered within the specified time. So teachers mostly feel it's a waste of time, so they revert back to the traditional methods of teaching.

In the discussion, Mr Somiso further shared in great depth his opinion on the importance of cluster development programs has on teachers and schooling at large:

They play a very huge role. I won't lie to you. It's just that they are run poorly. With me, I had a problem with teaching fractions and upon attending or having workshops on teaching fractions, through meeting with other teachers, they shared other strategies I didn't know at all and as a result I am able to make my learners understand fractions. One other thing cluster programs have helped with is that most importantly, as early as grade four, I know that my learners must understand

what fractions are. I am able now to show my learners the bottom line by looking at the reality manner of fractions and not just telling.

As with Mrs Tumi, also with Mr Somiso the cluster programs were an important source of development that could play an effective role in professionally developing teachers and therefore improving student performance. Meaningfully both teachers evidenced a superior role the cluster activities had on reaching teachers at large.

4.3.4 Teacher's views towards clusters

As mentioned in the other case, it was imperative for the study to find out from the teachers, as the beneficiaries of cluster professional development programs, their own views of clusters as a professional development program. In his response, Mr Somiso, like Mrs Tumi also slammed hard on the design and planning of the programs:

My view, I think the idea of organising clusters, I think for me is a good idea, but the way they are organised and managed, that's where I see a problem. I say so because in terms of sharing information it is very good because you share, that is the DoE or whoever in in charge, that information with the leaders and the leaders disseminate to the teachers. When those leaders meet in a workshop someone must make sure that each and every teacher in that circuit has been able to get that workshop.

As indicated earlier in the previous case study, once again the time as well as the importance of continuity was also raised. Mr Somiso responded as follows:

And what I have observed in the past is that if the workshop was for four hours, it is easy to organise a one hour workshop and then you are gone. Within that as you come from a highly organised environment where all the information is given, but when you go to clusters it becomes weaker and weaker. By the time it gets to the learners then it becomes a zero. I think it is also important that in terms of time, eh one day workshops are not giving enough information. Maybe if we get more lengthy workshops or even go as far as using weekends and see how teachers are then compensated for that, go we would then be getting more information and not at the expense of the learners. Also, most importantly, they must be on a continuous basis and not once in a year as they are now.

In addition, Mr Somiso, in his opinion, went into greater depth in explaining how a cluster function should run. He highlighted that:

I think my take would be, in fact firstly, there must be a year plan, which normally does not exist. Everyone just wakes up in bed and call a meeting because he has been called by the department. So there must be a year plan that states on such and such a day, there's a workshop based on whatever content gap that teachers have, so that everyone when they are making their plans they are able to know that, that day is put aside for that cluster meeting. Once that has been done, then there must be in place a system of monitoring every school sends a teacher to that cluster meeting then information would be disseminated smoothly.

In his understanding, Mr Somiso also felt that there was a link between the poor monitoring and the time constraints that clouded the clusters:

I think the time constraints are due to the non-monitoring. If they are monitored and you are not just thrown into the deep all by yourself then it would work great.

You know teachers, if there is no monitoring, they always feel like it's a holiday, it's a half day, so they will push so that you finish early but if its monitored then it will be fine.

In his conclusion, Mr Somiso firmly recommended that all things that create a conflicting atmosphere around teaching and learning at large, be straightened out to enhance effectiveness of clusters:

The other thing that has been affecting mostly the Eastern Cape is the redeployment. The teachers are saying, for example, the content gap is on say operations, and then a content gap workshop is done. The following year those teachers are gone and you have to do it once more to the new teachers, worse some of them are not even Mathematics teachers. So, I think if we can solve those Nitti gritty, then I think it would very effective and make sure that every child gets good opportunities in terms of knowledge. Remember all of us, we are coming from a past where we were taught in Bantu education style and the tendency is that, the way your teacher taught you, you teach your child in that manner. So we have to change this mentality, that's why I'd say it is good because you can't have all teachers in one hall, having clusters is manageable.

4.4 CASE STUDY 3: MR BRYSON

4.4.1 Background

Mr Smith is a deputy principal who holds an ACE degree majoring in Mathematics and General Science. He started teaching in 1981 but took a break in 1990 to join a private sector selling insurance policies. However, in 1999, he came back to join the teaching profession which gave Mr Bryson an experience of twenty six (26) years teaching experience. In his teaching life Mr Bryson had taught Mathematics, Science and history in the GET band, teaching grade 7, 8&9. As of 2013 he had since joined the FET band due to rationalisation of schools and was currently teaching Maths only in grade 8 and 10.

Asked to share how teaching is in his current school, Mr Bryson expressed great enthusiasm towards teaching at large and appraised teachers for the efforts they were devoting to the learners. However, Mr Bryson as with the previous cases lamented the challenges teachers face, highlighting a different point of learners who do not show any eagerness towards learning:

Teaching is very enjoyable. Being in this new school has not changed anything. I still love teaching and its motivating here at school because all of us, we know what we are here for which makes it easier than to stay motivated. It is great to make a difference in someone's life as we are doing and I really applaud teachers on the work they are doing. They are doing a great job and I observed this for a long time and that has made me conclude that we may fire at teachers as much as we like about failure, but we miss one major factor, which are learners who do not take

learning seriously at all. That is the one biggest challenge we have in our schools topped by parents who are illiterate and therefore cannot be of that much help in terms of curriculum issues. The ever-changing curriculum makes it worse.

4.4.2 Views towards Professional Development Programs

Mr Bryson had long been involved in the teaching profession, therefore giving him an opportunity of experiencing almost all the transitions and transformations that have occurred in the education sector. He drew his experience from the time Transkei was still an independent state, the break he took in 1990 together with the changes of OBE when he came back to the profession in 1999:

Eh, I think you mean, even courses, this word workshop or clusters or professional development is new. We used the word courses so I have attended in-service training courses some time ago. They were organised by inspectors (EDO) then and there was even a sponsorship when we were still Transkei, but now there are these workshops as called. I have attended quite a lot of them. I moved away from teaching for quite sometime from 1990 to 1999, to go and work in a private sector as an insurance rep and when I came back into the educational system had changed a lot. There was this OBE, so now the change has been inflicted so it necessitates now there be workshops. So most of the workshops I have attended when I came back were OBE orientated now we also have CAPS and workshops are done on it as well. I have attended a lot of workshops done by the district and also done by my circuit.

In the conversation, Mr Bryson further touched on the issue of what happened in the professional development programs and how they were run:

There are usually a lot of activities. The activities are conducted for a group of teachers with a lot of hands on. It's not like in a seminar where somebody stands in front of you and present. It is a lot of hands on. I think that is why they use the word workshop. We are working there, presenting as groups with everyone playing a role.

The opportunity to be involved in so many professional development programs also brought a lot of growth and development within the Mr Bryson's career, which had been of significance to him as a teacher. This showed a trend of growth in being involved in development programs as a teacher because such growth had been shared in the previous cases. Mr Bryson noted that:

Yes, personally I have grown so much. I am old now and the experience I have been beyond because of such workshops. When you start teaching, you do not know everything. You learn many things when you are really in class. You learn a lot from your colleagues because of their experience which you do not have. So the workshops are a great gain in knowledge and skills needed in teaching. Grooming a child's mind is not unophuca (a Xhosa traditional game) because you are working with a mind that represents the future. The programs we attend help a lot around those areas of creating a real teacher.

Once again, Mr Bryson had highlighted in the above statement a developmental program that grew a teacher wholly. Both the academic growth and growth as a person who has to see oneself as a professional body in various aspects was evidently adhered to in the

professional development programs. Such sentiments had been shared as well by the previous cases.

4.4.3 Participation in Clusters

As with the other cases, Mr Bryson had been involved in cluster activities as well. He was evidently also among those teachers whose teaching life had been and still was changed by the intervention of cluster activities. This was evidenced in his conversation where he acknowledged that he was presently participating in a cluster activity as we speak with which he was very excited about. He also indicated that he was once nominated as a cluster leader in his circuit at a certain period when he was teaching grade 9 but stopped when he started to teach his current grades.

Yes, there is a cluster activity going on... before coming to that I was very much involved in these cluster activities when I was teaching grade 9 and I was a cluster leader then. Now that I am teaching grade 8 & 10 I'm no longer actively involved as I used to. There is a cluster activity going on now, from grade 8&9 I think they call it 4+1. It is a cluster-oriented program that is dealing with enforcing Mathematics teachers to prepare. To prepare their lessons for a week or a fortnight. So we are attending a very fruitful workshop which is very interesting since the beginning of this year.

Mr Bryson showed a highly enthusiastic faith and love towards this cluster activity. However, just out of curiosity, I asked him to share his experience while he was still a cluster leader as well as his role during that era:

I was a cluster leader for approximately 3 to 4 years for Mathematics. I was given duty by the department in fact, both the department and the teachers entrusted me to be the person who would organise cluster meetings on Mathematics whenever needed. I would liaise with the subject advisor for the meetings to occur like for example dates, programs and the content to be discussed. These clusters were also very good, but the problem was the continuity, like we would hold one workshop or none at all in a year because no one had time as I also had my class to teach. I believe the department also did not also take them seriously, but they are still continuing like the one I am talking about now is a continuation of these cluster gatherings.

Interestingly, Mr Bryson from the above conversation, although he did not go into great depth, shared the same argument as Mr Somiso of pinpointing a lack of monitoring and commitment of the Department of Education to the cluster activities. He also played a role of leading the cluster activities with all the planning of the developmental programs to be covered. Clusters are a teacher- led development program and the leadership role played by teachers like Mr Bryson showed a great deal of teacher initiatives towards their teaching career.

Reverting back to his involvement in the current cluster activity, I asked Mr Bryson how the program was organised:

At our level at circuit level or district level they are organised by the subject advisor, but according to the information that we got from the subject advisors, these were organised nationally, and they are part of a national program.

In the conversation, Mr Bryson went on to explain what the cluster activity entails. He also drew attention, as with the previous cases, to the content gap coverage; however, also majoring on emphasising lesson planning:

Ah, firstly we do what they call content gap, so that when you plan you can plan with confidence. Some of the concepts we are teaching now are new to the grades that we are teaching. Firstly, they tackle the content gap thereafter we are being trained or developed in planning because it is believed that one of the causes of poor performance is poor planning, that teachers do not plan.

As cited in the other cases, it became imperative to find out from Mr Bryson as a beneficiary to the cluster activity, the significance such activities had on him as a teacher as well as its relevance to class:

Yes, personally, they meet my expectations as you know that as a teacher, you expect to grow when you attend a program. It exactly refreshes my memory, my knowledge really becomes refreshed. And also the content gap is attended to and some new methods or approaches are applied and I just get excited you know. One other thing that inspires me is that we are involved hands on. We are given opportunities to present also, to prepare a lesson and the present it.

He further shared that:

They are very relevant to the class. I am able to apply what I've learnt in the meetings in my class because they are orientated to our current curriculum.

As evidenced in the above quote, being based on the current curriculum made the cluster activities popular with the teachers as there was no diversity among them and the practical

class situation. Such orientation made it feasible for cluster programs to be viewed as an effective tool that could bring the desired outcomes in teaching and learning.

The issue of time became of importance to ask from Mr Bryson in order to give a bigger insight on the design the cluster activity had in which he was involved. Mr Bryson shared that they approximately took a day. He took a slight difference to how the previous cases felt, as to him the time taken was enough and fulfilling as he also lamented on the issue of having loads of work to cover at their schools:

Ah, they take almost a day but they were intended to continue on a weekly basis, but then advisable it was said let's do them fortnightly. Then it is in that fortnight that we spend almost a day, a full day. For me, I think it is enough because when we spend longer than a day we tend to panic because of the backlog. The kids are left behind, it feels like we are left behind as far as curriculum syllabus wise.

4.4.4 Teacher's views towards clusters

One of the important aspects of the study as mentioned earlier was hearing the views of the teachers towards clusters as a professional development program. With this in mind, in conclusion, I also asked Mr Bryson to share his opinion towards clusters:

Eh, I would like it to be in such ways that, first of all the teachers are motivated. Because what would make it to be ineffective is that we are dealing with some teachers that are demoralised. The learners, we are dealing with show no interest at all in studying. So it doesn't matter how hard you try and now that tends to

demotivate the teachers. So now some of the teachers are not showing interest in attending these workshops.

Discussing further, I asked Mr Bryson what he viewed as a remedy that can bring back the enthusiasm of teachers to teach as well as learners.

I think they can be motivated in various ways like for example one of my colleagues attended a cluster program and then when he came back he was highly motivated. He brought some Mathematics pamphlets from the experts in the workshop. These pamphlets were very much motivational they showed various ways on how to teach Mathematics. So even though I did not attend the workshop when I looked at those pamphlets I was motivated myself. So I think if most teachers can be exposed say even before the workshop, get some sessions specifically to motivate the teachers.

Mr Bryson further echoed more on strategies he thought when used could be motivating to the teachers:

Like something similar to they are referring to as information sharing sessions. There are those meetings that have been steered by our TRINSET they call them information sharing sessions. Say if for example, organise a workshop prior to the workshop something like a session one or two sessions to motivate the teachers to pick up their interest so that when they go there they go there interested, hungry or thirsty because they know that their minds are going to be changed.

However, Mr Bryson also grieved on the factors he viewed in his opinion as some of the factors that created the disheartenment in Mathematics teachers:

I think one of the reasons that cause teachers to be demoralised is that it's very rare that a Mathematics teacher is teaching Mathematics only. So now there is that lack of focus because of the overload. So that must also be taken into account.

In conclusion, Mr Bryson further appraised the difference the content gaps built in teachers and therefore emphasising that, they be kept continually in place. He further motivated that the workshops should provide refreshments for teachers to be free and focused to the workshop:

That content gap thing, you see must not be thrown away. It must always be there because I could see how the teachers get so inspired after they have attended a workshop. And the level of confidence is lifted and boosted. Also the refreshments also contribute a lot so they must always be available or teachers will want to leave early.

The quotation above was one way of showing the importance and need of a professional development that should be run continuously in order to be effective. For progression and smooth running of the programs, issues such as refreshments also needed consideration as they also made an input in the way teachers feel.

4.5 CASE STUDY 4: MRS KATONGO

4.5.1 BACKGROUND

Mrs Katongo is a novice post level one professional teacher who started teaching in 2008. She is a temporal citizen of South Africa from Ghana. She alleged that she started teaching in 2008 in her ethnic country and came to teach in South Africa in 2012. She was trained to teach in the senior phase of the GET band, i.e., grade 7-9, but here in South Africa in the school she was currently in, she had been allocated to teach grades 4-6 which is the

intermediate phase. She was currently teaching Mathematics in the three grades. She had an experience of only three years here in South Africa hence I am calling her a novice teacher. It became interesting for me to include her in this study as her experience would bring more depth from a variety of teachers who had different experiences towards cluster activities.

4.5.2 Views towards Professional development Programs

Mrs Katongo did not have much to share on her involvement in Professional development programs in general as other cases did. The only experience she had on a professional development program was one she had attended this year at the beginning of the year. As from 2012 up to the end of 2013, she had never been exposed to any kind of professional development program. The workshop she attended this year was her first and was a cluster orientated. Such status, therefore led to exploring more her involvement in clusters.

4.5.3 Participation in Clusters

As mentioned above Mrs Katongo has a minimal experience of a cluster developmental activity she attended at the beginning of this year (2015). Her experience, however, was also imperative to hear and consider for a better enrichment to the study as it was also an important factor to present a rich and well-vested research.

I think it was a cluster meeting. It was held here in Mthatha. We were two circuits put together, then it was on Maths. An officer came from Mthatha district offices. He took us through some of the practicalities of what must be done, especially the lesson planning, how to deliver, how to set questions, we discussed a lot. That is the first cluster I have attended.

Probed about how she was selected to attend the cluster meeting, Mrs Katongo shared that:

It was organised by the Mthatha district for Maths teachers for the circuits. I was selected, my school selected me. The workshop was for Maths teachers and I am teaching Mathematics so my school automatically selected me. The school allowed us to attend that meeting.

Looking deeper into the issue of clusters, Mrs Katongo also shared the same sentiment as all the other cases as she also sang a tune about being given a chance to be hands on the activities done in the program:

It was a very hands on workshop. They don't come to impose on us, but they try to see to it that we can all engage in what has been identified as areas of problem commonly in our schools. We were all having a say and very much actively involved.

Mrs Katongo's participation in this one workshop she has attended did mark a major transformational experience for her as she also shared that it was very important to attend such undertakings. Being a novice teacher with such very few years of teaching, but she could pinpoint the significance such activities bring and the need for them (cluster activities) to be done:

Yes, they are very important for us to attend because the method we learnt in 2005 when we were studying change. Now we are having new ideas from different people. So there are a lot of things that we have to add to what we know already. So we go there to refresh our minds and then see that you are on track

As with the other cases, the issue of the relevance of what was learned in a professional development program in class and their teaching practice at large was an important aspect that came into the conversation with Mrs Katongo:

Yes, they are very relevant. On that particular cluster I attended, I think we were discussing the topic of fractions. Fractions are a very common topic, but are very tricky to teach like if you do not care or even pronounce them correctly as the teacher you will end up misleading learners. So they took us through such things to refresh our minds. Let us make an example with one over two; you have to pronounce it as half.

Mrs Katongo further shared she also found that of important and of stimulation to her attendance was the lesson planning. This was also a point that was shared by Mr Bryson. This evidences an important role the cluster meetings played to the teacher's developmental needs:

What I also find interesting was the lesson planning. They took us through lesson planning so that we see and know what is supposed to be in the planning and what is expected of you to do in the classroom and during the course of teaching. What you should do and how.

She also shared that other forms of development she had attended are cluster gatherings designed for moderations from which she believed she had gained a lot on what was expected to be done in class at the end of each term:

I've also attended cluster programs for moderations last year (2014). In those ones we take our files as teachers and learner's files there for assessment. To check if we are teaching and assessing correctly what is supposed to be done. Eh, I started going for them last year. At first I was way out of line, but the teachers were very nice because they could see I was new and showed me how things are done. I have learnt a lot from them now, I am also confident now when I attend them.

4.5.4 Teacher's views towards Clusters

As narrated in the other case stories, it was also of interest for the study to find out from Mrs Katongo what her views were towards cluster programs as models of professional development programs. Mrs Katongo also encouraged the continuous implementation of clusters as they provided a platform of meeting the needs of teachers for the enhancement of teaching and learning:

I think I consider them to be important and would consider highly the topics to be done continuously because when you do ANA exams you find that there are specific topics to answer like division and multiplication which you find learners find difficult to do. I think it's a general problem for all schools. Such topics need to be discussed continuously so that we look at different ways of teaching them.

Once again, the barrier of the duration of the cluster activities was considered by Mrs Katongo as an area that needed to be given more focus when planning a cluster workshop:

Oh, if I were to plan or a run a cluster program, I would definitely start with time. I would take out the one day workshop. For me, for example the workshop I attended

took one day and it really was not enough. Some things that I needed attention on were not done, however the objectives of that workshop were achieved

Mrs Katongo also touched on refreshments as one factor that also needs to be put forward and furthermore bringing to view a new aspect of subsidising the transportation of teachers. The lady shared the same sentiment as Mr Bryson which showed that refreshments did play a role in the running of a workshop and both cases felt it would be a catalyst in motivating teachers to attend the programs:

One other thing is refreshments for teachers to motivate them to attend and enjoy the workshop because sometimes there's not even water in these workshops. Subsidise their transport because sometimes a workshop is called at a time where teachers do not have money, even if that is done by schools and be made compulsory. So as a result of that teachers do not feel motivated to attend the workshops. So that when they are there they will eat there so that their mind is focused on the workshop and we are able to discuss anything.

In summarising, Mrs Katongo emphasised that the workshops be done continuously and also adding that, DoE officials should take into account the visits to schools for learner motivation:

Workshops should be on a regular basis not as they are like once in a year. Officers should visit come to schools to motivate the learners for them to know why they should take most of their time to learn.

4.6 SECTION B: RESULTS FROM THE DOCUMENT ANALYSIS

The documents showed a consensus with what the teachers had shared. The minutes showed that a meeting was held in 2013 for Mathematics. The meeting was for content gap, which was where various topics were done in a subject discussed. The minutes showed a cluster meeting for a Mathematics content gap on Algebra and area and volume of three-dimensional shapes (3D) for grade 7 to 9 in the GET Band. In the document, it is specified that the meeting adjourned at 10 am due to late arrival of teachers as it was scheduled for 9am. However, the meeting was successful as the document alleged.

The teachers were alleged to have co-operated with each other greatly and shared many pedagogical ways of tackling the two concepts mentioned above when in class. However, there were three other teachers present to assist the cluster leader, who are members of the cluster committee with a role of assisting the cluster leader in finding new information to be shared amongst teachers. The document showed an atmosphere of sharing and collaboration between the teachers as it stated that the teachers were all engaged in the meeting, bringing ways of dealing with the learners especially on how to teach algebraic expressions as well as the area of 3D shapes, which were topics teachers felt, were difficult for learners to grasp.

The second document and third document which were an itinerary for moderations for grade 8 and 9 showed the clusters which are called circuits, further grouped to attend at

various venues. The moderations were conducted at the end of each quarter or term as commonly known. For each term, the teachers brought their master files with all the work expected to be covered during that particular term. The teachers were also expected to bring learner's portfolios, which reflected what the teacher's master portfolio claimed. A number of requirements that must be present in a teacher's portfolio and learner's portfolio were always specified in the itinerary, for example, the CAPS document that was a guideline teachers were using when preparing and teaching in class; mark recording sheets, school moderation tool and many others. The clusters are conducted for each term, however, if for term 1 and term 3 the moderations were not done, therefore, term 1 would be fused with term 2 and term 3 fused with term 4. One last document was a program for a short workshop on natural sciences for grade 7-9. Natural science teachers from all the clusters were called to attend the training on curriculum development for a period of five days with each session lasting for two hours.

Table 4.1: A synopsis of the repetitive themes from the case studies

Teachers	Theme 1	Theme 2	Theme 3
	Views towards professional development programs	Participation in clusters	Teacher's views towards clusters
Mrs Tuma	Important and have attended a lot	Content gap, teaching styles	Important, be continuous, provide resources
Mr Somiso	Important and have attended a lot	Content gap, teaching styles	Important, be continuous, be monitored
Mr Bryson	Important and have attended a lot	Content gap, teaching styles	Important, be continuous
Mrs Katongo	Important, novice teacher therefore has not attended much	Content gap, teaching styles	Important, be continuous, provide resources
Mr Louw	Important and have attended a	Content gap, teaching styles	Important, be continuous,

	lot		provide resources
Mrs Luzongo	Important and have attended a lot	Content gap, teaching styles	Important, be continuous, be monitored

4.7 SUMMARY

In this chapter, a presentation of the narratives shared by the teachers about teacher clusters has been prepared. The next chapter discusses in details the findings of the research and making conclusions and recommendations for future research.

CHAPTER FIVE: FINDINGS, DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

This chapter presents a discussion of the findings of the study in details with conclusions and a set of recommendations for future research. The discussions are based on developing an insight on the meaning of the findings and conclusions relating to their implications for both policy and practice. Concepts and approaches from the literature will be cited where necessary to discuss and strengthen the findings in relation to the presentations made in Chapter 4. More specifically, I discuss the meaning of clusters as a teacher led development program from a teacher's point of view interleaved within a broader perspective of teacher professional development in South Africa and other developing countries.

My study emanates from the background that South Africa has been, over the past few years, engaged in a number of teacher professional development approaches such as teacher clusters, particularly in the development of Maths and Science. However, despite the popularity that the teacher network approach (Teacher led clusters) has gained, why is it still a continuous cry that no transformation is visible in teacher's knowledge and classroom pedagogical practices and embedded with poor learner performance? With very little research that has been done to understand the teachers' experiences with the

professional development programs from their own perspectives, the study sets its ground on hearing the teachers provide explanations as regards to these matters.

The study-explored teachers' experiences of teacher-led professional development programs with specific to the teacher clusters, by hearing the perspectives of teachers who have and presently are involved in cluster activities. The aim of the study was conducting a concentrated study that explores the teacher's views and experiences of teacher clusters and how such experience has thereof influenced and affected learner performance. The study was guided by the following research questions:

- **Main Research Question**

What are teachers' experiences of teacher-led professional development programs?

- **Sub-research Questions**

1. What are the teachers' views on teacher-led professional programs?
2. What are their views about teacher-led professional development practices for Maths and Science?
3. How can their views and opinions be understood and explained?

In chapter 4, the researcher presented using case studies, the stories, and experiences shared by teachers who are involved in circuit cluster programs. Quotes from the teacher's stories were used to validate the themes that emerged from the data collected. This is the last chapter where I discuss the major findings, consider their implications, and make

conclusions and recommendations for future research. In closing the chapter, I also propose and discuss an alternative teacher professional development model to that of Mokhele (2011) based on the data presented by the teachers who were participants in the whole study.

5.2 MAJOR FINDINGS

Seven major findings have emerged from the data presented in Chapter four. The discussion starts with the first finding called structure of professional development, followed by teacher collaboration, the content focus and the context of teaching in the rural settings, time of engagement, personal transformation and growth, strength of the administration and lastly the provision of refreshment and transport services

5.2.1 Structure of Professional Development

The technique in which a professional development program is structured has been viewed by literature as an important factor that plays a very big role in determining the effectiveness of a professional development program. The teachers interviewed have pronounced the use of a cluster structure as a form of professional development program used by the Mthatha district. Schlager et al (2009) supports that teacher's network can be implemented in various forms in which a number of scholars have written about such as

professional learning communities, teaching communities of practice, inquiry groups, cyber networks and many other networks with other labels.

Mokhele (2013) in her alternative model for professional development, which has been a cornerstone lens of this study, highlights an aspect of the way in which a professional development program is structured as much importance. The teachers interviewed in this study voiced the use of clusters as a form the department is using to reach out to the teachers in smaller scales for an improved teacher empowerment as reflected by one of the teachers:

We decided at district level to form circuit clusters and have cluster leaders. We are busy trying to engage with circuit clusters for the way forward to tackle problematic areas in our subjects. We organise a gathering for teachers for the various circuits at different times and share the content knowledge or teaching style we have received.

Niesz (2007) acknowledge what the participant shares, when affirming that in recent years, teacher's networks have been embraced to teacher professional development in contrast to such traditional professional development approaches as workshops or in-service days as networks often reflect a social or constructivist orientation to teacher learning. One other statement by one of the teachers that prominent the use of clustering as a professional development form stated that:

They nominated us as science teachers by clustering schools so that we were not overcrowded.

Clustering in African states such as Zimbabwe, Namibia, Republic of Guinea, Ethiopia and many more has emerged as one important form of reaching teachers on professional development. According to various scholars for all these states (Maphosa et al., 2013; Mphahlele, 2012; Jita & Ndlalane, 2009b; MacNeil, 2004), the purpose of establishing this type of teacher led professional development is for an alternative strategy to reach teachers due to the failure of the traditional approach programs used for decades.

Mokhele (2013) also contends in her model that the aspect of structure on the form of the activity used may be of a reform type, such as a study group or a teacher network, as opposed to the traditional workshop or conference. Visser, Coenders, Terlouw and Pieters (2010) also endorse that teachers should network and the result of the professional development program should be a well-organized network in which teachers from different schools participate in collaborative activities. The scholars further state that the module should be made relevant and attractive for students with teachers designing stimulating curricular elements to increase students' interest and motivation.

As evidenced by the teachers, designed in the form of cluster meetings, the clusters make use of a group work approach when the cluster activity is in progress and, thus making teachers involved, which is an aspect the teachers are passionate and are enthusiastic about. This is evidenced by one respondent stating the following statement:

In the programs it depends, sometimes and most of the time we work as groups, where we are given something to write and present, a task, you know.

One other respondent pronounced that:

It was a very hands on meeting. They don't come to impose on us but they try to see to it that we can all engage in what has been identified as areas of problem commonly in our schools. We were all having a say and very much actively involved.

According to Nelson (2009), the idea in cluster networks is for teachers to come together for sustained periods of time to engage in collaborative inquiry around problems of practice and to jointly plan and reflect on, teaching all in the service of improving student learning. Schlager et al. (2009) further view that teacher networks, in different forms, are effective alternative and supplemental interventions to traditional workshops and institutes for learning content and pedagogy. Such involvement and jointly working together is evidenced in the above quote as one thing teachers enjoy about clusters.

McDonald and Klein (2003) suggest networks are significant in creating a common discourse and norms for the development and maintenance of a community of practice within and across schools, one tuned to larger perspectives on content and the teaching of it. The writer further suggests that networks provide leadership opportunities for teachers whereby their sense of the complexities of reform in practice may affect the development of policies within and beyond school, particularly policies affecting what gets taught and how. Basing on teacher professional development in general, Borko, Jacobs and Koellner (2010) identify three characteristics of high-quality professional development. The first one is content characteristics, which relates to situating the content of the professional development in practice and focused on learners' learning. It also includes engaging

teachers in inquiry about the concrete tasks of teaching, assessment, observation, and reflection, and provides them with the opportunity to make connections between their learning and their classroom instruction. Secondly is the process characteristic which is about teachers modelling preferred instructional processes, engaging teachers in active learning, and building a professional learning community. The last is structural characteristics, which represent structuring the activities of the professional development to be on going, sustainable, and provide teachers with opportunities to engage in cycles of experimentation and reflection.

The teacher's views towards clustering has been commonly equivalent as they all echoed that cluster programs are very important and effective and much more related to their classroom policies and practice as they are given opportunities to be actively involved.

The findings of the study have therefore proved to be the same as those found by Mokhele (2013) in her study in Mpumalanga as she states that, the network or cluster approach of the MSSI seems to have created lasting opportunities for networking and for building professional relationships around subject matter and classroom practice. MacNeil (2004) also supports that school and cluster-based, in-service teacher professional development programs have been offered as promising alternatives.

The programs as stated by the teachers are run by cluster leaders and the teachers on their own as evidenced in the following quote:

Most of the programs are organised by cluster leaders of the circuits for Mathematics to be specific. Because I had a period when I was a cluster leader, until 2013, so I used to attend workshops organised by the DoE as a cluster leader so that I can be able to filter the information to the other teachers at large. However, at times an expert would be present to share new important concepts and pedagogies viewed as effective for their classroom practices. Someone who is good in the area to show us how to teach it would lead the cluster meetings, for example, we also make a lot of misconception on terms, so we correct those misconceptions. One time, for example, we attended a workshop, as we usually call them, on balancing equations by a Mrs Zamdela from one of Mthatha schools. We were then expected to go and use her method of teaching back at our schools and this helped us a lot.

From their point of view, having a visit from an expert (whether it is a teacher from another school) brings in waves of hope and excitement. It was observed that for them, the visits mean more growth and development in their teaching and learning settings. Such growth presents a series of positive and inspiring atmospheres in their classrooms, which help in reaching their desired outcome which is always an improved learner performance. Whitehouse (2011) in one of the six major characteristics of a professional development program also stresses that an effective professional development should make use of external expertise. In a review of studies on CPD by Timperley et al. (2007) it was general that, the experts provided up to date knowledge of pedagogy and on-going support in transferring pedagogical knowledge into the classroom. They were also in a position to challenge current orthodoxies in the schools they worked with (Doolittle, Sudeck, & Rattigan, 2008) and act as an independent 'honest broker'. This is one other factor and

structural component that forms a link to what Mokhele's model entails in the structure as based to the MSSI cluster programs being run by expects to cover content gap as well as improve the pedagogical styles of teachers to improve teaching and learning in schools.

As Mokhele (2013) positions, it is therefore important to consider the structure of the program when planning a CPD intervention for teachers. Ross and Adams (2007) state that over the past twenty years, there has been a paradigm shift gathering momentum with regard to the professional development of teachers, which is fuelled by the complexities of teaching and learning within a climate of increasing accountability; this reform moves professional development beyond merely supporting the acquisition of new knowledge and skills for teachers.

This most recent model of professional development ultimately requires a fundamental change in the institutional structures that have governed schooling as it has traditionally existed and now involves teachers in the dual capacities of both teaching and learning and creates new visions of what, when, and how teachers should learn (Vescio, Ross, & Adams, 2008). As the data presented in chapter four founds, the cluster programs have implications of being able to provide the participating teachers with the opportunities they needed, partly because of the manner in which it was structured (Mokhele, 2013).

5.2.2 Teacher Collaboration

This is a second finding of the study from the interviews which has also come with a resemblance of what is found in the model developed by Mokhele (2011). The teachers evidenced an atmosphere of teacher collaboration as one of the most significant aspect teacher clusters play. Stacey (2013) maintained that teachers in a collaborative setting have opportunities to share their expertise as classroom professionals, develop common practices, and assess how those practices improve student learning. Such interaction as the teachers testified brings a sense of mentoring and reliance to each other amongst themselves.

Sometimes we plan together one thing as we write common papers in June and December, set by the department, so we need our kids to be on the same level, though we are still struggling.

Hismanoglu (2010) in defining a professional development program argues that it allows time and opportunities for planning, reflection, and feedback in order to report successes and failures to the group, to share “the wisdom of practice,” and to discuss problems and solutions regarding individual students and new teaching approaches. As the scholar posits the revelations of the teachers also defined a standpoint of collegiality between the teachers, allowing them freedom and openness to interact with each other as best as they could. Each teacher’s voice, therefore, is heard and given attention and as such, a sense of belonging and dependence on each other’s knowledge is promoted. The teacher’s voices therefore also echoed what van Es (2012) claimed detailing that there is collegiality and collaboration where group members take responsibility for each other’s growth and co-

ordinate individual knowledge and expertise to advance the collective work of the group. As quoted by one respondent:

Clusters are very important because it is where one voices their difficulties and it is where they get advices and they go back to classes being refreshed and revived. As we are facing the problem of shortage of teachers, especially in Maths and Science, having clusters help the disadvantaged schools because the teachers who teach those subjects get some advices on how to teach certain topics.

Turkey (2004) concedes school clusters as a tool that schools can use to promote collaboration, reflection, sharing and learning among the teaching fraternity. Sharing and collaboration of information to upgrade and improve each teacher's knowledge and skills are, therefore, the key factors of a cluster. Long before, Darling-Hammond and Styles (1999) have stated that teacher-learning communities provide an environment for long-term collaboration with colleagues focussing on issues related to the day-to-day practice of teaching.

Maphosa, Mutekwe, Machingambi and Wadesango (2013) have argued that the common purpose of clusters or teacher communities is to operate on the premise that learning is a social process and it requires people to collaborate and share information and ideas. Therefore, the idea is for teachers to come together for sustained periods of time to engage in collaborative inquiry around problems of practice and to jointly plan and reflect on, teaching all in the service of improving student learning (Nelson, 2009). This goes hand in hand with what the teachers have narrated about clusters alleging that:

The activities are conducted to a group of teachers with a lot of hands on. It's not like in a seminar where somebody stands in front of you and present. It is a lot of hands on. I think that is why they use the word workshop. We are working there, presenting as groups with everyone playing a role.

or

One other thing that inspires me is that we are involved hands on. We are given opportunities to present also, to prepare a lesson and the present it.

This means according to the quote and as stated in the literature above, the clusters allows teachers to drive the programs and as such, they are growing individually and develop an identity of being a teacher. Thus, the collaboration in a cluster program enables participating teachers to gain a substantial degree of ownership by their involvement in decision-making and by being regarded as true partners in the change process (Hismanoglu, 2010). One of the strongest findings from the research is that teacher cluster programs need to be collaborative in nature. Reviewing collaboration, involving teacher's inputs according to Wikeley (2005) creates a strong sense of ownership and encourages active learning.

Jones, Asensio and Goodyear (2000) also argues that collaborative involvement with teachers of different schools in an interactive process can create a network, where teachers support and inspire each other and professionalise themselves. The same sentiment on needs and collaboration is shared by Desimone, (2009) and Lieberman & Pointer Mace (2010) writing that in addition to collaborative, school-based approaches are used that focus on the learning of all students, that are linked to teachers' daily school practice, teachers"

prior knowledge, and the curricula that teachers must follow, and that also adjust to their diversity of behaviours and beliefs. Emphasizing collaboration as well Meirink, et al (2007) shares that as it is assumed that exchanging ideas, conceptions and opinions, people can generate or create knowledge which could not have been generated by one individual.

Teaching is a reflective practice that improves with discussions, which challenge personal theories of practice in safe, non-judgmental environments. Teacher's networks bring teachers together to address the problems, which they experience in their work, and thus promote their own professional development as individuals and as groups (Villegas-Reimers, 2003). This can be achieved by a number of means, such as: lesson observations with feedback provided by colleagues in the same and other schools, participation in networks of professional learning or projects aimed at professional development through the improvement of students' outcomes (Cordingley, Bell, Thomason & Firth, 2005). A novice teacher who was one of the participants, unwaveringly shared how these cluster networks incorporate them as new teachers, stating that:

You learn a lot from your colleagues because of their experience which you do not have. So the workshops are a great gain in knowledge and skills needed in teaching.

Such training and mentoring dignifies them as teachers and as Maphosa et al (2013) accentuates, the importance of school clusters in ensuring the provision of necessary platform for teacher professional development through collaboration and sharing is, therefore, an important function of clusters for practising teachers. Starkey et al. (2009) and

Rogers et al. (2007) note that professional development programs are necessary not only for new teachers, but also, for veteran teachers with an emphasis on the importance of professional development programs to veteran teachers being for self-renewal. Komba and Nkumbi (2008) add that professional development provides teachers with opportunities to explore new roles, develop new instructional techniques, refine their practice, and broaden themselves, both as educators and as individuals. It therefore, as the teacher implicated, grows them to be confident and experienced teachers who can confidently produce effectively performing learner achievement. For Zakaria and Daud (2009), good teachers constitute foundation of good schools and improving teachers' skills and knowledge is one of the most important investments of time and money that local, state and national leaders can make in education.

As if in support, Mclaughlin and Talbart (2006) articulates that cluster programs can also have different goals for their work, such as developing pedagogical knowledge, learning content more deeply or analysing student work or district or state-wide assessment data Teacher collaboration. This has been resounded by the teachers as sometimes they cluster together to analyse results and find points of weaknesses amongst different schools on a particular concept of a particular subject. The following quote acclaims this:

I have been involved in district cluster for NS, being a co-ordinator, being selected by the other NS teachers. I've also been selected by the district to attend CAPS training in Stutterheim for NS. I am also involved in a cluster at the circuit for NS grade 7. I look at the analysis of results after June and we decide where the

difficulty was and try to improve that area. I've been selected here by the other principals in a principal's meeting.

The teacher's experiences of clusters in reference to teacher collaboration therefore creates an agreement with Mokhele (2013) model as it states that this feature explains the importance of teachers from different schools meeting and conducting many of the activities as a group. Furthermore, the scholar concludes that besides the specific content knowledge that the teachers discuss in their clusters, they also share and discuss their problems regarding pedagogy and classroom practice.

5.2.3 The Content focus and teaching in diverse classroom

This is the third finding, which contemplates that dealing with the subject matter as well as take into consideration the various contexts of teaching such as rural and urban settings is of importance in a professional development program. However, in Mokhele's model, this feature is collaborated with rural contexts of teaching. In the findings from the data collected from the participants of this study, the researcher considered the issue of rurality as in Mokhele's model as not much relevant in their contexts of cluster programs since the participants shared more on how the content goes with their varied classroom contexts as one would find that most schools in the Mthatha district are rural. The issue of rurality, therefore, is an everyday living for approximately about 99% of the clusters hence therefore I designed this feature for *teaching in diverse classrooms*, as it is a commonly known fact

that teacher's classrooms differ. This therefore creates a new feature as compared to that of Mokhele's, which is a contribution that will be discussed later in the chapter.

It is expectable and a commonly shared supposition that the subject matter be mastered by both new and old teachers for an effecting teaching and learning environment. Interestingly, what the teachers presented in their experiences shows that the cluster activities they have been engaged in have preserved such mastering, as the content of the subject has been a priority for both Mathematics and Natural Sciences. The following statement demonstrates such prioritization of content:

In the cluster, a lot is covered. Like I said, we come together and discuss a theme as NS has four themes. We take one theme, although the time becomes against us sometimes but we make sure we cover the whole information needed to be known by a child on a theme.

Mokhele's model positions that focusing on subject matter content in a professional development program is of importance (Mokhele, 2011). Wiliam (2007) writes that teachers are required to make enormous shifts in the way they teach math, science, and language arts and within each discipline, students are expected to develop and demonstrate critical thinking skills: analysing and making sense of nonfiction text, carrying out scientific investigations rather than just remembering science facts, and constructing viable mathematical arguments. It is within an understandable debate that therefore the Bill & Melinda Gates Foundation (2014) states that teachers want and need support to develop their practice so that their students can succeed.

McDonald and Klein (2003) suggest a number of functions that networks can play to advance serious school reform which include the following: developing teachers' content knowledge important; enhancing teachers' pedagogical content knowledge in ways that accommodate reform; providing teachers access to content-focused expertise otherwise not available to them and scaffolding the emergence of new practice with respect to content and providing sustained professional development to teachers, such that, new content-focused practice may have time to emerge and become established. McNeil (2004) further states that ensuring that teachers understand the meaning of such reforms, are competent in the subject matter they teach, know a range of appropriate methodologies, and approach their work with professionalism and high morale are issues that demand urgent attention. The teachers enthusiastically showed admiration that embraces the significance of learning content more deeply (McLaughlin and Talbart, 2006) and as such keeping teachers motivated, confident and excited as the quote states:

That content gap thing must not be thrown away. It must always be there because I could see how the teachers get so inspired after they have attended a cluster meeting. And the level of confidence is lifted and boosted.

Moreover, one of the most significant lessons from the research on how the teachers view and experience cluster programs is that they help in embracing alternative measures of success and confidence expected of teachers in their diverse classroom levels. According to South Africa (2007), professional development (PD) programs should emphasise the integrated development of learning area/subject content knowledge and pedagogical skills

as well as teachers' competence in the language of teaching and learning. Whitehouse (2011) agrees that professional development should be subject specific as research shows that CPD is more likely to bring about improvements, particularly in teacher efficacy and pedagogical content knowledge, when it is subject specific. Such development helps the teachers to preserve harmonious atmospheres in their classroom encounters and as such teachers emphasized that cluster programs do provide that as this quote for Mathematics shares:

With me, I had a problem with teaching fractions and upon attending or having workshops on teaching fractions, through meeting with other teachers, they shared other strategies I didn't know at all and as a result I am able to make my learners understand fractions. One other thing cluster programs have helped with is that most importantly, as early as grade four, I know that my learners must understand what fractions are. I am able now to show my learners the bottom line by looking at the reality manner of fractions and not just telling.

As the quote above laments, Bayar (2014) also brings to light that the impact of high quality teachers on student learning and achievement has been debated and the benefits accepted over the last several decades by many researchers, educators, policymakers, and teachers' unions. Visser et al (2010) affirm that topics for discussion in a professional development program can be teaching methods and content, but also practical issues such as how to use a specific activity in class and further claims that cooperation can be intensified by having teachers develop additional material or assessment instruments. Whitehouse (2011) also states that a professional development program ought be driven by identified learning needs which involves an audit along the lines of what students currently

know and how this is measured, followed by a statement of what the students need to know and a strategy for moving from the current state of students' knowledge to the desired state. Such an audit is driven by taking into consideration the diverse needs of schools as well as individual teachers in their individual classrooms where they address individual learner needs and abilities to learn.

Additionally, Whitehouse (2011) points out that it should be based in the classroom as basing CPD in what goes on in the classroom presents teachers with opportunities to consider their existing theories of teaching practice and how to change these in the light of new learning about their subject and its pedagogy. Correspondingly (Mokhele, 2011), even though referring to rural and urban contexts, but is emphasizing diversity in schools, asserts that an important variation on the content theme lies in the recognition that a professional development program does not have to be one- size-fits-all, as teachers have different needs. And as Stacy (2013) claims, teacher-led professional development serves to unite the two personas by giving teachers the power to shape curriculum and generate student assessments based on analyses of local needs.

The cluster programs as professional development model should be made relevant and attractive for students, as teachers can design stimulating curricular elements to increase students' interest and motivation with teachers who are well prepared and organized for their lessons. Where teaching and learning difficulties can be discussed, and good practices exchanged combined with how to prepare practical activities and where to obtain certain equipment and materials also as needs to be addressed (Visser et al, 2010). Bransford et al

(2000), also maintain that professional development programs should be learner centred, knowledge centred, assessment centred, and community centred to optimise teacher learning. As Leu (2004) posits, it is of central importance to consider teacher knowledge and realities of classrooms.

The teachers from this research study also showed that the cluster programs have adhered to this demand of putting into perception that the diverse background of schools and the learners at large is taken into consideration. Such exposure reduces to a certain extent the tremendous strain of working alone in classroom backgrounds filled with diverse learners by making provisions of how to achieve better learner performance under such conditions as confirmed by the quote:

Remember we teach in schools with no resources, so we are showed how to improvise so that a lesson is simple. Sometimes we plan together one thing as we write common papers in June and December, set by the department, so we need our kids to be on the same level, though we are still struggling.

Sharing the same sentiment, another quote shared that:

Basically in all these programs what has been shared was mostly the strategies on how to teach Mathematics to the children and with specific reference to the development of a child and how does the development of a child relate to Mathematics knowledge of a child. As well as how Mathematics relates to the background of the child, the context from which the child comes from.

Therefore, the cluster programs as viewed by the respondents do adhere to prioritising developing teacher's knowledge of subject matter content as well as various skills of teaching which take into context the various teaching backgrounds. For them, this one aspect makes cluster important to them. They claim that as an individual teacher you don't hold all the answers, and as the syllabus changes every now and then therefore a need for mind refreshing and advancement of skills is always needed. The DOE and SACE in South Africa (2008) also declare that professional development collaborates many aspects and broadens teacher professional development to be activities undertaken individually or collectively by teachers throughout their careers to enhance their professional knowledge.

Furthermore, understanding, competence and leadership capacity, in particular to increase their mastery of the curriculum and their teaching areas, their skill in teaching and facilitating learning, their understanding of children and young people and their developmental needs, and their commitment to the best interests of their learners and their schools. This feature in a professional development program can therefore produce the desired outcome emphasized by the DoE (2007) of integrating subject matter content and skills required for the teaching of diverse classrooms Zakaria and Daud (2009). Therefore, as the scholars further argue, to be effective, professional development must provide teachers with a way to apply that which they have learnt directly to their teaching.

5.2.4 Time of engagement

The amount of time spent in the professional development activities must receive consideration because professional development, by its nature, should happen while the teachers are engaged in their work and profession (Mokhele, 2011). The longer activities, as noted by Desimone (2009) are more likely to encourage in-depth discussions of content, student conceptions and misconceptions. Also drawing from Garet et al. (2001), Mokhele emphasises the emerging consensus in literature regarding teacher learning and professional development calls for professional development to be sustained over time.

Data drawn from the participating teachers as well as the documents showed that the cluster programs run for only a day except for the times when a new program such as CAPS is being introduced. The quote below alleges this:

But for the circuit clusters, it is most of the time a day. It was only the CAPS workshop that took a week, simply because it was a change of syllabus. Otherwise normally our workshops for content gap for example run for a day only.

The teachers interviewed voiced dissatisfaction with this time allocation as they point that it creates challenges of not being able to cover other aspects whether of subject matter content or pedagogical strategies. According to them, the time allocated to these cluster programs is a constraint that forms many other factors that create ineffective professional development programs. As the statement below suggests, voiced by a teacher who is also a

cluster leader, information received from an environment that had enough time allocated ends up being lost as it reaches the circuit cluster level:

And what I have observed in the past is that if the workshop was for four hours, it is easy to organise a one hour workshop and then you are gone. Within that as you come from a highly organised environment where all the information is given but when you go to clusters it becomes weaker and weaker. By the time it gets to the learners then it becomes a zero. I think it is also important that in terms of time, eh one day workshops are not giving enough information. Maybe if we get more lengthy workshops or even go to as far as using weekends and see how teachers are then compensated for that, ja we would then be getting more information and not at the expense of the learners.

In support, one other teacher pronounced that:

Oh, if I were to plan or a run a cluster program, I would definitely start with the time. I would take out the one day workshop. For me for example the workshop I attended took one day and it really was not enough. Some things that I needed attention on were not done

Hismanoglu (2010) highlights that a professional development program allows time and opportunities for planning, reflection, and feedback in order to report successes and failures to the group, to share “the wisdom of practice,” and to discuss problems and solutions regarding individual students and new teaching approaches. The time allocated for these cluster programs therefore contradicts what this scholar and many others have argued for in terms of how important it is that the time allocated be enough for all the aspects planned

to be covered. As such, the focus the clusters are planned to accomplish seems like an unattainable goal.

The time allocated to the cluster activities as the teachers allege therefore portrays a deprivation of the cluster activities being effective in developing the teachers. It also contradicts what Pitsoe and Maila (2012) argued for when proposing that a future teacher professional development policy aimed at the South African education system, should be integrated with district goals and guided by a coherent long-term plan. A long-term plan involves enough time for each program and should be on a continuous basis. The teachers further alleged that the one day cluster programs are not connected as they are not continuously done as at times you would find that only one cluster program has been called in a year:

Workshops should be on regular basis not as they are like once in a year. This other participant even shared alternative ways that would help keep the programs continuous and achieving the goal of serving their importance to the education system of our country at large:

We need them as teachers to be done more often and be monitored better than the department of education is doing now. They must make it a priority as a professional development of teachers. For example as CAPS has arranged the themes per term e.g. term 3 in NS we teach Energy and Change, I would advise that a cluster training be done before we go and teach that area and be given ways and

methods of teaching certain areas. Be given types of assessment we can give to learners prior the teaching of this theme.

The statement above, as well as the other claims the teachers have said about time of engagement in their cluster programs adheres to many findings researchers have endorsed on time spent on a professional development program for example, Murtaza, (2010) contributes that professional development of teachers does not take place in a once-off workshop but rather scholars agree that it is a continuous and dynamic process of learning opportunities.

The Bill and Melinda Gates Foundation (2014) also mentions sustainment over time as professional development needs to be something that you keep working on for a semester or a year. Guskey and Yoon (2009) on a study they conducted on the effectiveness of professional development brought to view the importance of continuity, which they term, follow up in order to achieve the best results. The scholars explain their findings on this aspect by sharing that for decades, professional development experts have stressed the importance of follow-up activities as educators at all levels need just in time, job embedded assistance as they struggle to adapt new curricula and new instructional practices to their unique classroom contexts.

One of the four critical elements, developed by Dyer (2013), that help make teacher professional learning meaningful and worthwhile is that learning is incremental. It takes

time to change practice and to be lasting it must become a part of the teacher's routine. In a more collected statement Harewell (2003), emphasises that teacher professional development is not an event but a process. Pitsoe and Maila (2012) agree with such claim as they claim that professional development is not a static concept but a social construct and fluid in nature.

Guskey and Yoon (2009) also advocate that as professional development advocates have long lamented the lack of sufficient time for staff members to engage in high-quality professional learning, therefore, educators need time to deepen their understanding, analyze students' work, and develop new approaches to instruction, but warn that simply providing more time for professional development yields no benefit if that time is not used wisely. Birman et al. (2000) and Garet et al. (2001) also infer that it thus seems clear that effective professional development requires considerable time, and that time must be well organized, carefully structured, purposefully directed, and focused on content, pedagogy, or both.

Continuity in a professional development program, termed as continuing professional development (CPD), is according to Fraser et al. (2007), extensively regarded as the most effective approach to prepare teachers adequately, and to improve their instructional and intervention practices, for when they enter the workforce. Mokhele (2011), therefore, establishes that CPD programs are viewed as systematic efforts to change the practices of teachers in the classroom, to change their attitudes and beliefs, and to change the learning outcomes of students. Such effectiveness, as the scholars posit, is derived from a

continuous implementation of a professional development program as the participants aspire for the clusters. Timperley et al. (2009) found the CPD needed to last for at least a year. However, a long duration, in itself, was not sufficient to produce positive student outcomes; how the time was utilized was just as important (Whitehouse, 2011). Time is needed to challenge teachers' theories of practice, to apply new practices in their classrooms and to measure the effects (if any) of the new teaching practices (Whitehouse, 2011). The poor time allocation and lack of continuity confirmed by the data in this research, definitely forms a part of a recipe of failure, which has been a major finding of many studies done in cluster programs. However, before we can throw in the towel and say clusters are not effective, such setbacks need to be considered and corrected.

5.2.5 Teacher growth and confidence

Mokhele (2011) suggests a sixth and final feature in her model, that of personal transformation and growth. In this feature, the scholar regards growing of teachers personally as one of the most important factors for teachers who participate in a professional development program. However, from the data collected from this study, the growth, and personal transformation Mokhele's model refers to does not relate that much, as there is no travelling to various areas in the cluster programs as it was the case in the MSSl project that was studied by the scholar. Henceforth I have identified this feature for this study as teacher growth and confidence. For example, the teachers who participated in the project studied by Mokhele had at times visited to Japan, which made a contribution of growing and transforming the teachers personally such as learning different cultures etc.

Moreover, some of the participants in the study done by Mokhele were not trained to teach Mathematics and Science, therefore the project transformed them to be capable of being experts of the new fields they had to acquaint themselves with as well as produce effective results. The growth the participants mostly related to in this study was of growing professionally which grows their confidence in teaching. Such development as the participants shared help them to be able to endure the difficulties they encounter in teaching as well as work with confidence with their learners.

It is important to note that teachers are attracted to professional development programs not only because of the four aspects discussed earlier, but also because such programs have the potential to fundamentally change them for the better (Mokhele2011). The teachers shared how clusters honour them with growth as individuals in their career paths, as well as constructing well-developed individuals holistically:

But you know what, these gatherings grow us. You grow as a person; you gain more confidence with your teaching especially with us in our disadvantaged schools. A teacher, no matter how experienced you are, you need such confidence to improve your student's work and to stay motivated because iteaching sisi (sister) iyagugisa (makes one old).

One other participant voiced such growth by saying:

What I am trying to say or show in this is that attending such programs or workshops have made me who I am today in terms of teaching. Professional development programs play a big role in the life of teaching because the syllabus changes every now and then and most importantly you learn new ways of teaching

concepts considered to be difficult for learners in a much easier way, for example division in Maths or balancing of equations in science.

From both quotes, it is evidently, clear that the teachers are grounded by a belief that for them to be effective in their classrooms, they need to be continuously redefined and as such, that keeps them motivated. The cluster programs as the above quotes relate have opened doors of growth in skills and knowledge beyond one's ability and therefore asserting for broader goals that aim at improving the future of the learners. Meidl & Meidl (2011) emphasize that even if teachers are mandated to implement scripted curricula, teacher-led professional development can enable curriculum adaptation or integration. The teachers as tools, therefore, that can be a vehicle that makes learning easier for the learners through them as teachers being continuously developed holistically, view the cluster programs.

In a more precise modus, Mokhele & Jita (2012) expound that the CPD of teachers is one of the key factors in ensuring that education reforms, at any level, are effective. International evidence seems to suggest that the progress of educational reforms depends on the individual and collective capacity of teachers and its link with the school- wide promotion of the education of pupils (ibid). The pride of knowing who you are as a teacher is definitely an important factor that can contribute towards an effective teaching and learning as the above quotes suggest.

Furthermore, the high stakes and testing demands the classroom level brings needs a teacher who carries all the necessities of being a professional teacher. Such necessities, as the teachers shared, are not acquired by one immediately after college, but are gradually acquired through attending developmental workshops hence it is a need that the clusters be structured to provide that. According to Stacy (2013), teacher-led professional development can help overcome standardization by providing opportunities to enhance professional autonomy. The following quote speeches such growth and professionalism the teachers claim clusters programs bring to them:

Yes, personally I have grown so much. I am old now and the experience I have is beyond because of such programs. When you start teaching you do not know everything. You learn many things when you are really in class. You learn a lot from your colleagues because of their experience which you do not have. So the cluster workshops are a great gain in knowledge and skills needed in teaching. Grooming a child's mind is not unophuca (a Xhosa traditional game) because you are working with a mind that represents the future. The programs we attend help a lot around those areas of creating a real teacher.

Such growth and confidence, as the quote claims, relate to what the DOE and SACE in South Africa (2008) collaborate as they broaden teacher professional development to be activities undertaken particularly to increase teachers' mastery of the curriculum and their teaching areas, their skill in teaching and facilitating learning, their understanding of children and young people and their developmental needs, and their commitment to the best interests of their learners and their schools, the wellbeing of their communities and the ethics of the education profession. Teachers should develop their knowledge. Day's definition enhances

such claims as the teachers, the DoE and SACE that professional development is a process by which teachers review, renew and extend their commitment as change agents to the moral purposes of teaching (2004). Hence, it may be an acceptable claim that professional development programs in general need to enhance the growth and confidence this feature presents.

Mathematics, Science and Technology (MST) education has been a national priority in South Africa for several years, as evidenced, for example, by the National Strategy for Mathematics, Science and Technology Education devised by the Department of Education in 2001 (Department of Education (DoE, 2001). Effective professional development experiences are designed to assist teachers in developing a new understanding of teaching and learning (Zakaria and Daud, 2009). The scholars further emphasize that, to be effective, professional development must provide teachers with a way to apply that which they have learnt directly to their teaching (ibid). The clusters as the teachers allege endorse what Stacy (2013) addresses as she states that through their professional development, teachers can restore their identity as autonomous, creative teachers and provides teachers a voice in the decision-making process regarding curricula by facilitating dialogue that focuses on assessing student achievement within the curricula.

Meidl and Meidl (2011) emphasizes that even if teachers are mandated to implement scripted curricula, teacher-led professional development can enable curriculum adaptation or integration. For example a study conducted by Mendelsohn and Ward (2001) in Namibia, showed that, clustering improved quality of teaching and learning, efficiency in terms staff

training and development, co-planning and access to schooling. According to Mphahlele (2012), clusters could serve as an innovative network to support, promote and inspire teacher development leading to quality education. Both novice and experienced teachers encounter the daunting environment of teaching various subjects one is not familiar with but expected to produce quality education. The collected data reveals that this is caused by the challenge of shortage of teachers in schools. This becomes a much more massive problem especially for Mathematics and Natural Sciences, which are viewed by literature as critical and most challenging subject the learners are faced with. Cluster activities have been viewed by the participants as opportunities that help teachers adapt to the changes and be fully operational and thus eliminating the threats such encounters bring to the education system of the school. The highlight below justifies this:

I also teach Mathematics at grade 4, 5, 6 & 7 because they have no Maths teacher. I attended a cluster for Maths at my circuit for numeric patterns and it helped me to teach it at school and my learners enjoy the lessons.

Literature, for example, McNeil, (2004) argue that ensuring that teachers understand the meaning of various education reforms, are competent in the subject matter they teach, know a range of appropriate methodologies, and approach their work with professionalism and high morale are issues that demand urgent attention. In that, teachers grow to adapt in any subject given to them to teach because opportunities of support are within reach. For the teacher in the above quote it is evident that the support and collegial nurturing provided by the cluster programs does make a difference at classroom level of a teacher who knows what he or she is doing.

A team of facilitators from Singapore then trained us and we were given material to refer to when we came back to our classes. When I came to Mthatha, I attended a Science Education Project (SEP). We were also trained in doing experiments in general science, the then Biology and Physics and we were given science kits to go and show other teachers at school how to conduct all the experiments in the syllabus.

5.2.6 Strength of administration

Harewell (2003) argues that professional development can succeed only in settings, or contexts, that support it. One of the most significant lessons from this research and one of an important issue that is somehow left out of Mokhele's model: is that of providing close monitoring and administration to the cluster programs for a fluid and effective progress. The data in the study has showed a consensus of teachers who desperately need an unwavering monitoring of the cluster programs by the DoE officials. From the indications made by the teachers insufficient administration and follow up from the department of education poses an impediment to the effective growth process the cluster programs bring to their teaching and learning. The collected data revealed that cluster activities are of great importance and a need to the teachers and beyond. As the teachers have shared it is vivid that the extent to which the management and administration of the clusters within the collaborating stakeholders that run these practices monitor is a key factor in establishing a potential of making the programs a success. As these statements assert:

Well, I will be honest with you, not all the time did I share the information back with the teachers because sometimes you find that you attend a workshop and you still

have your own load at school and because there's no follow up by the department to make sure that indeed the workshop that was supposed to be organised is organised. Sometimes you just go to that workshop and it becomes your own information and development and you never find time to call other teachers to come to a workshop. So that is the reality of it and I would say that out of maybe five workshops that would maybe attend, you only end up calling one workshop for the teachers,. The next you won't be able to call.

Or

I'll talk about my experience of doing it because what I used to do was I was responsible for writing the letters. What I would do is take the letters and find if I could be able to some teachers that are teaching Maths and give them the letters of the invitation. I would go even to the extent of sending the letters to the department of education so that when principals attend they are able to get those letters, which of course I think it gave me lots of problems because sometimes you would expect the letters would be delivered. But if the principals do not go to the office then we are in trouble, then they won't be delivered.

Dyer (2013) claims a very important point of supportive accountability within a professional development program. The scholar states that change in teaching practice is challenging and requires both support and accountability. Therefore because cluster programs provide teachers the opportunity to develop personal action plans, report back to the group what happened as a result of implementing those plans, reflect and receive feedback (support) from colleagues who are working on the same changes in practice, it becomes dire that they are monitored correctly (Dyer, 2013). Borko (2004) and Ross & Adams (2008) have also

shared the same notion of continuity and support as an essential feature of effective professional development.

In relation to what literature claims, the teachers have voiced out cries of dissatisfaction and challenges caused by lack of monitoring as one element amongst others that makes the clustering system less effective as it should be. The problems alleged by the participants of poor planning and lack of monitoring results in the cluster programs being non-continuous and repetitively leaving no mark of change in the education system as a whole. For example, as pronounced by the participants above and the following quote:

We need them as teachers to be done more often and be monitored better than the department of education is doing now. They must make it a priority as a professional development of teachers.

Furthermore, as voiced by one participant who has an experience of being a cluster leader, the department of education has hiccups in even helping out the cluster leaders at times in officialising the correspondence, which therefore leads to a dented planning of the cluster program such as poor attendance. The cluster leader shared that:

If I see a teacher and give that teacher a letter and it becomes a problem when the teacher submits the letter to the principal because one it is not seen as seen as an official letter because it is written by you without the departmental logo. So at times you find that there would not be good attendance, there would poor attendance because of those reasons or logistics in terms of organising the workshops.

This problem is further defined by the respondent as an aspect that leads to cluster leaders themselves feeling unprotected and not obliged to drive these programs as expected. The burden of being thrown into the deep without any assistance therefore promotes cluster programs that are just white elephants with no one to accelerate as needed:

Well, I will be honest with you, not all the time did I share the information back with the teachers because sometimes you find that you attend a workshop and you still have your own load at school and because there's no follow up by the department to make sure that indeed the workshop that was supposed to be organised is organised. Sometimes you just go to that workshop and it becomes your own information and development and you never find time to call other teachers to come to a workshop. So that is the reality of it and I would say that out of maybe five workshops that would maybe attend, you only end up calling one workshop for the teachers,. The next thing you won't be able to call.

Such poor monitoring, as claimed by the teachers, sets to be a reason and cause that makes the programs non-continuous. Even the challenge of time was voiced by one respondent as maybe driven by the poor monitoring. According to the respondents, teachers are also like school children and constantly need to be kept motivated and on their toes by seeing a departmental official they have to report to and who is also hands on involved in monitoring them. The highlights below justify this:

I think the time constraints are due to the non-monitoring. If they are monitored and you are not just thrown into the deep all by yourself then it would work great. You know teachers, if there is no monitoring, they always feel like it's a holiday, it's

a half day, so they will push so that you finish early but if its monitored then it will be fine.

Whitehouse (2011) supports what the participants are claiming as the writer stresses that there must be effective organizational structures for a professional development to be effective. The scholar states that at the school level, CPD needs to be planned and organized because without this, teachers are effectively left to organize their own professional learning, which will only work for those who are highly self-directed. Furthermore, the individual reflective practitioner may also find that their learning goals are misaligned with those of their colleagues, their schools, education policy or best practice. Even where collaboration and learning communities are encouraged within subjects or topics, teachers may experience resistance to developing new practices in their classrooms when the school environment is not open to innovation (Whitehouse, 2011).

As the teachers allege, Mendelsohn and Ward (2001) in Namibia also showed that, clustering improved quality of teaching and learning, efficiency in terms staff training and development, co-planning and access to schooling. For the teachers, a continuous and constant follow up would then mean cluster programs that are efficient and effective throughout their teaching and learning schedule. Hismanoglu (2010) defines professional development, in general, as bringing the issue of support and following up by mentioning that it includes many different principles and dissecting the collective definitions of other academics. The writer mentions that it involves groups of teachers rather than individuals

from a number of schools, and enlist the support of the school and district administration, students, parents and the broader school community.

In Zimbabwe, as allegedly needed by the teachers, Chikoko (2007) found that adequate representation of all the stakeholders concerned in the cluster committees brought about smooth running of schools, thus quite ideal as an instrument for capacity development. This justifies the fact that cluster systems need to be clearly presented and explained to build awareness and a clear understanding of their requirements, representations, processes and potentials (Dittmar, Mendelsohn & Ward, 2002). As suggested by the respondents, a planned schedule of organising, administering and running the programs should be in place. The teachers put themselves as having a responsibility of playing a role in making sure that the cluster system runs effectively because the investment in teachers' professional development programs and activities appear to be crucial not only for the teaching and learning process but also for the teachers themselves (Ifanti & Fotopouloupou, 2011). Such plans as the teachers imply, would minimise the issues of lack of monitoring that engulf these cluster programs and thus bring a smooth running. The quote below presents such suggestions:

I think my take would be, in fact firstly, there must be a year plan, which normally does not exist. Everyone just wakes up in bed and call a meeting because he has been called by the department. So there must be a year plan that states on such and such a day there's a workshop based on whatever content gap that teachers have, so that everyone when they are making their plans they are able to know that, that day is put aside for that cluster meeting. Once that has been done, then

there must be in place a system of monitoring every school sends a teacher to that cluster meeting then information would be disseminated smoothly.

The teachers take the initiative of clusters as their baby and this spells out their need as claimed by literature to strengthen their knowledge base, identify the appropriate support, in order to accomplish their educational duties, and meet successfully their educational demands and vocational needs (Ifanti & Fotopoulou, 2011). Guskey and Yoon (2009) explain that for decades professional development experts have stressed the importance of follow-up activities as educators at all levels need just in time, job embedded assistance. The scholars note that this is because the teachers struggle to adapt new curricula and new instructional practices to their unique classroom contexts. They stated that their analysis confirmed the vital importance of follow-up as virtually all of the studies that showed positive improvements in student learning included significant amounts of structured and sustained follow-up after the main professional development activities.

Furthermore, the plans teachers feel are a need are believed can enable monitoring and moderation needed to have an operative cluster strategy with all the other steps or features as discussed above taken into consideration. The objective of the teachers' evidence, as Little and Houston (2003) claim, is that professional development should be goal-oriented, be continuous, supported through a variety of techniques, and adapted to the specific needs of the teachers and students it affects. The cluster system can therefore afford the participating teachers several opportunities to change their lives.

5.2.7 Provision of Refreshments, Transport services and Resources

One other prominent feature the data in this study has revealed is the provision of refreshments and transport services. This important distinction lies in acknowledging that a professional development program has to meet all the required elements that help hold total focus from the teachers. As teachers have different needs as well as work in different settings, it is therefore important that a program be modified to suit the needs of the teachers it is developing. For both these features, the participants have stated that they should be acknowledged as important and taken into serious consideration as they assert that it plays a big role in producing an effective cluster program. These are important variations to Mokhele's (2011) model and are regarded as elements that sustain teachers' concentration.

One other thing is refreshments for teachers to motivate them to attend and enjoy the workshop because sometimes there's not even water in these meetings. Subsidise their transport because sometimes a workshop is called at a time where teachers do not have money, even if that is done by schools and be made compulsory. So as a result of that teachers do not feel motivated to attend the workshops. So that when they are there they will eat there so that their mind is focused on the workshop and we are able to discuss anything.

These two features have proved to be a powerful influence on teacher professional development as several of the participants analyzed how they affect the number of teachers present and the time spent on a cluster program. As the participants claim, availability of

refreshments and subsidy of transport are the key factors that determine time of departure and attendance statistics of a cluster program. In support, one other respondent echoed that:

Also the refreshments also contribute a lot so they must always be available or teachers will want to leave early.

Additionally, one participant unreservedly portrayed in her statement how as teachers feel, when these human needs are adhered to in a professional development program. It is vivid that their central focus converts solely to the direction of what is going to be conveyed in the professional development program scheduled.

While in Cape, Town I attended a science project for grade 7 teachers, where we were trained how to conduct science experiments on electricity. They transported all the teachers teaching science in this grade to Bellville after school.

The narration in the scenarios above emphasize that the needs in this feature of provision of refreshments and transport comes from a professional judgment the teachers make out of the experiences they have on their cluster programs. Such experience provides them an opening that their voices need to be validated to inspire change in the way cluster programs are usually conducted. Guskey (2002) argues that important questions for professional development workshops and seminars also include, was the coffee hot and ready on time? Was the room at the right temperature? Were the chairs comfortable? However, to some, questions such as these may seem silly and inconsequential but experienced professional developers know the importance of attending to these basic human needs (Guskey, 2002).

Archibald, Coggshall, Croft and Goe, (2011) have also asserted that in order to ensure the effective implementation of high-quality professional development, states and districts must have a plan for financing the costs of professional learning activities. European Commission (2011) also agree that in seeking to meet teachers' professional development requirements, policy makers and practitioners need to consider both how to support and encourage participation and how to ensure that opportunities match teachers' perceived needs. The commission states that, there must be a balance with the cost in terms of both finance and teachers' time as the current economic climate has reduced the discretionary resources that states, districts, and schools have at their disposal. The scholars further write that, states, districts, and schools often cut professional development and the positions that support it in times of shrinking budgets because of the perception that doing so does not compromise the basic operation of the school's teaching and learning.

However, if the teaching in some classrooms is not at a level that allows students to achieve at least one year of growth, this perception is false, and resources need to be re-allocated accordingly so that they are directly linked to improving teaching and learning. As the scholars suggest, it is of importance as the teachers allege, that provisions of financial support be provided for these cluster programs.

The participants suggested the importance of being provided with resources when attending these cluster meetings as such resources help when in class as well as minimizing being away from class for a long time. For example, one respondent shared that:

The only problem we face when running the cluster is that, while we are at cluster meetings, the kids are left alone and since there are a few teachers in our schools due to rationalisation, the school becomes chaotic and the kids become unruly. I would advise the department to give each school a CD to run in the computer where the training will be viewed at school instead of only just attending it at Trinset.

The National policy framework (2007) also declares that the new CPDT system in South Africa needs to ensure that current initiatives devoted to the professional development of teachers contribute more effectively and directly to the improvement of the quality of teaching. Then if the teachers feel such aspects as mentioned in this feature need to be incorporated in the cluster programs, for the goal of quality teaching to be achieved, it is therefore reasonable imperative they be involved as such.

5.3 Conclusion and Recommendations

The findings of the study and revelations made by literature illustrate a cluster system as a tool that can bring an effective professional development program if implemented according to the needs of the teacher and schools at large. The teachers emphasised the need for clusters in their schools, their classrooms and for themselves as they shared how it uplifts and closes gaps in their teaching environment. The findings collaborate what Hismanoglu (2010) reveals when also identifying that a professional development program should recognise and address the many impediments to teachers' growth at the individual, school and district level.

The national policy, for purposes of analysis and planning, considers teacher education in terms of two complementary sub-systems: Initial Professional Education of Teachers (IPET), Continuing Professional Teacher Development (CPTD) (National Policy Framework for teacher education, 2007). The purpose of the new CPDT is to equip teachers to meet the challenges and demands of a democratic South Africa in the 21st century (National Policy Framework for teacher education, 2007). As such, professional development (PD) programs should emphasise the integrated development of learning area/subject content knowledge and pedagogical skills; teachers' competence in the language of teaching and learning; the Continuing professional development for teachers in South Africa changing social character of schools; and skills required for the teaching of diverse classrooms (National Policy Framework for teacher education, 2007).

The ultimate aim of CPDT is to enable learners to “learn well and equip themselves for further learning and for satisfying lives as productive citizens, for the benefit of their families, their communities and our nation” (National Policy Framework for teacher education, 2007). The new CPDT system therefore:

- Ensures that current initiatives devoted to the professional development of teachers contribute more effectively and directly to the improvement of the quality of teaching;
- Emphasizes and reinforces the professional status of teaching;
- Provides teachers with clear guidance about which Professional Development (PD) activities will contribute to their professional growth;
- Protects teachers from fraudulent providers; and

- Expands the range of activities that contribute to the professional development of teachers.

It is imperative, therefore, that high quality implementation of clusters be the central focus of the education policies in South Africa as well as in other developing and well-developed countries in order to achieve the desired end of an improved student performance and an effective professional development. While the study acknowledges the amounts of work done by teacher clusters in the South African education governance, consultation of the teachers should be a priority. A professional development program backed by leadership, support and involvement of the people concerned and closely affected is definitely bound to succeed. As Harewell (2003) argues, professional development can succeed only in settings, or contexts, that support it. Teacher clusters are a professional development designed to be driven by the teachers with all the support needed for such leadership to prevail. However, Mokhele (2011) establishes that many teachers, especially in developing countries, do not have the necessary skills to do this nor are they equipped to confront the challenges and adverse conditions they face in trying to improve the quality of education in the schools.

With regard to what literature claims, the teachers have voiced out cries of dissatisfaction and challenges that make the clustering system less effective as it should be. The problems alleged by the participants briefly involve poor planning and lack of monitoring which results in the programs being non-continuous and repetitively leaving no mark of change in the education system as a whole. Such lack of administration leads to many teachers not

bothering themselves with attending such programs as they view them as delaying the teaching and learning process. The testimonies given by the teachers in chapter four and the discussions above prove true to what Jita and Ndlalane (2009) and other literature writers agree upon when stating that these clusters are not effective in changing the situation completely, and both formal and informal anecdotes from teachers suggest that these clusters may be failing them.

It is important therefore that in order to make informed policy and program decisions regarding professional development, district and school leaders need to know whether professional development programs are currently reaching the teachers who need them most (Desimone et al, 2006). The National Research Council (NRC) 2007), also supports that many teachers express dissatisfaction with the professional development opportunities made available to them in schools. However, in my opinion an argument on such ineffectiveness may come to rise out of looking at whether policy makers and high-ranking stakeholders of the education system are ready to listen to what the teachers are saying.

Harewell (2003) declares that the main reason for the failure of many professional development approaches is that too little attention has been paid to what actually goes on in the classroom. The findings of the study have fairly showed how teachers are unhappy with, for example, leaving their classrooms to attend a professional development program. They are therefore calling for issuing of resources for further use in school when the teacher is individually tackling the day-to-day challenges. Therefore failing to adhere to such needs

the teachers voice as the teacher cluster are allegedly to have done is definitely a call for failure and dismay the policy makers are bringing to the education system as a whole.

One of the four critical elements that help make teacher professional learning meaningful and worthwhile in a paper by Dyer (2013), *'Redefining Professional Development as Teacher-Led Professional Learning'* is Choice, where she states that teachers are like students and they need and appreciate choice. According to her, choice within a given framework or focus allows teachers to determine their personal priorities. This therefore calls upon a serious consideration by the educational policy makers to be in a position to listen and put in place the teacher's voices for these programs to be effective.

In a justification of how professional development is failing teachers in South Africa, Steyn (2008) also has further argued that the current emphasis on professional development (PD) as an imperative for continuous improvement of teachers' skills has an inherent danger of becoming nothing more than a state-funded skills development program in the South African context. Steyn's argument, therefore, provides a clear warning that disregarding these teacher's voices as to what they view as effective professional development programs for them, therefore, would mean seeing a nation that continues having a failing education system in its entire future.

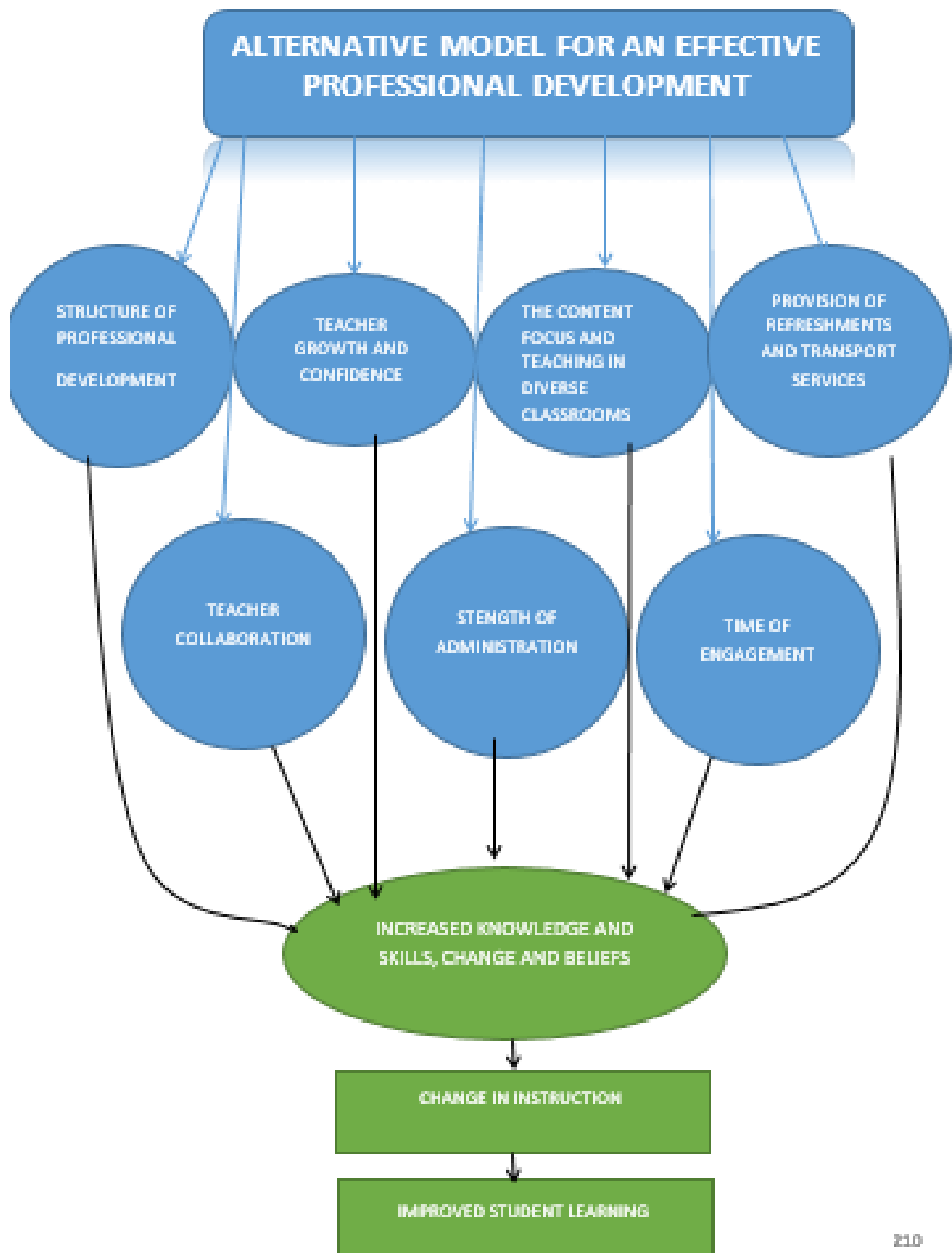
This study, as stated before, investigated teacher's experiences of clusters as a teacher led professional development program. It is from an understanding that for a professional

development program to sustain and effectively produce an improved student achievement, highly knowledgeable and skilled teachers it needs to be based on the perspectives of the teachers, as they are believed to be the ones who drive what is happening in the classroom level. The study employed a conceptual framework of a model developed by Mokhele (2011), termed as an alternative model for an effective continuous professional development program. The framework suggests a number of features that determine an effectiveness of a professional development program. It therefore seemed fit to use the model as a lens in exploring what the teachers deemed important in a professional development program. It seemed quite important to frame the study with the model, as teachers are the ones affected by all these developments made concerning their professional development.

The issues conferred as teachers said experiences in this study led to uncovering seven major findings that characterise a professional development program. All the data collected and presented points to a direction that, for teacher cluster programs to be effective and productive of the desired outcome of better student performance, it needs to be driven by the meaning the teachers participating attach to it. Only if the CPD programs have personal meaning for the teachers will they have the potential to be transformative and life changing (Mokhele, 2011). Such transformation can only occur if the teacher's voices are heard, acknowledged, and incorporated into the planning and running of the cluster programs which is the fundamental proposition of this study. The perceptions of teachers on teacher clusters in the findings of the study distinguish clusters as one example of professional development that sets a platform for interaction, involvement, and collaboration amongst

teachers which has been viewed by a number of literature writers as antidotes of an effective professional development. As Mokhele (2011) discovered in the Mpumalanga Secondary Science Initiative (MSSI) project, the cluster programs have also been viewed by the teachers as not just a chance to refine and develop their subject matter knowledge and teaching skills in science and mathematics, but a genuinely life changing experience.

To conclude the study, I wish to review Mokhele's model basing on the findings discovered by the present study as the teacher cluster participants have deliberated what they believe as a meaningful and transformative professional development program. The findings have made it possible to propose a modification to Mokhele's model. The refinement has modified two existing features as well as adding two more features, that of the *content focus and teaching in diverse classroom; teacher growth and confidence; strength of administration; provision of refreshment and transport services*. Contextualizing these four features to the existing model by Mokhele (2011), a proposed new model of an effective CPD is illustrated in the Figure 5.1.



In chapter two, the researcher discussed Mokhele's alternative model of an effective CPD for teachers. The scholar found that it is primarily through the core features, focus on content and context of teaching and transformational growth personally and professionally to the teachers that the structural features, such as workshops; clusters; collective participation of teachers from the same school or cluster; or amount of time devoted to the CPD, significantly affect teacher learning (Mokhele, 2011). All these components as the model shows are alleged to increase knowledge and skills, change and beliefs, change in instruction and an improved student learning (Mokhele, 2011). As this study set to find out the experiences of teachers in teacher clusters, the framing by Mokhele (2011) engaged to aid as a guide to measure what, when and how teachers experience teacher-led professional development programs, specifically in the Mthatha district of Eastern Cape. Therefore, in part the study also tested the claims of the model using the context of clusters in the Eastern Cape in South Africa.

Mokhele (2011) visions her model as an alternative model of an effective continuous professional development for teachers specifically in South African context. Mokhele's model, which modified Desimone (2009) model, also goes in line with illustrating features that of key importance for a successful professional development program and all these components as the model shows are alleged to increase knowledge and skills, change and beliefs, change in Instruction and an improved student learning (Mokhele, 2011). Basing on the findings presented in chapter five, it has come to notice that I restate Mokhele's model with a revised model. Mokhele's model has proved to be true and very useful in designing

an effective professional development program however omitting two important features as discussed in the findings and additions in the above proposed model.

The findings as expressed by the teachers in their experience stories of teacher clusters have shown that teachers have more other desires in their professional development programs than expounded by Mokhele's model. As Mokhele (2011) deliberated on her study, I also acknowledge that the model I am proposing is a work in progress and needs further research which may bring more insight on why these models (Desimone'; Mokhele's) and many others including mine work in the ways that they do to produce the desired teacher and student outcomes (Mokhele 2011). However, I am also confident about the teachers' perspectives regarding what works for them, and particularly their identification of these new core features, the operational theory on how all the factors work together to shape the desired outcomes (Mokhele, 2011) hence therefore I am also saying this model is still a work-in-progress.

In conclusion, I therefore present my model, taking into consideration the views and experiences of many teachers whose voices remain unheard and unknown. Teachers do have opinions, and they know well that CPD might work to fulfil their present and anticipated needs (Mokhele, 2011). It is important, therefore, to listen to them as they may continue to add or deduct on the professional development model I have proposed in this study. The research challenge is to continue to listen to these teachers and to explore and make sense of their experiences in the search for better models of CPD in general and the present study has set the stage for such work in South Africa (Mokhele, 2011).

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APPENDIX 1: INTERVIEW PROTOCOL

Teacher's experience of teacher-led professional development programs: an exploratory study of two clusters in the Mthatha district

This study explores to find out the experiences of teachers in teacher-led professional development programs designated as teacher clusters. It explores their views and opinions be understood and explained in the way they attach their meanings to them basing in the context of their day to day encounters of their work.

Through interviewing six teachers, who are currently involved in teacher clusters of Mathematics and Science, I explored their conceptions of the cluster programs, the meaning and significance they have on them as teachers and schooling at large.

1. Your background- overall teaching experience, subject taught what grades and the positions held etc.
2. How about in your current work, how long, what subjects, grades, and position?
3. Tell me about the professional development programs that you have attended.
4. Who organised them? What did you do? Who attended?
5. Were your expectations, as you mentioned, met? How?
6. Tell me more about the cluster that you are involved in, Why did you participate in this cluster in the first place, who selected you and how?
7. How long has it been there? Who are the participants, what do you do and how do you do it

8. Who organises them?
9. How are they run?
10. Do you find cluster activities relevant to what you are doing in class (how is it relevant ? explain.....use examples
11. What are 2 of the most important or interesting things for you about the clusters, why are they important?
12. What is your view towards them, the way they are run, the time intervals used to run them etc.?
13. Do they accommodate your needs from a professional development program as teachers?
14. Share with me the contributions the cluster make towards you as a teacher and to the classroom you are teaching.
15. If you were to participate in another cluster again, what would you like to be improved and what should be kept the same?
16. Is there anything you want to add that you think I left in our conversation?

APPENDIX 2: CLEARANCE LETTER FROM UNIVERSITY OF FORT HARE



University of Fort Hare
Together in Excellence

ETHICAL CLEARANCE CERTIFICATE REC-270710-028-RA Level 01

Certificate Reference Number: MOK011SZID01

Project title: **Teacher's Experiences of Teacher-led Professional Development Programs: An exploratory study of two clusters in the Mthatha district**

Nature of Project: PhD

Principal Researcher: Lulama Zide

Supervisor: Prof M.L Mokhele
Co-supervisor:

On behalf of the University of Fort Hare's Research Ethics Committee (UREC) I hereby give ethical approval in respect of the undertakings contained in the above-mentioned project and research instrument(s). Should any other instruments be used, these require separate authorization. The Researcher may therefore commence with the research as from the date of this certificate, using the reference number indicated above.

Please note that the UREC must be informed immediately of

- Any material change in the conditions or undertakings mentioned in the document
- Any material breaches of ethical undertakings or events that impact upon the ethical conduct of the research

The Principal Researcher must report to the UREC in the prescribed format, where applicable, annually, and at the end of the project, in respect of ethical compliance.

Special conditions: Research that includes children as per the official regulations of the act must take the following into account:

Note: The UREC is aware of the provisions of s71 of the National Health Act 61 of 2003 and that matters pertaining to obtaining the Minister's consent are under discussion and remain unresolved. Nonetheless, as was decided at a meeting between the National Health Research Ethics Committee and stakeholders on 6 June 2013, university ethics committees may continue to grant ethical clearance for research involving children without the Minister's consent, provided that the prescripts of the previous rules have been met. This certificate is granted in terms of this agreement.

The UREC retains the right to

- Withdraw or amend this Ethical Clearance Certificate if
 - Any unethical principal or practices are revealed or suspected
 - Relevant information has been withheld or misrepresented
 - Regulatory changes of whatsoever nature so require
 - The conditions contained in the Certificate have not been adhered to
- Request access to any information or data at any time during the course or after completion of the project.
- In addition to the need to comply with the highest level of ethical conduct principle investigators must report back annually as an evaluation and monitoring mechanism on the progress being made by the research. Such a report must be sent to the Dean of Research's office

The Ethics Committee wished you well in your research.

Yours sincerely


Professor Gideon de Wet
Dean of Research

23 July 2015



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Date: 14 December 2015

Mrs. Lulama Zide
Private Bag X5311
Postnet Suite 14
Mthatha
5099

Dear Mrs. Zide

**PERMISSION TO UNDERTAKE A DOCTORAL THESIS: TEACHERS' EXPERIENCES OF
TEACHER-LED PROFESSIONAL DEVELOPMENT PROGRAMS – AN EXPLORATORY STUDY
OF TWO CLUSTERS IN THE MTHATHA EDUCATION DISTRICT**

1. Thank you for your application to conduct research.
2. Your application to conduct the above mentioned research in selected Primary and Secondary schools with teachers involved in Cluster Programs for Maths and Science in the Eastern Cape Department of Education (ECDoE) is hereby approved based on the following conditions:
 - a. there will be no financial implications for the Department;
 - b. institutions and respondents must not be identifiable in any way from the results of the investigation;
 - c. you present a copy of the written approval letter of the Eastern Cape Department of Education (ECDoE) to the Cluster and District Directors before any research is undertaken at any institutions within that particular district;
 - d. you will make all the arrangements concerning your research;
 - e. the research may not be conducted during official contact time, as educators' programmes should not be interrupted;

building blocks for growth

Page 1 of 2



Ikamva eliqagambileyo!

APPENDIX 3: PERMISSION FROM THE DEPARTMENT OF EDUCATION

- f. should you wish to extend the period of research after approval has been granted, an application to do this must be directed to Chief Director: Strategic Management Monitoring and Evaluation;
 - g. the research may not be conducted during the fourth school term, except in cases where a special well motivated request is received;
 - h. your research will be limited to those schools or institutions for which approval has been granted, should changes be effected written permission must be obtained from the Chief Director: Strategic Management Monitoring and Evaluation;
 - i. you present the Department with a copy of your final paper/report/dissertation/thesis free of charge in hard copy and electronic format. This must be accompanied by a separate synopsis (maximum 2 – 3 typed pages) of the most important findings and recommendations if it does not already contain a synopsis.
 - j. you present the findings to the Research Committee and/or Senior Management of the Department when and/or where necessary.
 - k. you are requested to provide the above to the Chief Director: Strategic Management Monitoring and Evaluation upon completion of your research.
 - l. you comply with all the requirements as completed in the Terms and Conditions to conduct Research in the ECDoE document duly completed by you.
 - m. you comply with your ethical undertaking (commitment form).
 - n. You submit on a six monthly basis, from the date of permission of the research, concise reports to the Chief Director: Strategic Management Monitoring and Evaluation.
3. The Department reserves a right to withdraw the permission should there not be compliance to the approval letter and contract signed in the Terms and Conditions to conduct Research in the ECDoE.
 4. The Department will publish the completed Research on its website.
 5. The Department wishes you well in your undertaking. You can contact the Director, Ms. NY Kanjana on the numbers indicated in the letterhead or email nykanjana@live.co.za should you need any assistance.


NY KANJANA
DIRECTOR: STRATEGIC PLANNING POLICY RESEARCH & SECRETARIAT SERVICES
FOR SUPERINTENDENT-GENERAL: EDUCATION



APPENDIX 4: LETTER TO THE RESPONDENTS

To: The Respondent

Mthatha District

5099

Dear Sir/ Madam

I, Lulama Zide, a PhD student at the University of Fort Hare, seek your permission to involve you as a participant in this research study. The topic is about teacher's experiences of teacher- led professional development programs but specifically the teacher clusters. Your identity will be kept anonymous as pseudo names will be used to avoid any harm towards you on the contribution you will make in this study.

Your kindness in granting me the permission will be highly appreciated.

Yours Sincerely

L. Zide

APPENDIX 5: LETTER TO THE CIRCUIT MANAGER

To: The Circuit Manager

Mthatha District

5099

Subject: Research Studies

Dear Sir/ Madam

Request for your consent to conduct research using a teacher under your circuit

I, Lulama Zide, a PhD student at the University of Fort Hare, seek permission to conduct by using the teacher from your circuit as a participants in the study and some cluster meetings documents the teacher may possess. I promise anonymity of the name of the teacher will be used by following the use of pseudo names and interviews will not take place during teaching time. My research topic is about teacher's experiences of teacher- led professional development programs but specifically the teacher clusters.

Your kindness in granting me the permission will be highly appreciated.

Yours Sincerely

L. Zide

APPENDIX 6: LETTER TO THE DISTRICT DIRECTOR

TO: THE DISTRICT DIRECTOR

MTHATHA DISTRICT

5099

SUBJECT: Research Studies

Dear Sir/ Madam

Request for your consent to conduct research using six teachers from the district

I, Lulama Zide, a PhD student at the University of Fort Hare, seek permission to conduct research using six teachers in the various clusters (circuits) under your district, by using the teachers as participants in the study and any documents, they may be able to provide which are relevant to the study. I promise anonymity of the names of teachers will be used by following the use of pseudo names and interviews will not take place during teaching time. My research topic is on teachers' experiences of teacher-led professional development programs, specifically clusters.

Your kindness in granting me the permission will be highly appreciated.

Yours Sincerely L. Zide

APPENDIX 7: CONSENT FORM



University of Fort Hare
Together in Excellence

Ethics Research Confidentiality and Informed Consent Form

Our University of Fort Hare / Department is asking people from your department (educators) to answer some questions, which we hope will benefit your department and possibly other communities in the future.

The University of Fort Hare / Department/ organization is conducting research regarding professional development of teachers. We are interested in finding out more about their views on cluster programs as a form of professional development. We are carrying out this research to help review and improve existing professional development programs.

Please understand that you are not forced to take part in this study and the choice whether to participate or not are yours alone. However, we would really appreciate it if you do share your thoughts with us. If you choose not take part in answering these questions, you will not be affected, in any way. If you agree to participate, you may stop me at any time and tell me that you do not want to go on with the interview. If you do this there will also be no penalties and you will NOT be prejudiced in ANY way. Confidentiality will be observed professionally.

I will not be recording your name anywhere on the questionnaire and no one will be able to link you to the answers you give. Only the researchers will have access to the unlinked information. The information will remain confidential and there will be no “come-backs” from the answers you give.

The interview will last around 50 minutes. I will be asking you a questions and ask that you are as open and honest as possible in answering these questions. Some questions may be of a personal and/or sensitive nature. I will be asking some questions that you may not have thought about before, and which also involve thinking about the past or the future. We know that you cannot be absolutely certain about the answers to these questions but we ask that you try to think about these questions. When it comes to answering questions there are no right and wrong answers. When we ask questions about the future we are not interested in what you think the best thing would be to do, but what you think would actually happen.

If possible, our organization would like to come back to this area once we have completed our study to inform you and your community of what the results are and discuss our findings and proposals around the research and what this means for people in this area.

APPENDIX 8: INFORMED CONSENT

I hereby agree to participate in research regarding I understand that I am participating freely and without being forced in any way to do so. I also understand that I can stop this interview at any point should I not want to continue and that this decision will not in any way affect me negatively.

I understand that this is a research project whose purpose is not necessarily to benefit me personally.

I have received the telephone number of a person to contact should I need to speak about any issues which may arise in this interview.

I understand that this consent form will not be linked to the questionnaire, and that my answers will remain confidential.

I understand that if at all possible, feedback will be given to my community on the results of the completed research.

.....

Signature of participant

Date:.....

I hereby agree to the tape recording of my participation in the study

.....**Signature of participant**

Date...

APPENDIX 9: MINUTES OF A CLUSTER MEETING

Core Business - The content gap is on Algebra (algebraic expressions, equations) and 3D shapes for grade 7, 8 and 9. There was a lot of discussion amongst the teachers and the cluster leadership on how best to teach these concepts as our children find it hard to grasp them especially the integer signs in algebra. Mr [redacted] shared a very easy way of doing the area of 3D shapes. The teachers complained of lacking the skill of drawing the shapes on board and Mr [redacted] helped out.

The meeting tackled all the concept and the teachers agreed to take each others phones for further contact if one experiences any problems when alone. A list of all the teachers and their contact numbers was given to each teacher so that everyone had contacts of each other.

A.O.B - A date for next meeting was proposed but [redacted] said he will communicate with the subject advisor and come back to the teachers. He urged teachers to check at the district office for any developments for meetings at the office as their principals fail not fetch letters. They are always sent to room 101, ask for [redacted] or anyone you find in the office. The meeting adjourned at 14:30 pm.

13 May 2013

Content gap meeting for Mathematics Circuit

Agenda

1. Opening prayer
2. Welcoming Remarks
3. Credentials and Apologies
4. Core business: Content gap - Mathematics grade 7, 8 and 9.

Opening prayer : Mr

Welcoming Remarks :

as the cluster leader welcomed all the Teachers to the meeting. He urged all teachers to join at home and co-operate with each other as we are all here to learn. No one knows best even him, he is just leading the program for it to be active and not because he is an expert. He apologised for the late starting but also pointing to the teachers that it is due to late attendance. Pleading with the teachers to respect time for the meetings as we usually have only one day to finish all the concepts that are supposed to be covered.

3. Credentials and apologies. - No apologies are forwarded and a paper for credentials is circulating the room everyone must make sure they sign.

APPENDIX 10: ITINERARY FOR MODERATIONS



PROVINCE OF THE EASTERN CAPE
DEPARTMENT OF EDUCATION
MTHATHA DISTRICT
CURRICULUM DEVELOPMENT & SUPPORT

Zamukolungisa Industrial Sites, Amendu Road, Mthatha*Private Bag X 5089 Mthatha 5099* REPUBLIC OF SOUTH AFRICA*

Enq.: N.D. Makaula *Tel: 047 537 1976* Cell: 082 089 5191* *Email: ndmakaula@gmail.com *Fax: 047 537 1978*

To: Principals
From: Curriculum
Subject: Grade 8 & 9 SBA Moderations
Date: 26 March 2014

This serves to invite Grade 8 & 9 teachers to attend TERM 3 & 4 SBA MODERATIONS to be conducted as indicated below. Venues may change due to prevailing programmes at the times. You will be notified of any changes that may occur.

ITINERARY: GRADE 8 & 9 TERM 3 & 4 SBA MODERATIONS

DATE: 19 OCTOBER 2015- 04 NOVEMBER 2015

SUBJECT, VENUE AND CIRCUIT

DATE	LANGUAGE	LO	EMS	CA	NS	MATHS	TECH	SS
19/10	Mancam 10	Eli 4 & 7	Gonya 13	Eli 6, 12 & 14	Eli 3 & 5	Mqanduli Vilagel 9 & 11	Jersey farm 2 & 8	Ikwezi Lokusa 1 & 15
20/10	Eli 3 & 5	Ikwezi Lokusa 1 & 15	Eli 4 & 7	Mancam 10	Jersey farm 2 & 8	Gonya 13	Eli 6, 12 & 14	Mqanduli Village 9 & 11
21/10	Eli 6, 12 & 14	Gonya 13	Manduli Village 9 & 11	Jersey farm 2 & 8	Mancam 10	Ikwezi Lokusa 1 & 15	Eli 3 & 5	Eli 4 & 7
22/10	Jersey farm 2 & 8	Mqanduli Village 9 & 11	Ikwezi Lokusa 1 & 15	Eli 3 & 5	Eli 6, 12 & 14	Eli 4 & 7	Mancam 10	Gonya 13
23/10	Ikwezi Lokusa 1 & 15	Jersey farm 2 & 8	Eli 3 & 5	Eli 4 & 7	Mqanduli Village 9 & 11	Mancam 10	Gonya 13	Eli 6, 12 & 14
02/11	Eli 4 & 7	Eli 3 & 5	Mancam 10	Gonya 13	Ikwezi Lokusa 1 & 15	Eli 6, 12 & 14	Mqanduli Village 9 & 11	Jersey 2 & 8
03/11	Mqanduli Village 9 & 11	Eli 6, 12 & 14	Jersey 2 & 8	Ikwezi Lokusa 1 & 15	Gonya 13	Eli 3 & 5	Eli 4 & 7	Mancam 10
04/11	Gonya 13	Mancam 10	Eli 6, 12 & 14	Mqanduli Village 9 & 11	Eli 4 & 7	Jersey farm 2 & 8	Ikwezi Lokusa 1 & 15	Eli 3 & 5

Teachers should bring to the venue:

- The CAPS document
- Teacher's file with copies of ANALYSIS of RESULTS for Terms and Improvement Plans
- Evidence of lesson preparation
- Learner's work- Formal and Informal (10 % of the total number of learners, or a minimum of 5, if learners are less than 50)
- Your selection of learners should be composed of High, Average and Low performers
- Mark Recording sheet
- Evidence of moderation at school level

NB: Grade 7 should be internally moderated. Sampling of schools will be done by the district.

Your co-operation is always highly appreciated.

Yours in Education

Mrs N.D. MAKAULA
DCES - SENIOR PHASE

Mr S.R. MGQALELO
CES - CURRICULUM

Mr T.T. DYASI
DISTRICT DIRECTOR



PROVINCE OF THE EASTERN CAPE
DEPARTMENT OF EDUCATION
MTHATHA DISTRICT
CURRICULUM DEVELOPMENT & SUPPORT

Zamukulungisa Industrial Sites, Amendu Road, Mthatha*Private Bag X 5089 Mthatha 5099* REPUBLIC OF SOUTH AFRICA*

Enq.: N.D. Makaula *Tel: 047 537 1976* Cell: 082 089 5191* *Email: ndmakaula@gmail.com *Fax: 047 537 1978*

To: Principals
From: Curriculum
Subject: Grade 8 & 9 SBA Moderations
Date: 26 March 2015

This serves to invite Grade 8 & 9 teachers to attend TERM 1 & 2 SBA MODERATIONS to be conducted as indicated below. Venues may change due to prevailing programmes at the times. You will be notified of any changes that may occur.

ITINERARY: GRADE 8 & 9 TERM 1 & 2 SBA MODERATIONS

DATE: 27 July 2015- 05 August 2015

SUBJECT, VENUE AND CIRCUIT

DATE	TECH	SS	NS	MATHS	LO	LANGUAGE	EMS	CA
27.07	Eli 5 & 3	Ikwezi Lokusa 1 & 15	Jersey 2 & 8	Mqanduli Village 9 & 11	Eli 4 & 7	Eli 6, 12 & 14	Gonya 13	Mancam 10
28.07	Jersey farm 2 & 8	Mqanduli Village 9 & 11	Eli 6, 12 & 14	Gonya 13	Ikwezi Lokusa 1 & 15	Mancam 10	Eli 4 & 7	Eli 5 & 3
29.07	Mancam 10	Eli 4 & 7	Eli 5 & 3	Ikwezi Lokusa 1 & 15	Gonya 13	Jersey farm 2 & 8	Mqanduli Village 9 & 11	Eli 6, 12 & 14
30.07	Ikwezi Lokusa 1 & 15	Jersey 2 & 8	Mqanduli Village 9 & 11	Eli 6, 12 & 14	Eli 5 & 3	Gonya 13	Mancam 10	Eli 4 & 7
31.07	Gonya 13	Mancam 10	Eli 4 & 7	Eli 5 & 3	Eli 6, 12 & 14	Ikwezi Lokusa 1 & 15	Jersey farm 2 & 8	Mqanduli Village 9 & 11
03.08	Eli 4 & 7	Eli 5 & 3	Ikwezi Lokusa 1 & 15	Jersey farm 2 & 8	Mancam 10	Mqanduli Village 9 & 11	Eli 6, 12 & 14	Gonya 13
04.08	Eli 6, 12 & 14	Gonya 13	Mancam 10	Eli 4 & 7	Mqanduli Village 9 & 11	Eli 5 & 3	Ikwezi Lokusa 1 & 15	Jersey farm 2 & 8
05	Mqanduli Village 9 & 11	Eli 6, 12 & 14	Gonya 13	Mancam 10	Jersey 2 & 8	Eli 4 & 7	Eli 5 & 3	Ikwezi Lokusa 1 & 15

Teachers should bring to the venue:

- The CAPS document
- Teacher's file with copies of ANALYSIS of RESULTS for Terms and Improvement Plans
- Evidence of lesson preparation
- Learner's work- Formal and Informal (10 % of the total number of learners, or a minimum of 5, if learners less than 50)
- Your selection of learners should be composed of High, Average and Low performers
- Mark Recording sheet
- Evidence of moderation at school level

NB: Grade 7 should be internally moderated. Sampling of schools will be done by the district

Your co-operation is always highly appreciated.

Yours in Education

Mrs N.D. MAKAULA
DCES – SENIOR PHASE

Mr S.R. MGQALELO
CES – CURRICULUM

Mr T.T. DYASI
DISTRICT DIRECTOR

APPENDIX 11: CURRICULUM DEVELOPMENT PROGRAM



DEPARTMENT OF EDUCATION
MTHATHA DISTRICT
CURRICULUM DEVELOPMENT & SUPPORT



Private Bag x 5089

Mthatha

5099

Tel: 047 537 1976

Ref: NS Training

Email address: nolizwik@yahoo.com

Zamukulungisa Industrial Sites

Amendu Road

Mthatha

Fax: 047 537 1978

Cell No: 073 354 7296

Fax No: 086 234 3136

TRAINING OF GRADE 7-9 NATURAL SCIENCES TEACHERS

BY

iTHEMBA LABS

DATE: 31 AUGUST – 04 SEPTEMBER 2015

VENUE: EDUCATION LEADERSHIP (TRINSET), MTHATHA

TIME: 9H00- 11H00 (Session 1)

11h30-13h30 (Session 2)

} each day

	ITEM	RESPONSIBILITY	TIME
1	Opening remarks	DoE/iThemba Labs/Teacher	2 minutes
2	Introductions	DoE/iThemba Labs	2 minutes
3	Welcome	DoE	2 minutes
4	Purpose of the day	iThemba Labs	1 hour
5	Evaluation	ALL	2 minutes
6	Vote of thanks	DoE	2 minutes
7	Closure	DoE/iThemba labs/Teacher	1 minutes

NB: Some items may be fused together depending on the nature of the gathering, timing and availability of officials to support the programme.

NO REFRESHMENTS

NO REFRESHMENTS

NO REFRESHMENTS



DEPARTMENT OF EDUCATION
MTHATHA DISTRICT
CURRICULUM DEVELOPMENT & SUPPORT

Private Bag x 5089
Mthatha
5099

Tel: 047 537 0462

Ref: L O Circuit Meetings

Enquiries: C.N. Jombile

Zamukulungisa Industrial Sites
Amendu Road
Mthatha

Fax: 047 537 1978

Cell No: 082 089 5205

TO : Principals
L O teachers for Grade 7 - 9
FROM : Curriculum Section
SUBJECT : CIRCUIT MEETINGS FOR LIFE ORIENTATION
DATE : 25 February 2015

This serves to invite Life Orientation teachers to attend circuit meetings to be conducted as indicated below:

ITINERARY FOR LIFE ORIENTATION CIRCUIT MEETINGS

DATE	CIRCUITS	VENUE	TIME
03/03/15	2, 7 & 8	Jersey Farm	8:30
04/03/15	10 & 13	Mancam	8:30
06/03/15	12, 14 & 15	ELI (Trinset)	8:30
10/03/15	5 & 6	ELI (Trinset)	8:30
11/03/15	1, 3 & 4	ELI (Trinset)	8:30

Teachers are advised to bring the following:

- The necessary stationery
- CAPS documents
- November analysis of results
- 1 DVD (not CD), to copy Life Orientation documents

Your co-operation will be greatly appreciated


C.N. Jombile - DCES

APPENDIX 12: ITINERARY FOR LIFE ORIENTATION CIRCUIT MEETINGS



DEPARTMENT OF EDUCATION
MTHATHA DISTRICT
CURRICULUM DEVELOPMENT & SUPPORT

Private Bag x 5089
Mthatha
5099

Tel: 047 537 0462

Zamukulungisa Industrial Sites
Amendu Road
Mthatha

Fax: 047 537 1978

Ref: L O Circuit Meetings Enquiries: C.N. Jombile

Cell No: 082 089 5205

TO : Principals
L O teachers for Grade 7 - 9
FROM : Curriculum Section
SUBJECT : CIRCUIT MEETINGS FOR LIFE ORIENTATION
DATE : 25 February 2015

This serves to invite Life Orientation teachers to attend circuit meetings to be conducted as indicated below:

ITINERARY FOR LIFE ORIENTATION CIRCUIT MEETINGS

DATE	CIRCUITS	VENUE	TIME
03/03/15	2, 7 & 8	Jersey Farm	8:30
04/03/15	10 & 13	Mancam	8:30
06/03/15	12, 14 & 15	ELI (Trinset)	8:30
10/03/15	5 & 6	ELI (Trinset)	8:30
13/03/15	1, 3 & 4	ELI (Trinset)	8:30

Teachers are advised to bring the following:

- The necessary stationery
- CAPS documents
- November analysis of results
- 1 DVD (not CD), to copy Life Orientation documents

Your co-operation will be greatly appreciated


C.N. Jombile - DCES

APPENDIX 13: EDITOR'S CERTIFICATE

23 Elfin Glen Road, Nahoon Valley Heights, East London, 5200



To whom it may concern:

This document certifies that the dissertation whose title appears below has been edited for proper English language, grammar, punctuation, spelling, and overall style by Rose Masha, a member of the Professional Editors' Group whose qualifications are listed in the footer of this certificate.

Title:

Teachers' experiences of teacher-led professional development programs: an exploratory study of two clusters in the Mthatha district

Author:

By Lulama Zide

Date Edited:

26 January 2016

Signed:

A handwritten signature in black ink, enclosed within a diamond-shaped border. The signature appears to be "R. Masha".

Rose Khanyisile Masha

082 770 8892

Bachelor of Library and Information Science, Hons (English Language Teaching), HDE,
MA (Hypermedia in Lang. Learning), PhD (Education)