

**AN EXPLORATION OF HOW CURRICULUM
CHANGES AFFECT THE EMOTIONS OF
LIFE SCIENCES TEACHERS**

by

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DECLARATION

Submitted in fulfilment of the requirements for the degree of Masters in Education, in the
Graduate Programme in the College of Humanities, University of KwaZulu-Natal,
Pietermaritzburg, South Africa.

I, **Maladevi Nundkoomar**, student number **852858373**, declare that

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SPECIAL DEDICATIONS

I dedicate this thesis to my two wonderful, loving and supportive children Sherishka and Bhavta.

I also dedicate this thesis posthumously to my precious parents, the late Mr Mohanlal Ramjeeton and Mrs Sumitra Ramjeeton and my brother Mr Rakesh Ramjeeton.

I am also deeply indebted to my spiritual father the late Guruji Roopchund Dhanilalji who taught me the meaning of perseverance and determination. His words of wisdom are a true source of inspiration. You have nurtured my inner strength and moulded into the strong person I am today. This thesis is dedicated to you.

I'm sure you all would have been proud of my academic achievements.

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"Education is your stepping stone to independence. Adorn it with pride"

To my late brother Rakesh Ramjeeton, I miss you and thank you for these inspiring words,

"the world is your oyster".

ABSTRACT

Teachers in Post-apartheid South Africa have had to deal with the restructuring of the school curriculum on several occasions. Each time changes are made; teachers have shouldered the high expectations of various stakeholders, including curriculum developers, to implement these improvements effectively. However, these improvements are complex and challenging and an important ingredient for teachers to successfully embrace these; is their emotional orientation towards such changes. Unfortunately in South Africa, there is a dearth of how teacher emotions are affected by ongoing curriculum changes. This can be addressed by exploring the emotions that teachers feel as they implement changes to the curriculum. Against the backdrop of the several rapid changes to the school curriculum and the scarcity of studies on teacher emotions in South Africa, I became interested in exploring how curriculum changes affect teacher emotions. The school curriculum consists of a large number of different subjects but this study has centred on Life Sciences. As a consequence, the aim of my study was to explore how ongoing curriculum changes affect the emotions of Life Sciences teachers.

This study adopted a qualitative approach and was located within the interpretivist paradigm. The research methodology followed was narrative inquiry and data was collected by employing the qualitative method of semi structured interviews. The research sample comprised eight Life Sciences teachers who had been in the profession since 1994 and who are currently teaching Life Sciences to Grades 10, 11 and 12. The sample was drawn from four secondary schools located in an urban area in Pietermaritzburg, KwaZulu-Natal.

The process of analysing qualitative data was an intricate one. Data was analysed using thematic content analysis. There was also close collaboration with participants to ensure that what was told was written. Analysis also involved relating back to research question to see the relationship that emerged. The results of this study revealed that teacher emotions are embedded in the process of curriculum change with emotional responses ranging from positive to negative but negative responses being more evident in many instances. Also, with the implementation process, emotional understanding and emotional labour are inevitable and important.

This qualitative study is offered as an example of how teachers' emotions are affected in the process of curriculum change. These findings could possibly be of value to curriculum developers in the Department of Education. This could possibly inform decisions and provide guidance on future curriculum changes. It is recommended that for future changes, curriculum developers' work in close collaboration with teachers to gain insight of how changes in the curriculum affect them emotionally and thus be able to provide teachers with the emotional support that they require in order to implement changes in their classrooms.

LIST OF ACRONYMS

AS	Assessment Standards
LO	Learning Outcomes
SAG	Subject Assessment Guidelines
GET	General Education and Training
FET	Further Education and Training
OBE	Outcomes Based Education
ICS	Interim Core Syllabus
NCS	National Curriculum Statements
NCF	New Content Framework
CAPS	Curriculum and Policy Statements
C2005	Curriculum 2005
PoA	Programme of Assessment
LPG	Learning Programme Guidelines
RNCS	Revised National Curriculum Statements
HOD	House Of Delegates
HOR	House Of Representatives

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CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 INTRODUCTION

The aim of this study is to explore the manner in which the emotions of Life Sciences teachers are affected by on-going changes to the school curriculum. More especially this study takes a closer look at how the emotions of Life Sciences teachers are embedded in curriculum changes. In the process, the study will reveal how teachers' exercise emotional understanding when coping with these emotions and emotional labour to help negate the influence of these emotions on their teaching practices.

Emotions are an important and integral part of our lives. It is the most important feature that distinguishes humans from all other living beings thus making humans the most emotional species in the animal kingdom (Dias & Arachhige, 2014). Hochschild (1983) contends that since emotions provide us with inner perspective of ourselves, it can act as a beacon of our true selves, and help us to interpret and respond to experience. Human experiences occur through interaction with internal and external influences and can strongly influence all aspects of one's life, including their job; teaching is no different.

Studies internationally have shown that teaching has a highly affective dimension with teacher emotions closely intertwined in the complexities of teaching and cannot be separated from it (Hargreaves, 1998, Nias, 1996). Teachers are often deeply and personally involved in their work. On a daily basis, there is continual interaction between teachers and pupils and teacher emotions become linked to their profession in profound and inextricable ways (Hargreaves, 1998). With this close interaction, schools become emotional arenas and the classroom a site for emotions with emotions being influential in encouraging or inhibiting effective teaching.

In the classroom, teacher emotions interact with their job. Teachers who feel happy, excited and motivated feel they are effective in handling the complexities of teaching (Nias, 1996) and can be successful in achieving their teaching goals. Therefore a teacher with positive emotions is asset to the school and the community. Conversely, teachers who feel afraid, frustrated, guilty or anxious know they are not teaching well and this may impact negatively on the learning outcomes of their pupils (Nias, 1996). When dealing with Science teaching, in particular, Zembylas (2004) proposes that teacher emotions help to shape science learning at a much deeper level. The science classroom Zembylas (2003) claims, is a social environment with teacher and student negotiating the emotional tone for successful teaching and learning. Therefore teacher emotions are constitutive of science teaching and interact with it in powerful ways (Zembylas, 2004). Teacher emotions are also linked to assessments (Steinberg, 2008), in profound ways. Teachers show strong emotions towards their assessment practices and towards the successes and failures of their pupils (Steinberg, 2008). Therefore, in the classroom there is an interaction between teacher emotions and different aspects of teaching.

Teaching is therefore a profession that is highly charged with feelings and for successful teaching to take place, it requires commitment, motivation and emotional attachment (Nias, 1996, Hargreaves, 1998). Day (2004) too remarks that teaching is not only concerned about knowledge, skills, reflection or being rational but; it is about the passion, enthusiasm and emotion that teachers possess. Hargreaves (1998) is convinced that emotions are not only part of teaching but that it is at the centre of the teaching process and he is of the opinion that, in teaching emotion lies “at the heart of teaching” (p.835) rather than at the periphery (Hargreaves, 1998, Nias, 1996, Zembylas, 2003). Furthermore, Pekrun, Frenzel, Goetz and Perry (cited in Steinberg, 2008) suggest that when teachers’ emotions are taken seriously, then schools can become emotionally sound and greater achievement can be achieved.

Since teacher emotions are closely intertwined to many different aspects of their job (Hargreaves, 1998, Nias, 1996), this lends itself to the view that if there are changes in the working conditions of teachers then these can also affect the emotions of teachers. In countries such as Canada, England, Belgium, China, Israel, where large scale educational change has taken place, research has sought to investigate the interrelationship between teacher emotions and educational change. These studies have shown that teachers reveal highly complex and

acute emotions towards curriculum changes (Hargreaves, 1998, Zembylas, 2004, van Veen & Slegers, 2006) with teacher emotions playing a role in the manner teachers interpret and implement these changes.

In South Africa, at the dawn of a new democratic country, it became incumbent on policymakers to develop a new curriculum in the education sector, which was to replace the curriculum that existed prior to 1994. A major transformation in the educational landscape was introduced. But, the change did not stop there. As the implementation process rolled out, more changes were introduced. In all these change processes, cognisance has been given to improving teacher skills and knowledge (Report of Task Team, DoE, 2009) as it is believed that these rational improvements alone can assist in the proper implementation of the curriculum. But (Hargreaves, 1998) suggests that initiatives related to educational change do not just affect rational matters of teachers' knowledge and problem solving skills but also their emotions. He further warns that change outcomes should be viewed cautiously as it often overlooks the complexities that spawn the outcomes especially from a teacher's perspective (Hargreaves, 1998). Likewise, Marshak (cited in Lee & Yin, 2011) adds that studies on education change significantly underestimates the complexity of the change process by ignoring the emotional experience of those involved in the change process. Hargreaves (1998) states eloquently that teachers' emotional lives play a key role throughout the change process – in whether they elect to change, how they interpret change, how they enact it and how they navigate through these changes. However, in South Africa, writers on educational change and curriculum planners seldom write about or acknowledge the emotions that teachers experience towards these changes.

To explore the experiences of teachers to ongoing curriculum changes, from an emotional point of view, Life Sciences teachers were chosen for this study. The Life Sciences curriculum has undergone radical changes with increased demands for resources and the introduction of new teaching and assessment strategies. These changes have increased the workload of teachers and although the implementation process has taken place, to date, not much is known about the emotional commitment of teachers towards these changes. Educational studies in South Africa have failed to articulate the layers of teacher emotion that is involved when change is brought about.

Thus in this study the main assumption is that the emotions of Life Sciences teachers play a role in accepting and implementing changes in the curriculum. Consequently this study undertakes to investigate the manner in which the emotions of Life Sciences teachers have assisted them to navigate through changes in the curriculum.

I feel that if the quality of teaching in South African classrooms has to be improved, then it is important that a holistic view of the change process be taken; which encompasses both the rational and emotional dimension. The study and understanding of teacher emotions towards curriculum changes may assist teachers in embracing curriculum changes more openly and perhaps make curriculum implementation more sustainable.

1.2 BACKGROUND TO THE STUDY

Internationally and in South Africa, education reform has, for various reasons, gravitated to the centre of the education system. These reforms are initiated and developed at state level but utilised by teachers at school level. At the state level initiatives have the advantage of having an image of an ideal school, an ideal teacher and ideal pupils, but at school level where policy is put into practice, the realities of these change initiatives exhibit themselves. One of the realities is that each teacher who is the end user of the curriculum and instrumental in curriculum change, is unique and different in thought and feelings towards these changes and each is affected differently. Thus, when educational changes are initiated, it affects not only the outer world but also the inner world of each teacher. Consequently, with change processes it may not be sufficient to look only at the outer world of experience of teachers, but also at how these changes affect their inner world.

In many developing and developed countries, educational change has taken place on a large scale. Review of all countries that have experienced educational changes, to date will go beyond the purpose of this study, for the idea is not to elaborate in detail about these changes, but rather to draw the reader's attention to some countries where studies have been carried out to show the effect of educational changes on teacher emotions. The empirical literature

therefore touches briefly on a few studies which show the literature on curriculum change and teacher emotion talking to each other.

Hargreaves (1998) working in Canada, found that teaching is an emotional practice, with teacher emotions towards change processes being significantly influenced by their relationship with their students. Accordingly, he states that the interpretation of education reform will depend on the impact these reforms have on their goals and their relationships, especially with their students (Hargreaves, 1998). Along similar lines, Schmidt and Datnow (2005), having gathered data from two US states (California and Florida) have also shown that educational changes often interfere with the relationship teachers have with their students and hence affects them emotionally. Therefore for these teachers, the process of making meaning of educational reform is emotionally laden. On the other hand, van Veen and Slegers (2006) found that teacher emotions are linked to their identity and this is affected by educational reforms. Their study carried out at a Dutch Secondary school revealed that teacher reaction to reform is largely determined by whether teachers perceive their professional identities to be reinforced or threatened by these reforms. In yet another study in China, Lee and Yin (2011) also argue that large scale curriculum reform, can strongly influence teacher emotions and thus their professional identities, with teachers taking different views of curriculum change depending on the effect it has on their identity. Likewise, Kelchtermans (2005) working in Belgium, contends that teacher emotions are central to teacher identity and when imposed reforms are different from teachers own beliefs, then this can evoke intense feelings leaving teachers with a sense of loss and a feeling of vulnerability. Hargreaves (2005) extends his study to show how teacher age and stage in career are also linked to teacher identity and their emotions. Depending on their age and career stage teachers show different emotional responses to educational change.

The above mentioned studies have shown that when educational changes are brought about, these do not deal exclusively with rational and technical elements. Curriculum changes disturb, more than just these rational and technical elements, they also affect the emotions of teachers. Additionally, these studies suggest that educational change contains too many human elements, and emotions are inevitably included in the commitment that teachers feel towards the change process (Lee & Yin, 2011). Since teacher emotions are basically inseparable from their job,

Hargreaves (1998) suggests that a study of teacher emotions helps to provide valuable insight into what teachers have at stake when faced with innovations. Therefore the study of teacher emotions provides an alternative direction in gaining an understanding of how teachers cope with curriculum changes.

In Sub Saharan Africa, although the picture on educational change is comparable to those countries internationally the studies on teacher emotions towards these changes is different. Education reform initiatives have also taken place in countries like Namibia, Kenya and Malawi. In these countries, new policies of learner-centred practices replaced the teacher-centred approaches which was thought to be stifling. This advocated changes in methods of teaching from a chalk and talk didactic to a more learning by discovery method, with greater importance placed on outcomes rather than facts (Mtika & Gates, 2010) and workload of teachers was intensified. Studies have shown that there are various complicated and interrelated issues that influence the application of this system (Ndemuweda, 2011, O'Sullivan, 2004, Mtika & Gates, 2010) and in most cases this new system was not implemented as envisaged by policymakers. However, amongst all these factors, not much is said about the emotions that these teachers experience as they work with these changes.

In South Africa, a similar picture emerges. An intensive reform in the education landscape was brought about when the country attained democracy in 1994. New teaching policies were introduced and this was evidenced by the Outcomes Based Education (OBE) approach, which also adopted a more learner-centred pedagogical approach that replaced the rote learning pedagogical style. The aim of these new teaching policies was to overturn the legacy of apartheid education and at the same time attempt to catapult South Africa into the twenty first century (Foulds, 2002). While the OBE approach may have envisioned the positive effects of equipping pupils with the skills and the mind-set for the twenty first century, this hardly makes this new approach problem free. In fact like the other developing countries and countries in Sub-Saharan Africa, where large scale education reforms has taken place, teachers had to adopt new and different pedagogic and assessment strategies and this also intensified the workload of teachers.

But, in South Africa, the change to the curriculum did not stop after the massive reformation. Since the education department, prior to democracy was highly fragmented, it was a massive task to overhaul the curriculum (Harley & Wedekind, 2004) and provide a national curriculum to all schools in South Africa. As the implementation process rolled in, the short comings of the curriculum surfaced (Harley & Wedekind, 2004). In an attempt to improve curriculum implementation, amendments were again made to subject content and assessment tasks. However, these changes did not last for a long time, and as more shortcomings surfaced, it resulted in a repeated revision to the curriculum, again with amendments to subject content and assessment tasks. With each curriculum change, teachers have had to work with a new curriculum design. Therefore teachers in South Africa have had to work firstly with a major curriculum change and then with ongoing changes.

As changes to the curriculum were initiated, teachers were provided with Department policies which outlined the teaching content and assessment tasks. To assist teachers, with these changes, workshops were held by Department officials each time new changes were brought in. As important as all these efforts are, the primary aim was to improve teacher knowledge, conceptions, planning and thinking processes. Additionally, studies on curriculum change in South Africa have reported on the outcomes of the different revisions (Report of Task Team, DoE, 2009) by attempting to rationalise the reasons for the implementation or non-implementation of the different revisions. Although the rational dimension is helpful and important, it does not fully explain why curriculum changes are often not implemented as planned. While many teachers have attempted to implement these changes in their classrooms, not much has been written about this experience, from an emotional point of view.

Although studies abroad have shown the significant link between teacher emotions and educational reform, in South Africa studies in this field is scant and marginalised. Within the South African context, some research has adopted the lens of teacher emotions in teaching. Steinberg (2013) explored teacher emotions towards assessment while Naidoo (2014) explored the subjectivities and emotionality of teachers in HIV and AIDS teaching. These studies have contributed to the research on teacher emotions, but an exploration of how teacher emotions are affected by on-going changes to the curriculum has been given minimal attention in educational studies. The main aim of this study is to contribute to this line of research by

exploring the emotions of eight Life Sciences teachers to the changes in the Life Sciences curriculum since the birth of a democratic South Africa in 1994.

The findings of this study will assist in gaining an understanding of the importance of teacher emotions towards curriculum changes. Currently, the emphasis on the rational dimension far outweighs that of the emotional one. But, by gaining an understanding of teachers' emotions towards curriculum changes this may assist curriculum developers understand the reasons why even well designed programs and new teaching strategies are sometimes not adopted or even attempted and why these programs and strategies have limited success. It is therefore possible that, when teacher emotions are acknowledged in curriculum changes, it may assist with improving the implementation of the Life Sciences curriculum in the classroom. I feel that if the goal of curriculum implementation has to be successfully achieved, it is then necessary to strengthen the bond between the rational and emotional aspects of curriculum changes.

1.3 PURPOSE OF THE STUDY

The literature on teacher emotions indicates that while there is knowledge about teacher emotions towards curriculum reform, there is scant knowledge about the emotions that Life Sciences teachers experience as they encounter ongoing changes to the curriculum.

There is little evidence of research to illuminate the actual emotions that Life Sciences teachers experience to the ongoing curriculum changes and how teachers use their emotions to navigate through these changes.

This main aim of this study is to gain an understanding of emotions that Life Sciences teachers experience as they continually implement changes to the curriculum in their classroom. Considering the many pedagogic and assessment changes to the curriculum and repeated changes that teachers have faced, the main research questions that will guide this study are:

1. What is the nature of the emotions that Life Sciences teachers experience as a result of ongoing curriculum changes?
2. How do Life Sciences teachers deal with their emotions experienced towards the ongoing curriculum changes?
3. To what extent do these emotions influence the teaching practice of these Life Sciences teachers?

1.4 RATIONALE FOR THE STUDY

This study focuses on the emotions of Life Sciences teachers. The objective of this study was to explore the nature of the emotions that these Life Sciences teachers experience as a result of the changes to the curriculum after South Africa attained democracy in 1994. Stemming from this, another objective was to explore the manner in which these teachers cope with these emotions and a third objective was to explore how these emotions influence the teaching practices of these Life Sciences teachers.

The rationale for conducting this study emanates from my personal involvement in Life Sciences teaching for many years. I chose Life Sciences because it is a subject that I am passionate about and have taught throughout my career. I am thus familiar with the demands of teaching this subject and the various curriculum changes that have taken place since 1994. I am aware of the numerous changes in content, pedagogy and assessment that have taken place with the curriculum since 1994. As these changes were brought about, I personally experienced a number of obstacles. These surfaced while implementing the revised curricula especially when I had to improvise for resources when dealing with demands of pedagogy and assessment tasks. The large class sizes, the lack of resources and science equipment made it difficult for me to implement the curriculum and the assessment tasks as stipulated by Department policies. I am also aware that each change lasts for a short period of time; resulting in my having to teach two curricula of different designs in a given year and as a result I have had to cope with a plethora of department policies and guidelines. In an attempt to be a good teacher and to ensure that my pupils were gaining full benefit, I had to juggle with the different curricula while teaching grades 10, 11 and 12. These challenges manifested as an emotional strain for me.

Thus, the impetus in undertaking this study is driven by my need to develop insight into the emotions that other teachers have experienced to these changes and how they cope with these especially in their classrooms. This research will enable me to reflect on my own teaching practices and determine the extent to which my teaching practices requires adjustments so that I can make an effective contribution towards the education of my Life Sciences pupils and in this way uphold my valuable role in the classroom. Since school contexts are different valuable lessons can be learnt.

As a Life Sciences educator I have frequently attended department meetings. At these meeting, my colleagues have often expressed emotions of anxiety, irritation and confusion regarding changes to the curriculum. Although they felt these emotions very strongly, its expression was restricted within the confines of their classrooms and between colleagues. When discussion on curriculum revisions reached the public sphere in meetings and in discussions from various stakeholders about challenges in curriculum implementation, teacher emotions were seldom mentioned or taken seriously. The research also will provide a platform for Life Sciences teachers to voice their feelings to the ongoing curriculum changes. This can provide valuable insight and expand teachers' understanding of the plight of their colleagues. This may assist teachers to assess their teaching practices and if necessary make amendments to these practices and in so doing contribute to upholding the culture of teaching and learning at all times.

Another reason I believe this study is worth doing is that when I was conducting my literature review, I found that until the 1990's studies in the field of teacher emotions to curriculum changes was limited. Although some studies have been conducted on teacher emotions and curriculum reform, these studies have been conducted outside South Africa. However, in South Africa where curriculum change has been at the forefront since the dawn of a democratic South Africa in 1994, minimal attention is paid to the way teachers emote towards these changes. In short, in South Africa, not much has been done to illustrate how teacher emotions are part of and interact with, curriculum changes. Furthermore, it appears that studies have not focussed on teacher emotions to ongoing curriculum changes and on Life Sciences teachers in particular. This study is therefore trying to identify an area that was not sufficiently written about by focussing on the emotions of Life Sciences teachers to ongoing curriculum changes. I therefore believe that this study will contribute to the enrichment and the expansion of the

knowledge base of teacher emotions to ongoing curriculum changes, not only in South Africa but internationally as well.

A further intention in conducting this study, is to shed light on this topic to Department officials and policymakers which may be useful in directing further changes in curriculum. These officials may be guided by the emotional orientation of teachers, as described in this study, when directing further changes to the curriculum.

1.5 STRUCTURE OF THIS DISSERTATION

The dissertation consists of five chapters. A brief outline of each chapter is presented below.

Chapter one provides a background to the study, the purpose of this study which puts forth the research questions that this study aims to answer, rationale for the study and the structure for the dissertation.

Chapter two focuses on the literature relevant to teacher emotions and it focuses on both international and South African literature on teacher emotions. The literature review focuses on conceptualisation of emotions, emotions in educational studies, emotions are central to teaching and learning, role of emotions in Science teaching and teacher emotions and assessments. This is then followed by an examination of the general changes within the curriculum that have taken place after South Africa attained democracy in 1994 and thereafter more especially at the changes in the Life Sciences curriculum. The chapter ends with the conceptual framework used to analyse the data presented in Chapter four. This then paves the way to Chapter three.

Chapter three focuses on the details of the research design and methodology that is employed in this study. This is accompanied by an explanation and a justification for the research paradigm and approach, the sampling procedures, the data collection methods as well as

method of data analysis. The chapter then goes on to look at the ethical issues involved here and then the way in which rigour was established. This then leads to Chapter four.

Chapter four is the heart of the dissertation. It begins with a profile of the participants and then moves on to present the qualitative data obtained from this study. A detailed discussion of these results then follows. This then guides the study to Chapter five

Chapter five presents the conclusion to the study. This chapter presents a summary of the main findings. It then provides the limitations and strengths of this study. It also provides recommendations for further studies and areas for future research before this dissertation is drawn to a close.

1.6 CONCLUSION

This first chapter provides an overview of this study. It begins with an introduction and then looks at the background to the study. This then leads to the purpose of the study and moves to the research rationale. The chapter concludes by presenting a structure of this dissertation. The next chapter provides a review of the literature relevant for this study and then goes on to a discussion of the conceptual framework upon which the analysis of the data is based.

CHAPTER TWO

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

2.1 INTRODUCTION

This chapter of the study consists of three main focus areas. The first section presents a review of the literature relevant to the topic of teacher emotions. Since the literature in this field relates to various different factors that affect teacher emotions, the review has been restricted to some key aspects relevant to this study. These include a conceptualisation of the term emotion, a look at emotions in educational studies, leading to the importance of teacher emotions which includes the following: emotions are central to teaching and learning, role of emotions in Science teaching, teacher emotions towards assessments and teacher emotions towards the changing curriculum. As a detailed exploration of the present literature was made, the aim was to firstly make links between these aspects on teacher emotions and then as the different links are pieced together, it is hoped that the completed picture will illuminate both the complexity and importance of engaging in research on teacher emotions towards changes in the curriculum.

In the second section of the chapter a description is given of the changing school curriculum in South Africa which was brought about when South Africa attained democracy in 1994. This is then followed by changes that pertain specifically to the Life Sciences curriculum. The aim here was to set forth the complexities that teachers were faced with when there was a massive transformation and then ongoing changes to the school curriculum. Since studies have shown that teacher emotions are intertwined in the process of curriculum change, the main focus of this study was to explore the emotions that Life Sciences teachers experience to the on-going changes to the curriculum.

In the third section of the chapter the conceptual framework used to analyse the data collected is presented. I have adopted three concepts from Hargreaves (1998) which I felt would be valuable in analysing the data that was collected. These three concepts are:-

- 1) Teaching is an emotional practice
- 2) Teaching and learning involve emotional understanding
- 3) Teaching is a form of emotional labour

2.2 LITERATURE REVIEW

2.2.1 Towards a conceptualisation of Emotion

The term emotion has existed in English since the 17th century originating as a translation of the French word '*emotion*' meaning a physical disturbance. When people are emotional there is some kind of change within them. Hargreaves (1998), on the other hand, contends that the term emotion originates from the Latin term *emovere*: which translates to move out or stir up. Hargreaves (1998) elaborates that emotions are parts of ourselves and are fundamentally about movement and when people are emotional they are moved by their feelings. Emotion has closely been coupled with other terms like 'feeling' and 'affect' and these terms are often used interchangeably. In this study this is no different.

The term emotion has been used in various fields such as psychology, sociology, psychobiology, philosophy, anthropology, cultural and feminist studies (Zembylas, 2003). Although these studies have emphasised the role of emotions in helping human beings survive and adapt, to motivate their learning and to communicate with others (Hyson cited in Zembylas, 2003), researchers in the various fields have found it difficult to define this term, resulting in a lack of consensus in its definition.

Turner (2009) contends that much of the problem in defining this term is that there are many different levels of reality at which emotions operate. These include biological, neurological, behavioural, cultural, structural and situational (Turner, 2009). Emotions emerge from a complex interplay among forces emerging from these different levels which then become linked to a variety of changes including arousal of the nervous system, physical, psychological or behavioural changes (Turner, 2009). As a result, researchers working in different fields may emphasise different aspects of this complex interaction and accordingly formulate a definition. Turner (2009) contends that the definition of emotion will vary, according to the aspect of emotion which is relevant to the researcher. Consequently, different definitions may be found in research literature and this again colludes to the difficulty in defining this term.

The effort to define the term emotion has a long history in the field of psychology but here it is chiefly defined from an individual perspective. According to Keltner and Ekman (cited in van Veen & Slegers, 2006); a widely accepted definition of emotions is that:-

emotions are brief rapid responses involving physiological, experiential and behavioural activity that help humans respond to survival-related problems and opportunities. Emotions are briefer and have more specific causes than moods (p. 163)

To sum up, Lazarus (cited in van Veen & Slegers, 2006) contends that emotions are a system of thoughts, beliefs, motives, meanings, subjective bodily experiences and physiological states which are complex but organised.

Thus research psychologists do believe that emotions are processes consisting of multiple components which influence each other, but these components do not automatically follow each other (Sutton & Wheatley, 2003). To sum up, there seems to be general consensus among theorists that emotions are multicomponential processes and although these components interact and influence each other, the order of the different components can change in different situations. Thus from an individual perspective, although the attempt is made to understand the meaning of emotion, there is still some difficulty in gaining a clear definition of this term.

When viewing emotions from a teaching perspective, the process is no longer a personal phenomenon, located in the individual mind, but involves human interactions and relationships.

Findings from a number of empirical studies have suggested that teachers' emotions do not only affect their selves and their identities but it also the relationships that they form with others (Hargreaves, 1998) and that the emotions that teachers displayed are shaped by their teaching context (van Veen & Slegers, 2006). Thus with teaching, emotions are more like "a socio-cultural construction than a private psychological process" (Yin & Lee, 2012, p. 58) where teacher emotions are part of the social environment in which they work. Zembylas (2004) expands that central to the social construction perspective, is the idea that the experience and expression of emotion depends on certain acceptable rules, while Kemper (cited in Lee & Yin, 2011) adds that it is the social environment that will determine which emotions are likely to be experienced when and where, on what grounds and for what reasons. Therefore the expression of teacher emotions and feelings is bound by the social expectations of teaching, making this term more difficult to define.

In this study the emotions of Life Sciences teachers to the changing curriculum is explored. Considering the view of Zembylas (2004) that the Science class is a social environment, with teacher emotions constructed according to the social and cultural forces that are present within it, I therefore draw on the definition of Hochschild (cited in Yin & Lee, 2012) to inform my understanding of the concept of emotion:

an awareness of four elements usually experienced at the same time: appraisal of a situation, changes in bodily sensations, the free or inhibited display of expressive gestures and a cultural label applied to specific constellations of the first three elements (p.58).

Teachers in their daily interactions with pupils and others, experience a varying number of different emotions which may cause changes in their bodily sensations but the expression of some of these emotions may be constrained due to the values and ethics of the teaching profession.

2.2.2 Emotions enter educational studies

In educational studies, teacher emotions has long been an under researched theme (Nias, 1996, Hargreaves, 1998, Zembylas, 2003). According to Oatley and Jenkins (cited in Sutton, 2005), a reason for the neglect of emotion in teaching was that in the Western culture it was felt that there was something was wrong with emotions and they felt suspicious of it. Emotions were thought of being out of control, irrational, primitive and childish rather than thoughtful, civilised and adult (Sutton & Wheatley, 2003), like cognition, and as a result it was not accorded a high status (Zembylas, 2004). Since it was felt that emotion did not offer any valid knowledge, it was not regarded as a concept worthy of academic writing. Therefore studies in education paid very little attention to emotions, and much more attention was given to cognition.

In contrast, recent research has shown that knowing and understanding does not involve cognition (or rationality) only, but emotion as well. According to Day and Leitch, (2001) there are two different but important ways of knowing and understanding; rationally and emotionally. The rational mind is logical, analytic and careful while the emotional mind is powerful, impulsive and intuitive and often illogical. Usually these two minds work together, one informs the other, there is there is harmony between the both, and the head and heart operate together. However, in times of being upset or distressed, the rational mind no longer functions well because the emotional mind swamps the rational mind (Day & Leitch, 2001) and powerful emotions arise that can disrupt rational thinking. Hence, it's our emotions that can determine how the rest of the brain and cognition go about their business (Damasio, cited in Zembylas, 2003). Furthermore, Le Doux (cited in Day & Leitch, 2001) argues that it's our emotional brain may act between the thinking brain and the outside world. The overpowering influence of emotions is aptly captured by Day & Leitch (2001) who suggest that "when flooded by our emotional brain, our working brain may have little capacity for attention to hold in mind the facts necessary for completion of a task or to make intelligent decisions" (p. 408). Zembylas (2003) is of the opinion that if emotions are not thought of as irrational, they can then view them as "instruments of freedom rather than tools of self-oppression" (de Sousa, 1980, p.446). Therefore emotions are an important part of the complexity of knowing and understanding.

Psychologists now recognise emotion together with cognition and motivation as fundamental classes of mental operations (Sutton, 2005). This interest in emotions has moved to various fields of study including sociology, psychobiology, philosophy, anthropology, cultural and feminist studies (Zembylas, 2003). In educational studies, the rise in the empirical literature on the interrelationships between teaching and emotions surfaced only in the mid 1990's (Hargreaves, 1998, Nias, 1996, Zembylas, 2003) and the number is increasing exponentially. These studies relate teacher emotions to a number of educational issues in the change process. For the purpose of this study, the review of the literature is centred on a few aspects which include; emotions are central to teaching and learning, role of emotions in science teaching, teacher emotions and assessments, and teacher emotions in educational change.

2.2.3 Teacher Emotions are important

In this section the literature review examines emotions in teaching and learning, the role of emotions in Science teaching, teacher emotions towards assessments and teacher emotions towards the changing curriculum.

2.2.3.1 Emotions are central to teaching and learning

I've have come to the frightening conclusion that I am the decisive element in the classroom. It's my personal approach that creates the climate. It is my daily mood that makes the weather. As a teacher, I possess a tremendous power to make a child's life miserable or joyous. I can humiliate or humor, hurt or heal. In all situations, it is my response that decides whether a crisis will be escalated or deescalated and a child humanized or de-humanised (Ginott, cited in Brown, 2011, p.1)

The extract above suggests that the job of teaching is not limited to rational and technical skills only but that it extends beyond these boundaries. Although teacher expertise and teacher knowledge remain the primary foci in teaching, it is not sufficient (Brown, 2011). It is the

teacher's personal approach, their feelings and emotions that also play a powerful role in the classroom.

A review of literature on teacher emotions reveal that teaching is not just related to cognition, for teacher emotions are linked to it (Nias, 1996, Hargreaves, 1998, Zembylas, 2003). The findings of a study conducted by Nias (1996) indicate that teaching involves interaction with people whom teachers feel passionate about. Teachers often have passionate feelings about their pupils, about their professional skill, about their colleagues and the structures of schooling, about parents and inspectors and about the actual and likely effect of educational policies upon their pupils and themselves (Nias, 1996). Since teachers are driven by this passion for the job, emotions are inevitably part of the experience of being a teacher. Because teachers show a great deal of passion for their job, their personal and professional identities are often merged in the classroom and their classrooms and schools become the main site for both their fulfilment and their vulnerability (Nias, 1996). Hargreaves (1998) further maintains that since the relationship of teacher and student forms the main focus of teaching and learning, teachers invest emotionally in these relationships as well. Steinberg (2013) also alludes to teachers forming such emotional relationships with their pupils especially where assessments are concerned.

In yet another study, where teacher emotions were explored, Naidoo (2014) has revealed how teacher emotions are also linked to the teaching of HIV and AIDS. In South Africa where there is a high prevalence of HIV and AIDS and many families are severely affected by this pandemic, the teaching of HIV and AIDS places a burden on many teachers (Naidoo, 2014). To help teachers deal with the teaching of this concept, teachers construct multiple subjectivities which become linked to their emotions. However, depending on the context teachers teach in, these subjectivities are never stable but ever shifting and dynamic and as such teachers continually negotiate their emotions as they teach this topic (Naidoo, 2014). Naidoo further elaborates that teachers experience both positive and negative emotions when teaching about HIV and AIDS, in dynamic emotional contexts (2014). This has led Naidoo (2014) to re-iterate the point that teacher emotions are an essential part of their lives with teacher emotions ingrained with their interactions and their teaching contexts.

Good teaching involves positive emotions and teachers can make their classrooms exciting and interesting; they can enthuse or bore their pupils (Hargreaves, 1998). In the classroom, teachers can have different emotional experiences and hence different teaching experiences. Those who have more positive emotions of joy and less anger, have a different teaching experience compared to those who more negative emotions of little joy and much anger. Thus teacher emotions can be can play an important role in encouraging or inhibiting effective teaching (Sutton, Mudrey-Camino & Knight, 2009). Furthermore, the emotions of teachers can influence his or her students' cognitive abilities which in turn affect students' learning (Brown, 2011), their attention and memory. Brown (2011) adds that in the learning environment, it is the achievement emotions such as excitement, curiosity and pride that can provide confidence to students and allow for engagement in class material. Along similar lines, Day and Leitch (2001) acknowledge the vital role of feelings and emotions in the development of learning, claiming that teacher commitment, emotional attachment and a deep knowledge of teacher self and student is required, for teaching to take place at its best. Emotions also exert a powerful force on motivational processes with positive emotions enhancing levels of intrinsic motivation, broadening thinking and enabling teachers to adopt new teaching strategies (Linnenbrink & Pintrich, 2000). Likewise, Nias (1996) believes that teachers' emotions and cognition are inextricably connected and are thus difficult to separate. Zembylas (2003) adds that emotion and reason depend on each other since our reasoning depends on our emotional choices. Meanwhile, Meyer and Turner (2002) contend that emotions are inherently motivational because "we don't become emotional about unimportant things" (Lazarus, 1991c, p.819). Emotions are thus an essential part of a complex web of classroom interaction and a means through which teachers can become successful in the classroom.

On the other hand, negative emotions may also be experienced and these work contrary to the experiences of positive emotions. Negative emotions can reduce intrinsic motivation. Teachers who are frustrated, sad and disgusted are less intrinsically motivated (Sutton & Wheatley, 2003) about their jobs and their students leading to a loss of interest in their jobs.

Negative emotions can also influence attention and memory. It can reduce working memory; the memory system used for holding and manipulating information while various mental tasks are carried out (Linnenbrink & Pintrich, 2000), thus impacting negatively on teaching and

learning. Regarding pupil achievement negative emotions such as frustration and boredom have been linked to decrease in student engagement, behaviour problems and truancy. (Turner & Waugh, cited in (Brown, 2011) thereby decreasing their achievement levels. Therefore negative emotions too are part of the classroom activities but these can have undesirable effects on teaching and learning.

2.2.3.2 Role of emotions in Science teaching

Since this study has its focus on Life Sciences teachers, I felt it appropriate to review the literature on the emotional issues in teaching science. Since the studies in this field are limited, it was difficult for me to draw links or similarities.

In the ethnographic study of a Science teacher conducted by Zembylas (2003), the main focus in this study, was to investigate the role of emotions in Science teaching. The findings indicate that in respect to Science teaching, teacher emotions play a significant role in the way science pedagogy is constructed, in the planning of the science curriculum and also in the relationships that teachers share with children and colleagues.

This study has shown that the planning and pedagogical decisions of the science curriculum were influenced by student's emotions and contributions (Zembylas, 2003). To this end meaningful and exciting science activities are planned, student contribution and participation is enhanced and positive emotions of joy and excitement are felt by students (Zembylas, 2003). This led Zembylas (2003) to claim that the emotional culture in the science classroom is markedly different from the typical classroom. Positive emotions help to build an emotionally supportive classroom which is helpful to students and teacher, with students feeling valued while the teacher feels empowered, and feelings of shame and low self-esteem is subverted (Zembylas. 2003).

The interactions between teacher and students also play a role in negotiating an emotional tone in the classroom. This tone is guided by certain emotional rules, which although not explicitly

stated, are constructed within the social context in which teacher and students work (Zembylas, 2003). Within the classroom, teacher and student work together to construct these emotional rules which determines the emotions that are accepted and expressed, thus the emotional tone. Nias (1996) expands further that the social and cultural forces that are found in teaching cannot be separated from teacher feeling or cognition. This line of thinking emphasises the linkage between emotion, teachers, moral and ethical purposes and the caring ethics of teaching (Yin & Lee, 2012). Teachers feel strong emotions towards their work but the expression and display of these emotions are controlled by emotional rules (Yin & Lee, 2012). So, the unique sense of self that every teacher has is socially grounded since the expression of teacher emotions is based on the social and political contexts in which they work.

On the whole, the findings of this study indicate that there is a powerful interaction between teacher emotions and science teaching and this can shape learning and teaching experiences for both teachers and students. Furthermore, emotions in the classroom are not personal products but a social construct within social relationships and in the science classroom where teaching involves participation in activities, such relationships play an important role. Zembylas (2003) suggests that if progress in science education is needed, a closer look at teacher emotions, both positive and negative is required and when these are considered seriously, it is safe to say that what is at stake in science teacher education and science curriculum reform, and how best to enrich them will never look the same again.

2.2.3.3 Teacher emotions towards assessment

Assessments are a critical element of the NCS as it assists teachers to make judgement about a pupil's performance. One of the significant changes that was brought about in the school curriculum was the change in assessments. Hence I found it necessary to present the literature review regarding this topic. Here again I found that there were few studies that linked teacher emotions to assessments, making it difficult to link similarities.

In a study conducted within the South African context, Steinberg (2013) found that contrary to the customary way of thinking of assessments as being objective, this was in fact an “emotional practice” (Hargreaves, 1998) for many teachers. Steinberg is of the opinion that teacher emotions play a central role in the manner in which changes in assessment practices are interpreted and implemented, claiming that teacher emotions are the filter through which teachers’ bring about changes in assessment policies (2013). Furthermore, she is of the view that teachers have an emotional attachment to deep seated beliefs of assessment and this may inhibit teachers’ ability to change their assessment practices (Steinberg, 2013).

When teachers deal with changes in assessment practices, this can sometimes be overwhelming, evoking a number of feelings within them. General there strong negative feelings ranging from confusion, anxiety, irritation and frustration due to factors related to the assessment practices. The lack of clarity of assessment tasks in policy documents, the unrealistic demands of the assessment tasks and time frames, the minimal support from departmental officials and the hectic pressure under which teachers have to work, all create a world of dilemma for teachers (Steinberg, 2013).

When teachers are subject to changes in assessment policies and they experience emotional chaos they then invest a great deal of emotional energy in an attempt to try and cope with all these changes (Steinberg, 2013). These attempts are geared towards coping with these changes so that they are able to fulfil their moral purposes (Steinberg, 2013). Steinberg found that teachers’ formulate certain emotional rules regarding feedback on assessments, which focused mainly on giving constructive feedback to all learners, irrespective of their performance in their tasks, just so learners felt better about their performance (2013). Often this commitment was emotionally laden, leading to teachers also engaging in emotional labour, especially when students did not achieve (Steinberg, 2013). The concerted effort of teachers to control and keep their emotions in check, when feedback was given, was not an easy task for teachers, especially when learners were not working to their full potential and did not achieve well (Steinberg, 2013).

Therefore teacher emotions are also involved in assessments. Contrary to the belief that assessments are “neutral” and does not have an effect on teacher emotions, Steinberg’s study

has revealed that assessments do involve teacher emotions (Steinberg, 2008) with teachers becoming angry and upset when their pupils fail for the reasons that could have been controlled (Reyna & Weiner, cited in Steinberg, 2008). Teachers express negative emotions when pupils fail and when they are blamed for student failure. They also display negative emotions when they are held accountable for poor results in standardised testing (Steinberg, 2008) and this limits their effectiveness in the classroom. These negative emotions cause teachers to feel vulnerable and demoralized about their job.

2.2.3.4 Teacher emotions towards changing curriculum

A nation's national curriculum is an integral part of its education system as it provides direction for teaching and learning. Amendments to the curriculum in South Africa have entailed major changes in pedagogy, content and assessment. Although the main beneficiary in this reformation system is the pupils, it is the teachers who are the "key contributors to the transformation of education in South Africa" (DoE, National Curriculum Statements, Grade 10 – 12, General, 2003) since they are responsible for implementing the curriculum in the classroom.

Educational studies have shown a link between teacher emotions and teaching since the mid 1990's, but previous to that research on this topic has been neglected for a long time (Lee & Yin, 2011). However, Hargreaves (1998) remarks that even when emotions are acknowledged in the change process, it is done so in a minimalist way,

Emotions are usually acknowledged and talked about within the educational change and reform literature insofar as they help administrators and reformers 'manage' and offset teachers' resistance to change, or help them set the climate or mood in which the 'really important' business of cognitive learning or strategic planning can take place. The more volatile, passionate emotions like joy, excitement, frustration and anger are kept out of the educational agenda in favour of ones that encourage trust, support, openness, involvement, commitment to teamwork and willingness to experiment. (p. 837).

This conveys the idea that cognitive learning takes precedence over teachers' emotions when education change takes place. Even when emotions are acknowledged, it is mainly those that help to manage the change process but not the more passionate ones.

By ignoring teachers' feelings and emotions towards reforms, implies that these are not important, yet teaching and learning are deeply embedded in emotional experiences (Hargreaves, 1998). Likewise, Lee and Yin (2011) add that since there are too many human elements associated with educational changes, "emotion is inevitably one part of the commitment that teachers bring to the change process" (p. 26). Marshak (cited in Lee & Yin, 2011) contend that most educators and researchers, underestimate the complexity of educational change by focussing on the external, rational elements and ignoring people's emotional experiences of change. Similarly, Hargreaves (1998) proposes the idea that teachers' emotional lives play a key role throughout the change process, and the study of teachers' emotions might provide a way of understanding how teachers make sense of the change process. Zembylas (2003) adds that since teachers' commitment towards their profession is strong and personal, it is with their emotions that they personally interpret the demands placed on them. van Veen and Lasky (2005) support the idea of analysing teacher emotions when implementing reforms, for they claim that this provides a way of understanding how teachers experience their work and educational change at a much deeper level.

A review of literature reveals that in countries like Canada, China, Netherlands, Belgium and California, studies have sought to show the interrelationship between teacher emotions and curriculum change. Findings from a majority of these studies have shown how teacher identity is affected in times of curriculum reform. In a study carried out by Lee and Yin (2011), a Chinese perspective on teachers' emotional experiences to national curriculum reform was studied. This national reform brought in three major changes, which included; the use of new textbooks, new teaching approaches and a change in college entrance examinations (Lee & Yin, 2011). Findings reveal that teachers show complex emotions towards curriculum reform and their emotional experiences cannot be classified as just positive or negative for in many instances they exist simultaneously. This has led Lee and Yin (2011) to claim that teacher emotions towards change is more of a "mixture" rather than a "pure substance" for teachers emotions towards change are neither positive nor negative but rather a combination of both.

Furthermore, the findings revealed that strongest impact of the reform happens when teachers implement the reform in their class, because teachers experience difficulty in trying to keep a balance between their identities and that which is expected of the reform. Lee and Yin (2011) accordingly classified their participants into three classes according to their emotional responses to the reform. The losing heart accommodators, who displayed passion about the introduction of the reform, did engage with it, but as they implemented it, their enthusiasm was lost. The drifting followers who didn't feel much excitement about the reform and therefore didn't consider themselves of any significance to it. Lastly, the cynical performers who resisted the reform very strongly at an emotional level, but was obedient to it behaviourally (Lee & Yin, 2011). Thus the three different groups display diverse response to the reform based on their emotional responses.

In another study, Schmidt and Datnow (2005) investigated how the emotions of teachers assisted them to make meaning out of specific reforms within their school. The findings here also show differences in teachers' emotional responses to reform, at school and classroom level. At school level, teachers attached little emotion to changes, while at the classroom level, a range of different emotions are elicited. (Schmidt & Datnow, 2005). Teachers responded with stronger emotions to changes in their classroom because this required changes in teaching practices which in turn challenged their identity and moral purpose. Teachers who felt that the reform aligned with their teaching beliefs, expressed positive emotions. On the other hand, those who felt that the reform was not in line with their moral purposes, expressed intense and negative emotional responses (Schmidt & Datnow, 2005). Likewise, writers like Kelchtermans (2005) claim that this loss of identity make teachers vulnerable for teachers feel that when changes are imposed upon them, their professional identity is questioned and their valued workplace is threatened.

In yet another study, van Veen and Slegers (2006), examined teachers' emotional response to reforms in the upper level of Dutch Secondary education. This reform adopted a more process-orientated model of teaching with teachers becoming facilitators of student learning and showing a greater involvement in school organisation. Here again, teachers displayed divergent emotions to change which varied from being angry and anxious to happy and satisfied (van Veen & Slegers. 2006) depending on whether these changes were in line with

their professional orientation or not. Therefore two separate groups of teachers emerged. Regarding their teaching, some felt that teaching their subject was important since they had to develop their students intellectually, while others felt that their job entailed more than just their subject and they had to also develop both the intellect and emotional aspects of their students. Regarding their orientation towards the school organisation, teachers again displayed varying responses. Some felt that consultation with colleagues was necessary and important since teaching was a heavy job. Others felt that this was not necessary since teachers needed to be autonomous. The varying responses reveal that teachers had different emotional orientations towards these reforms. Thus, van Veen and Slegers (2006) suggest that if teachers experience congruency between their own professional orientations and the mandated reform agendas, they will react more positively, but if they experience incongruency between these factors, then they will react negatively.

In yet another study carried out by Hargreaves (2005), the study of teacher emotions to reform was extended to investigate how factors like age and stage in career can also affect teachers' response to educational change. Here, teachers were classified into three groups depending on their age and career stage, since these different groups responded differently to educational change. Young teachers were more enthusiastic, optimistic and adapted more easily to change but those teachers towards the end of their career were more resilient and resistant towards change while those in their middle years of teaching, showed some enthusiasm, confidence and competence but were selective about the change initiatives they adopt (Hargreaves, 2005). The findings here suggest that all teachers do not respond to educational changes in the same manner since teachers of different ages and stages in their career respond differently.

A review of literature on teacher emotions and curriculum change in South Africa reveals that thus far educational studies have not focussed on teacher emotions to ongoing curriculum change. Although some research has been conducted in this field internationally, none have examined the nature of emotions to ongoing curriculum changes or conducted studies using Life Sciences teachers. Thus in this study, I aim to explore the emotions of Life Sciences teachers to ongoing curriculum changes. This study aims to firstly form a knowledge base of this topic in South Africa and secondly expand the literature on teacher emotions to curriculum change. If teaching and learning has an emotional dimension, then an understanding of

teachers' emotions may help curriculum developers understand the complex reasons underlying the limited success of even well designed programs and why new teaching strategies are not adopted or even attempted. In this study, exploring the emotional dimension of teachers to the on-going curriculum changes may provide a way of understanding the extent to which these changes are accepted, adapted and sustained.

The next section looks at the changing school curriculum.

2.3 THE SCHOOL CURRICULUM

This study is necessitated by the exposure of Life Sciences teachers to numerous changes in the curriculum since South Africa's move to a democratic society in 1994.

The school curriculum has adopted a number of different meanings by different writers. For the purpose of this study I draw on the definition of Goodlad and Su (1992) to inform my understanding of the meaning of curriculum

A plan that consists of learning opportunities for a specific time frame and place, a tool that aims to bring about behaviour changes in students as a result of planned activities and includes all learning experiences received by students with the guidance of the school.

According to this definition, the curriculum is seen as a plan which provides learning opportunities for pupils but is present for a specified period only. South Africa's move from an apartheid regime into a democratic society and its insertion in the global economy required a curriculum that was in line with these political and social transformations. South Africa needed a curriculum that would serve two purposes. Firstly, of uniting all citizens of a democratic country and also equip all citizens with the skills to cope and compete in the changing global and national environments. This resulted in a large scale, rapid change in the curriculum after democracy, but the change did not stop there, more changes followed later.

2.3.1 The changing school curriculum in democratic South Africa

This section will give a brief overview of the general changes that were introduced in school since 1994; to shed light on the complexities that teachers had to cope with, as changes were implemented.

After 1994, the school curriculum which existed during the apartheid era was regarded as “racially offensive, sexist and outdated” (Harley & Wedekind, 2004, p.197) and was therefore massively overhauled. This led to the development of new policy frameworks, in the form of Outcomes Based Education (OBE) which shifted the focus away from content to outcomes and from formal summative assessment to continuous assessment (CASS) (Harley & Wedekind, 2004). The design of this curriculum incorporated three features; which were outcomes based, an integrated knowledge system and learner centred pedagogy. This curriculum design led to a radical shift in teaching and assessment practices and standards.

The sudden move from a content driven, teacher based pedagogy to an outcomes based, learner-centred pedagogy on a national level, had to take place in stages. Changes were first initiated in the General Education and Training (GET) band comprising Grade 1 to 9 and gradually in the Further Education and Training (FET) band, comprising Grade 10 to 12. The first post-apartheid policy document based on OBE principles, was Curriculum 2005 (C2005) which was implemented in Grade 1 in January 1998 and progressively phased in until 2005. Consequently this curriculum was streamlined and strengthened and it gave rise to the Revised National Curriculum Statement (RNCS) for Grades R – 9, which began implementation in 2004. These changes in the GET band impacted on changes in the FET band.

In the FET band, the changing curriculum was also a matter of national interest. Soon after 1994, the Interim Core Syllabus (ICS) which was still content driven and teacher centred, was implemented as an interim measure, while the policy documents for Grades 10 to 12 was being finalised. The National Curriculum Statements (NCS) Grade 10 - 12 became policy in 2003, and was also strongly inspired by the vision of democracy, social justice, non- racism and equality for all. Thus, its foundation too was OBE. As a result, there was a radical shift from

the content based and teacher driven ICS, to a learner-centred and activity based approach with NCS. This drastic change in curriculum design was accompanied by new documents, concepts and assessments practices which teachers had to become with, often by themselves and in their own time. Its implementation took place in Grade 10 in 2006 (Department of Education, 2003) and it was progressively phased in. While this curriculum was being implemented, amendments were made to it by policymakers.

The challenges and shortcomings of NCS (Grades 10 – 12) surfaced shortly after its implementation and this resulted in an amended design, the New Content Framework (NCF), also known as NCS (Grade 10 – 12) version 2 (DoE, 2007). This new curriculum design once again brought forth a number of new educational policies, which teachers needed to get familiar with. This curriculum design was first implemented in grade 10 in 2009 and subsequently in grade 11 and grade 12. However the implementation of this curriculum also proved to be problematic.

In order to assist teachers, the Minister of Basic Education Angie Motshekga, set up a Ministerial Committee in 2009 to investigate the pressure points, of the NCS (Grades 10 – 12) and of RNCS (2002) and to provide recommendations to improve implementation of the new curriculum design (DoE, 2009). One of the recommendations of the review report was that the many different curriculum documents be refined and consolidated (DoE, 2009). As a result, from 2012, NCS for Grades R – 9 and Grades 10 – 12 were combined into a single document known as NCS Grades R – 12 - CAPS (Curriculum and Assessment Policy Statements), (DoE, 2011). This amended NCS curriculum represented the policy statement for teaching and learning in all grades, in all South African schools. The implementation of this curriculum also took place progressively over three years. It started in January 2012 in Grades R – 3 and Grade 10, in January 2013 in Grades 4 – 6 and Grade 11 and then in January 2014 in grades 7 – 9 and Grade 12. Unlike the other documents, CAPS specified the content and assessment for each subject and each grade in detail. The aim here was to provide clearer specification of what was to be taught, learnt and assessed in each grade.

The attempt by policymakers to strengthen the national curriculum and improve its implementation resulted in repeated changes to the curriculum. This culminated in dual

ramifications for teachers. Firstly, teachers had to familiarise themselves with another new curriculum design in a short space of time and secondly teachers teaching Grades 10, 11 and 12 have had to teach two different curriculum designs in one year. The different curricular that teachers have had to work with since 2006 is summarised in Table 1 below:

<i>YEAR</i>	<i>GRADE 10</i>	<i>GRADE 11</i>	<i>GRADE 12</i>
2006	NCS	ICS	ICS
2007	NCS	NCS	ICS
2008	NCS	NCS	NCS
2009	NCF	NCS	NCS
2010	NCF	NCF	NCS
2011	NCF	NCF	NCF
2012	CAPS	NCF	NCF
2013	CAPS	CAPS	NCF
2014	CAPS	CAPS	CAPS

Table 1: The curriculum design for Grade 10, 11 and 12 between 2006 and 2014.

The table above shows the restructuring of NCS in the FET band since 2006, and the overlap that accompanies these rapid changes. In the year the curriculum is implemented, it is taught only to Grade 10. In the meantime Grade 11 and 12 are still being taught the ‘old’ curriculum. In the following year, the ‘new’ curriculum is taught to Grade 10 and 11 while Grade 12 is still being taught the ‘old’ curriculum. It is only in the third year of its implementation, that the same curriculum is taught to all grades. In effect, although a revision is brought about every three years, it remains in the system for five years compelling teachers teaching grades 10, 11 and 12 to sometime teacher to two different curricula.

The preceding discussion centred largely on generic changes in the school curriculum. In the next section, the discussion moves on to the changes that have taken place in the Life Sciences curriculum.

2.3.2 Changes in Life Sciences Curriculum

The focus of this study is to explore the emotions of Life Sciences teachers as a result of ongoing curriculum changes. The discussion thus far has looked at a broad overview of the changes that have taken place with the curriculum in the GET and FET bands of schooling. However, within each approved school subject there were different and unique changes. For this study, I worked within the FET band with the spot-light falling on Life Sciences. I focussed on Life Sciences for two reasons. Firstly, I have a personal interest in this subject and secondly, with the ongoing changes, teachers are under pressure to manage change effectively. As a result, attention is now given specifically to the changes that were brought into effect in the Life Sciences curriculum.

The reader will now be introduced to a number of concepts which accompanied the NCS. These concepts are piled one upon another but this was necessary to adequately capture the complexity of educational change and restructuring that teachers' were faced with in order to understand the participants' emotional reactions to these changes. The discussion here begins with the Learning Outcomes (LO) and Assessment Standards (AS) that were stipulated for Life Sciences. This is followed by a description of the Learning Programme Guidelines (LPG) and their design. Next is an outline of a work schedule, incorporating the different knowledge areas for NCS Grade 10 -12, for NCF and for CAPS. The discussion centres on the changes in the knowledge areas and topics in this subject, which helps illuminate the maze of rapid changes that teachers were exposed to. Lastly there is an inclusion of the change in assessments which added another layer of complexity in the change process.

A fundamental aspect of NCS was the introduction of Learning Outcomes (LOs) and Assessment Standards (ASs). The NCS describes a Learning Outcome as a statement of an intended result for learning and teaching while the Assessment Standard shows the knowledge, skills and values required to achieve a LO (DoE, 2003). In the case of Life Sciences, the NCS comprised three LOs and each was accompanied by three ASs which showed a varying degree of complexity as the pupil progressed from one grade to the next (DoE, 2003). The three LOs with the three ASs for NCS grade 10 – 12 is shown in Table 2 below:

Learning Outcome 1 – Scientific Inquiry and Problem-solving Skills	
<i>Assessment Standard 1</i>	The learner identifies and questions phenomena and plans an investigation
<i>Assessment Standard 2</i>	The learner conducts an investigation by collecting and manipulating data
<i>Assessment Standard 3</i>	The learner analyses, synthesizes and evaluates data and communicates findings
Learning Outcome 2 - Construction and Application of Life Sciences Knowledge	
<i>Assessment Standard 1</i>	The learner accesses knowledge
<i>Assessment Standard 2</i>	The learner interprets and makes meaning of knowledge in Life Sciences
<i>Assessment Standard 3</i>	The learner shows understanding of how Life Sciences knowledge is applied in everyday life
Learning Outcome 3 - Life Sciences, Technology, Environment and Society	
<i>Assessment Standard 1</i>	The learner explores and evaluates the scientific ideas of the past and present cultures
<i>Assessment Standard 2</i>	The learner compares and evaluates the uses and development of resources and products and their impact on the environment and society
<i>Assessment Standard 3</i>	The learner compares the influence of different beliefs, attitudes and values on scientific knowledge.

Table 2: Learning Outcomes and Assessment Standards for Life Sciences – National Curriculum Statements Grade 10 - 12

(National Curriculum Statements Grades 10 – 12, 2003)

With the revision of NCS, NCF grade 10 – 12, was still based on LOs and ASs, but there were modifications of LOs and this is shown in Table 3 below. However, each LO was still accompanied by the ASs that was previously used.

LO 1	Investigating Phenomena in Life Sciences	focuses on exploring and investigating phenomena in Life Sciences, using inquiry, problem solving and critical thinking skills
LO 2	Constructing Life Sciences knowledge	learners must be able to demonstrate understanding and application of Life Sciences facts and concepts and be able to explain phenomena related to Life Sciences
LO 3	Applying Life Sciences in society	learners must be able to show an understanding of the history of scientific discoveries. This also encompassed the application of indigenous knowledge, application of knowledge in industry, career opportunities and everyday life

Table 3: Learning Outcomes for New Content Framework

When CAPS was introduced, the Learning Outcomes and Assessment Standards were replaced by subject specific aims. There were three broad subject-specific aims in Life Sciences. These were related to the purpose of learning Life Sciences and the assessment thereof and are shown in table 4 below.

Specific Aim 1	relates to knowing the subject content ('theory')
Specific Aim 2	relates to doing practical work or investigations
Specific Aim 3	relates to understanding the applications of Life Sciences in everyday life, as well as understanding the history of scientific discoveries and the relationship between indigenous knowledge and science.

Table 4: Specific Aims of Life Sciences for Grades 10, 11 and 12

(Curriculum and Assessments Policy Statements, 2011)

The three LOs, ASs and specific aims of the three different curriculum designs had to be achieved progressively over three years. However with NCS grade 10 – 12 and NCF grade 10 – 12, the content was not clearly specified and teachers had to draw up their own Learning Programmes which ensured that the LOs and ASs were achieved as prescribed. The drawing up of these learning programmes involved three different stages; the first a subject framework, the second a work schedule and the third a lesson plan. An outline of this process is shown in figure 1 below:

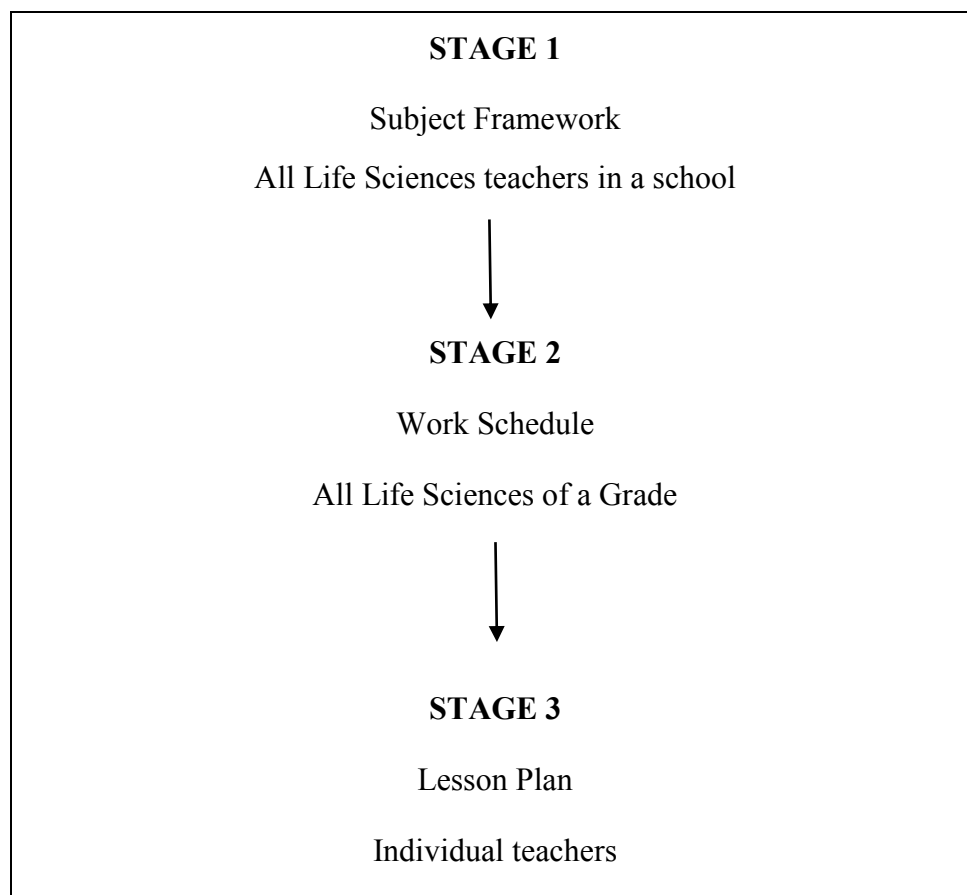


Figure 1: Stages of development of a Learning Programme in Life Sciences.

(National Curriculum Statements Grades 10 – 12, 2003)

From the figure above, it can be seen that the development of a learning programme took place in three stages. In the first stage a subject framework was drawn up using the Life Sciences subject statements and this involved all Life Sciences teachers at a school. This framework was then used by Life Sciences teachers teaching a particular grade to draw up their work schedules. Guidelines for drawing up work schedules were provided at provincial and district level and teachers were also provided with exemplars of work schedules. These work schedules indicated the sequence in which content was to be taught in a particular grade. In the third stage, the work schedules were used by individual Life Sciences teacher to draw up their own lesson plans which included a detailed and coherent series of teaching, learning assessment activities, homework exercises, expanded opportunities, enrichment exercises and most importantly the LO and AS that was achieved (DoE, 2003). These activities were not clearly specified in the department policy so teachers had the freedom of designing their own tasks.

Although department policies did not specify the content for teaching, teachers were provided with four knowledge areas/ themes within which the three LOs in Life Sciences could be achieved. The four knowledge areas for Life Sciences were as follows:-

- 1) Tissues, cells and molecular studies
- 2) Structures and control processes in basic life systems
- 3) Environmental studies
- 4) Diversity, change and continuity

The same knowledge areas were utilised in Grade 10, 11 and 12 with changes in order within the different curriculum designs. These changes are shown in Table 6 below:

	NCS (2006 – 2008)	NCF (2009 – 2011)	CAPS(2012 Onwards)
G R A D E 10	1) Tissues, Cells and Molecular Studies 2) Structure, Control and Processes 3) Environmental Studies 4) Diversity, Change and Continuity	1) Environmental Studies 2) Diversity, Change and Continuity 3) Life at the Molecular, Cellular and Tissue level 4) Life Processes in Plants and Animals	1) Life at the Molecular, Cellular and Tissue level 2) Life Processes in Plants and Animals 3) Environmental Studies 4) Diversity, Change and Continuity
G R A D E 11	1) Environmental Studies 2) Diversity, Change and Continuity 3) Tissues, Cells and Molecular Studies 4) Structure, Control and Processes	1) Life at the Molecular, Cellular and Tissue level 2) Life Processes in plants and animals 3) Diversity, Change and Continuity 4) Environmental Studies	1) Diversity, Change and Continuity 2) Life Processes in plants and animals 3) Environmental Studies
G R A D E 12	1) Tissues, Cells and Molecular Studies 2) Structure, Control and Processes 3) Environmental Studies 4) Diversity, Change and Continuity	1) Environmental Studies 2) Life at the Molecular, Cellular and Tissue Level 3) Life Processes in Plants and Animals 4) Diversity, Change and Continuity	1) Life at Molecular, Cellular and Tissue level 2) Life Processes in Plants and Animals 3) Diversity, Change and Continuity 4) Environmental Studies (Human Impact) – which was done in Grade 11

Table 5: Movement of knowledge area within grades in the three different curricula designs since 2006.

Within these knowledge areas, a number of topics were clustered together and teachers used this as a guide to draw up their work schedules and lesson plans. However, the depth and breadth of these topics were not clearly specified. Like the content, assessments too also integrated the LOs and ASs and were also designed by teachers themselves. With NCS there was a shift from formative to summative assessments and the principle of Continuous

Assessment (CASS) was introduced. Pupils were given a variety of assessment tasks, which provided them with multiple opportunities to improve and master the three LOs (DoE, 2003) and or the three specific aims. The main aim of the assessment tasks was the development of skills, which is shown in figure 3 below:

GRADE 10	GRADE 11	GRADE 12
<ul style="list-style-type: none"> * Compare, contrast and make accurate conclusions from findings to determine the scientific meaning of conclusions made. * List various applications of Life Science knowledge in biotechnology and describe and explain these applications. * Analyse scientific and indigenous knowledge and their applications. * Analyse and report different beliefs, attitudes and values as well as the impact of scientific and technological processes and products on a surrounding community. 	<ul style="list-style-type: none"> * Compare, contrast and recognise inconsistencies in data obtained and assess the value of the experimental process. * Evaluate costs and benefits of new biotechnological applications available. * Analyse the application of scientific and indigenous knowledge in the South African context and debate the influences of different beliefs, attitudes and values. * Analyse and report on the impact of scientific and technological processes and products of different communities. 	<ul style="list-style-type: none"> * Suggest specific changes to improve the experimental design and provide conclusions showing awareness of uncertainty in data. * Analyse and solve problems using biotechnology. * Evaluate the relevance of biotechnological applications of Life Sciences. * Critically evaluate the application of scientific and indigenous knowledge in South Africa and elsewhere. * Influences of different beliefs, attitudes and values in various communities. * Evaluate impact of scientific and technological processes and products on different communities.

Table 6: Competency skills for Life Sciences - Grades 10, 11, 12

(National Curriculum Statements Grades 10 – 12, 2003)

From the table above it can be seen that the number of skills that pupils had to achieve increased in number and complexity over the three years. To accomplish these skills formal assessments are carried out according to the Programme of Assessment (PoA) which consisted of a number of different activities. To assist pupils with understanding the task so that they could achieve the desired skills, each assessment task was accompanied by a rubric which again was designed by teachers themselves and was exclusive for the different tasks. Close attention had to be paid to the skills that were tested and the marks that were allocated which were linked to competency levels. All tasks that comprised the formal assessment contributed to the final total at the end of year and had to be carefully recorded and properly filed in a Life Sciences portfolio.

With the introduction of CAPS, the PoA for Grade 10 and 11 also includes a practical examination - (CAPS, 2011). This examination is based largely on practical skills and knowledge that the pupils develop over the year as they carry out different practical activities. However, these activities are resource intensive. This examination has a weighting of 20% of the final end of year exam and in schools.

It is therefore evident that the topic of curriculum change is an ongoing phenomenon in South Africa. Teachers have faced numerous different changes to the curriculum which brought forth a plethora of new terms and policies and different pedagogy and assessments strategies. The provincial and district guidelines has provided some assistance to teachers to cope with these changes. But, Lee & Yin (2011), remind us that when teachers make meaning of reform policies and its implementation, this requires a connection to their emotions as well. However, in South Africa, not much research has been done in this regard. In this study I aim to explore how the acceptance and implementation of the changes in the Life Sciences curriculum, does not only impact on teachers' cognition and knowledge but on their emotions as well.

Having looked at the changes in curriculum that teachers were faced with, the next section follows with a discussion of the conceptual framework that will be used to analyse the data of this study.

2.4 CONCEPTUAL FRAMEWORK

Teaching is an emotional endeavour (Sutton, Mudrey-Camino & Knight, 2009, Nias, 1996, Hargreaves, 1998) with emotions intimately involved in virtually every aspect of the teaching and learning process (Schutz & Lanehart cited in Fried, 2011). To build a conceptual framework for analysis of data, depends on the aspect of emotion that the researcher is keen on exploring. In Steinberg's study on teacher emotion towards assessments, part of the tools used for analysis of the data were the concepts of emotional rules and emotional labour while Naidoo (2014) utilized Hargreaves's concept of emotional geographies of emotions to make sense of some of her data regarding teacher subjectivity and emotionality towards HIV and AIDS teaching. In this study, since it has been shown that there is this close and delicate involvement of teacher emotions with their profession, I will utilise the following three concepts to make sense of the data collected. The three concepts adopted from Hargreaves (1998) are:-

- 1) Teaching and learning involves emotional understanding,
- 2) Teaching is an emotional practice,
- 3) Teaching is a form of emotional labour

These concepts are now elaborated further.

2.4.1 Teaching and learning involve emotional understanding

Teaching and learning are not only concerned with knowledge, cognition and skills but also draw upon emotional understanding between teachers and people around them (Hargreaves, 2001) in order to attain success. According to Denzin, cited in Hargreaves (2005) emotional understanding is an

intersubjective process requiring that one person enter into the field of experience of another and experience for him/herself the same or similar experiences experienced by another. The subjective interpretation of another's emotional experience from one's

own standpoint is central to emotional understanding. Shared and shareable emotionality lie at the core of what it means to understand and meaningfully enter in the emotional experiences of another (p. 968).

Denzin (cited in Hargreaves, 1998) argues that emotional understanding can come about when we share common feelings with other. This emotional understanding that is shared by the two parties, is shaped by their upbringing, their past experiences and their culture as all these play a role in the way experiences are interpreted by the people. Hargreaves (1998) asserts that unlike cognitive interpretation which takes place in a linear manner, emotional interpretation takes place instantaneously, at a glance as people reach into their store of their own emotional experience in order to understand and unravel the responses of others.

At schools, teachers work very closely with their pupils and other teachers and over time they learn to read each other, and establish an emotional understanding. If the same feelings and emotional experiences are shared by teachers and pupils in the classroom and with other colleagues, then there exists the same emotional understanding. Emotional understanding among teachers assists in “creating programmes, assessment practices and school structures that strengthen their bonds with students” (Hargreaves, 2001, p. 1060). In the classroom, teachers focus on building an emotional relationship with their pupils for they feel that this helps them to build their emotional understanding, which is essential for successful academic learning (Hargreaves, 1998). Naidoo (2014) too, is of the belief that the close relationship which teachers form with their learners and colleagues enhance their emotional understanding and promotes successful teaching. This is essential especially with HIV and AIDS teaching where teachers need to feel confident that they are making a difference in the lives of their learners (Naidoo, 2014). Zembylas (2003) too has shown that emotional understanding between teacher and pupils is important in a science classroom, for it assists in creating an emotional tone where science learning can take place. Emotional understanding brings closeness between teachers and other with whom they come in contact with especially their pupils and is important for successful teaching.

In some instances, teachers may not have the same emotional experiences as their pupils and other teachers and therefore do not share the same, common emotional understanding. When

relationships lack emotional understanding, teachers are prone to emotional misunderstanding. In the classroom, when teachers and pupils do not understand each other well, there can be a conflict of emotions leading to a lack of closeness and common understanding between teachers and pupils.

Emotional misunderstanding can stem from different reasons. It can sometimes stem from the power dynamics in the classroom brought about by teachers' experiences on one side of the desk which is different to their students' on the other side (Hargreaves, 1998). In some instances, teachers who deal with a large number of pupils have little opportunity to develop close relationships with their pupils and sometimes, the school structures and pre occupation with content and assessment, leaves little time and opportunity for emotional understanding between teacher and pupil to develop. Hargreaves (2001) suggests that a consequence of emotional misunderstanding, is that if teachers misunderstand their pupils, then they also misunderstand how their pupils learn. A pupil who does not do his/her work may be seen as arrogant or lazy but this may not be the case. It could be that the pupil does not understand the work properly and therefore does not do it. This emotional misunderstanding can cause hostility between teachers' relation with his/her pupils and can "seriously interfere with teachers' ability to help students learn" (Hargreaves, 1998, p. 839).

Along similar lines, teachers may also not share the same common emotional understanding with other colleagues causing hostility and teachers' relation with other colleagues may be negatively affected. Denzin (cited in Hargreaves, 2005) ascertains that emotional misunderstanding is a pervasive and chronic feature of everyday interactions where there are differences in peoples' identities and experiences. However, this misunderstanding strikes at the foundation of teaching and learning.

Within the field of education there exists emotional understandings and misunderstandings. Hargreaves(2001) is of the belief that successful teaching and learning depends on establishing close bonds between teachers and others with whom they come in contact with and on creating conditions of teaching that makes emotional understanding possible (Hargreaves, 2001). Successful teaching and learning depends upon establishing emotional understanding

2.4.2 Teaching is an emotional practice

Since teacher emotions interact closely with their job, Hargreaves (1998) claims that “teaching is an emotional practice”. Denzin cited in Hargreaves, (2001), explains that an emotional practice is

an embedded practice that produces for the person, an expected or unexpected emotional alteration in the inner and outer streams of experience.....Emotional practices make people problematic objects to themselves. The emotional practice radiates through the person's body and streams of experience, giving emotional culmination to thoughts, feelings and action (p.838).

Teachers' own feelings and actions are embedded within their inner stream of experience. These feelings and actions affect the feelings and actions of others with whom they form relationships. These relationships form part of teachers' outer stream of experience (Hargreaves, 1998). In the classroom, teachers are aware of their own emotional responses to their pupils and events in the classroom (part of their inner stream of experience) and they also notice a variety of emotional reactions of their pupils (part of their outer stream of experience). Therefore within any class, there is interplay between teachers' inner and outer stream of experiences as they face many different emotional situations.

As an emotional practice, teaching activates, colours and otherwise affects the feelings and actions of others with whom teachers work and form relationships (Hargreaves, 1998). Teachers can make their lessons interesting and exciting (Zembylas, 2003), or on the other hand uninteresting and boring. In the classroom, teachers use a broad repertoire of teaching strategies to make lessons interesting, to help motivate and expand their students understanding (Hargreaves, 1998). It is therefore dependent upon the teacher to make a difference in the class and in the lives of their pupils.

Teacher experience both positive and negative emotions. Sutton & Wheatley (2003) have documented findings of teachers' positive and negative emotions. Positive emotions like happiness, joy, satisfaction, etc. arise when teachers make progress towards a goal. On the other hand, negative emotions like frustration, anger, etc. arise when teachers' experience goal

incongruence. Both these types of emotions are present within teachers' inner stream of experience but the expression depends on their relationship they share with those they come in contact with. Hargreaves (1998) is of the belief that students are at the heart of many teachers' teaching and teachers' relations with their students is significantly emotional in nature, therefore teachers base their decisions on the effect it will have on their students. Furthermore, studies have shown that teachers care and love their pupils (Nias, 1996, Hargreaves, 1998) and this is the driving force that keeps teachers focussed in their profession. Naidoo (2014) also claims that with HIV and AIDS teaching, teachers are keen on making a difference in the lives of their learners and in doing so they show that they care about their pupils, thus highlighting teaching as an emotional practice.

2.4.3 Teaching is a form of emotional labour

The term emotional labour was first coined by Hochschild (1983) and defined as “the management of feeling to create a publicly observable facial and bodily display” (p. 7). This definition emerged as a result of empirical studies in service-orientated occupations such as nursing, flight attendants and hospitality services. In these occupations workers were expected to display particular emotional states as part of their job (Hochschild, 1983), displays for which they receive remuneration and in accordance with organisation rules (Brown, 2011). Oplatka (2007) sums up by stating that emotional labour involves selling the emotional self for the purpose and profits of the organization.

Since Hochschild (1983) focused on the exploitative aspects of emotional labour, researchers felt that this term may not be applicable to teaching (Hargreaves, 1998, Zembylas, 2004, Oplatka, 2007). However, recent studies reveal that just as people experience and express emotions differently from one culture to another; different occupations also require the expression and display of appropriate emotions and teaching is no exception (Hargreaves, 2001). In recent years studies on teachers' emotional labour has attracted more and more attention from researchers (Yin & Lee. 2012), in primary and in secondary school teaching (Oplatka, 2007, Zembylas, 2004) and is thus a term that is relevant to teaching too.

Like other professions, teaching too can be regarded as a service job for it provides the service of student learning to achieve an occupational goal (Brown, 2011). But, unlike other jobs “teachers work with the same client everyday” (Brown, 2011, p. 30) and they therefore have face to face contact with the same people on a daily basis. This daily contact results in teachers experiencing varied emotions, sometimes with the same group of people. Teachers may experience happiness when an instructional objective is met or students follow directions, frustration when students can’t grasp a concept, disappointment with a lack of effort, anger at student misbehaviour and anxiety when competence is challenged (Sutton, Mudrey-Camino & Knight, 2009). Thus, teachers are daily facing various emotional issues.

When teachers are faced with different emotional experiences, they are required to do emotional labour (O’ Connor, 2008) in order to cope with the emotional demands placed on them. A simple definition of emotion labour or emotional regulation is the ability to control the experience and expression of emotions (Gross, 2002) and this has recently attained a remarkable amount of attention from educational researchers (Yin & Lee, 2012). The performance of emotional labour is related to teachers’ understanding of the role of care in teaching and learning (Zembylas, 2003) and the culture of the teaching profession (Oplatka, 2007). When teachers engage in emotional labour, their emotions are modified and regulated (Fried, 2011), but this is often done according to the emotional rules for teachers.

Emotional labour, which involves modifying emotions, is often governed by emotional display rules (Brown, 2011). Emotional rules, Brown (2011) contends are emotional responses expected of workers to achieve organisational goals. It is these rules that dictate employee behaviour and facilitates the emotional interactions between worker and client and in turn produces the desired organisational goals (Morris & Feldman, cited in Brown, 2011). Therefore in the workplace there exists emotional display rules which dictates the emotions that workers are required to show to achieve the desired goals of the organisation.

In teaching, emotional labour is also governed by emotional display rules but unlike other jobs there are no clear guidelines on how to handle the emotional exchanges and reactions in education (Nias, 1999). Brown (2011) share similar sentiments by stating that although teachers are always dealing with emotional issues one way or another, they are not supported

or trained in how to handle these emotional interactions within the workplace. With the lack of set emotional rules for teaching, external control comes in the form of cultural expectations rather than strict regulations concerning “correct” emotional states (Oplatka, 2007). In teaching, emotional rules are laid down by the professional norms for teachers’ work (O’ Connor, 2008). MacLure (cited in O’ Connor, 2008) adds that teachers frequently use their own belief system to justify the way they choose to engage in their work and over time they discern which emotions are appropriate and which are inappropriate in their school context. Steinberg (2013) alludes to the use of emotional rules when dealing with changes in assessment practices. These rules she claims are formulated by teachers themselves but they work for the benefit of their students (Steinberg, 2013)

Since the ethic of care is an important element of teachers’ work, teachers are expected by the culture of teaching to express love, sympathy, compassion, concern and dedication. This has led Hargreaves (1998) to state that in teaching emotional labour is important part of teaching for it is a “labour of love” (p. 840). Hence in the classroom teachers’ emotional management is discretionary and voluntary rather than prescribed (Yin & Lee, 2012), is done according to the cultural norms of teaching with teachers involved in emotional management and emotional display. Although in her study Naidoo (2014) does not mention the term emotional labour, she does however hint at it, when she claims that teacher emotions don’t just happen to them but are enacted. Furthermore, she acknowledges that although teaching about HIV and AIDS is an emotional process, teachers tend to conceal their own emotions and will not allow their emotions to influence the content they select to teach (Naidoo, 2014).

In the classroom, teachers understand that inappropriate, unchecked or extreme emotional reactions could impede normal functioning and do more harm than good. They therefore engage in emotional labour whereby they tend to suppress or avoid these negative emotions and for both the successful delivery of teaching and the smooth interaction with people around them (Yin & Lee, 2012). On the other hand, they enhance or express their positive emotions (Fried, 2011), because teachers believe this makes them more effective and can be rewarding in a number of ways. Emotional regulation or emotional labour, has a valuable place in the classroom (Fried, 2011) and a highly significant function in a teachers’ life.

2.5 CONCLUSION

This chapter reviewed the literature and searched for a conceptualisation of emotions, then looked at how emotions entered educational studies, followed by reasons why teacher emotions are important. Here the literature examined the, the central role of emotions in teaching and learning, the role of emotions in Science teaching, teacher emotions towards assessments and teacher emotions towards curriculum change. Then there was a look at the changing school curriculum since democracy in South Africa, leading to the changes within the Life Sciences curriculum. The final section looked at the conceptual framework that will be used in the analysis of data for this study. Here three concepts which include teaching and learning involve emotional understanding, teaching is an emotional practice and teaching is a form of emotional labour were discussed. Having discussed the literature review and conceptual framework, the next chapter examines the research design and methodology.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

The aim of this study is to work closely with Life Sciences teachers in order to gain an understanding of the emotions they experience as a result of ongoing changes to the school curriculum. Since theorists have expressed emotions as a complex state of feeling associated with a number of related components, it will be also interesting to find out the manner in which these teachers deal these emotions and the extent to which these emotions impact on their teaching practices.

This chapter maps out in detail the research design and methodology that is adopted in this study. It commences with an explanation of the research paradigm and approach within which this study is located, namely the interpretive paradigm. Next, the research design, which in this case, is the qualitative, narrative inquiry research design, is discussed. This is followed by an outline of the sampling procedure, leading to an explanation of instruments used for data collection and then the procedures followed for data analysis. There is then a discussion of the ethical considerations that were followed. The chapter concludes with the need for establishing rigour in this study. Furthermore, the various aspects of the research design and methodology is substantiated and justified by relevant literature.

This research study is guided by the following research questions:

1. What is the nature of the emotions that Life Sciences teachers experience as a result of ongoing curriculum changes?
2. How do Life Sciences teachers deal with their emotions experienced towards the ongoing curriculum changes?
3. To what extent do these emotions influence the teaching practice of these Life Sciences teachers?

3.2 RESEARCH PARADIGM AND APPROACH

A well quoted definition of a paradigm is given by Kuhn (1962) as the underlying assumptions and intellectual structures upon which research and development in a field of inquiry are based. Glesne (1998) expands that the research paradigm functions as a guide or map which determines the research methods, purpose of research and the role of researcher. Mackenzie and Knipe (2006) contends that a paradigm influences the way knowledge is studied and interpreted and it sets down the intent, motivation and expectations for the research. According to Guba (1990), paradigms can be characterized through their ontology, epistemology and methodology. Ontology is what exists and is a view on the nature of reality and Denzin and Lincoln (2011) sum up as a set of ideas with which the researcher approaches the world. Epistemology is the theory of knowledge and the assumptions and beliefs we have about the nature of knowledge. Put simply, Denzin and Lincoln (2011) state that this specifies a set of questions for the researcher: it's the relationship between the researcher and the participant. Lastly, methodology shows how one goes about finding out knowledge and carrying out research, it looks at the process and procedures used in the research. When cognizance is taken of these three elements, then there is the emergence of different paradigms that underpin research. Neuman (2000) differentiates three paradigms; the post positivist, interpretive and critical paradigms. Before discussing the interpretive paradigm which was chosen for this study, the positivist and critical paradigms are discussed briefly.

The positivist paradigm is premised on the ontological belief that the world is stable, there are patterns and that the order can be discovered in what is researched (McMillan & Schumacher, 1993). Positivists assume that reality is objective and is measurable using properties that are independent of the researcher and his or her instruments. Positivism is concerned with uncovering the truth and presenting it by empirical means (Henning *et al.*, 2004). In contrast, critical researchers are dissatisfied with the way things are and seek for dramatic improvements by exposing underlying truths (Ndewemuda, 2011). Within this paradigm is an action agenda for reform with the aim to empower the less powerful and marginalized people.

The interpretive paradigm, on the other hand, suggests that reality consists of peoples' subjective experiences of the external world. The key feature of this paradigm is people's

subjective experiences, which leads to the social construction of knowledge through the search for patterns and meaning and thus attempts to understand phenomena through the meaning that people assign to them (Niewenhuis, 2010b). Therefore this paradigm is premised on the ontological belief that humans create meaning and make sense of their worlds (Neuman, 2000), resulting in multiple realities within different social and cultural contexts. Researchers working within this paradigm attempt to look for what is “meaningful and relevant to those whom they study and how those they study experience and interpret their daily lives” (Ndewemuda, 2011, p. 44). Since this study focuses on participants’ emotions as a result of ongoing curriculum changes, I believe that the interpretivist paradigm is most appropriate. Since teachers are unique, it was envisaged that the emotions that teachers experience would differ according to their interpretations of the curriculum and the influences of the contextual factors that they experience in their school and educational contexts. The data would thus reveal multiple realities which will be socially constructed according to the meanings that individual teachers attach to the curriculum and the differing teaching contexts.

Another reason why the location of this study within the interpretivist paradigm was appropriate was because the success of this study depends on a close, interactive and participative relationship between myself as researcher and the participants. Since this study required that I make sense of teachers’ emotions and experiences, I could not be objective or divorce myself from the situation but I had to immerse myself fully in the social world of the eight Life Sciences teachers. In addition, Clandinin and Huber (2010) warns that the study takes place in the midst of ongoing experiences of both researcher and participants and that the lives of participants do not begin on the day researchers arrive or end on the day researchers leave. Hill (2012) crystallises this by saying that the researcher must be fully immersed in everything that is said so that learning can take place from the stories told by individuals in a particular setting. Therefore, I had to develop a close interactive relationship with the participants and had to listen carefully to their responses. In this way, I was able to explore and understand the emotions that they experienced, how they managed these emotions and how these emotions influenced their teaching practices. With the intimate relationship between me as researcher, the different participants and my full immersion in the social world of these participants, I was able to elicit the rich data and gain the full understanding of the responses, which was required for this study.

Regarding the methodology, the narrative inquiry qualitative methodology was adopted in this study. Kaasila (2007) asserts that we live in a world of narratives and as we understand our world narratively, it makes sense to study it narratively. This methodology has gained momentum since the 1980s and has permeated a vast number of diverse disciplines, including cultural studies, anthropology, literature, sociology (Ollerenshaw & Creswell, 2002). The vast and varied use of this methodology has led to considerable variation in its definition, which is often linked to the discipline. However, amongst scholars and practitioners there is some agreement on the following definition which is elaborated on by Connelly and Clandinin (cited in Clandinin & Huber, 2010):

People shape their daily lives by stories of who they and other are and as they interpret their past in terms of these stories. Story, in the current idiom, is a portal through which a person enters the world and by which their experience of the world is interpreted and made personally meaningful. Narrative as a methodology entails a view of a phenomenon. To use narrative inquiry as a methodology is to adopt a particular view of experience as a phenomenon under study (p.2).

In other words, narrative inquiry as a methodology, involves telling stories about one's life experiences (Ollerenshaw & Creswell, 2002) and learning takes place from these stories. Therefore narrative inquiry is a way to gain understanding of a person (Ollerenshaw & Creswell, 2002) and how they experience the world. Teaching is also a form of experience and according to Connelly & Clandinin (1990), attention must be paid to teachers by listening to their voices and the stories they tell about their work and their lives. When teachers' tell stories, these stories are based on individual experiences referred to as 'personal experiences' as well as interaction with others referred to as their 'social experiences' (Ollerenshaw & Creswell, 2002). Therefore in educational studies, narrative inquiry is seen as crucial to the study of teachers' thinking, culture and behavior (Zemblyas, (2003), and is thus increasingly being used. Kelchtermans' (2005) study on teacher participation in reform, placed emphasis on emotions and this was made accessible by narrative inquiry. Zembylas' (2003) study examined the role of teacher emotions in identity formation and here again the use of narrative inquiry was seen as a powerful tool to understand these concepts. Along similar lines, Elbaz-Luwisch (2007) contends that narrative inquiry is the most fruitful way of understanding school change and

how it is brought about, for it gives teachers a chance to speak about their experiences. Therefore in educational studies, the use of narrative inquiry is suitable for representing the experiences of teachers since it involves the telling of stories which is part of teachers' everyday lives and learning then takes place from these stories. Naidoo (2014) too alludes to the use of narrative inquiry as a research methodology when dealing with studies on emotions. With narrative inquiry, the main goal lies in the understanding of an experience.

Regarding this study, the main intention was to understand the emotions of Life Sciences teachers to ongoing curriculum changes. Understanding had to be gained about the actual emotions that these teachers experienced, extending to the manner in which these emotions were dealt with and then the influence of these emotions on teachers' teaching practices. Since particular emphasis was placed on teachers personal emotions and these emotions related to their social environment, the use of narrative inquiry which involves the telling of stories, thus seemed to be the most appropriate methodology to be adopted for this study. Understanding of teacher emotions could be gained from the stories that teachers share.

3.3 SAMPLING PROCEDURES

This section gives a brief description of the research context and the selection of participants.

3.3.1 The research context

Connelly and Clandinin (1990) highlight issues of place as being important when narrative inquiry is used, because place is where the inquiry or experience takes place and it becomes linked to the stories that are told of these experiences. Casey (1996) alludes to the importance of looking at specific historical contexts and their relation to examining developments in narrative inquiry. This section describes the research context by looking at the choice of schools in which the research was conducted, followed by a brief outline on how access to conduct research at the schools, was gained. There is then a description of the choice of

participants and lastly the professional setting of the Life Sciences teachers is examined. There is also an explanation and justification of the sampling procedures employed to select the schools and the participants.

3.3.1.1 Choice of schools

The selection of the schools for this study was informed by the strategy of convenience which “*involves choosing the nearest individuals to serve as respondents*” (Cohen *et al.*, 2007, p.113). In this study, the four different schools that were selected were situated in the urban area of Pietermaritzburg in the Umgungundlovu Education District, KwaZulu-Natal. The advantage of choosing these schools was that they were situated close to where I reside and work and was hence cost effective in terms of time, money and effort.

The research sample comprised of two ex-HOD schools and two ex- HOR schools. I refer to the two ex-HOD schools as Whitefield Secondary and Rockdale High School and to the two ex-HOR schools as Southlands Secondary School and Haven High School. The names of these schools have been changed, as suggested by some participants, to protect their identity.

All these schools display similarities in several respects. Each school caters for a diverse school population, with pupils from the middle and lower income groups. The class sizes in the four schools range from 35 to 40 pupils. The staff complement at each school consists of a principal, two deputy principals, senior management and teachers for various subjects. Whitefield Secondary has a school population of 1310 with 352 pupils studying Life Sciences while Rockdale High school has a school population of 1256 pupils with a total of 232 pupils studying Life Sciences. Southlands Secondary boasts a population of 1235 with a total of 352 pupils studying Life Sciences whereas at Haven High School the total school population is 1322 with 301 Life Sciences pupils. All these schools offer Life Sciences to grade 10, 11 and 12 and have more than one teacher teaching this subject.

3.3.1.2 Gaining access to schools

Once I decided on the schools to be used in this study, I then carefully planned how I would contact and secure the co-operation from the relevant officials and participants.

I started the process by contacting the principals telephonically to arrange an appointment to address them on the purpose of my study. This appointment was set up at the convenience of these principals. Also at their convenience, letters were then hand-delivered to the principals (Refer to Appendix C) requesting permission and consent for access to conduct this study at their schools. This letter detailed the nature of my study, my identity and association with the University of KwaZulu-Natal, and also the contact details of my supervisors. When I visited the different schools, I was warmly received by the principals. I provided the principals an explanation on the purpose of my research, my interest in the topic of teacher emotions and the reasons for choosing their schools as research sites and their teachers as participants. I also informed the principals that the participation of the Life Sciences teachers in this study was voluntary and they were free to withdraw at any time. The four principals willingly granted me permission to conduct research in their schools.

The principals then subsequently granted me permission to meet with the Life Sciences teachers. This initial meeting was arranged, telephonically and via emails, at their convenience and I briefly explained the purpose of my study and requested their permission to participate. I provided them information on my identity and my association with the University of KwaZulu-Natal. In keeping with good ethical practice, they were informed that their participation was voluntary and that they were free to withdraw from the study at any time. They were informed about the maintenance of confidentiality and anonymity in the entire study. Once they had agreed to participate they were asked to sign the consent and declaration form (Appendix D) prior to the research being undertaken.

3.3.2 Choice of participants

Sampling is described by Dawson (2007) as the process of “choosing a smaller, more manageable number of people to take part in the research” (p.49). Furthermore, Hill (2012) contends that the main consideration in qualitative research is choosing a sample that will be able to adequately answer the research questions. Such research therefore requires a sample from whom “the collection of full and saturated descriptions” of these experiences (Polkinghorne, 2005, p.138) can be collected to enrich the understanding of the experience. Polkinghorne (2005) also maintains that the selection of participants should be those participants that have lived through the experience and thus provide significant accounts of the experience under investigation. This could provide substantial contributions to the investigation and enrich the understanding of the experience.

Given that the quality of the data to be collected in this study, depends on the quality of the research sample, the research sample too was purposively selected. In this study, the purposive selection of participants was guided by three important and related factors. Firstly, the participants must have experienced all the different changes that have taken place in the Life Sciences curriculum and taught these three grades. The group of Life Sciences teachers chosen for this study have been in the profession since 1994 and have experienced all the different changes in the curriculum. Through these years they have taught Life Sciences to the different grades in the FET band and they are currently teaching Life Sciences in grades 10 -12.

Secondly, as Hill (2012) suggests talk is a crucial ingredient in qualitative studies since the stories that participants relate are a means of shedding light on the phenomenon being investigated. Also, in this study, teachers were required to divulge deep, emotions and cognisance had to be taken of the sensitivity of the issues being studied and that emotions are not directly observable. Therefore it was important to get participants who were willing to talk and also those who were prepared to reflect on their experiences and be able to divulge their emotions. Hill (2012) also warns that recruiting for qualitative studies can be difficult since researchers are asking potential participants for a lot of time, investment of energy and disclosure of personal feelings. Therefore careful planning, thought and consideration had to be given to strategies to successfully acquire the participants that would enable me to

accomplish the aim of this study. While planning my studies, I compiled a list of 15 teachers, who I met frequently at Department meetings and during the marking of Grade 12 examination scripts and who I knew had experienced the various changes to the science curriculum and may be willing to share their experiences. These teachers formed the participant pool from where I could choose my sample. After chatting with these teachers via email, telephonically and at departmental meetings, I was successful in acquiring my research sample.

Thirdly, the sample should be small since there needs to be an intense and in-depth understanding of participants' stories. Added to this Polkinghorne (2005), contends that the unit of analysis in qualitative research is experience and not individuals or groups. Therefore in this study I was not interested in how much data is collected and from how many sources but rather to collect data that was sufficiently rich to provide clarity and understanding of the emotions of these teachers. In keeping with Polkinghorne (2005) who states that that qualitative researchers use a small number of participants, I decided that the research sample would comprise eight Life Sciences teachers only. The fact that there were eight participants and an almost equitable number of males and females, meant that this study was inclined towards obtaining different perspectives about teacher emotions and as Polkinghorne (2005) highlights the use of multiple participants also serves to deepen the understanding of the experience being investigated.

The eight Life Sciences teachers that were willing to be participants were Sairen, Linda, David, Peter, Denise, Alice, Jen and Kate. The names of the participants have also been changed, according to suggestions made by the participants. These pseudonyms were used to protect the identity of the participants. Furthermore these participants form a fairly homogenous group and share similarities that are critical to obtaining data for this research. These teachers have been in the profession since 1994 and are presently teaching Life Sciences in their schools. In addition, each of them is currently teaching Life Sciences to the three grades in the FET band, namely; grades 10, 11 and 12. Hence, this group of teachers has experienced all the changes in the curriculum since 1994 and are currently teaching different curricula to the different grades in the FET band. I did not base my choice of participants on gender or race but rather on age and experience as I wanted these experienced teachers to give this study the richness and depth I was hoping to find. It was felt that this group of teachers will be able to contribute valuable

information towards the topic being researched and that most learning could take place from them. A detailed profile of each Life Sciences teacher is given in chapter four.

3.3.3 Professional setting of Life Sciences teachers

Having looked at the broader context of the study, there is now a move towards a description of the actual setting where the research is situated. The situating of this study within narrative inquiry makes it incumbent upon the researcher to “describe in detail the setting or context in which the participant experiences the central phenomenon” (Creswell, 2008, p. 522) for without them the findings become impossible to understand and use (Clandinin & Connelly, 2000). The setting includes places such as school, classroom, home, workplace, in other words, where the study physically takes place.

In this study there were differences in the teaching contexts of teachers. In each school, the one Life Sciences laboratory was utilized mainly by one teacher. In this study, three participants utilize the Life Sciences laboratory for teaching, while the remaining six teach in their classrooms. Furthermore, the teaching of Life Sciences is resource intensive and requires a well-equipped laboratory (DoE, 2011), but each teaching context was differently resourced. Prior to 1994, resources for Life Sciences were provided by the different education departments to which these schools belonged. After 1994, however, these schools had to purchase their own resources according to their needs and more importantly the resource budget within their school system. Consequently, these constraints caused the laboratories to be differently resourced and there is a noticeable shortage of chemicals and other resources needed to teach Life Sciences. This problem is further intensified when classrooms are used to teach this subject since in these rooms there were a marked shortage of resources. What follows now is a discussion of the teaching contexts of the different participants within the four schools.

At Whitefield Secondary Sairen is based in the Life Sciences laboratory where there are a few resources such as microscopes, test tubes, models of animal anatomy and slides. Linda, on the other hand, is stationed in a classroom next to this laboratory and the only resources she has is

a few charts and text books. At Rockdale High, David is stationed in the Life Sciences laboratory which had a few models of plant and animal anatomy, some beakers, test tubes and a few working microscopes. Peter, on the other hand teaches Life Sciences in his classroom which is adjacent to the laboratory and his only resource is a few charts. In Southlands Secondary, the Life Sciences classes were shared by three teachers but two of them had agreed to participate in this study; they were Denise and Alice. Both these teachers' teach their Life Sciences lessons in their classrooms that are situated across the passage from the Life Sciences laboratory. The Life Sciences laboratory is utilised by another teacher who did not form part of this research. This laboratory has only two working microscopes, a few slides, some test tubes and a few models. Lastly at Haven High, the two teachers were Kate and Jen. Kate teaches in the Life Sciences laboratory situated in the upper level of the building where there is a limited number of resources, comprising of 2 microscopes and a few test tubes. Jen, however, teaches in the classroom downstairs where there are no other resources for teaching Life Sciences except for a few charts. A detailed description of the classes taught by these teachers is provided in chapter four.

In summary, it can be seen that all the participants teach Life Sciences to the three grades in the FET band. Although the four schools share similarities with regard to the teaching contexts in terms of having a Life Sciences laboratory and a few resources, there are differences with regard to the teaching contexts of the different participants. Only three participants teach in the Life Sciences laboratory, while the remaining five teach their subject in their classrooms. Although all participants have only a few resources, those that teach in their classrooms have even less. These different contexts provided me with an ideal opportunity to explore how these Life Sciences teachers felt about adopting new teaching practices and implementing them within their different contexts. It was envisaged that these subjective experiences of the participants would give rise to the multiple social realities and hence help elicit the rich descriptive data required for this study.

3.4 DATA COLLECTION METHOD

The purpose of data gathering in qualitative research is to “provide evidence of the experience it is investigating” (Polkinghorne, 2005, p. 138). Evidence provides answers to research questions. Data collection for qualitative research, using the framework of narrative inquiry is grouped into a number of categories such as: observations, documents and interviews (Creswell, 2012). Unlike, observations and documents which are written sources of experiences, interviews produce first-hand accounts of the experience (Polkinghorne, 2005). Interviews occur when researchers ask participants questions and record their answers (Creswell, 2012) and in doing so it can “accomplish the researcher’s goal of gaining information from the participant” (Polkinghorne, 2005, p. 142). In line with this thinking, Cohen *et al.*, (2007) contend that by adopting interviews as a method for data collection, enables participants to discuss their interpretations of the world and also express their point of view about a situation. In essence, interviews produce first person accounts of the experience being investigated and according to Henning *et al.*, (2004) an individual’s perspective is an important part of the fabric of society. Therefore, interviews draw our attention to what the individuals think, feel, and do and what they have to say (Henning *et al.*, 2004) about the topic being discussed and is thus a common strategy for gathering qualitative data. In the study of Steinberg (2013) and Naidoo (2014), where teacher emotions were explored, interviews were also utilized as a means of gathering data.

In this study qualitative, semi-structured interviews was used as the main data generating instrument (Appendix A). A semi-structured interview is flexible as it involves a set of pre-determined questions but leaves room for additional questions that allow for probing and clarification about the topic being studied. The main aim of the interview in this study was to obtain sufficient information and a clear understanding of the emotions that the Life Sciences teachers felt towards the on-going changes to the curriculum, how teachers dealt with these emotions and how these emotions impacted on their everyday practices.

The semi-structured interview that I carried out comprised three sections. The initial questions required responses about biographical or background information about the participants. This was an attempt to get participants to start talking. It served as an ice breaker and also gave me

an opportunity to build rapport with the participants. This was then followed by the second section which focused on the main topic of interest. To achieve this, participants were asked a number of open ended questions. These open ended questions allowed participants to voice their experiences unconstrained by researcher or past findings. In addition, I found it necessary in many instances to ask a few probing questions as it allowed the participants to give an in-depth account of their feelings. Since there was no limit set to the type of response to be received, the probing questions therefore encouraged participants to freely elaborate on their feelings and thoughts. Teachers were also asked to describe particular incidents that involved their positive and negative emotions. In this way I was able to explore events emotions that were unique to the participants. The open ended questions and the probing were intended to elicit rich responses in relation to the following areas: the teachers' emotional responses to the implementation of the various changes to the Life Sciences NCS curriculum, the manner in which the participants deal with these emotions and influence of these emotions on the teaching practices of these teachers. In the final section of the interview it was important to "return to less emotionally saturated ground and to end on a positive note" (Josselson, 2007, p.544). In keeping with the suggestion of Josselson (2007), I afforded participants the opportunity to ask any questions that they may have for me. I also felt it necessary to reinforce my gratitude and appreciation for their openness and willingness to share their experiences with me and to assist in my research. Therefore by using the technique of the semi structured interviews for data collection, it allowed me flexibility to adjust the sequence of questions and to add questions depending on the responses of the participants. Also, with the open ended questions, participants were given the opportunity to express their emotions and feelings freely and openly thus providing a means of eliciting rich and deep responses that were required for this study.

In utilising the semi-structured interview as a method of data collection, there were two important skills that I had to adopt. Firstly, I had to be skilful in asking the appropriate open ended questions, which allowed participants to describe "detailed personal information" (Creswell, 2012, p. 218) and in so doing it was hoped that the responses will "yield information that represents reality" of the participants (Henning *et al.*, 2004, p. 53). Secondly, it was essential for me to "guide the conversation toward producing a full account of the experience under investigation" (Polkinghorne, 2005, p. 142). At times the discussion of this topic tended to become sensitive and embarrassing causing the respondents to discuss details that did not pertain to this study. I had to be mindful of the manner in which I steered the conversation

back to the research topic. As a novice interviewer this proved to be difficult at times. However, I was able to elicit useful information and at the same time ensure that the integrity of the study was maintained.

Once the data collection method was established, certain other arrangements had to be made to facilitate the implementation of the interviews. Firstly, arrangements had to be made about the time and place for interviews. This was of utmost importance since I do understand that teachers lead busy and complex lives. Their involvement in a research project had to be organized around their own set of priorities and timelines. These arrangements were made via e-mail and telephonically. The participants felt that talking about their emotions was a sensitive topic, and they needed time to express themselves. In addition, they valued their teaching time at school and did not want this interview to infringe on this time. Therefore, as suggested by the participants, the interviews were conducted out of school, at a place and time that was convenient for the participants. Most of the interviews took place at the homes of the participants, over weekends and holidays. On meeting with the participants I reminded them again that their participation was voluntary, their identities would remain confidential and that they were free to withdraw from the study at any time.

Hill (2012) recommends that when dealing with emotions, the interview schedule should be sent to the participants prior to the day of the interview being conducted to reflect on their experiences and make informed decisions regarding their participation, before the interview itself. In order to facilitate the interview process and to give participants a chance to reflect on their emotions, a copy of the interview schedule was submitted to all participants, a week before the interviews were carried out. In this way, participants become aware of the nature questions, in advance. This advance forwarding of the interview schedule helped for good and favorable use of the interview time and made the process more systematic and comprehensive.

In order to get an accurate record of the interview, an audio recording of each interview was made. I was given permission by the teachers to use a Dictaphone and tape the interviews that I conducted with them. Audio recording of interviews allows for accurate transcriptions to take place at a later stage. Following Creswell's (2012) suggestion I also wrote down pertinent words and descriptions during the interview, in case the tape recorder malfunctioned or the

recording was unclear or inaudible. All teachers also signed an agreement that allowed me to use the transcribed material in my study. Each interview lasted approximately two hours.

3.5 DATA ANALYSIS

Narratives do not speak for themselves; they require analysis and interpretation when used as data in social research (Riessman, 1993). Henning *et al.*, (2004) contends that data analysis requires analytical craftsmanship and the ability to capture understanding of data in writing is the true test of a competent qualitative researcher. Punch (2000) adds that working with qualitative data is an intricate process since the researcher is seen as the primary instrument for data collection and analysis.

In the first step of analysis, transcribing is an absolutely crucial part of qualitative research, since it is through this process that the interview data is made available for analysis (Hill, 2012). Henning *et al.*, (2004) cautions that transcription of the conversation should commence as soon as possible and the researcher should transcribe as much data as possible by himself/herself. Therefore as soon as the interviews were conducted, the orally generated data was transformed into written texts through transcription. Although this was a time consuming exercise, it was necessary since these written account allowed for detailed reading that is required during analysis. Transcriptions of the interviews were typed, saved electronically and hard copies were printed. The participants were subsequently offered the opportunity to read the interview transcripts with the aim of scrutinising and commenting on them, in order to ensure that what was written down accurately represented what was told by the participants. The participants were asked to contact the researcher should they wish to amend or clarify the meaning of any written text. The participants were encouraged to make corrections and additions if they deemed necessary.

After feedback, Maree (2010) recommends that “immersion of the researcher within the data is necessary for researcher to become familiar with the data” (p. 298) as this allows the researcher to make sense of the information supplied by the participants in the study. Once the

transcripts were obtained back from the participants, it was necessary for me to read the transcribed interviews, several times in order to get a clearer understanding of the information to aid in the analysis of the data.

In narrative inquiry, there are different approaches when dealing with the analysis of data. There is narrative representation where researchers merge the data collected to represent a story or narrative (Clandinin & Connelly, 2000). Also, there is the approach of thinking with a story where researchers feel that the story they have collected is already complete and composed (Ellis, 2004). Then there is the thematic analysis approach where researchers treat stories as data and use analysis to arrive at themes that illuminate the content across the stories (Ellis, 2004). In this study the thematic analysis approach to data analysis was carried out. Consequently, for an in-depth understanding of the data collected, the analysis consisted of taking the data apart to determine the ideas, thoughts and meanings of individual responses. This was followed by identification of common words or phrases that arose from the different participants which was achieved by coding the data. Coding has been defined by Kerlinger (cited in Cohen *et al.*, 2007, p 480) as the translation of question responses and respondent information to specific categories for the purpose of analysis. Reissman (1993) expands that readers must assume that the narratives that are grouped together as a theme, carry the same meaning for everyone in that group. The analysis of the data involved coding and then grouping together into possible categories. All codes that conveyed emotions or feelings about curriculum changes were grouped together initially and later further differentiated. During differentiation, those emotions that were beneficial for the participants were differentiated into positive emotions while those that interfered or disturbed teachers were grouped as negative emotions. Then there was a category for the manner in which teachers deal with their emotions and lastly a category for the extent to which these changes influenced the teaching practices of these teachers. The coding and grouping related back to the research questions to see the relationship that emerged between the research questions and the data analysis.

Another important aspect when dealing with analysis was collaboration with participants. Collaboration in data analysis helps to “lessen the gap between narrative told and narrative reported” (Ollerenshaw & Creswell, 2002 p. 332) and this also assists in ensuring that the researcher understood the perspective of the participant correctly. Throughout the process of

data collection and data analysis, it was important that I maintain a close collaboration with the participants. The participants were actively involved in the analysis process as they assisted in checking the story and negotiating the meaning of what was written. This close collaboration was necessary as this study reflected the emotions and experiences of these participants.

3.6 ETHICAL ISSUES

Maree (2010) explains that when humans are involved in any kind of research of an empirical nature, it is important that consent and ethical clearance is obtained and that researchers follow and abide by ethical guidelines throughout the research process. Likewise, Creswell (2012) asserts that all educational researchers need to be aware of ethical issues in their research. Ethical behavior limits the choices that can be made in the pursuit of truth. In qualitative research, permission has to be obtained from individuals at many levels (Creswell, 2012) since conducting research in an ethical sound manner enhances the quality and trustworthiness of the study. For the purpose of this study, the informed permission from individuals at different levels was obtained at the commencement of this research.

At the outset permission was sought and granted from the ethics committee of the University of KwaZulu-Natal. I obtained ethical clearance from the University of KwaZulu-Natal, after submitting a research proposal and a sample of the interview schedule (Appendix A). I then proceeded to obtain permission from the Department of Education KwaZulu-Natal (Appendix B) to conduct research in the schools, in the Umgungundlovu district. My first attempt through e-mail failed but with the assistance of my Supervisor I was able to obtain permission. Permission was also sought from the Principals of the schools, whose Life Sciences teachers formed part of the research sample (Appendix C).

After obtaining permission, I then started the process of contacting the participants personally, telephonically and by e-mails to supply them with detailed information about the study and to ask them for their permission to participate in my research study. The participants were also offered the opportunity to ask as many questions about the study to gain clarity and to ensure

that they felt comfortable about their participation. Since this study probed and examined in detail the participants' intimate emotions, the ethical treatment of participants during data collection was imperative and deserved special attention. Firstly, the teachers needed to have autonomy about their decision to participate in the study. The eight Life Sciences teachers signed informed consent letters (Appendix D) which confirmed the respect that was accorded to their autonomy.

Hill (2012) cautions that when participants are disclosing deep and difficult experiences, it is imperative that they trust researchers to be honest, compassionate and non-judgmental. She goes on to add that a greater degree of rapport and trust between researcher and participant will result in a greater degree of self-revealing (Hill, 2012). Since this study dealt with personal and sensitive issues, it was important for me to have an attitude of emphatic listening and not be judgmental as I listened to the participants stories. While the success of the study depended upon the willingness of the individuals to participate, participants were advised that they were free to withdraw from the study if they felt they were placed at risk or that their participation caused undue stress. Moreover, the teachers may not have fully anticipated the level of self-disclosure required during the interview and the intensity of emotions they may experience while the interviews were conducted and as a result there was a need for ongoing assurance throughout the study. Participants were also informed that their decision to withdraw or to no longer participate would not result in any form of disadvantage.

Furthermore, Josselson (2007), contends that since narrative researchers obtain and reflect on people's lived experiences, it is their ethical duty to protect the privacy and dignity of those whose lives are studied. Protecting the privacy of the participants was of paramount importance especially in this study where intimate experiences, feelings and thoughts were disclosed by the participants. The participants were informed that to protect them from harm the confidentiality of the data was secure and that their names and the names of their schools have been changed to protect their identity. Pseudonyms were used when information from participants was retrieved and used in the write up. In addition, it was necessary to work closely with the participants during the analysis of data since sensitive issues were explored. To sustain ethical behavior, participants were interviewed at times and places that were convenient for them. The recording of the interviews were done only after permission was sought from the

participants. Participants were also advised that all information pertaining to the research will remain the property of the researcher and not be used for any other purpose except for the purpose of the study.

3.7 ESTABLISHING RIGOUR IN THE STUDY

It is imperative for rigour to be pursued in qualitative studies so that findings may carry conviction and strength (Long & Johnson, 2000). According to Polkinghorne (2005), “the presence and the form of involvement of the researcher was integral to the participant’s responses” (p. 143). In this study, since I had to explore the sensitive issues of teacher emotions, I had to pay careful attention to the manner in which I responded to answers given by participants and the manner that I terminated responses. Since emotions have vertical depth it was important that I establish a trusting and open relationship with the participants to facilitate an investigation of their emotions which were not directly available to public view.

Furthermore in qualitative studies, where narratives are used, the trustworthiness is based on the quality and integrity of these narratives which encompasses a notion of crystallization. According to Richardson cited in Naidoo (2014),

The crystal (has)...an infinite variety of shapes, substances, transmutations, multi-dimensionalities, and angles of approach. Crystals grow, change, alter, but are not amorphous. Crystals are prisms that reflect externalities and refract within themselves, creating different colours, patterns and arrays, casting off in different directions. What we see depends upon our angle of response. (p. 517)

Thus the notion of crystallization, affords a multi-dimensional view and understanding of the topic being explored. This provides opportunities to evoke awareness in the reader of the multiple and dynamic emotional states that can be experienced by teachers which has consequence for this study (Naidoo, 2014).

I justify the relevance of crystallization in this study which aims to generate rich, in-depth narratives about the emotions of Life Sciences teachers to ongoing changes in the curriculum. In this study, I interpret and make meaning of teacher emotions by engaging with different participants and I am therefore able to obtain different perspectives about teachers' emotions to the ongoing changes in the Life Sciences curriculum and use this to produce narratives on teacher emotions. In addition to different perspectives, viable sources that promote the deepening of the understanding of teacher emotions, is also important. In this study I purposively selected a homogenous group of Life Sciences teachers who could provide the rich, in-depth data that was required. Therefore, the notion of crystallization not only allows me to move beyond a single view of the phenomenon of teacher emotions, but it also allows me to represent the multiple perspectives and realities of teacher emotions. By comparing and contrasting the different perspectives I was able to pick out the similarities and the variations of this phenomenon of teacher emotions to ongoing curriculum changes. The notion of crystallization was therefore relevant in this study.

To ensure that I remained objective in my research approach, I took the position of "practitioner researcher" and "bracketed" (Henning *et al.*, 2004, p. 85) my own knowledge, opinions and experiences as I conducted the interviews. During the interview session, I did not provide the participants with any leading questions. But I did encourage the participants to respond fully, openly and honestly to the questions and I made sure that they understood that the research was neither personal nor evaluative but an attempt to understand their emotional orientation to the changes in the Life Sciences curriculum. As the interviews proceeded, I became aware that in order to empower the participants to share their stories, I had to minimize the power relationship between myself as researcher and the participants and be empathetic and understanding of participants' responses. The participants had to feel comfortable with me in order to relate their emotions.

To further reduce researcher bias, I fully transcribed all the interviews word for word. Although this was a time consuming process, it was necessary that the oral data reflected the participants views as truthfully as possible also the voice of the participants were not lost in the process. These transcripts were made available to the participants to verify the correctness and accuracy of the data. At times I also emailed or engaged in a telephonic conversation with the

participants, in order to gain clarity of information. This interaction afforded me the opportunity to produce accounts of sufficient depth and breadth and to fairly accurately represent the multiple ‘truths’ of the data collected.

3.8 CONCLUSION

In this chapter the research paradigm and methodology that was used in this study was presented and the suitability of the interpretive paradigm was discussed. The sampling procedures were fully described. This was followed by a discussion of the data collection instruments and the method of data analysis. Next, the ethical considerations that this study needed to adhere to, was outlined. The chapter concluded with the ways in which rigour was established. This now paves the way for Chapter four which is the heartbeat of this study as it provides a detailed description and explanation of the findings of this study.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 INTRODUCTION

This chapter focuses on the presentation of the qualitative data that was gathered through semi-structured interviews regarding the emotions of Life Sciences teachers as a result of the ongoing changes to the school curriculum. It begins with a presentation of the profiles of the eight participants of this study, to highlight their individuality and their similarities with regard to their professional qualifications and their years of experience as Life Sciences teachers. This is followed by a presentation and analysis of the results of this study. The original data collected was transcribed and then subject to content analysis to help identify common themes across the data. The procedures of coding and classification were used to obtain themes that helped to illuminate the views of the participants as accurately as possible. In addition, I have selected direct excerpts from the interview data to illustrate how the findings were derived from the data collected, and to portray the emotions of these Life Sciences teachers as they encountered ongoing changes to the school curriculum, to show how teachers deal with these emotions and to illustrate the influence of these emotions on teachers' teaching practices.

The findings presented in this chapter are structured according to the following three research questions that this study sought to address:

1. What is the nature of the emotions that Life Sciences teachers experience as a result of ongoing curriculum changes?
2. How do Life Sciences teachers deal with their emotions experienced towards the ongoing curriculum changes?
3. To what extent do these emotions influence the teaching practice of these Life Sciences teachers?

4.2 PROFILE OF LIFE SCIENCES PARTICIPANTS

This section provides the reader with a background of each participant so that the reader can link the participant with the data each provided. The profile points towards a group of participants who share similarities in qualifications and teaching experience. I also probed their feelings about teaching Life Sciences. For this study, two Life Sciences teachers from four different urban schools were chosen. For ethical purposes, the eight participants were provided with pseudonyms and the names of the schools at which they taught were changed, according to suggestions made by the participants. In this way anonymity was ensured and their identities were protected.

4.2.1 Participant One - (Sairen)

My meeting with the first participant Sairen took place at his home after negotiating a time that was convenient for him. The interview began with his recount of his years after he matriculated in 1988. He immediately went on to study for a Bachelor of Science degree at the University of Durban-Westville in KwaZulu-Natal. Upon completion of his degree he spent another year studying for a Higher Diploma in Education because he had a dream of teaching Life Sciences at a high school. He started his teaching career in 1993 at Whitefield Secondary School. In his first year of teaching he taught Life Sciences to grade 10 and Natural Sciences to grades 8 and 9. In 1994 his colleague was promoted as Head of Department and he volunteered to teach Life Sciences to grades 10, 11 and 12. Sairen is presently teaching two grade 10 classes, two grade 11 classes and one grade 12 class. He has always been passionate about teaching this subject and derived immense pleasure from his teachings. His enthusiasm for teaching Life Sciences is clearly evident in this response:

I love teaching this subject. I find it interesting and exciting. One of my majors at university was physiology. When I teach I use the knowledge that I gained back then. I am glad that all my hard work is put into good use and now my pupils are benefitting from it.

4.2.2 Participant Two - (Linda)

Participant two is a female called Linda. She matriculated in 1983 and like Sairen, she obtained her Bachelor of Science degree from the University of Durban-Westville, KwaZulu-Natal. She entered the teaching fraternity in 1986 with her first appointment to Whitefield Secondary School where she is still currently teaching. With her aim of staying in the teaching profession she went on to study for a teaching diploma and a Bachelor of Education (Honours) degree which she obtained from the University of South Africa. She has also obtained her Masters of Education from the University of KwaZulu-Natal, Pietermaritzburg. In her initial two years in the profession she taught Maths and Natural Sciences to grades 8 and 9 and in these years of teaching, Natural Sciences was impressionable to her so she then moved into the FET band teaching grade 10 Life Sciences, thereafter moving to grade 11 and eventually to grade 12. Like Sairen, she too enjoys teaching Life Sciences to grades 10, 11 and 12. Presently, Linda's teaching load in the FET band consists of one grade 10 class, one grade 11 class and one grade 12 class. Our meeting took place at her imminent departure from the profession. Linda's passion for teaching is exhibited in these sentiments:

I love Life Sciences, in fact I couldn't see myself teaching any other subject. This is what I am going to miss the most when I leave this profession.

Since Linda loved her profession, she expressed mixed emotions about her career drawing to a close.

4.2.3 Participant Three - (David)

Participant three was a male called David. He graciously agreed to meet me in the evening after I had met with Sairen, at a time that was convenient for him. David obtained a Bachelor of Science degree from the University of Durban-Westville and a Bachelor of Education (Honours) degree from the University of South Africa. David's inspiration for becoming a teacher was his two siblings who were also in this profession. He has served the profession for 27 years and since his entry he has been teaching Life Sciences to grades 10, 11 and 12. He started his teaching career at Rockdale High School and is still a teacher at that school. In

addition to other classes, David is currently teaching Life Sciences to one grade 10, one grade 11 and one grade 12 class.

As he reflected upon his teaching career he had the following to share:

In the beginning this profession was enjoyable. I looked forward to teaching my classes. The excitement of my pupils as they immersed themselves in my subject was very comforting for me. But things have changed now and I am starting to feel differently.

From his reminiscences about teaching Life Sciences, it was evident that in the beginning he enjoyed every moment, but now he too had mixed emotions.

4.2.4 Participant Four - (Peter)

My meeting with Peter took place on the same day when I conducted the interview with Linda but at a different pre-arranged time. Since Peter and Linda lived in the same area this served me well and allowed me to make wise use of my time. His qualifications include a Bachelor of Science degree and a Higher Diploma in Education from the University of KwaZulu-Natal, Durban. He has been in the teaching profession for 28 years but has been at Rockdale High School for the past twenty years. He has been teaching Life Sciences to grades 10, 11 and 12 for the past 20 years. Like David, Peter is also currently teaching Life Sciences to one grade 10, one grade 11 and one grade 12 class. When Peter was asked about his reason for entering the profession, he stated:

When I was a pupil at school, this subject intrigued me and it still does. It was my Life Sciences teacher who encouraged me to take up teaching and to become a Life Sciences teacher and I have not looked back.

4.2.5 Participant Five - (Denise)

My meeting with my fifth participant named Denise took place at a cosy coffee shop in the Midlands. Upon meeting with Denise I was struck by her warm and friendly personality. She apologised for changing the venue but admitted that at this place we would have less distractions as she had many visitors at her home presently. I expressed my appreciation to Denise for so willingly making alternative arrangements that were convenient for her. As we enjoyed our cup of coffee, Denise mused over her profession as a teacher. She studied at the University of KwaZulu-Natal, Durban where she obtained a Bachelor of Science degree and a Higher Diploma in Education. She also studied through the University of South Africa and obtained a Bachelor of Education (Honours) degree. Denise presently teaches at Southlands Secondary and is happy to have contributed to the field of education for the past 24 years. Her zeal and enthusiasm towards this profession was heart-warming especially for Life Sciences. In the FET band, she is presently teaching one grade 10, one grade 11 and one grade 12. She explicitly stated:

I find my job extremely rewarding and fulfilling. I love the time I spend in the classroom teaching my subject. I admit there is a lot of work to be done so I try as far as possible to attend school everyday as I don't like to let my pupils loose out.

Her words exhibited a genuine concern and love for her profession and her pupils.

4.2.6 Participant Six - (Alice)

My meeting with Alice was pre-arranged on the same day that I met with Denise since she resided close to the coffee shop where I met with Denise. Upon my arrival at her home I was touched by her warm and friendly disposition. She immediately escorted me into her study that provided a relaxed atmosphere where I felt much at ease to begin the interview. Alice recollected her matric year and how she was unsure of which career path to follow. However she seemed to be inspired by her Life Sciences teacher and went on to study for a Bachelor of Science Degree at the University of KwaZulu-Natal, Durban and then a Higher Diploma in Education. After being in the profession for four years, she continued to further her studies

and enrolled at the University of South Africa where she studied for a Bachelor of Education (Honours) degree, part time. Alice has served in the teaching profession for the past 29 years but has spent 25 years at her current school, Southlands Secondary. She has always taught Life Sciences to grades 10, 11, 12 and is currently teaching Life Sciences to one grade 10, one grade 11 and one grade 12 class. From the interview it was evident that she was passionate about making a meaningful contribution to education. However, at the start of her career she was much more excited about teaching than she was at present. This was evident from the following sentiments that she shared:

In the beginning I seemed to be so much energy and teaching filled my life. I was passionate about teaching Life Sciences. Although the passion is still there I sometimes feel as if I don't have the same amount of energy as I did previously.

This quote alerts us to the intrinsic changes that have taken place in Alice's professional life as her years in the profession have passed on.

4.2.7 Participant Seven- (Jen)

The initial meeting with Jen could not take place as planned. Jen e-mailed to express her apologies saying that she was not able to keep her appointment due to certain unforeseen circumstances. At this point I once again reminded Jen that her participation in this study was voluntary and that she was free to withdraw if she wanted to. However, Jen reassured me that she was willing to participate and that we should reschedule the interview. The interview was then scheduled for the following weekend, which took place in the comfort of her home. At the start of the interview Jen walked me down her professional path. She has three qualifications which she obtained from the University of Durban -Westville. These include a Bachelor of Science, a Higher Diploma in Education and a Bachelor of Education (Honours) degree. She has been in the teaching fraternity for the past 23 years. However, she has spent the past 15 years at her current school, Haven High. She has always taught Life Sciences to grades 10, 11 and 12. Presently she teaches Life Sciences to one grade 10, one grade 11 and two grade 12 classes. Jen firmly believes that teachers have to be sure about what they need to teach in order to make a difference to their pupils. This is shown in the following words that she expressed:

I find Life Sciences intriguing as much of the work is relevant to ourselves. I feel very comfortable teaching this subject especially when I am well prepared with the content. When I am confident, my pupils have confidence in what I teach them. It make me happy when I make a difference in their lives.

Jen had a cordial and genial nature and throughout our interactions showed her deep concern for her pupils. She was deeply concerned about the future of her pupils and she always kept their best interest at heart.

4.2.8 Participant Eight - (Kate)

Kate's residence was in a suburb some distance away from the other participants. I therefore had to negotiate a date and time during the holiday that was convenient for her. She was prepared to meet with me on a day that she was not conducting holiday classes. Kate studied at the University of Durban-Westville where she obtained her Bachelor of Science degree and her Higher Diploma in Education. She started her teaching career in 1987 but has spent the past 14 years at Haven High. Since the start of her teaching profession she has been teaching Life Sciences to Grades 10, 11 and 12. Her teaching load in the FET band currently comprises one grade 10, two grade 11's and one grade 12. During the interview, she admitted that while she derived great pleasure from teaching Life Sciences, there had been both rewards and challenges associated with this profession. At the outset of the interview she indicated that she was apprehensive whether the information she would be sharing will be accurate and useful since previous to this she has only shared her feelings with her colleagues and her family. This is what she had to share with me:

As a teacher we do share our feelings; but only with our colleagues in the staffroom or at staff meeting and our family members, and that is where the conversation remains. This is certainly a new experience for me and I am not sure if I will be able to furnish you with any valuable information.

I allayed her fears by indicating that there were no right or wrong answers to any of the questions that were asked. In addition her participation was completely voluntary and she was at liberty to withdraw from the study if she wanted to. This information seemed to reassure

her and she then settled for the interview. At the end of the interview she expressed surprise that she had so much to share on this topic. Her love for this subject was expressed in the following:

I have been teaching Life Sciences for a long time now and it seems that it is now part of me. I really can't see myself teaching any other subject.

From the profile of participants that has been provided, it can be seen that the eight participants share a number of common features. All are permanently employed by the Department of Education and are suitably qualified as secondary school teachers. Each has in their possession degrees in the field of science and diplomas in education. It is also evident that these teachers are passionate about teaching Life Sciences. They have taught this subject to Grades 10, 11 and 12, for the past twenty years and are still currently teaching these grades. Hence these teachers are knowledgeable and experienced and this choice of participants helped to eliminate the influence of qualification and teaching experience as factors that could influence the emotional orientation of Life Sciences teachers to ongoing curriculum changes.

4.3 THE NATURE OF THE EMOTIONS EXPERIENCED BY LIFE SCIENCES TEACHERS TO ONGOING CURRICULUM CHANGES

This section addresses the first research question, which deals with an examination of the nature of emotions that Life Sciences teachers experience as a result of ongoing curriculum changes. Teachers were asked to talk about their emotions towards each major curriculum change. In identifying the nature of emotions that teachers experienced to the various curriculum changes since the dawn of the new democracy, the findings suggest that feelings of anticipation coupled with excitement arose as teachers' eagerly awaited changes. But, just as there was a rise in these positive emotions, there was a corresponding fall in them to be replaced by negative emotions when teachers worked with the content of the curriculum. Each time, as the implementation process rolled out, they wished for yet another curriculum change to improve the one they were experiencing problems with. Teachers clearly oscillated between, on the one

hand, excitement and anticipation as they awaited each change. And on the other hand, disappointment and frustration, when they enacted each curriculum change and faced the realities. They indicated that they felt 'excited' each time a major curriculum change was announced because they hoped it would make their working lives better by improving what was not working, only to be disappointed again. This indicated that their initial anticipation and excitement was slowly ebbing away only to be replaced by negative emotions.

Then teachers were also asked about specific aspects of the curriculum change that touched on their emotions. Here teachers related a list of different factors which included the help from the Department, the teaching of multiple curricula, resources, assessment tasks, and their personal growth. What was interesting though was that in spite of many negative experiences of the curriculum change, teachers were still willing to make an effort to empower themselves and learn about these new changes.

The discussion here focuses firstly on the emotions that teachers felt towards the ongoing changes and then to the various aspects related to curriculum changes. The discussion begins with the emotions that teachers experienced as they awaited for curriculum changes, followed by the emotions felt towards the content of the new curriculum. It then leads to the emotions felt for the lack of help from Department officials, leading to the emotions towards teaching multiple curricula, then the emotions towards the lack of resources are discussed and then teacher emotions towards assessment. Lastly, there is a look at how teachers used this opportunity to empower themselves to become better teachers.

In this section, excerpts that involved the use of emotional words towards the different aspects of curriculum changes was extracted and presented.

4.3.1 Teacher Emotions to ongoing curriculum changes

Here teachers were asked to talk about their emotions towards the ongoing changes to the curriculum. Results show that there was a noticeable rise in positive emotions as teachers awaited these changes and then an ebb of these emotions as they became familiar with the contents of each curriculum and their positive emotions were replaced with negative ones. The discussion looks firstly at emotions that teachers experienced as they awaited for curriculum changes and then the emotions they felt as they became familiar with the contents of each curriculum.

4.3.1.1 “*Anticipation and excitement*”- as teachers’ await curriculum changes

The results revealed that emotions of anticipation and excitement towards curriculum changes began soon after the first democratic elections in South Africa and was later followed by similar bursts as teachers patiently waited for changes to take place with the curriculum with which they were working.

Many Life Sciences teachers understood that the democratic elections in 1994, provided a basis for curriculum transformation and development in South Africa, resulting in inevitable changes in educational policies, but these took a longer time to enter into secondary schools compared to primary schools. Peter remarked “*the National Curriculum Statements, was the new policy for education with the democratic South Africa, but this curriculum took a while to enter into our schools*”. Jen also acknowledged this but also remarked about their eagerness for this change “*We patiently waited for the new curriculum for secondary schools as we were keen to work with it*”. Sairen added “*Primary schools were already making headway with new policies since 1994, so I looked forward to similar changes taking place in our schools too*”. Along similar lines David also showed his eagerness at the prospect of a new curriculum when he said “*at the beginning we were all excited as this change indicated a break from the past*”. In the beginning, teachers understood that the change in political power, triggered a change in

the education landscape and they waited in anticipation for curriculum changes to enter into secondary schools.

Then, there was another burst of anticipation as the content of NCS (Grade 10-12) became confusing for many teachers. Here again, teachers waited in anticipation for changes to this curriculum. They hoped for another curriculum, which will provide clearer guidelines and assist with the problems that they were experiencing with the present curriculum. In order to support the implementation of NCS (Grade 10 – 12), the content of Life Sciences was revised and the New Content Framework (NCF) (Grade 10 – 12) was presented them. Initially this change too was welcomed with great excitement, as Jen summed up *“we welcomed NCF, for we hoped that this new document will help clear the confusion with terminology, content and the numerous policy documents that we were presently using”*. Teachers therefore looked forward to working with NCF.

After having worked with NCF for a while, teachers were again confused, and there was yet another burst of anticipation for another curriculum to assist them. Teachers’ once again displayed excitement and elation at news of a new curriculum policy in the form of National Curriculum and Assessment Policy Statements (Grades R – 12) (CAPS). The NCS was once again amended and CAPS emerged. Teachers shared many positive thoughts on CAPS. Jen explained *“we patiently waited for a change of this nature since the numerous documents they were using were quite confusing and we needed a document that would give us some kind of clear guidance, just to show us that we were working on the correct path”*. Peter agreed *“the previous amendment was difficult to work with, but CAPS is a comparatively easy document. It is in fact the best document thus far”*. Linda and Denise shared similar thoughts with Denise stating *“having all the different documents consolidated into a single CAPS is useful since I can refer to one document to get information for all my grades in the FET band”*. Kate’s benefit with CAPS was that it saved her time when she had to check information about the content or assessment for any of the grades since *“all this information was now found in one document and this was a useful tool”*. Sairen’s value for CAPS lay in the fact that it *“outlined the depth of content knowledge and the progression from one grade to the next”*. In addition to this sequential development of topics he added *“CAPS is very much like the curriculum when I first started teaching and therefore the sequence and familiarity with some topics is an*

advantage”. These teachers experienced relief with CAPS for it seemed to strengthen the NCS and iron out some confusion. It delineated the topics and defined the assessment activities for each grade. Thus, teachers’ first encounter with CAPS elicited positive responses.

The results here supported by a study carried out by Lee and Yin (2011), where it was also found that teachers exhibited excitement at receiving a new curriculum, since they felt it brought in new hope. In this study, teachers exhibited emotions of excitement and anticipation as they awaited changes in the curriculum. Their initial excitement was due to the change that they expected as a result of the change in political power. At other times their display of excitement was due to the fact that they believed that a new curriculum will bring in new hope and assist them with their confusion. Contrary to the study of Lee and Yin (2011) where some teachers also exhibited negative feelings fear and anxiety of embracing a new curriculum, in this study all teachers displayed only positive emotions towards embracing a new curriculum and positive emotions again as they awaited more changes. Interestingly, results also show that even before teachers interact with the curriculum policy, they already engage with it at an emotional level; suggesting that emotional engagement occurs before cognitive engagement. This lends support to the idea that teaching is an emotional practice, with teacher emotions being part of teachers’ personal and professional lives.

4.3.1.2 “*Baffled and perplexed*” - towards content of new curriculum

The results show that like the rise in anticipation for changes to the curriculum, there was also a noticeable ebb of these feelings as teachers’ enacted these changes in their classrooms. As the excitement and anticipation dwindled, it was replaced by teachers’ emotions of being baffled and perplexed as they became familiar with the content of each new curriculum.

In the beginning, as the implementation process of NCS (Grade 10-12) starting rolling out in 2004, teachers experienced a number of stumbling blocks. They struggled with the large number of new terms which were linked to the new curriculum. David stated “*it felt as if we were suddenly thrown in the deep ocean, and the large number of new terms was very confusing*

at times". Along similar lines, Denise expressed how she often felt *"baffled and perplexed"* with the terms which were often *"difficult to grasp"*. Added to this the policy documents also created a challenge. Peter elaborated *"the various new documents such as subject statements, learning programme guidelines and subject assessment guidelines were comprehensive but confusing and it was a daunting task to try and unravel"*. Furthermore, a few teachers felt that none of the documents provided clear guidelines on the content for teaching Life Sciences. Peter summed up by stating that *"the various documents did not clearly specify the content for teaching Life Sciences, and this was not helpful at all"*. These various factors created stumbling blocks for teachers and as Peter succinctly stated it made them feel *"unsettled and uneasy"* about their teaching. Jen, together with Sairen stated that *"changes would gladly be welcomed to help clear the confusion of the NCS"*. From these responses it seemed as if the anticipation and excitement that teachers initially experienced with the change to NCS (Grade 10-12) had slowly faded away.

Then, as teachers implemented the NCF, their hope for clarity of NCS (Grade 10-12) was once again dampened. Although the NCF was a revised curriculum it utilised the same documents as NCS (Grade 10-12). Kate's sentiments summed up the feelings of these teachers' *"There were still too many documents to contend with and NCF was more puzzling than NCS. Once again we felt unsure and helpless"*. Added to this, there was confusion with knowledge strands and topics. Jen explained *"the rearrangement of the knowledge strands in NCF was confusing and annoying"*, while Linda felt that *"the movement of topics between the grades was superficial and unnecessary"*. Alice's concern was *"some topics were still very broad and I was not sure how to cope with the content"*. Peter reinforced this concern by stating *"the depth and breadth of the different topics was still not clearly defined and this was quite frustrating"*. These negative responses revealed that teachers' emotions of anticipation and excitement towards NCF had worn away.

Later, as the implementation of CAPS took place, teachers' positive emotions towards this design, also started to slowly dissipate. As teachers worked with CAPS, they soon encountered some problems. With this design, the main concern was the time frame allocated for the completion of tasks, especially in the fourth term. Teachers felt annoyed that there was a great deal of work to complete in a short space of time. Denise shared these thoughts *"I had to*

constantly work at a fast pace, especially in the last term, since there was a lot of work to be completed". Peter too alluded to feeling "pressurised" with the numerous tasks and at the same time feeling sad that "there was no time to consolidate the work". Jen felt apprehensive that the fast pace at which she worked, impacted on the number of pupils studying Life Sciences in her school. She stated that "some pupils could not cope with the pace at which teaching took place and often opted for easier subjects. It made me sad to lose my pupils to other subjects". Thus teachers encountered problems with CAPS as well, and this again resulted in their anticipation for change, slowly ebbing away.

This is in line with the findings of Lee and Yin (2011) and Schmidt and Datnow (2005), who maintain that the greatest impact to teachers' emotions happens when curriculum change is implemented in the classroom. In a similar vein, Steinberg (2013) has shown that teachers show satisfaction with the potential of a new assessment policy but this is replaced with worry as teachers struggle to understand the implementation of this policy. Similarly, in this study, as teachers' faced the prospect of a curriculum change there was excitement but as they implemented the curriculum, they were faced with the realities of what was required of them and their positive emotions slowly ebbed away, only to be replaced negative ones.

The results are also in line with Hargreaves (1998) that teaching is an emotional practice, were teachers' own feelings are altered by their outer experiences. In this case teachers' emotions changed drastically as they became familiar with the curriculum they were working with. Their positive emotions of waiting for a curriculum which they felt was a sign of hope, was replaced with negative emotions, since in reality the curriculum was not easy to handle. Clearly, this study showed that there was an oscillation of positive and negative emotions as changes in the curriculum were brought about.

4.3.2 Teacher emotions towards aspects related to curriculum change

As teachers related their emotions towards the ongoing changes, what was also evident was that their emotions were also affected by other aspects related to curriculum change. This section looks at the emotions that were evoked in relation to these different aspects.

4.3.2.1 “Exasperation” – towards Department officials.

Emotions of exasperation were experienced when teachers did not receive adequate help from Department officials. From the data, it emerged that teacher emotions were also affected by the lack of adequate in-service training during the reformation and the revisions of the curriculum. Teachers attributed their emotional disturbance to two reasons. Firstly they found that the time allocated for training was limited and secondly they felt that they did not learn much from these training sessions.

Teachers displayed frustration and irritation towards the insufficient time allocated for the retraining for NCS. This was summed up by Linda who remarked that *“in the beginning, when NCS first emerged the workshops for retraining was held over holidays and lasted for a few days only, this was insufficient time to fully grasp then new and drastic changes”*. Consequently, teachers felt that these workshops didn’t adequately equip them for the changes. Since teachers received little benefit from these workshops they then had to unravel the new curriculum on their own, which was a time consuming task. David, like Jen and Alice reflected on the following:

Although I attended the workshop for retraining over the holidays, I felt I didn’t learn much because there was too little time. The limited help from the Department was inadequate and quite exasperating. I sacrificed many hours over weekends and evenings, learning how to teach a new curriculum. This was tiring.

Alice remarked *“we received no training on drawing up learning programmes and self-generated lesson plans, so I had to do these on my own. This was a challenging task.”* Linda however, was unhappy that no extra time was allocated in the school day to carry out these extra duties. She had this to share *“although we were required to do more preparation and*

planning, no extra time was allocated to us in the school day to carry out these duties. We had to sacrifice our family time to do these duties". The demands placed on teachers also continued when there were revisions to the curriculum later on.

Upon further probing, it emerged that that the teachers were also saddened by the lack of support and training from the Department officials when NCF and CAPS was brought about. The training for both NCF and CAPS, was held over a few school days, and in the four schools of this study only one teacher was allowed to attend these training sessions. In this study only two teachers had attended these workshops while the majority did not. Hence there was different feelings about these training sessions.

The two teachers that attended these training workshops were David and Alice. David felt that the *"time allocated for training was too short and again did not fully equip him for the changes"*. Alice, on the other hand, shared a different concern. According to her *"once we had attended these training sessions we were required to cascade this information to our colleagues but we were not allocated time to do so. As a result I did not fully disseminate information to my colleagues which was frustrating at times"*. Although teachers attended the training workshops, they reflected feelings of annoyance for two reasons. Firstly, they felt that the training did not fully equip them for the changes and secondly they were not given time to cascade information to their colleagues.

Alternatively, those teachers that did not attend shared different sentiments. Sairen said *"the Department of Education is inconsiderate and insensitive when planning in service training workshops. With their poor planning, I had lost out on the opportunity to attend these programmes"*. Peter added *"the Department of Education should have made a more concerted effort to ensure that all teachers received in-service training since all teachers need to fully understand the changes imposed on them"*. Thus those teachers who did not attend the training sessions felt dejected that the Department officials had not made a greater effort to ensure that all teachers were properly and adequately trained when changes were brought about.

These results are in line with the study carried out by Schmidt and Datnow (2005), where it was found that when the design team provided little support for the new curriculum, teachers misunderstood the changes and were unsure of what to teach, giving rise to negative emotions. Along similar lines, the study carried out by Steinberg (2013), has also shown that teachers exhibit negative emotions of frustration, irritation and anxiety towards department officials for the lack of support from these officials to help teachers cope with these assessment changes. Likewise, the teachers in this study exhibited a sense of discontent and frustration at the Department of Education for continuously having failed in their duty to adequately prepare them for the changes that accompanied the different curriculum designs. This left many teachers feeling unhappy and irritated and there seemed to be great discomfort in learning the new curriculum on their own, on several occasions.

But, unlike the findings of Schmidt and Datnow (2005), were teachers who did not receive help from the design team, felt apathetic towards these changes and did not implement them. In this study, although the teachers did not receive adequate training and help from the Department, they still implemented the curriculum in their classrooms. These teachers spent a lot of time learning the new curricula on their own. They felt that this was necessary for delivering quality education to their pupils. The attempts of the teachers in trying to learn the new curriculum once again displays teachers' concern for the educational needs of their pupils, once again illuminating how teaching is an emotional practice for them.

4.3.2.2 “*Frustration*” – towards waves of change

Negative emotions of frustration was expressed towards the many rapid changes that teachers faced. Since changes to the curriculum were made frequently it culminated to a new design being implemented after every three years in the periods from 2006 to 2012. Consequently as one curriculum was being taught in the FET band a new one was introduced. Teachers indicated that sometimes they had to teach two different curricula in a year; one to grade 10 and a different one to grade 11. This was not an easy task since there were no clear guidelines for the content. This disturbed teachers emotionally. The following excerpt shared by David sums up the feelings of these teachers:

Teaching two different curricula is not easy since topics are moved from one grade to the next resulting in an overlap in topics for the different grades. This caused a great deal of confusion for me as I was often unsure about the depth and breadth of the topics that had to be taught to the different grades. This process of preparing new content frequently, was overwhelming.

Linda's input towards these frequent changes was that *"the overlap in topics was mentally tiring because it was difficult to teach the same topic to two different grades. I had to constantly refer to my work schedules to ensure I was doing justice to the topic I was teaching in the different grades"*. Jen re-iterated this sentiment and added that she *"disliked the waves of changes that was taking place since it was demotivating and frustrating"*. In a similar note, Alice added that *"these frequent changes were annoying as it disturbs my developmental process. Just as I am getting established with the curriculum, I am confronted with another one and I am pressurised to find new resources. This actually stunts my academic growth"*. Sairen's fear about teaching multiple curricula was that this could destabilise the schooling system. This is what he had to share *"continual changes in the curriculum could have an effect on the recruitment of new teachers. Young teachers may not want to become teachers as they could easily be discouraged by the confusion"*. He went on to add the since he was a senior teacher he could *"adapt and adjust"*, but was concerned that these constant changes may not be good for the stability of the schooling system.

Teachers' reaction to teaching two different curricula designs in one year left most of them frustrated and demotivated. The lack of clear directives resulted in teachers having to put in extra time and effort in trying to firstly unravel the needs of the design and secondly in planning and preparation of lessons. Teachers also felt pressurised to get new work sorted in a short space of time, and many felt angry, anxious and demotivated.

Although the literature does not speak about teacher emotions towards teaching multiple curricula, the negative emotions are reflective of studies carried out by Sutton and Wheatley (2003), Nias (1996), Kelchtermans, (2005), Zembylas (2003) because these theorists have shown that negative emotions are also part of a teachers' life. In this study the teaching of multiple curricula brought forth many negative emotions for teachers.

What was also evident was that although negative emotions were largely common, teachers attempted to master the content of each curriculum for the benefit of their pupils, again displaying how teacher emotions are interwoven in their job and teaching is an emotional practice.

A striking finding in this study was that although these teachers were towards the end of their teaching career, they still attempted to make sense of curriculum changes and implement these in their classroom. This is in contrast with the study of Hargreaves (2005), where it was found that those teachers who were towards the end of their teaching career, were more resistant and resilient towards changes and concentrated their energies towards their retirement.

4.3.2.3 “Sadness” - at lack of resources

Another emotion that was strongly exhibited was that of sadness, especially when teachers spoke about the resources for teaching Life Sciences.

The teaching of Life Sciences is not based solely on factual information but also the development of scientific skills such as problem solving, critical thinking and inquiry which equips pupils to cope with the demands of the changing scientific world. These skills can be developed by carrying out different scientific investigations but certain resources are required. According to CAPS which is the most recent, streamlined and concise revision of NCS, resources for teaching Life Sciences include textbooks, sufficient workspace and equipment for carrying out investigations, charts, Bunsen burners, hand lenses, microscopes, prepared slides, glass slides and cover slips, beakers, test tubes, models, fresh plant and animal material (Department of Basic Education, 2011). So it is assumed that these resources are available to all Life Sciences teachers.

When teachers were probed about their feelings regarding the resources listed in CAPS, they had the following to share. Jen felt that “ *unlike the previous designs, CAPS had provided a*

clear idea of the resources that was required for teaching Life Sciences” while David added that “ *it would be wonderful to have all the necessary resources for teaching Life Sciences as this will make the subject exciting to teach and to learn*”. Sairen, who is stationed in the laboratory with some resources and carries out some practical work, supported David’s view when he said “*my pupils thoroughly enjoy the practical lessons and they often tend to remember this work better*”. On the other hand, Alice despondently stated that “*the list shows an ideal situation, which is unlike the situations we are faced with*”. Many teachers, in this study, nostalgically colluded that having the resources that were stipulated in CAPS, would be ideal in achieving the aims of Life Sciences and developing their pupils with the scientific skills needed to cope with the changing social environment, but unfortunately their situation was different.

When probed about the resources that they have available, teachers shared feelings of sadness for the lack of the necessary resources in their schools. However, only those teachers that were stationed in the laboratory, shared some of their feelings. Sairen explained “*I enjoy doing practical work very much and will try my best to carry out the experiments. Sadly though I sometimes don’t have all the chemicals that are required*”. David added “*I make every possible attempt to do practical work in the laboratory, but the limited resources makes it difficult at times*”. However, when probed about how he managed with his few resources he brushed the issue off by stating that “*I do the best I can for the benefit of my pupils*”. Generally, teachers displayed some reluctance in elaborating on how they coped with their limited resources.

The accessibility to the limited resources in these schools was a challenge for many teachers. Many of these teachers taught in their classrooms and not in the laboratory where the resources were kept. Teachers did make attempts to move equipment from the laboratory to their classrooms, but they had some unfortunate experiences to share. Jen who teaches in a classroom in the lower level of the school building, was keen on doing work with the microscope and had to move these microscopes from the laboratory to her classroom. Unfortunately, as her pupils were carrying the microscopes, one of them was accidentally bumped by her classmate causing the microscope to fall and get damaged. This made Jen very nervous about moving equipment again. Kate’s unfortunate incident took place when she

wanted to use the skeleton in her classroom and asked a pupil to bring it into her classroom. She shared the following:

I remember the one time I asked a pupil to bring the skeleton into my classroom. He slipped and fell, breaking a part of the skeleton. I was so angry and upset. The school had to replace the skeleton and it was very costly.

Therefore, teachers did make attempts to move resources to their classrooms, but their experiences were not good. In addition, teachers acknowledged that the sharing of the models and equipment with other teachers in their Department sometimes decreased the accessibility of these resources. Peter expressed this concern “*David and I teach the same grades and often at the same time, it makes it difficult for us to share our limited resources. Sometimes I need to postpone the teaching of my lesson to another day so that I could use the models or microscopes*”. Thus teachers also experienced difficulty when they shared their resources with their colleagues at school.

Large class sizes also posed a challenge to the sharing of the limited resources. Linda expressed her difficulty in carrying out group work when she explained “*when I teach the microscope, I put my pupils into groups, but because there are so few microscopes and many pupils, the groups are large and the task of handling these large groups becomes tiresome. Pupils need constant supervision, and this can be difficult at times*”. The large class sizes also made it difficult for teachers to carry out demonstrations for practical work. This was illustrated in Peter’s response “*sometimes I prepare slides and set them under the microscope but because there are too many pupils in my classes, there is not enough time for of them to view these slide, when this happens I feel disappointed*”. Denise added “*since there are too many pupils and not enough resources, I sometimes end up doing only a few demonstrations. However, I feel that this does not justify the work my pupils should be doing on their own*”. Jen, on the other hand, expressed different feelings. She felt that the large class sizes left very little space for movement and interaction with pupils, especially when certain resources were used. Jen shared this “*sometimes when I have a model to supplement my teaching, I find it difficult to manoeuvre myself in the limited space between my pupils. As a result I end up standing in the front of my class only, but I know I’m not doing justice to the pupils at the back of the class*”. It can thus be seen that the large class sizes was also an impediment to these Life Sciences teachers thereby adversely affecting their teaching in various ways.

Negative emotions were also evoked when teachers could not carry out the practical examinations as stipulated in CAPS. The formal programme of assessment in CAPS which included a practical examination to be carried out at the end of the grade 10 and 11 year, was a culmination of the practical work carried out throughout the year. Teachers again exhibited negative emotions towards this aspect of assessment since they lacked the necessary resources for carrying out this examination. Jen mentioned *“when these new changes made, it seems as if little consideration is given to the realities of our school. We are required to carry out a practical examinations without the necessary resources, and this is quite challenging”*. Linda added *“the lack of adequate resources is a hindrance to carrying out this examination as stipulated*. Therefore the lack of resources for teaching and assessing Life Sciences posed a challenge for these teachers, leaving them with a feeling of sadness.

More negative emotions were felt towards the lack of text books, which was a resource that teachers preferred to use. The one resource that teachers did have were text books but these changed as often as the curriculum, again creating instability. Kate aptly stated *“the rapid changes in the curriculum made our text books obsolete and useless after a few years. This was a waste of money”*. In addition, as each new design surfaced, a vast number of text books were suddenly made available and without clear directives, it was often difficult for them to make a choice. Denise confessed *“with each new curriculum design, there were many new textbooks and with limited guidance on which ones to choose. This was difficult and confusing for me”*. In an attempt to find the most useful text book, teachers had to read and familiarise themselves with the content of many different text books. In this regard Jen felt that this process was *“time consuming and tedious”*. For these teachers who have been in the profession for many years, adapting to changing text books was emotionally challenging.

The results once again echoes the sentiments of Schmidt and Datnow (2005) and Lee and Yin (2011) in that teachers respond with strong emotions when they implement changes in their classrooms. The results indicate that teachers were interested in developing their students with scientific skills needed to cope in the changing social environment but resources were needed, which were not found in the schools that formed part of this study. Teachers thus responded with strong negative emotions towards this factor. The expression of teachers' emotions

towards the lack of resources, was a hindrance to achieving their aim of developing their pupils both intellectually and emotionally. This display once again indicated that their pupils were important to them and their relations with their pupils was significantly emotional in nature.

4.3.2.4 “Annoyance” – towards assessment tasks

Annoyance was the emotion that stood out strongly when teachers reflected on the assessment tasks. Assessments assist teachers to make judgements about their pupils’ attainment of knowledge and progress and is a way of evaluating the progress of their pupils. The introduction of NCS, was also accompanied by a change in assessment practices. Assessments were now a continuous planned process, commonly known as CASS, with the assessments grouped into two categories; informal assessment and formal assessment. These assessment tasks were no longer clearly stipulated but instead teachers were required to plan their own tasks according to the resources they had available but these tasks had to be clearly linked to the LOs and ASs that were found in NCS. Although teachers were provided with a Subject Assessment Guidelines (SAG) no clear directives on the assessment tasks were provided.

The lack of clear directives for designing assessment tasks with NCS created a lot of uncertainty for many teachers. Kate lamented *“in the beginning I was very unsure of how to carry out my assessments. The policy did not clearly stipulate what we needed to do”*. In a similar tone Linda expressed the concern that *“when NCS first appeared, there were no clear guidelines about drawing up assessment activities. We had to use the LOs and ASs to design our own activities, but I was often baffled about what exactly was required. Sometimes I was not even sure if I was doing the right thing”*. Peter added that *“since the directives about the assessments from the Department were very vague, it took me many hours to design the assessment tasks”*. Teachers expressed a great deal of uncertainty and annoyance at the lack of clear directives to help them cope with planning and designing these new assessment tasks. When dealing with assessment tasks, teachers had to move out of their comfort zone and familiarise themselves with new ideas and strategies. This was a time consuming task making teachers’ feel irritated and unhappy.

The display of these negative feelings continued when the design of NCS was revised. In both instances; the change to NCF and later to CAPS, there was a shift in sequence and topics for Grades 10, 11 and 12, resulting in a change in assessment activities. Thus the activities that teachers previously designed could no longer be used and new activities had to be designed. For many teachers this was again a time consuming task and they did not display any positive emotions. David, Jen, Linda and Alice expressed their feelings of irritation as they had to engage in the laborious task of drawing up new assessment tasks with each change. David shared these sentiments *“the overlap of topics with the change in curriculum, made the previous tasks worthless, and now more time had to be spent to draw up new tasks”*. Jen was annoyed at the futility of the long hours they had spent on drawing up assessment tasks previously. She said *“it seemed as if the effort we put into drawing up previous tasks were futile and this was quite annoying”*. Linda who had the following to share *“I am disappointed that the topics and assessment activities change so soon. We spend a lot of valuable time and effort in designing assessment activities but after a while all the hard work is in vain because we need to design new ones”*. Alice’s concern was that *“the process of drawing new assessment tasks was demanding and family time was often sacrificed”*. The continual change in the programme of assessment seemed to upset the inner world of teachers. The demands of the assessment tasks baffled many teachers but they also felt angry that these changes were taking place so soon.

On a lighter note, teachers’ concern for their pupils seemed to be the driving force to ensure that they were carrying out their assessment tasks according to the requirements of the different curricula designs. David said *“We did not want to disadvantage our pupils in any way and we therefore made every effort to ensure that the assessments were carried out as required”*. Peter added *“although it took us a long time to draw up the assessment tasks each time, we did our best because we wanted our pupils to benefit. We therefore sacrificed our time to formulate the assessment tasks”*. Linda too voiced the sentiment of increased workload but felt that *“the increase in the number of assessment tasks afforded pupils multiple opportunities to achieve success, which was a good change”*. Teachers’ concern for their pupils caused them to sacrifice time and energy to ensure that their pupils gained the full benefit of the new assessment strategies.

The responses of teachers towards assessments resonates the work of Steinberg (2008) for it shows that assessment decisions are not neutral but involve teacher emotions. Furthermore, like Steinberg (2013), the teachers in this study also feel responsible for their pupils' successes and failures. Steinberg (2013) study has illustrated the emotional dilemma that teachers' face when dealing with assessment tasks that are not clearly stipulated. Teachers strong negative emotions towards the lack of clarity in assessment tasks range from frustration to anxiety and irritation. The results of this study are analogous to those of Steinberg (2013), since teachers' exhibited a number of negative emotions towards the lack of clear directives for drawing up assessment tasks and also the futility of their efforts in drawing up these tasks since these changed often. But, teachers made every attempt to understand the tasks well so that their pupils could gain the full benefit. In spite of the increase in the workload, teachers moved out of their comfort zone and engaged in drawing up these activities. They changed and adapted to new assessment strategies that were in keeping with the expectations of the curriculum design they were implementing. It became evident again that teachers felt passionate about their pupils (Nias, 1996) and pupils were at the heart of teaching.

Thus far the negative emotions that were experienced by teachers were listed and explained. But in addition to these some teachers also expressed some positive emotions that they experienced towards these changes.

4.3.2.5 “Energised” – as teachers learn new ideas

The positive emotion of being energised was evident with a few teachers as they encountered these changes. A number of teachers supported the idea that the teaching of NCS was a learning experience, not only for the pupils but for them as well. Some teachers found that the changes in the curriculum were not only challenging but also inspiring and stimulating for it afforded them an opportunity to explore new teaching and assessment strategies. Sairen's words summed up the sentiments of most of the teachers when he shared the following “*working with NCS and the revisions thereafter was like an explorative journey in which I had to find my way through the maze. I felt energised as I found new ideas for teaching*”. However, teachers adopted different strategies to learn about the curriculum changes.

David attributed his source of inspiration for exploring new teaching strategies to his brother who was a primary school teacher. He admitted *“I often worked closely with my brother to develop new methods and strategies for teaching NCS and this was exciting and stimulating”*. Other teachers worked closely with Department policies and text books to learn about the curriculum changes. Kate explained *“I would always make reference to the Department policies to ensure that I gain a sound understanding of the content. Once I understand the content well, I feel confident about preparing my lesson plans. When preparing lesson plans I consult many text books. I do all of this to ensure that I am well prepared for my lesson”*. Other teachers surfed the internet to gain knowledge of the content. Peter articulated the following *“the internet helps to improve my knowledge and there is a lot of information that I often use”*. From these responses it can be gathered that these teachers were excited to learn about the new curriculum and its changes and they used various methods to do this.

Looking at the nature of emotions that teachers experienced to on-going curriculum changes, the results illustrates that teachers displayed both negative and positive emotions. These responses are also in keeping with Lee and Yin (2010) who suggest that teachers’ emotions towards curriculum change is complex because teachers don’t express only positive or negative emotions but a combination of both therefore teacher emotions towards change is a mixture rather than a pure substance. The results are also comparable to the study of Steinberg (2013) where it was found that teachers’ experience emotional chaos when dealing with changes in assessments. Steinberg (2013) uses the analogy of a rollercoaster to express the emotional dilemma that teachers’ face with changes in the assessment practices. In this study, too there was an oscillation of emotions from positive to negative and teachers did not reveal only positive or negative emotions but rather a mixture.

Furthermore, results are reflective of the study by Kelchtermans (2005) where teachers experienced loss of self-confidence and self-esteem, when changes in their working conditions were brought about. Although teachers did not explicitly mention the term vulnerability, the negative emotions they displayed conveyed a sense of loss of the practices that they were familiar with and this made them feel vulnerable.

These results here can provide useful information to policymakers and make them aware that the numerous rapid changes have not only affected teacher knowledge and skills but has also had an effect on their emotions. Curriculum change is linked to teacher emotions, and contrary to what policymakers may think, teaching is an emotional practice.

4.4 HOW DO TEACHERS DEAL WITH THEIR EMOTIONS EXPERIENCED TOWARDS THE ONGOING CURRICULUM CHANGES

In the section below the data related to the second research question is presented. The data reveals that teachers adopted different methods to deal with the emotions that they experienced. In this study the techniques are grouped into two categories; pupils' needs are important and collegial relationship are essential in curriculum change. The methods utilised and the underlying reasons for their decisions are explained below.

4.4.1 Pupils needs are important

One of the ways that teachers coped with the emotion that they experienced towards the ongoing curriculum changes, was to put the needs of their pupils before their own.

Teachers' were sensitive towards the crucial role they played in moulding the young minds of their pupils. Teachers acknowledged that they were entrusted with many young minds and it was their role to mould these young minds in the correct way. Peter stated "*we are entrusted with many young and eager minds that are waiting to be moulded. We must do everything in our power to ensure that we are doing our best*". Kate also expressed "*we hold the future of our pupils in our hands. We help them and guide them so that they can make good choices for their future careers*". David exemplified this attitude with the following sentiments "*we sculpture these young minds and prepare them for the future. Our role in their lives is of paramount importance*". Sairen added "*we always have our pupils' interest at heart, and do*

our best to let them gain the full benefit of the curriculum". Teachers' felt that since they played a vital role in preparing the youth for the future, it was their responsibility to ensure that pupils gained the full benefit of the curriculum.

Teachers were also sensitive towards the individuality of their pupils as they planned their lessons. When teachers planned their lessons, they focussed on their pupils' individuality. Teachers responded to their belief that each child was unique and demanded special attention. Owing to the many years of experience in this profession, they understood that pupils think and learn differently. As a result when teachers planed and designed their lessons, they made as attempt address and accommodate the needs of their pupils. Peter displayed this when he said *"once I have a good understanding of the content, I start with the preparation of my lesson. I always give careful thought to the pupils I am teaching as this helps me determine the methodologies I plan to use. I often start my lesson with simple methodologies and gradually as I develop the ideas, I move to more complex methodologies. In this way I am able to cater for pupils of different abilities"*. Denise's concern for the progress of her pupils was exhibited when she admitted to the use of a variety of teaching techniques with the hope that all her pupils gained understanding of her lessons. She stated *"I use different techniques at different times depending on the lesson and the class I am teaching. Therefore I always pitch the lesson at a level that pupils can understand. It makes me happy when my pupils understand the work"*.

The results here show similarity to the work done by Hargreaves, (1998), were teachers developed an emotional bond with their students and this was central to the way teachers taught their students and the curriculum planning they engaged in. Hargreaves (1998) claims that his teachers used their students as "emotional filters" when they respond to structures and pedagogy dealing with educational change. A similar response was seen by these teachers as they designed tasks that suited the needs of their pupils. The results here also reveal that teachers' show a deep sense of passion and care for their pupils. Teachers' understood that they were moulding the minds of their pupils and preparing them for their future careers. They realized the important role they played in educating and preparing their pupils to become social beings. In addition, teachers understood that each pupil was different, so they planned and adopted a broad repertoire of teaching strategies to cater for the different grades and abilities of pupils. This indicates that teachers worked closely with their pupils and over time they learn

to understand them and their needs. Since teachers and pupils have come to share common feelings this helped to create emotional bonds and build emotional understanding which was essential for successful academic teaching. Likewise Brown (2011) acknowledges that although teacher expertise and teacher knowledge are important, these are not sufficient in the classroom. The role of a teacher extends beyond the boundaries of technical and rational skills; it encompasses the building of emotional bonds and strengthening of emotional understanding.

Furthermore, in the study carried out by van Veen and Slegers (2006), it was found that teachers exhibited different orientations towards their work, with some interested in the intellectual development of their pupils while others were more interested in both the intellectual and emotional development of their pupils. In contrast, in this study, all teachers shared the same orientations; they felt that their job was to develop their students both intellectually and emotionally and they attempted to do so by placing the needs of their pupils before their own.

4.4.2 Collegial relationships are essential in curriculum change

Another method employed by teachers to cope with their emotions was to build collegial relationships. From the data it emerged that the new changes in curriculum, afforded teachers the opportunity to build collegial relationships. Since teachers had similar experiences with curriculum changes, they also shared similar challenges. This was exhibited in the commonly used metaphor “*we were all in the same boat*” as they spoke of the tasks they were faced with, when changes emerged. Teachers were thus able to empathise with each other as they faced the changes to the curriculum. In order to be able to cope with these changes, teachers found it necessary to build and maintain collegial relationships.

Several teachers revealed that the design of NCS made it imperative that all teachers work together to understand and implement NCS. NCS which was driven by LOs and ASs, did not have clearly defined content. In order to make sense of the content for NCS, it became incumbent upon teachers to draw up their own learning programmes, which involved various

steps and different groups of teachers. The initial step was the drawing up of the subject framework, involving all Life Sciences teachers in a school. This was followed by the development of work schedules which involved all Life Sciences teachers teaching that particular grade. Lastly there was the drawing up of lesson plans from the work schedules which was generated by the individual teachers themselves. Hence it became compulsory for teachers to work together as they developed their learning programmes.

As teachers worked together they gained inspiration and motivation from their colleagues and this aided in clearing some of the confusion they had initially experienced. For example, Sairen stated that *“in the beginning, when NCS first emerged we were all very confused. But, when all teachers in the department met and we brainstormed ideas, it was amazing how the ideas flowed”*. Denise also alluded to these thoughts *“when we shared ideas, it helped to boost my self-esteem. I no longer felt alone and confused. My colleagues were of great assistance”*. Peter shared the following *“the different ideas from my colleagues motivated me to design exciting lesson plans and this made me more confident”*. Jen and Kate also expressed their gratitude that their colleagues willingness to assist over weekends and even holidays. The data thus revealed that the sharing of ideas with colleagues, helped to motivate, inspire and boost teachers’ confidence of handling changes.

The importance of building collegial relations was also exhibited and enhanced as lesson plans and assessment tasks were drawn up. Based on her own personal experience of handling NCS, Kate described how the responsibility of drawing up lesson plans and assessment tasks was shared in their school. She indicated that *“in our school we have three Life Sciences teachers and therefore each of us takes charge of a grade in the FET band. We then become responsible for drawing up the lesson plans together with the resource material and the assessment tasks for that grade. We then share these tasks with our colleagues. In this way we end up doing only a third of the work we should have originally done and we saved a lot of time as well”*.

These collegial relationships were maintained and strengthened as teachers worked with NCF. The teachers acknowledged that once they had worked with NCS and had become accustomed to it, they were able to adapt to the requirements of NCF. Their responses revealed that in many instances they adopted the same strategies that they had used with NCS to draw up their

learning programmes. However, the process now was not too difficult but was time consuming. David articulated the following *“with NCF, the drawing up of subject frameworks, work schedules and lesson plans were now a bit easier since we knew what was required. Although we used the same strategies, new content had to be utilised and this took up much time, but once again colleagues willingly shared in the responsibilities”*. Teachers again worked together with NCF and in this way their collegial relationships were maintained and strengthened.

The same pattern of building and maintaining collegial relationships emerged when teachers had to work with CAPS and especially when it came to the handling of the practical exams. Teachers understood that they could not escape from the practical exams since it impacted on their pupils' progress to the next grade and despite the challenges experienced with the lack of resources, teachers in these schools made every effort to carry out the exams as stipulated. In dealing with the practical exams, the building and maintain of collegial relationships was especially important.

Collegial relationship are strengthened when practical examinations are planned, prepared and written. All the schools in this study had a large Life Science population with many pupils studying Life Sciences in Grade 10 and 11. Therefore preparation for these exams was intense. Sairen commented *“I often sacrifice my free time, break time and time before school to plan and prepare these practical exams”*. Peter added *“I spend long hours preparing and planning to ensure that all their pupils gain the full benefit of the exams”*. At Southlands Secondary teachers shared their ideas on how they tried to assist each other to alleviate their workload. Denise stated *“we decided that the practical exam for grade 10 be handled by one teacher and that for grade 11 by another. These teachers had the responsibility of drawing up the assessments tasks and ensuring the necessary resources were available”*. Alice added *“the sharing of responsibility was helpful as it gave me a chance to concentrate on the practical exam for the one grade only and this lessened the pressure for me”*. Jen expressed her appreciation to their colleagues for their assistance with this exam. In her words *“our colleagues at school, who are members of other departments, are always willing to assist with the setting up and invigilation of the exams. This helps with easing the workload”*. Thus within a school, the preparation, planning and running of the practical exams had to build collegial

relationships not only with teachers within the Life Sciences department but also with other members of staff as well. Peer collaboration and support produced a number of positive emotions for teachers and teachers openly admitted that the shared responsibility aided in reducing their stress levels and burnout.

Collegial relationships are built with neighbouring schools. Some teachers found it necessary to network with their colleagues in neighbouring schools when practical exams were carried out. Peter stated *“due to the lack of resources in my school, I sometimes borrow resources from neighbouring schools. My colleagues are always willing to lend and at times I return the favour to them”*. Hence it was found that teachers not only built relations with their colleagues in school but also with those in other schools as well.

Collegial relationships are also facilitated and enhanced by the distribution of colleagues on the school premises. In this study, a common feature of these schools was that all the teachers that taught Life Sciences were arranged in a common block. This helped to keep the teachers teaching the same subject in close proximity with each other so that it became easy to facilitate communication between them. Linda stated *“having Sairen close to my classroom served me well. Whenever we had any queries, it was easy to consult and get answers”*. Hence teachers were appreciative to have their colleagues close by as it made it easy to communicate with each other and to clear out problems that they encountered.

The data presented here shows that all teachers were able to identify and understand the emotions that was felt by their colleagues towards these ongoing changes. Since all teachers experienced all changes and seemed to share common contexts for teaching, it was not difficult for them to understand the emotions of their colleagues. When teachers enter into the field of experience of another; they are able to experience for themselves, the same or similar experiences experienced by another (Hargreaves, 1998) and in this way they are able to build their emotional understanding. As emotional understanding was gained and teachers shared close emotional bonds, teachers were willing to assist their colleagues in administrative work and the assessment tasks including practical exams, dealing with the changing curriculum. This understanding also fostered relationships with teachers in other departments within a school and neighbouring schools too. However, should people not share the same common

emotionality and understanding, then emotional misunderstanding can arise, which could strike at the foundation of teaching and learning (Hargreaves, 2001) which was not seen here. In this study, it was encouraging to note that these teachers gained and built on emotional understanding.

On the whole, teachers in this study, valued the bonds and emotional understanding they established with their pupils and their colleagues. Emotional understanding between teachers and pupils helped teachers fulfil their role of educating their pupils on both an intellectual and an emotional level. On the other hand, emotional understanding between colleagues strengthened and maintained collegial relations which conferred many advantages to teachers. Thus emotional understanding helped to strengthen the foundation of teaching and learning.

4.5 INFLUENCE OF EMOTIONS ON TEACHING PRACTICES

In response to the third question to what extent do these emotions influence the teaching practices of these teachers, I borrowed ideas of from Zembylas (2004) and categorised the findings as follows; teachers need to feel good to teach science and the emotional tone in the classroom. I also found the ideas of Sutton, Mudrey-Camino and Knight (2009), up-regulate positive emotions and down regulate negative emotions to be particular useful.

4.5.1 Teachers need to feel good to teach Life Sciences

Teachers unanimously agreed that they needed to feel good in order to deliver their Life Sciences lessons. Many stated it was their positive emotions rather than their negative emotions that helped them to motivate and inspire their pupils, they therefore adopted strategies to up regulate their positive emotions and down play their negative emotions.

4.5.1.1 *Up regulating positive emotions*

Teachers acknowledged it was their positive frame of mind that made them better teachers. David shared the following *“the days I feel happy and cheerful, are the days everything seems to be going right. My pupils are in the right frame of mind and they are interested in their work. But if I feel down, then likewise everything seems to go wrong. Therefore I try to remain positive in my class”*. Along similar lines Alice added *“when I am happy, I am able to motivate and inspire my pupils. I am able to complete my work as planned and sometimes do a little bit more”*. Therefore positive emotions were important for these teachers

In some cases teachers made attempts to up regulate their positive emotions. For Kate it was her thorough preparation that helped her to up regulate her positive emotions in the classroom. She said *“when I know my content well, I feel very confident and happy and I am able to deliver a good lesson. I try to maintain this positive attitude throughout my lesson. When my lesson goes well, it leaves me with a feeling of satisfaction and I am able to sense the same with my pupils”*. On the other hand Peter, alluded to using the internet to create interesting and exciting lessons. He stated *“when my lessons are exciting, my pupils are also excited”*. Linda alluded to using *“positive reinforcement”* especially when the topic was difficult, in order to motivate and encourage pupil participation in her lessons.

The findings here are comparable with those of Linnebrink and Pintrich (2000) who have shown that teacher emotions exert a powerful force on motivational processes and positive emotions enhance intrinsic motivation, broaden their thinking and enable teachers to adapt to new teaching strategies. Similarly in this study, since teachers' positive emotions motivated them in many ways. They made attempts to up regulate their positive emotions and this made them feel more effective as teachers; inspiring and motivating their pupils. They are able to complete the work as planned and deliver quality education.

4.5.1.2 *Down playing negative emotions*

Teachers also experienced negative emotions towards the frequent changes in the curriculum. However, they did not let these feelings interfere with their teaching because it could have adverse effects in the classroom. Peter's response summed up the feelings of the majority of teachers *"allowing negative emotions to interfere with our teaching, can lead to an increase in our stress levels which in turn can affect the preparation, planning and delivery of our lessons in their classroom"*. In the classroom teachers had to down play their negative emotions to be successful teachers, David stated *"even if we disagree with the content, we need to change our mind sets, and overlook our negative emotions, to ensure good quality education is delivered to our pupils"*. Alice added that there were times she felt sick and not able to cope with her lesson. However, when she entered her classroom the needs of the pupils took precedent over her own feelings. She said *"on those occasions, I would have to put aside my own feelings and think about my pupils. I then try my best to get into the correct frame of mind to deliver a good lesson to my pupils"*. Therefore, in order for these teachers to perform at their best in their classroom, they could not let their negative emotions be expressed.

Another reason why teachers felt it necessary to down play their negative emotions was because their pupils were sensitive beings. Sairen said *"pupils spend a large amount of time with their teachers and they interact closely with them and they become sensitive to the emotions of their teachers. Any negative emotions of the teachers is easily picked up by the pupils. This will create an awkward environment and may affect the teaching-learning process"*. In view of this, David added that *"it is necessary for teachers to keep their negative emotions under wraps and teachers should not pass their frustrations on to their pupils as this can have a negative on pupil performance"*.

Jen expressed how upset and angry she was when her pupil broke the microscope however, she could not openly express these feelings to her pupil. *"I could not shout and scream at my pupil, since I had so many other pupils to take care of. I had to calm myself down by taking in a few deep breathes"*. Kate also explained her feelings when the skeleton was damaged while in transit to her class. She said *"I was enraged that the skeleton got damaged but before reacting in a harsh way, I had to give consideration to my other pupils and the fact that I had to still*

conduct my lesson". Peter stated "the large class sizes annoys me especially when all my pupils are not able to view the specimens I set up under the microscope. These slides take a while to prepare and when all my pupils don't get a chance to view it, I get furious. But I need to remind myself that large class sizes are beyond my control and I have to be able to deal with it". Although these incidents impacted negatively on teacher emotions, they felt that it was their duty to overcome these feelings and not divulge it to their pupils. Linda's response summed this up teachers' feelings, when she said "we often hide our true feelings so that we are able to cope with them".

The results are in keeping with Fried (2011), who claims that teachers generally tend to suppress and avoid negative emotions, for effective teaching to take place. The findings here reveal although teachers experienced many negative emotions on several different occasions, they did not express these emotions. Even on days when teachers felt sick, or upset and angry, they put aside their own negative feelings. Teachers made attempts to down play their negative emotions for they did not want these emotions to interfere with teaching and learning in their classroom.

In general, teachers' method of coping with their emotions is in keeping with the work of Brown (2011) and O' Connor (2008), since these theorists have shown that in the teaching profession teachers are always expressing some emotions while prohibiting others. Generally the positive emotions are exhibited while the negative ones are suppressed or modified. Even, Steinberg (2013) has also shown that teachers' engage in emotional labour when dealing with feedback given to students regarding their assessment tasks. When feedback is given to learners, this had to be positive and constructive rather than humiliating and demoralising. For the teacher however, this emotional responsibility was often not easy to implement (Steinberg, 2013) especially if students did not achieve the desired results but teachers made these attempts and in doing so they engaged in emotional labour. Naidoo (2014) too reveals that teachers conceal their true emotions for the benefit of their learners. In this study too it can be seen that the teachers have also made various attempts to maintain their positive emotions and hide their negative ones. They tried their best not only to up regulate their positive emotions but to also down play their negative emotions. These attempts were made because teachers, at all

times, had the best interest of their pupils, and hence did not allow their negative emotions to impact on their teaching.

4.5.2 Emotions create and maintain an atmosphere for teaching and learning

Life Sciences

The findings indicate that teachers' emotions also served as a vehicle to create and maintain an emotional tone that was needed for the delivery of a successful Life Sciences lesson.

Teachers use emotional gestures to create an emotional tone in their classes. Given that human interaction is unique, teachers experienced many different interactions and emotions in their classes; with the same or different body of pupils. In order to get pupils settled, teachers adopted certain strategies at the start of the lesson, to give their pupils an idea of how they felt, so that they understood the type of behaviour that is expected of them in the classroom. For many, it was their facial expressions assisted in conveying their feelings. Kate summed this up when she stated *"As soon as my pupils enter my classroom, I would change my facial expressions to convey my feelings. I sometimes use a very serious and straight face to show them that I am annoyed or upset with their behaviour. This assists in quietening down the class"*. Linda used the strategy of humour to quieten down her pupils. She stated that *"humour helped my pupils to relax and this created a favourable start to her lesson. My pupils were often excited to come to my classroom as they felt comfortable with me"*. Some teachers felt that since they taught the same classes over a number of years, their pupils knew what was expected of them. Alice's comment confirmed this *"since I teach the same classes from grade 10 to 12, many of my pupils learn to understand me and know the behaviour I expect from them when they enter my classroom. In my senior classes, my pupils settle down quickly"*. It was clear that teachers used different strategies to settle their pupils down at the start of the lesson, as this helped to establish the emotional tone needed for the lesson.

Teachers' display of interest in pupils' responses helped to maintain the emotional tone during the lesson. Some teachers explained that their show of interest in the responses of all their

pupils was valuable in maintaining an environment where learning could take place. This was summed up by Jen's response *"my classes consist of pupils with mixed abilities. In order to encourage participation in the lesson, I listen attentively to the responses from all my pupils, and try not be judgemental about any of their responses. In this way I try to make each pupil feel valued and this encourages my pupils to eagerly make contributions in the lesson"*. Since pupils felt their responses were valued, the emotional tone was maintained and learning could take place.

Another method used by teachers to maintain the emotional tone was the creation of a shared learning environment, especially when practical work is carried out. Teachers stated that since the practical work was often challenging and had a strong bias towards the development of skills, they would often allow their pupils opportunities to develop these skills. Alice shared this thought *"I often allow my pupils to discuss their activities with their peers and encourage them to express their feelings and opinions about the topic openly. This creates a great deal of enthusiasm amongst the pupils. In this way there is dual learning; they learn about Life Science concepts and at the same time they learn to accept the contributions of their peers"*. Linda, on the other hand, conducted her lesson differently. She stated *"I often look at the strengths of my pupils and use this to an advantage in my lesson. I use these pupils as group leaders and encourage them to be role models to other members in their group. This helped to build their confidence, increasing their interest and enthusiasm for Life Sciences"*. Jen had a different view point. She didn't believe in having group leaders, for she believed each pupil was at leader. She would randomly allocate duties to her pupils especially during practical lessons. She shared the following *"I would often choose pupils at random to assist with setting up or cleaning after a practical lesson. In this way they responded more eagerly to the lesson and this pleased me"*. These teachers expressed how the creation of a shared learning environment maintained an emotional tone and allowed for pupil participation and learning to take place. What was also interesting was that two different types of learning took place. Firstly there was conceptual learning and then there was the development of social skills as pupils learnt to be accepting of others point of view.

The results here have shown that teachers used different strategies to create and maintain an emotional tone in their classrooms. These strategies dealt largely with the emotions of teachers

and pupils. To create an emotional tone teachers used mainly facial expressions and humour which assisted in settling down their pupils. To maintain the emotional tone, teachers displayed interest in pupils' responses thereby making them feel valued and encouraging their responses. They also created a shared learning environment, where they also set up activities that involved their pupils. This not only encouraged pupil participation in the classroom, but also taught pupils to listen and appreciate the responses of their fellow classmates. Teachers also used opportunities to build and develop leadership skills in their pupils. In these ways teachers, not only built on the cognition of their pupils but they also attempted to build their social skills. Therefore the emotional tone, in the classroom, was negotiated by both teachers and pupils. What was striking though was that although, there were no set rules on how teachers should create an emotional tone, it was teachers' care and passion for their pupils, that allowed them to express certain emotions, which assisted in conveying messages to their pupils about the emotions that were acceptable in the class. Furthermore, both teacher and pupils became responsible for creating an environment where teaching and learning could take place.

The findings here resonates the work of Zembylas (2003), where it was found that in science teaching meaningful and exciting activities are planned which elicited positive responses and this was believed to be at the heart of this subject. Furthermore, having a shared learning environment and encouraging participation in science activities, creates an emotional culture that is markedly different from a typical class (Zembylas, 2003). Additionally, this social context of the science classroom, created certain emotional rules; which determined the emotions that were accepted and expressed, and is related to teachers' understanding of the role of caring in teaching and learning (Zembylas, 2003). Along similar lines, O' Connor (2008), has also claimed that since teachers possess a strong personal commitment towards their profession, it is their own beliefs about the role of caring of their students and their own personal values that shapes their emotions and guide their professional actions. Further support is provided by (Nias, 1996) who claim that teacher feelings and cognition cannot be separated from the social and cultural forces that are found in teaching. Teacher feelings are part of the social activities and play a role in the culture of teaching, and cannot be separated from it. These findings are further supported by Yin and Lee (2012) who declare that teacher emotions helped to motivate pupils and thus enhance the effectiveness of teaching.

In a different view, Ginott, (cited in Brown, 2011) claims “*I have come to the frightening conclusion that I am the decisive element in the classroom. It is my personal touch that creates the climate*”. These words indicate that the teacher alone is the decisive element in the class, for he/she is responsible for creating an emotional climate in the classroom. However, the results here prove otherwise for it shows that it’s not only the teacher but also the pupils who help to create an emotional tone in the classroom.

On the whole, teacher emotions influenced their teaching practices in two ways. Firstly to feel good about teaching Life Sciences, teachers’ up-regulated their positive emotions and down-regulated their negative emotions. Secondly, teacher emotions assisted in creating and maintaining an emotional tone that was conducive to Science teaching and learning. In both instances, teachers could only express certain emotions while prohibiting others; thus engaging in emotional labour. According to Yin and Lee (2012), in the context of teaching emotional labour is primarily defined as a process in which teachers make an effort to inhibit, generate and manage their feelings and the expression of emotions. Additionally, the emotions they expressed, were under the control of a set of emotional rules which were not defined but set according to the professional requirements of their job. Since teachers cared for their pupils, they always had their best interest at heart, they thus inhibited their negative emotions and generated positive ones, so that they could interact with their pupils appropriately and deliver their lessons successfully.

I, therefore concur with Zembylas (2004) that the role of emotion is not merely the affective product of teaching but that science teaching is embedded in the complexities of emotional issues. Furthermore in science teaching, emotions are not isolated events but they influence all interactions in the classroom.

4.6 CONCLUSION

In this chapter I presented the findings and an analysis of the data I collected from my participants. As stated earlier, the information was collected from eight Life Sciences teachers. I have tried to present the information provided by my participants as fairly as possible.

The findings and analysis of this study indicate that teacher emotions play a crucial role when curriculum changes are envisaged and implemented. Teacher emotions are closely interwoven with the process of curriculum change. Even before the implementation process begins, teachers already engaged with it at an emotional level. Emotions of excitement were experienced with thoughts of curriculum change. But, as teachers became familiar with the content of the new curriculum, this brought forth emotions of uneasiness and confusion. Then there were also a number of other emotions related to other aspects of the curriculum. Exasperation was felt towards the Department of Education for the limited help. Frustration was experienced with the waves of change because teachers now had to teach multiple curricula. Sadness was felt for the lack of resources since teachers were not able to develop their pupils holistically. Teachers were annoyed with the assessment tasks as these were new and different from the ones they were accustomed to and these were always changing. Lastly there were some positive emotions as teachers felt energised when they learnt new teaching strategies. Thus, many different emotions were expressed by the teachers; including both positive and negative. Although negative emotions are mainly experienced, there were also some positive ones as well. Therefore teachers did not only express positive or negative emotions but rather a mixture of both. These results give a new line of thinking to curriculum change. For contrary to the idea that curriculum change affects only teacher cognition and skills, this study provides evidence that teacher emotions are also part of the change process.

The findings also indicate that in order for teachers to cope with the emotions they experienced, they had to understand their pupils and colleagues on a different level. They had to understand them emotionally. In order to gain emotional understanding with their pupils, teachers put the needs of their pupils before their own. Teachers understood the role they played in moulding the young minds and preparing them for the future. They displayed a deep sense of care and passion for their pupils and used a variety of teaching strategies to cater for all abilities. This

is indicative that teachers had worked closely with their pupils and over time and understood their needs. Because teachers had developed close emotional bonds and thus close emotional understanding with their pupils, they used them as “emotional filters” as they planned their new teaching methods when changes in the curriculum were brought about.

Teachers had to also gain emotional understanding with their colleagues. Since this group of teachers shared a number of similarities with regard to professional qualifications and teaching experiences, it was easy for them to identify and empathise with their colleagues about the challenges that they faced. This enabled them to build close emotional bonds and emotional understanding with their colleagues which fostered collegial relationships. These collegial relationships helped to reduce the work load and stress of these teachers and assisted teachers to cope with the emotions that they experienced.

When looking at the influence of the emotions on teaching practices, it was found that teachers did not show their true feelings when they were in the presence of their pupils and colleagues, but they hid or masked their true feelings. In order to feel good when they taught Life Sciences, teachers adopted two strategies; they up-regulated their positive emotions and down played their negative ones. Furthermore, teacher emotions played a role in creating and negotiating an emotional tone in the class that was conducive for teaching and learning. The emotional tone was created by teachers using facial expression and humour but the maintenance of the emotional tone, was done by both teacher and pupils. The creation of a shared learning environment, involved pupils in the lesson and pupils became interested and excited. Teachers also used this opportunity to teach their pupils social skills and build not only on their intellect but on their emotions as well.

As teachers engaged in the above strategies, they had to hide their true feelings. This meant that they suppressed their true feelings and expressed only those that allowed for smooth interaction with their pupils and colleagues. Teachers had to engage in emotional labour.

As the findings were presented and analysed, I have attempted to link up the literature review and the conceptual framework.

The next chapter presents a discussion of the findings together with recommendations, areas for future research and finally drawing to an end with a conclusion.

CHAPTER 5

DISCUSSION, RECOMMENDATIONS AND CONCLUSION

5.1 INTRODUCTION

This journey of research has been long and rewarding and has now finally reached its conclusion. This study aimed to explore the manner in which the emotions of eight Life Sciences teachers are affected by on-going changes to the school curriculum. In closing this dissertation, there is a discussion of the qualitative data which was generated from semi structured interviews conducted with eight Life Sciences teachers, in an urban area of KwaZulu-Natal. The key findings which emerged in Chapter 4, are discussed and linked to the literature review and conceptual framework. This is followed by limitations of this study, the strength of this study, leading to the recommendations and then suggestions for further research. This dissertation finally draws to an end with concluding remarks.

The key research questions framing this study are:

1. What is the nature of the emotions that Life Sciences teachers experience as a result of ongoing curriculum changes?
2. How do Life Sciences teachers deal with their emotions experienced towards the ongoing curriculum changes?
3. To what extent do these emotions influence the teaching practice of these Life Sciences teachers?

In this study findings across the data indicate that in relation to the three main research questions, teacher emotions are embedded in curriculum changes, teachers and pupils need to share emotional understanding in order to promote science learning and teachers do not reveal their true feelings to their pupils, they hide their true feelings.

A discussion of the main findings of this study is reflected below.

5.2 MAIN FINDINGS OF THE STUDY

In this section, I discuss the research findings of this study which is organised according to the three research questions that this study sought to address. Hence, the main findings are organised around; teacher emotions are embedded in curriculum change, teachers and pupils need to share emotional understanding in order to promote science learning and teachers do not reveal their true feelings to their pupils, they hide their true feelings.

5.2.1 Teacher emotions are embedded in curriculum changes

Findings from the data revealed that teachers' emotions and feelings towards on-going curriculum changes can be placed on a continuum from positive to negative. Although many teachers spoke at length about the negative emotions associated with curriculum changes they also had some positive emotions to share.

Positive emotions of anticipation and excitement were experienced as teachers awaited changes to the curriculum on different occasions. Such feelings were first experienced when teachers awaited the incoming NCS (Grade 10-12), then when teachers awaited the change from NCS (Grade 10-12) to NCF (Grade 10-12) and the third such burst emerged when teachers awaited the change from NCF (Grade 10-12) to CAPS. Together with these positive outbursts for the arrival of each curriculum designs, teachers simultaneously experienced an ebb of these feelings, each time they understood and enacted the curriculum in their classrooms. As teachers worked through NCS (Grade 10-12) and NCF (Grade 10-12), they were baffled and perplexed with the new terminology and the content since they were not provided with clear guidelines. Furthermore, they had to deal with many policy documents and this was quite exasperating for them. With CAPS, although the content was specified and the policy documents were condensed into one concise document, teachers' experienced problems with their pacesetter, especially in the fourth term and the Programme of Assessment. Thus there was an oscillation of teachers' positive feelings of anticipation and excitement, as they eagerly

awaited changes but this slowly ebbed away and was replaced by negative feelings of disappointment and frustration as they faced the realities of each curriculum design.

Negative emotions of exasperation was experienced towards the Department of Education for the limited help that they provided during the change of each curriculum design. Each time there was a change in the curriculum design, policymakers and officials from the Department of Education, did not provide the majority of teachers with clear guidelines on the implementation process. This proved to be quite exasperating for these teachers.

More negative emotions were noted when teachers had to teach multiple curricula. Since changes to the curriculum emerged every three years in the periods between 2006 and 2012, it culminated in teachers sometimes having to teach two different designs in one year. Since teachers were not provided with clear guidelines on the content in NCS (Grade 10-12) and NCF (Grade 10-12), it was not an easy task for teachers to teach these two designs in one year, leaving them frustrated. Furthermore, the waves of change, proved to be demotivating and annoying for these teachers for it was felt that these changes disturbed their developmental process and stunted their academic growth.

Negative emotions also experienced when teachers did not have the correct resources for teaching Life Sciences. The teaching of Life Sciences is resource intensive, but many teachers taught with very few resources, making many teachers feel sad. Many teachers felt that the limited resources was a hindrance at achieving their goal of teaching Life Sciences as stipulated in the policy documents. This was especially evident when teachers found it difficult to administer the practical exam in Grades 10 and 11 which was an important part of the Programme of Assessment in CAPS. Furthermore, the large class sizes posed a challenge to the sharing of the limited resources and teachers' main resource which were their text books had a short life span and became obsolete as soon as a new curriculum design was introduced.

Another contentious factor for teachers was the assessment tasks that were introduced with the curriculum changes. Together with the vague guidelines about drawing up these tasks, the

tasks changed with the shuffling of topics between the curricula designs. Teachers experienced confusion with these tasks and it was a tiring and wearisome task to plan and design these tasks.

On the other hand, some teachers also responded positively towards these ongoing changes. Some teachers were of the opinion the teaching of NCS (Grade 10-12) was a learning experience, not only for the pupils but for them as well. As changes to the curriculum was brought about, teachers had to explore new teaching and assessment strategies. As teachers developed these new strategies, they found it to be an exciting, inspiring and stimulating experience. Thus positive emotions were also felt by some teachers towards these changes.

From the display of varying emotions from teachers, it can be deduced that teaching is an emotional practice. Denzin cited in Hargreaves, (2001) explains that an emotional practice is

an embedded practice that produces for the person, an expected or unexpected emotional alteration in the inner and outer streams of experience.....Emotional practices make people problematic objects to themselves. The emotional practice radiates through the person's body and streams of experience, giving emotional culmination to thoughts, feelings and action (p.838).

When teachers move from familiar and known territory to unfamiliar and unknown territory, this could be anything but a smooth and tranquil transformation. Often facing these changes can create an alteration in the inner world of teachers, giving rise to the expression of various feelings and emotions. This study has revealed that as Life Sciences teachers faced the changes in the curriculum, their inner world was affected in various ways by a number of different factors, culminating into various emotions, thoughts and action. As van Veen and Slegers (2006) suggests if teachers feel there is congruency with their professional orientations and the mandated reform agendas, they will react to the reform in a positive way, but if there is incongruency, they will react in a negative way. In this study, since negative emotions were largely evident, this implies that these changes were not in keeping with the teaching practices of these teachers. Although teachers did not explicitly mention the term vulnerability, the negative emotions they displayed conveyed a sense of loss and this made them feel vulnerable, reflective of the study by Kelchtermans (2005). Teachers also experienced a few positive emotions towards curriculum changes. Like the study carried out by Lee and Yin (2011), it

was difficult to place teachers' emotions as either positive or negative, because there was a mixture of both.

But, the key fact is not whether emotions are positive or negative, but that teacher emotions are part of the process of accepting and implementing curriculum change. The results point clearly towards teacher emotions being closely interwoven in the process of curriculum change, and contrary to the view that teacher emotions are not part of the change process, this study proves otherwise.

5.2.2 Emotional understanding promotes Life Sciences teaching

The findings of this study reveal that in order for teachers to cope with the emotions that they experienced towards ongoing curricular changes, there had to be a different level of understanding between teachers and pupils. Teachers and pupils had to build on emotional understanding, which helped teachers to cope with their emotions and assisted in promoting learning in Life Sciences.

A coping strategy for teachers that was evident from their responses, was for them to move to a different level of understanding with their pupils and colleagues. Teachers gained emotional understanding with both their pupils and colleagues. According to Denzin, cited in Hargreaves (2005) emotional understanding is an:

intersubjective process requiring that one person enter into the field of experience of another and experience for him/herself the same or similar experiences experienced by another. The subjective interpretation of another's emotional experience from one's own standpoint is central to emotional understanding. Shared and shareable emotionality lie at the core of what it means to understand and meaningfully enter in the emotional experiences of another (p. 968).

When dealing with their pupils, teachers entered into their field of experience and understood that they were the future leaders with young minds that needed to be moulded. They therefore

felt it was their duty to prepare and equip their pupils as future citizens of our society. They therefore made attempts to ensure that pupils of all abilities were catered for in their classes. The emotional understanding between teacher and pupil, dictated and energised teachers to move beyond their own emotions and feelings and towards their valued role of educating their pupils; to become social beings, both intellectually and emotionally.

Regarding their colleagues, teachers in this study, had similar experiences with curriculum changes, therefore they shared a similar field of experience. They shared common challenges and emotions. To cope with their feelings here, teachers worked closely with their colleagues as they carried out all the administrative duties of the curriculum they were faced with. In addition, teachers worked together when dealing with the assessment practices especially with the practical examinations. Emotional understanding and emotional bonds were shared and built between teachers of other departments within the same school and teachers from neighbouring schools, thus building on the foundation of successful teaching and learning.

5.2.3 Teachers hide their true feelings

In this study all participants revealed that although their emotions were affected in various ways by these ongoing changes to the curriculum, they did not allow these emotions to interfere with their teaching practices. To achieve this, these teachers engaged in emotional labour, which involved the management of their emotions, to ensure that their lesson was successfully delivered and there was smooth interaction with their pupils and colleagues.

Teachers engaged in emotional labour because they needed to feel good in order to teach Life Sciences. Teachers felt good when they experienced positive rather than negative emotions. To this end, it was found that in many instances, teachers up regulated their positive emotions since these feelings made them enthusiastic, excited and confident about lesson delivery. On the other hand, even though negative emotions were experienced, teachers attempted to down play these since they felt that the expression of such emotions could interfere with their relationship with their pupils and their colleagues. In the classroom, teachers did not divulge

their negative emotions, for they felt that their pupils would pick up on these and this could impact negatively on the teaching and learning process. When dealing with their colleagues, teachers' downplayed their negative emotions because they did not want to ruin their relationship with them.

Teachers also engaged in emotional labour as they created an emotional tone that was conducive to teaching and learning. Like Zembylas (2003) teachers agreed that the emotional tone in the classroom was necessary for the successful delivery of a lesson. To assist teachers in creating and maintaining such an emotional tone, they had to again suppress some of their emotions, especially the negative ones and express only those that would promote science learning and teaching in the classroom. Then to maintain the emotional tone for teaching and learning, teachers involved pupils in science activities and in various other duties. The performance of emotional labour is governed by emotional rules (Brown, 2011), but unlike other jobs, where emotional rules are stipulated, in teaching, these emotional rules are not clearly defined. Although the emotional rules were not stipulated, these came in the form of the professional ethics of teachers. Due to their professional requirements, of providing quality education to their pupils, teachers felt that it was their positive emotions that assisted to achieving this. Therefore on several occasions they attempted to maintain this positive atmosphere in their classroom.

Therefore, like the study by Yin and Lee (2012), it was found that teachers passionately commit to teaching, hide negative feelings, maintain positive emotions, and use vocal or gesture strategies to regulate emotional expressions in order to facilitate student learning. Thus these teachers too have engaged in emotional labour as they choose to suppress their negative feelings and display only their positive ones. This display of emotional labour is supported by Nias (1996) who suggested that the teacher emotions cannot be separate from the social and cultural forces that are found in teaching. Furthermore, although teachers experience their own individual feelings, especially negative ones, they modified these for the benefit of their pupils and successful teaching.

In summary, Hochschild (cited in Yin & Lee, 2012) defines emotion as:

an awareness of four elements usually experienced at the same time: appraisal of a situation, changes in bodily sensations, the free or inhibited display of expressive gestures and a cultural label applied to specific constellations of the first three elements (p.58).

The findings have shown that as teachers appraised curriculum changes, it brought about body sensations of various kinds, which could either be exhibited or inhibited, but according to the cultural norms of the teaching profession. When dealing with curriculum change these emotions are clearly evident through the inception and implementation of the curriculum. Teachers' emotional lives therefore play a key role through the change process, it assists them in their decisions on acceptance, implementation and navigation through these changes.

5.3 LIMITATIONS OF THE STUDY

I understand that there are a few limitations as far as this study is concerned.

Firstly, I found that the limited number of studies in this field of study, and especially within the South African context, to be challenging. This study may have been richer had there been input from other researchers, within the same context.

Secondly, there was a limitation with respect to the schools used in this study. This study was conducted in four secondary schools found in urban areas in the province of KwaZulu-Natal. These schools may have had unique features which may not be present in other schools, districts and provinces and therefore these findings reflect the emotions of teachers in a particular context. As a result, these findings cannot be generalised to other contexts as teaching contexts can differ. However, the aim here is not to generalise the findings, but to get a rich, in-depth understanding of the emotions that teachers experience as they encounter ongoing changes to the curriculum, within this context. This does not prevent readers from

extracting those elements of the findings that they find to be transferrable and extend these to other settings.

Thirdly, this research was carried out on a small scale with Life Sciences teachers who have been in the profession since 1994. In this study only two Life Sciences teachers from each of the schools were used as participants. This study may have been more saturated and eloquent if there was a larger sample of teachers and from different subjects. Also, the sample comprised a homogenous group of only those teachers that have been in the profession since 1994. It did not include teachers who had less than 20 years of teaching experience.

Fourthly, I had to be mindful that emotions are not easily observable and very personal and this proved to be quite challenging during data collection and data analysis. Elbaz-Luwisch (2007) contends that as narrative researchers we should be guarded against the “stage-managing of a Hollywood-style collaborative inquiry” (p. 364) in which teachers may have an interest in playing a role in a short period of time only. Therefore teachers may put up and act and say only what they wanted the researcher to hear. Also the experiences and thoughts of teachers were taken at face value and the results of this study may not be a true reflection of their feelings. Cognisance needs also to be taken that many teachers are not willing to talk freely about their emotions. Only those teachers that are articulate were willing to be participants. This could have given skewed findings.

5.4 STRENGTHS OF THE STUDY

In spite of the above mentioned limitations, this study does have a number of strengths as well.

Firstly, this qualitative study provided a platform for teachers to voice and express their emotions, a process which is often marginalised in educational studies. It was therefore a privilege to be able to motivate teachers and encourage them to talk about their emotions towards curriculum changes.

Secondly, during the interview, I was able to build an alliance of trust, rapport and sense of safety with the participants, which I felt was necessary since these participants were revealing their innermost feelings.

Thirdly, many of the participants later revealed that it was a therapeutic process to express and share their emotions openly. Many of the participants were glad they were given a platform on which to voice their opinion and expressed their eager anticipation to read this dissertation as they were curious to know what the other Life Sciences teachers felt about these changes and the coping strategies that they adopted.

Fourthly, the results of this study forms a knowledge base within the South African context and adds to the body of knowledge internationally. I trust that the findings are a true and correct representation of the feelings of the participants as this now serves as a springboard for further research in this field.

Lastly, this has personally been an all empowering learning experience for me. Researching and reflecting on the various factors especially the sensitive issues of emotions has culminated in personal growth of a great magnitude.

5.5 RECOMMENDATIONS FOR FUTURE CHANGES IN CURRICULUM

From the analysis and discussion of the findings in the above section, this study has motivated the following recommendations.

These findings have important implications for policy. Policymakers and officials in the Department of Education, are often preoccupied with restructuring the education landscape with a strong focus on knowledge and skills. This preoccupation causes them to underplay or

ignore the role of teacher emotions in any of these changes. However, this study reveals that teacher emotions provide a window into the inner world of teachers. This may be essential for understanding and analysing the emotional process that teachers go through in order to respond to these changes and why reforms are sometimes not implemented as planned.

Teacher emotions are affected by changes in the curriculum in various ways. Teachers are exasperated with the limited help from Department officials when changes are brought about. It would therefore be advisable that these Department officials, invest time and energy into making sure that all teachers are knowledgeable about the changes so that they are provided with the emotional support and made to understand how the new curriculum differs from the previous one they were accustomed to. In this way teachers are made to feel part of the change process and could become more accepting of the changes.

Secondly, teachers worked with limited resources, for teaching and assessment tasks and this again elicited negative responses. Department officials need to ensure that all Life Sciences teachers have the necessary resources so that their teaching practices and assessment tasks can be implemented as envisaged by policymakers.

Another important consideration with future changes in curriculum, is that policymakers understand the importance of promoting the establishment of support structures within schools and the community. Since many teachers rely on collaborating with their colleagues to empower themselves to cope with changes, the department of education should allocate time within the school day for these workshops to be carried out. In these small groups, teachers will have sufficient time to discuss changes, teach others and become familiar with the changes. Discussion of content, testing programmes and class activities can be carefully planned and developed. This investment of time and energy will ensure that teachers are knowledgeable about the expectations of the curriculum. Hopefully, this can help to eliminate emotions of uncertainty and frustration and at the same time encourage positive emotions which can energise teachers to try these new changes in their classrooms. These support structures can therefore help develop emotional understanding between teachers while at the same time empower them to adopt and implement changes successfully in their classrooms.

5.6 AREAS FOR FUTURE RESEARCH

I have carefully analysed and represented the emotions of these Life Sciences teachers. It is hoped that the findings of this study will make a valuable contribution to the field of study on teacher emotions to ongoing curriculum changes. Bearing in mind that this is a newly explored area of research in South Africa, it is therefore suggested that these results now paves the way for subsequent studies. A close examination of the findings and an examination of the strengths and limitations reveal that the field of teacher emotions is still wide open for new research.

In this study, the emotions of a small number of Life Sciences teachers was explored. It would make for interesting research if more extensive research was carried out over a larger number of teachers and also teachers of different subjects within the school curriculum.

This study indicates the results of teachers teaching in secondary schools and in urban areas. It would also be worthy to study teachers teaching in primary schools and also teachers from schools in different areas (including rural schools), districts and provinces.

Another field of study that may prove beneficial would be gender issues regarding emotions. Although Hargreaves (1998) study has shown that there are no great emotional differences between male and female teachers, this study were carried out more than a decade ago, in a different context. It would be interesting to find out if this if this conclusion is still applicable and if it exists within the South African context. Although this study included a sample of males and females, it did not focus on differences in male and female emotions. Thus a comparative study of male and female emotional orientation may prove beneficial as it may help to determine whether males and females respond differently to changes, within the South African context.

It may also be valuable to conduct research on the influence of teaching experience and teacher qualifications on their feelings and emotions towards curriculum changes. In his study, Hargreaves (2005) has shown that age and career stage can affect teachers' responses to

curriculum changes. In this study, all teachers had an excess of 20 years of teaching experience and were suitably qualified. It will therefore make for interesting research if a comparative study was carried out on teachers with different numbers of years of teaching experience and of different qualifications.

Teacher emotions are affected by both negative and positive emotions. In this study, only the positive aspects were capitalised on. The teachers suppressed or modified their negative experiences for the benefit of the pupils. But emotions are integral parts of all humans and it culminates into thoughts, feelings and actions. It would therefore be worthwhile to explore how teachers are personally cope with the negative emotions that they experience during these changes.

5.7 CONCLUSION

In concluding this all empowering journey, I claim that in this study, the concept of teacher emotions to curriculum changes has been explored as thoroughly as I possibly could. Although this study found that teachers experienced many difficulties during the implementation and this evoked many acute, negative emotions, they did not allow these emotions to interfere with their teaching. They put aside their own feelings, so that they could provide quality education to their pupils. This display of acceptable emotions shows clearly that when teachers are faced with changes, it causes changes within them culminating in certain emotions, but the display of these emotions are in accordance with the culture of teaching where teachers exhibit mainly positive emotions because they care for their pupils. It also becomes evident that teachers' personal emotions are often changed to suit the needs of their job. So, the unique sense of self that every teacher, has is socially grounded.

The analysis of the results show that teaching is not only based on cognition but is an emotional practice with emotions affecting many different aspects of teachers' personal and professional lives. Teaching also involves significant emotional understanding and emotional labour. Teacher emotions interact with their job in many ways and in times of curriculum change, these

emotions surface more strongly. But, teachers keep their focus on their pupils. Their emotional connection with their pupil kept them energised and guided their emotions that they experienced. They made attempts to cope with their own emotions and not let it influence their job. They worked hard at establishing emotional understanding which was important in the Life Sciences classroom, where interesting and exciting lessons promoted greater understanding of Life Sciences. Teachers also engage in emotional labour which allows them to display some emotions but suppress others. Teachers made a concerted effort to reduce the effect of negative emotions but increase the effect of positive emotions, for successful academic teaching. Therefore teaching is not only concerned with the transmission of knowledge, but it involves emotions as well.

These findings have important implications for policy. Curriculum changes are imposed upon teachers with very little significance attached to the way teachers feel about these changes, yet teachers' emotions are part of the process of accepting and implementing changes. Each teacher works within his/her own context and this can affect the emotions that are felt. Since teacher emotions are inextricably linked to curriculum changes, a knowledge of the different aspects that evoke different emotions within teachers may be useful to policymakers. If teacher emotions are acknowledged in this manner, better emotional understanding can develop between teachers and policymakers. Policymakers can then invest more energy and time in making sure that teachers are knowledgeable about these changes, and have the necessary resources to implement these changes. Communication between teachers and policymakers may help resolve the difficulties that teachers experience with implementation. Assuming that the quality of education largely depends on the manner in which teachers accept and implement changes, it is therefore imperative that cognisance be taken of teachers' emotions thus affecting the process of implementation and the sustenance of reform efforts.

It is hoped that this research will contribute to the growing wealth of knowledge on teacher emotions internationally and help build a knowledge base in South Africa. From the small number of studies available in this field especially in South Africa, it is obvious that this field is under researched and marginalised. I hope that I have shown that research in teacher emotions to curriculum change is a worthwhile enterprise. I hope I have been able to show that the curriculum changes are grounded in teachers' emotional arena. It is necessary for the

literature on curriculum change and teacher emotions to talk to each other since it has been shown that emotions are not at the periphery but rather at the centre of the change process.

Upon nearing an end to this journey I would like to echo the wise words of influential writers Hargreaves and Zembylas. Hargreaves (1998) contends that teaching cannot be reduced to technical competence but it involves significant emotional understanding and emotional labour as well. Zembylas (2004) asserts that when the emotional aspects of science teaching and science teacher development are considered seriously, it is safe to say that what is at stake in science teacher education and science curriculum reform and how best to enrich them, will never look the same again. I therefore draw this dissertation to a close with the suggestion that emotions are an integral part of all humans and have to be treated with care. Teachers are humans too and they are not devoid of emotions. Teacher emotions are inextricably bound to their general purpose of teaching. In times of educational change, teacher emotions need to be acknowledged as well. It is anticipated that if teacher emotions are acknowledged or even accorded equal status to cognition and knowledge; then changes in teachers' working environment will be embraced more willingly.

Finally, the central role of emotions in curriculum reform can no longer be ignored, but it must be acknowledged that teacher emotions are not peripheral but central to curriculum change. If teacher emotions are acknowledged in the change process, then perhaps curriculum changes have a greater chance of being successfully implemented and sustained. Without these we can expect little change in the classroom level where it inevitably matters the most.

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APPENDIX A

INTERVIEW SCHEDULE

1. What is your teaching qualification?
2. Where did you study for your qualification?
3. When did you start your teaching career?
4. At which school did you start teaching?
5. How long are you teaching at your present school?
6. What grades do you teach?
7. For how long have you been teaching these grades?
8. How do you feel about teaching a new curriculum every third year?
9. What are your greatest concerns about these rapid changes?
10. Describe particular areas in the new curriculum that elicited positive responses/emotions.
11. Describe particular areas in the new curriculum that elicited negative emotions.
12. What positive emotions did you actually experience? Give a brief description why you felt these emotions.
13. What negative emotions did you actually experience? Give a brief description why you felt these emotions.
14. How many curriculum changes did you experience during your years of teaching?
15. How did you feel about teaching two different curricular in a given year. Why?
16. What aspect of curriculum change was most emotional for you?
17. What emotions do you actually experience when you teach different curricula?
18. How do you manage these emotions?
19. Why do you think there is a need for you to manage these emotions?
20. Does your emotional state affect your relationship with colleagues and/or family members?
21. If yes, how?
22. How would you describe a capable teacher?
23. What do you think constitutes good teaching?

APPENDIX B



Application for Permission to Conduct Research in KwaZulu Natal Department of Education Institutions

1. Applicants Details

Title: Prof / Dr / Rev / Mr / Mrs / Miss / Ms

Surname: NUNDKOOMAR

Name(s) Of Applicant(s): MALA DEVI

Email: MNUNDKOOMAR@GMAIL.COM

Tel No: 033-3304532

Fax: 033 3911231

Cell: 0795149875

Postal Address: 2 DALE ROAD, HOWICK WEST

2. Proposed Research Title: An exploration of how ongoing curriculum changes affect the emotions of Life Sciences teachers

3. Is the proposed research part of a tertiary qualification?

Yes	No
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If "yes"

Name of tertiary institution: University of KwaZulu - Natal

Faculty and or School: College of Humanities – School of Human and Social Sciences

Qualification: Masters in Education

Name of Supervisor: Dr N. Mthiyane

Supervisors Signature _____

Mrs J. Naidoo

Supervisors signature _____

If "no", state purpose of research:

5. Briefly state the Research Background

In South Africa, important efforts are being made to create a democratic society free of the unjust and racially offensive apartheid system. Education and the curriculum have important roles to play in attaining a democratic society, but the pursuit of social justice has resulted in repeated revisions of the curriculum. Soon after the democratic elections, the Interim Core Syllabus (ICS) was implemented in secondary schools, in South Africa. At present, the curriculum for teaching and learning in all secondary schools, is the National Curriculum Statement (NCS), (Department of Basic Education, 2008). This curriculum was first implemented in Grade 10 in 2006, but has since undergone repeated changes. NCS, was amended and replaced by the New Content Framework (NCF) in 2009 (Department of Education, 2007) which was again revised and replaced by the Curriculum and Assessment Policy Statement (CAPS) in 2012 (Department of Basic Education, 2011). It is thus evident that since 1996, curriculum has undergone a number of changes and new designs were handed down to teachers to be implemented in their classroom. Looking at Life Sciences in particular, changes in content, pedagogy and assessment was accompanied by demands for resources which in many cases are not easily available or accessible to teachers. Although studies have been carried out on the success or failure of the implementation of the different curriculum designs, not much is known about how the changes have affected the emotions of these teachers. Thus, the focus of this study will be to gain a deeper understanding of how curriculum changes between 1996 and 2013 have affected the emotions of South African teachers, teaching Life Sciences.

6. What is the main research question(s) :

1. How are teacher emotions affected by ongoing curriculum changes in Life Sciences?

The sub question that will assist in gathering data to answer this question will be:-

- What emotions do teachers experience as a result of ongoing curriculum changes?

2. How do teachers manage the emotions that they experience?

3. To what extent do these emotions influence teachers' teaching practices?

The two sub questions that will assist in gathering data to answer this question will be:-

- How do teacher emotions influence their teaching in the classroom?
- How do teacher emotions influence their relationship with significant others?

7. Methodology including sampling procedures and the people to be included in the sample:

This study will adopt a qualitative approach and the research Methodology to be used will be narrative inquiry. This method involves people telling stories about their experiences, and learning takes place from these stories.

For this study, the research sample will be 8 teachers who are teaching Life Sciences in four secondary schools in Pietermaritzburg, Kwa-Zulu Natal. These teachers must have been in the profession prior to 2006 but they must be presently teaching Life Sciences to Grade 10, 11 and 12. If these criteria are met, it would ensure that the sample of teachers :-

- a) have taught the curriculum prior to the NCS
- b) are presently teaching CAPS in Grade 10
- c) have experienced the changes in the curriculum since 2006
- d) are currently teaching different curricula to the different grades in the FET band.

8. What contribution will the proposed study make to the education, health, safety, welfare of the learners and to the education system as a whole?:

It is hoped that the findings of the study will show how ongoing curriculum changes affect the emotions of Life Sciences teachers and how this then impacts on their teaching in the classroom. In this way, teachers' voices can be heard on important aspects such as curriculum changes. These findings may also be of assistance to the Education Department, especially when changes are made to the curriculum.

9. Research data collection instruments: *(Note: a list and only a brief description is required here - the actual instruments must be attached):* Semi – structured interviews

The initial questions will require responses about biographical or background information about participants.

The open ended questions will allow participants to speak about the emotions that they have experienced, thereby allowing the researcher to ask probing questions so that rich, qualitative data can be collected for this study.

10. Procedure for obtaining consent of participants and where appropriate parents or guardians:

Letters to be given to school principals,
Letters to be given to teacher participants

11. Procedure to maintain confidentiality (if applicable):

Names of schools and teachers will be changes to protect the confidentiality of those involved in the study

All information pertaining to the participants will remain the property of the researcher and not be used for any other purpose except for the purpose of this study.

Participants will be informed that :-

- Their participation in this research study is entirely voluntary
- All information provided will be treated as strictly confidential
- Their anonymity will be protected
- They are free to withdraw anytime from participating in the research
- They may refuse to answer any questions or perform any tasks

Their withdrawal will not result in any form of disadvantage

12. Questions or issues with the potential to be intrusive, upsetting or incriminating to participants (if applicable)

Questions dealing with teacher emotions may be upsetting and unlock a flood of emotions. Participants may experience a range of feelings and emotions during and after the interview.

13. Additional support available to participants in the event of disturbance resulting from intrusive questions or issues (if applicable):

Researcher will make every attempt to be empathetic and supportive of participants. Should the need arise, participants will be advised to seek counselling.

14. Research Timelines : two months for data collection

One month for data analysis.

15. Declaration

I hereby agree to comply with the relevant ethical conduct to ensure that participants' privacy and the confidentiality of records and other critical information.

I, Mala Nundkoomar, declare that the above information is true and correct

Signature of Applicant

Date**16. Agreement to provide and to grant the KwaZulu Natal Department of Education the right to publish a summary of the report.**

I/We agree to provide the KwaZulu Natal Department of Education with a copy of any report or dissertation written on the basis of information gained through the research activities described in this application.

I/We grant the KwaZulu Natal Department of Education the right to publish an edited summary of this report or dissertation using the print or electronic media.

Signature of Applicant(s)

Date

Return a completed form to:

Sibusiso Alwar

The Research Unit; Resource Planning; KwaZulu Natal Department of Education

Hand Delivered:

Office G25; 188 Pietermaritz Street; Pietermaritzburg; 3201

Or

Ordinary Mail

Private Bag X9137; Pietermaritzburg; 3200

Or

Email

sibusiso.alwar@kzndoe.gov.za

KZN Department of Education Schools or Institutions from which sample will be drawn – If the list is long please attach at the end of the form

Haythorne Secondary School		
Eastwood Secondary School		
Dunveria Secondary School		
Ester Payne Smith Secondary School		

APPENDIX C

Letter to school principal

The Principal

I, Maladevi Nundkoomar, have requested permission from the Provincial Department of Education and the School Principal to conduct a research project at your school as part of my Master in Education (MED). My research project aims to explore how the on-going curriculum changes affect the emotions of Life Sciences teachers. I am sure you are aware that the curriculum for Grade 10, 11 and 12 has undergone numerous changes since 2006. This has resulted in Life Science teachers teaching a new curriculum to these grades every third year since 2006. It is hoped that information from this research study will make teachers more aware that in addition to their intellect, their emotional dimension towards changes in the curriculum is also important. This study may also assist the Education Department to provide better support for Life Sciences teachers when changes are brought about to the curriculum.

PROJECT TITLE: AN EXPLORATION OF HOW ON-GOING CURRICULUM CHANGES AFFECT THE EMOTIONS OF LIFE SCIENCES TEACHERS.

In order to access information on teachers' emotions, I will be asking Life Sciences teachers in your school, to participate in a semi-structured interview. The estimated total time of their involvement should be a maximum of two months. I hereby request your permission to use the Life Sciences teachers in your school as participants in the study.

If you would like to consider this request, and if the purpose and nature of the research are clear to you, please read and complete the declaration below. This study is being conducted with the permission of the Provincial Department of Education and my supervisors, Dr N. Mthiyane and Mrs J. Naidoo at the School of Education and Development, Faculty of Education.

Thanking you in anticipation.

Yours sincerely,

_____	_____	_____
Ms Mala Nundkoomar	Dr Nonhlahla Mthiyane	Mrs J. Naidoo
(Researcher)	(Supervisor)	(Supervisor)
Tel: 033-3304523 (home)	Tel: 0332605867	Tel : 033260567
033-3915981 (work)		

Declaration by Principal

I _____ (full name of principal) hereby confirm that I understand the purpose and nature of this research project, and I consent to allow the Life Sciences teachers to participate in this research project.

_____	_____	
Signature of Principal	Date	
_____	_____	_____
Ms Mala Nundkoomar	Dr Nonhlahla Mthiyane	Mrs J. Naidoo
(Researcher)	(Supervisor)	(Supervisor)
Tel: 033-3304523 (home)	Tel: 0332605867	Tel: 0332605867
033-3915981 (work)		

APPENDIX D

Letter to teacher participant

Dear colleague

I, Maladevi Nundkoomar, have requested permission from the Provincial Department of Education and the School Principal to conduct a research project at your school as part of my Master in Education (MED). My research project aims to explore how the on-going curriculum changes affect the emotions of Life Sciences teachers. I am sure you are aware that the curriculum for Grade 10, 11 and 12 has undergone numerous changes since 2006. This has resulted in Life Science teachers teaching a new curriculum design to these grades every third year since 2006. It is hoped that information from this research study will make teachers more aware that in addition to their intellect, their emotional dimension towards changes in the curriculum is also important. This study may also assist the Education Department to provide better support for Life Sciences teachers when changes are brought about to the curriculum.

PROJECT TITLE: AN EXPLORATION OF HOW ON-GOING CURRICULUM CHANGES AFFECT THE EMOTIONS OF LIFE SCIENCES TEACHERS.

In order to access information on teachers' emotions, I will be asking you, as a participant, to participate in a semi-structured interview. The estimated total time of your involvement should be a maximum of two months. I assure you that any written or audio recordings collected from this research project will only be used for my MED, and will only be used for other purposes after I have obtained permission from you, as a participant. I wish to emphasize the following points: your participation in this research study is entirely voluntary, all information you provide will be treated as strictly confidential, your anonymity will be protected and that you are free to withdraw, at any time, from participating in the research or refuse to answer questions or perform tasks. Your withdrawal will not result in any form of disadvantage. I hereby request your permission to participate in the study.

If you would like to consider this request, and if the purpose and nature of the research are clear to you, please read and complete the declaration below. This study is being conducted with the permission of the Provincial Department of Education, the Principal and my

supervisors, Dr N. Mthiyane and Mrs J. Naidoo at the School of Education and Development, Faculty of Education.

Thanking you in anticipation.

Yours sincerely,

Ms Mala Nundkoomar

(Researcher)

Tel: 033-3304523 (home)

033-3915981 (work)

Dr Nonhlahla Mthiyane

(Supervisor)

Tel: 0332605867

Mrs J. Naidoo

(Supervisor)

Tel : 033260567

Declaration by Teacher

I _____ (full name of participant) hereby confirm that I understand the purpose and nature of this research project, and I consent to participating in this research project.

I understand that I my participation is voluntary, all information I give will be treated confidentially, my anonymity will be protected, that I am at liberty to withdraw from the research project at any time, should I so desire. I understand that my decision to withdraw or not to participate will not result in any form of disadvantage. I am willing to participate in the semi structured interview. I hereby grant permission for the data to be audio taped and the collected data to be used as part of the analysis.

Signature of Participant

Date

Ms Mala Nundkoomar

(Researcher)

Tel: 033-3304523 (home)

033-3915981 (work)

Dr Nonhlahla Mthiyane

(Supervisor)

Tel: 0332605867

Mrs J. Naidoo

(Supervisor)

Tel: 0332605867

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Masters 2 by Maladevi Nunkoomar

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13 February 2014

Mrs Maladevi Nundkoomar (852858373)
School of Education
Edgewood Campus

Protocol reference number: HSS/1512/013M

Project title: An exploration of how ongoing curriculum changes affect the emotions of Life Sciences teachers

Dear Mr Nundkoomar,

Full Approval – Expedited

In response to your application dated 27 November 2013, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol have been granted **FULL APPROVAL**.

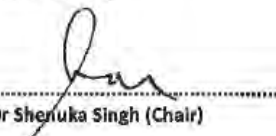
Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number.

Please note: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully



Dr Shenuka Singh (Chair)

/ms

Cc Supervisors: Dr N Mthiyane and Mrs J Naidoo
cc Academic Leader Research: Dr MN Davids
cc School Administrator: Mr Thoba Mthembu

Humanities & Social Sciences Research Ethics Committee

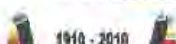
Dr Shenuka Singh (Chair)

Westville Campus, Govan Mbeki Building






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