

# **Are Teachers Lifelong Learners?**

**A case study of informal learning in a suburban high school**

by

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## DECLARATION

I, Kamandhree Thaver declare that:

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## ABSTRACT

Internationally, there is a growing body of research that focuses on teachers' informal learning. However, there is very little research in South Africa on informal learning and most research focuses on formal professional development initiatives. The purpose of this study is to address the gap in South African literature on the contemporary educational phenomenon of informal teacher learning. The study aims to investigate how teachers learn informally at school. The key research questions, 1. *What do the selected teachers understand by the concept teacher learning?* 2. *In what ways do teachers learn informally at school?* 3. *What kinds of knowledge do teachers learn informally at school?* were used to frame the study. The body of literature surveyed for this study makes reference to the variety of ways teachers learn informally in school and the benefits derived from this alternative form of learning. In South Africa, studies undertaken by Abrahams (1997) and Graven (2004) seem to suggest that there is some kind of support for collaboration and communities of practice as models of teacher learning. This study was conducted with a group of five teachers, both novice and experienced at a suburban government girls' high school in Kwa-Zulu Natal. The study used the exploratory, descriptive style of case study methodology where the case is teacher learning in a high school. It was designed to unfold in four different stages and a data collection instrument specific to each stage was used to generate the necessary data: Journals (Stage 1), Photographs (Stage 2), Photovoice (Stage 3).

The data were analysed in three steps: (1) Identifying patterns and themes emerging from the interview transcripts and journal entries. (2) Content analysis to give a rich, textured description of all the details of the participants' experiences and reflections through the narrative written about each participant. (3) A deeper analysis then followed linking data to literature by looking across narratives of the five participants for what was similar or different about *what* knowledges they learnt and in *what ways* they learnt these knowledges. Some of the key findings indicate that these participants are self-motivated and that each of them took the initiative in an individual capacity to engage in informal teacher learning to either enhance or develop their content knowledge, pedagogic knowledge, pedagogic content knowledge or contextual knowledge. They learnt these knowledges by engaging in either individual learning (planned or unplanned) or social learning (planned or unplanned) from or with colleagues.

## DEDICATION

To

My Adorable Children:

**Daivyan, Kailen and Jahnavi**, your inquiring minds continue to amaze me. May this small contribution to the field of teacher learning encourage you to be lifelong learners in whichever field you choose to follow.

To

**Kass**

My Beloved Husband

Your quiet and steadfast encouragement makes it possible for me to be a lifelong learner. Thank You.

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## TABLE OF CONTENTS

DECLARATION.....	i
ABSTRACT .....	ii
DEDICATION .....	iii
ACKNOWLEDGEMENTS .....	iv
Chapter 1: Introduction .....	2
1.1 Introduction .....	2
1.2 Purpose and Rationale .....	2
1.3 Key Research Questions .....	3
1.4 Overview of the Chapters of the Thesis .....	3
1.4.1 Chapter 2: Literature Review.....	3
1.4.2 Chapter 3: Methodology .....	3
1.4.3 Chapter 4: Theoretical and Conceptual Frameworks .....	4
1.4.4 Chapter 5: Narratives .....	4
1.4.5 Chapter 6: Discussion and Conclusion .....	4
Chapter 2: Literature Review .....	5
2.1 Introduction .....	5
2.2 Professional Development .....	6
2.2.1 Definitions of Professional Development.....	7
2.2.2 Principles Underpinning Professional Development.....	8
2.2.3 Models of Professional Development.....	9
2.3. Teacher Learning.....	13
2.3.1 Defining Teacher Learning .....	13
2.4 Forms of Teacher Learning.....	14
2.4.1 Formal Learning .....	14
2.4.2 Informal Learning .....	15
2.4.3 Reid's Quadrants of Teacher Learning .....	15
2.5 Taxonomy of Teacher Knowledge .....	17
2.6 Types of Teacher Knowledge .....	18
2.6.1 Propositional Knowledge.....	19
2.6.2 Procedural Knowledge .....	19
2.7 Some of The Ways Teachers Learn .....	19
2.8 Models of School-based Teacher Learning .....	23

2.8.1	Collaboration and Learning Communities .....	23
2.8.2	Professional Learning Communities (PLC) .....	26
2.8.3	The Teacher Lounge and Professional Knowledge Sharing .....	28
2.8.3.1	Interactive Professionalism.....	29
2.8.3.2	The Beehive Activity Model .....	29
2.9	Conclusion .....	30
Chapter 3: Research Methodology .....		31
3.1	Introduction .....	31
3.2	Research Paradigm .....	31
3.3	Methodology .....	31
3.4	Key Research Questions .....	33
3.5	Access and Location of the Study .....	34
3.6	Sampling.....	35
3.7	Research Instruments.....	37
3.7.1	Journals (Stage 1).....	37
3.7.2	Photographs (Stage 2).....	39
3.7.3	Photovoice (Stage 3).....	40
3.8	Design Limitations .....	42
3.9	Trustworthiness .....	43
3.10	Ethical Issues.....	43
Chapter 4: Theoretical and Conceptual Frameworks .....		44
4.1	Introduction .....	44
4.2	Socio-Cultural Theoretical Framework.....	44
4.3	Grossman's Conceptual Framework of Teacher Knowledges .....	47
4.3.1	General Pedagogic Knowledge (PK).....	49
4.3.2	Subject Matter Knowledge (Content Knowledge).....	49
4.3.3	Pedagogic Content Knowledge (PCK) .....	49
4.3.4	Knowledge of Context .....	50
4.4	Grossman's Conceptual Framework of Teacher Knowledge .....	50
4.5	Defining the Concepts used in the Study .....	51
4.5.1	Informal Learning .....	51
4.5.2	Formal Learning .....	51
4.5.3	Activities that Result in Learning Informally.....	51

4.6 Kwakman's Concept of how Teachers Learn.....	52
4.6.1 Individual Unplanned Learning (Quadrant 1) .....	52
4.6.2 Individual Planned Learning (Quadrant 2).....	52
4.6.3 Unplanned Social Learning (Quadrant 3).....	53
4.6.4 Planned Social Learning (Quadrant 4).....	53
4.7 The Quadrants of Informal Teacher Learning .....	54
4.8 Conclusion .....	55
Chapter 5: Narratives .....	56
5.1 Introduction .....	56
5.2 Sharon – The Experienced Physical Sciences Teacher .....	56
5.3 Soreta – The Experienced CAT Teacher.....	67
5.4 Michelle – The Novice Life Orientation and Technology Teacher.....	81
5.5 Kelly – The Experienced Language Teacher and Subject Head.....	93
5.6 Terry – The Novice Mathematics and Maths Literacy Teacher.....	105
5.7 Conclusion .....	114
Chapter 6: Discussion and Conclusion ...	115
6.1 Introduction .....	115
6.2 Research Question 1: What do the selected teachers understand by the concept teacher learning?.....	115
6.3 Research Question 2: What kinds of knowledge do teachers learn informally at school? .....	117
6.3.1 Types of Knowledges Learnt.....	118
6.3.2 Conclusion .....	122
6.4 Research Question 3: In what ways do teachers learn? .....	123
6.4.1 Learning through Group Activities .....	125
6.4.1.1 Formal Group Activities - Subject Committee Meetings .....	125
6.4.1.2 Informal Group Activities - Staffroom Tea Time Chats .....	127
6.4.2 Learning by Working Alongside Each Other .....	129
6.4.3 Individual Learning with Resources.....	130
6.4.4 Conclusion .....	131
6.5 Significance of the Study .....	131
6.6. Conclusion .....	134



References.....	135
Annexure A: Ethical Clearance Certificate .....	139
Annexure B: Letter to Principal.....	140
Annexure C1: Letter to Participants.....	141
Annexure C2: Informed Consent Document.....	142
Annexure C3: Data Collection Instruments and Time Frames .....	143
Annexure D1: Journal Entry 1 .....	144
Annexure D2: Journal Entry 2 .....	145
Annexure D3: Journal Entry 3 .....	146
Annexure D3.1: Sharon’s Journal Entry 3 .....	147
Annexure D4: Journal Entry 4 .....	151
Annexure D4.1: Soreta’s Journal Entry 4 .....	152
Annexure D5: Journal Entry 5 .....	154
Annexure D6: Journal Entry 6 .....	155
Annexure D7: Journal Entry 7 .....	156
Annexure D8: Journal Entry 8 .....	157
Annexure D9: Journal Entry 9 .....	158
Annexure E: Photovoice Letter to Participants .....	159
Annexure E1: Excerpt from Sharon’s Interview Transcript .....	160

## **LIST OF FIGURES**

Figure 1: Reid's (2005) Quadrants of Teacher Learning with Examples	15
Figure 2: Professional Life Phases of Teachers (Day and Gu, 2007)	20
Figure 3: School Management Organogram	34
Figure 4: Biographical Details of the Participants	36
Figure 5: Data Collection Schedule	37
Figure 6: A Comparison of the Cognitive Perspective and the Socio-cultural perspective on teacher learning (Kelly, 2006)	46
Figure 7: A Diagrammatic Representation of Grossman's (1990) Conceptual Framework of Teacher Knowledge	50
Figure 8: The Quadrants of Informal Teacher Learning with Examples -	54
Figure 9: Sharon's Style of Informal Learning	66
Figure 10: Soreta's Style of Informal Learning	80
Figure 11: Michelle's Style of Informal Learning	92
Figure 12: Kelly's Style of Informal Learning	104
Figure 13: Terry's Style of Informal Learning	113
Figure 14: The Participants' Styles of Informal Learning	124

# Chapter 1: Introduction

## 1.1 Introduction

Teachers in South Africa, post 1994, have seven roles to fulfill – one of which is to be a lifelong learner (Government Gazette, No. 29832, 26 April 2007). Teachers, generally, are required to equip their learners with knowledge and skills so that they are able to confidently take their places in a global society and engage in lifelong learning. To do this effectively, teachers are expected to engage in professional development initiatives as well as take the lead in and model the process of continuous learning for their learners. This chapter describes the purpose and rationale of the study. It introduces the key research questions and offers a brief overview of what each chapter in the thesis entails.

## 1.2 Purpose and Rationale

Policy-makers in South Africa accept that teachers should keep abreast with and learn from the latest trends in educational matters through professional development initiatives outside the school. The workshop style professional development initiative is the method adopted by the authorities in education and yet teachers have for the most part responded negatively to such workshops. While stakeholders in education fail to acknowledge the value opportunities to learn within the school environment offer the South African teacher, there seems to be a shift in mind-set according to the new policy document – The Integrated Strategic Planning Framework for Teacher Education and Development, referred to as the „Plan’ from here on. Contemporary research from the British and US education contexts indicates that authentic opportunities to learn informally from and with colleagues *inside* the school present themselves regularly and are viewed as important, alternative ways to engage in learning by authorities in the field of teacher learning (Lieberman 1995, Knight 2000, Kwakman 2003, Shulman 2004). Perhaps the South African organisers and drivers of professional development workshops and courses are not always aware of the value attached to teachers learning from and with each other within the school environment. It is against this backdrop that the purpose of this study was developed. I am interested in teacher learning and I wanted to investigate how novice and experienced teachers learn informally in a high school. The study was conducted with novice and experienced teachers at a government girls’ suburban high school in Kwa-Zulu Natal.

## **1.3 Key Research Questions**

The following research questions were identified as being essential in refining and sustaining the focus of the study:

1. What do the selected teachers understand by the concept teacher learning?
2. In what ways do teachers learn informally at school?
3. What kinds of knowledge do teachers learn informally at school?

It also seemed probable that the findings from this research could be useful:

- To teachers who would be interested in engaging in informal learning, yet lack the confidence to engage in this form of learning.
- In encouraging principals and school management teams to support opportunities for informal learning initiatives to take place and create the environment where informal learning can flourish.

## **1.4 Overview of the Chapters of the Thesis**

### **1.4.1 Chapter 2: Literature Review**

The scope of the literature selected for this study includes national and international sources - mainly from the British and US educational contexts. Journal articles and chapters from books have been used and these sources provide the basis for discussion of the topic. The key concepts that were reviewed are professional development, teacher learning, teacher knowledges and the various models of teacher learning.

### **1.4.2 Chapter 3: Methodology**

This is a qualitative, empirical research study and it investigated a contemporary educational phenomenon of informal teacher learning by using the exploratory, descriptive style of case study methodology. The study falls into the interpretivist paradigm and was approached from a socio-cultural perspective on learning.

The study took place at my own school which is the real-life working context of the participants. The unit of analysis is a group of five teachers, both novice and experienced.

The study was designed to unfold in 3 different stages and a data collection instrument specifically designed for each stage was used to generate the necessary data.

### **1.4.3 Chapter 4: Theoretical and Conceptual Frameworks**

This study is informed by the principles that underpin the socio-cultural perspective on teacher learning (Kelly, 2006).

The study also used Grossman's (1990) model of teacher knowledge to describe the types of teacher knowledge the participants learnt and continue to develop and it draws on the work of Reid (2005) (as cited in Fraser et al., 2007) and Kwakman (2003) to examine the ways teachers learn informally. A new quadrant of teacher learning was created by adapting Reid's (2005) quadrants of teacher learning and Kwakman's (2003) views of how teachers learn to analyse the data.

### **1.4.4 Chapter 5: Narratives**

A narrative account was written for each participant to describe in detail what knowledges were learnt, the spaces where these knowledges were learnt, the ways in which these knowledges were learnt and from whom the knowledges were learnt.

### **1.4.5 Chapter 6: Discussion and Conclusion**

This chapter is the synthesis of the data analysis and the findings that emerged. It also describes the significance of the study in the broader South African education context.

The next chapter, Chapter 2 discusses the literature reviewed for the study.

## Chapter 2: Literature Review

### 2.1 Introduction

Generally among education stakeholders there is consensus that teachers need to enhance their knowledge and skills, not necessarily their qualifications, in order to deliver their revised curricula successfully. This is because many education systems are being transformed and the South African education system is one such example of this transformation. One of the many consequences of the current reform trends in education systems is the demand for improved, high standards and quality education for the learner. Teachers and stakeholders involved in education have the mammoth responsibility to deliver the new improved, curricula efficiently and effectively. Ironically, researchers in the field of teacher development and teacher learning (Lieberman, 1995, Lieberman and Pointer Mace, 2008, Henze et al., 2009), have discovered that while learners are expected to work within these new, improved curricula, their teachers too, would need something innovative to help them deliver the new curriculum effectively.

In South Africa, teachers are still being introduced and reintroduced to modifications in the National Curriculum which specifies the policy on curriculum and assessment in the schooling sector from Grades R – 12. In order to improve on its implementation, the National Curriculum Statement was amended. A single comprehensive Curriculum and Assessment Policy document (CAPS) was developed for each subject in Grades R - 12. The amendments are set to come into effect in January 2012 for the Foundation Phase and Grade 10.

The introduction of the Curriculum Assessment Policy Statements (CAPS) will replace the National Curriculum Statement policy (NSC) and it is designed to unfold in the different phases in the school education system at different times. What this means is that there is now a single, yet comprehensive National Curriculum and Assessment policy for each subject that will replace Subject Statements, Learning Programme Guidelines and Subject Assessment Guidelines in Grades R - 12. The CAPS policy document specifies the content topics and the knowledges and skills which are to be developed in the learner. Consequently, it will become mandatory for all South African teachers to attend professional development initiatives *outside* the school in order to learn, update and improve their skills and knowledge base so as to deliver the new CAPS curriculum successfully.

Authentic opportunities to learn informally from and with colleagues *inside* the school, present themselves regularly, however, those authorities who advocate the more traditional formal, workshop style of learning, do not always acknowledge the value of informal learning approaches.

In South Africa, the formal, workshop model has been the main approach to teacher learning and development. The trend of contemporary teacher learning internationally is, however, rapidly leaning towards situated informal learning opportunities inside the school with, from and alongside colleagues as a means of approaching curriculum modifications effectively. This chapter is a review of literature in the field of teacher learning, teacher knowledge and teacher development.

During the survey of literature for this study, my attention was drawn to the noticeable dearth of information documented on the contemporary phenomenon of informal learning within schools in South Africa. This study hopes to address this gap. The scope of the literature surveyed for the study includes journal articles and chapters from books from both national and international sources, mainly from British and US education contexts. This selection of literature will provide a basis for discussion of the topic. The key concepts to be reviewed are professional development, teacher learning, teacher knowledges and the various models of teacher learning. The concept of teacher identity is acknowledged as a key aspect of teacher learning, but was not a key focus of this study.

## **2.2 Professional Development**

While this study focuses on teacher learning, more specifically, on informal teacher learning within the school, it is important to take cognisance of what scholars in the field say about professional development. A good point of departure is to briefly look at the very extensive review of literature on the phenomenon of professional development undertaken by Wilson and Berne (1999). They say that reformers realised that the changes in the curriculum and assessment will not “lead directly to changed teaching practices and that new measures in student performance would entail new ways of teaching” (Wilson and Berne, 1999, p. 173). Therefore, professional development was seen as a tool to tackle the challenges of the new reforms. It was seen as the answer to address the demands for improved, higher standards in education. Elmore (2001) and others, cited in Mestry et al., (2009) are also of the view that teacher development programmes are programmes through which teachers can learn to become more efficient and effective.

### **2.2.1 Definitions of Professional Development**

We can look to both Craft (1996) and Day and Sachs (2004) who offer succinct definitions of the concept professional development. Firstly, Craft (1996) explains that the term professional development is used to describe a process of “moving teachers forward in knowledge and skills” (p. 6). She adds that in a wider, more enveloping sense, it can be seen as the different forms of learning undertaken by experienced teachers, which includes embarking on courses, engaging in private reading and even job shadowing.

Day and Sachs (2004), use the term continuing professional development to describe the range of activities teachers participate in during the course of their career. For this study Day’s (1999) definition of professional development is particularly pertinent. He presents an expansive definition of professional development which incorporates all teacher activity that leads to teacher learning:

It is the process by which, alone and with others, teachers review, renew and extend their commitment as change agents to the moral purposes of teaching and by which they acquire and develop critically the knowledge, skills, planning and practice with children, young people and colleagues through each phase of their teaching lives (as cited in Evans, 2002, p. 128).

In South Africa, the National Department of Education makes reference to professional development as Continuing Professional Teacher Development (CPTD). While the Department of Education does not explicitly define CPTD, it describes the attributes necessary for effective CPTD. The attributes which are necessary for effective teaching include: conceptual and content knowledge as well as pedagogical knowledge. Essentially, the South African teacher needs to be willing to learn, to reflect on his/her practice and be open to learning from the learners’ experience of being taught. All these attributes must be integrated so that the teacher can apply “conceptual knowledge-in-practice” with confidence, (DOE, 2007). This “conceptual knowledge-in-practice” can be linked to what Adler et al., (2002) refer to as “disciplinary knowledge-in-practice” which is in essence a bringing together of disciplinary and pedagogical knowledge.

At this point it will be appropriate to elaborate on what Adler et al., (2002) say constitutes conceptual knowledge for teaching purposes. Adler et al., (2002) present Dickson’s work (2001) that identified and described four essentials that constitute conceptual knowledge for teaching. These essentials include: (a) the need for teachers to have a “broad and deep”



knowledge of subject, (b) knowledge of curriculum in the subject area is seen as the key element of the teacher's conceptual knowledge, (c) teachers must have knowledge of how their learners come to know their specific subjects, (d) teachers need to understand how the teaching and learning of their subject comes to shape and be shaped by specific contextual conditions (as cited in Adler et al., 2002).

If these criteria are to be applied to the South African education context, the implications are that teachers will have to be open to engaging in the different forms of professional development and in so doing, not only will they develop conceptual and pedagogic knowledge but they will also fulfill the role of being a lifelong learner.

### **2.2.2 Principles Underpinning Professional Development**

Researchers in the British and US education contexts have identified principles which underpin effective professional development. While there are some similar principles present in the work of Warren Little (1994), Shulman (2004) and Adey (2004) the principles which emerge as different are important to note. Warren Little (1994) identified six principles which underpin effective professional development and says that successful professional development should “take into account the context of teaching and the experience of teachers” (Warren Little, 1994, p. 12). Shulman (2004) lists emotion as a principle and explains that “enthusiasm and passion are central” to effective professional development. Adey (2004) discusses ownership as a principle, adding that teachers need to feel that they have “ownership of the innovation” in order to try out something new with commitment. He also discusses three broad principles which he argues, are essential when designing professional development initiatives. These are: a) “the nature of the innovation, b) the nature of the delivery system and c) the nature of the environment in which it is being introduced” (p. 159).

According to Bell and Gilbert (1996) teachers will need to examine their own practice of teaching and learning before they are ready to reconstruct what they do (as cited in Adey, 2004). However, the drivers of professional development have a further challenge of getting teachers to acknowledge and interrogate their ingrained ideas about knowledge transmission. Joyce and Showers (1982) suggest that perhaps teachers need to be included in the process of needs analysis and programme design (as cited in Adey, 2004).

In the study undertaken by Smylie (1989) to ascertain how teachers rated opportunities to learn, it was found that the teachers ranked *classroom experiences* as a form of learning as

*most important* and ranked learning opportunities during *in-service workshops*, last (as cited in Wilson and Berne, 1999). It is apparent, therefore, that the pre-requisite for effective professional development requires that programmes have a specific purpose and be of value to those participating.

The collaborative study of Johnson (1999) indicates that “teacher development might be sustained through real participation of all those involved along with matching the pedagogical change to local conditions and shifting resources to new priorities” (as cited in Johnson, et al., 2000, p. 182). This example also supports Adey’s (2004) principle of the “nature of the environment”. Warren Little (1994) lends further support by arguing that this principle challenges the “one-size fits all” model of professional development. She explains that the principle of “employing techniques and perspectives of enquiry” reinforces the need for the teacher to engage in research and to keep updated with the latest developments in his or her subject area (Warren Little, 1994, p. 12). This perspective seems to reinforce the need for teachers to be open to being lifelong learners.

### **2.2.3 Models of Professional Development**

It is essential to have a look at how professional development is used as a tool to address education reforms. Day and Sachs (2004) highlight two key aspects that continuing professional development should take into account, namely, the influence of the school and teachers’ career phases. The teachers’ career phases referred to can be linked to the findings from the study undertaken by Day and Gu (2007) which is discussed later in the chapter as a way of understanding some of the ways teachers learn.

Day and Sachs (2004) point to two discourses of professionalism, that is, managerial professionalism and democratic professionalism. Managerial professionalism is where the professional is expected to meet goals set by someone else, manages a range of learners and has to document the learners’ outcomes for public accountability. Democratic professionalism emphasises collaboration and co-operation between teachers and education stakeholders. Both discourses have a commonality in that they strive to improve the performance and skills of the teacher which in turn will impact on the outcomes of the learner. However, the way in which they believe this should happen differs. Having established and described the discourses of professionalism they cite Jackson (1968) who identified two models of professional development. These are: (i) the deficit model and (ii) the aspirational model.

The deficit model operates from the assumption that teachers need to be provided with something they need, usually knowledge and skills. The aspirational model acknowledges what teachers already have and builds on this.

It may be said that while these models of professional development are explicit in their construction, the fundamental assumptions on which the models are based are implicit.

Two examples of professional development initiatives from the South African education context which appear in the literature surveyed for this study have been found to meet the characteristics of the two models of professional development as described above.

Firstly, the introduction of the Revised National Curriculum Statements (RNCS) made it mandatory for South African teachers to attend workshops to learn how to teach the revised curriculum effectively. Teachers had to teach in ways that they were not sure about and did not receive support to do this. The cascade and train model was used to introduce teachers to the Revised National Curriculum Statements (RNCS). This model was used because it has been described as cost effective. It accommodated a high participant/trainer ratio.

The findings from the study by Bantwini (2009) indicate that the model was severely criticized because it placed the teachers in a passive role. They were merely recipients of knowledge produced elsewhere. This model operates from an assumption that teachers can change their behaviour and replicate behaviour that was not part of their repertoire, in their classroom practice. Furthermore, the lack of subsequent teacher support impacted negatively on implementation of the new curriculum. The findings from this study also indicated that the teachers attending the Revised National Curriculum Statements (RNCS) training felt that the programme did not take their different levels of expertise or experience into account. It is relevant to at this stage to try and identify why teachers feel this way.

It is possible to assume that the drivers of professional development do not always take the four behavioural stages prevalent in teachers into account during the designing of professional development programmes. Johnson et al., (2000) take note of the Verspoor studies (Verspoor & Leno, 1986, Verspoor & Wu, 1990) which describe the four behavioural stages that are prevalent in teachers as being: (i) unskilled stage, (ii) mechanical stage, (iii) routine stage and (iv) professional stage. The point that becomes apparent through this description of the four behavioural stages is that strategies and techniques for teacher change and development which are pitched at stage four – the professional stage, may be entirely

inappropriate for those teachers who are at the unskilled and mechanical behavioural stages and vice versa.

The same may be true of the South African professional development context. It may be said that many of the professional development initiatives are usually pitched at levels one and two, that is, the unskilled and mechanical behavioural stages and that stage four, the professional stage, is not always taken into account. This may be one of the reasons why so often teachers, myself included, feel frustrated, as if we have not learnt anything at these formal professional development programmes. Since teachers are also expected to embrace the concept of lifelong learning, it is imperative that designers and drivers of professional development initiatives take cognisance of all four of these levels in teacher behaviour from the very outset of professional development programme designing.

Warren Little (1994) has argued against this model and says that the training model of professional development which is popular and rather dominant is inadequate in addressing present reform initiatives. The model mainly focuses on developing the “individual repertoire of well-defined and skilful classroom practice” (Warren Little, 1994, p. 1).

In addition, the views of Fullan (1999) indicate that the “event-delivery” model of continuing professional development which is located in the managerial discourse is not aligned to learning theories which support non-formal learning in communities of practice (as cited in Knight, 2002). In South Africa, the use of the deficit model of professional development to introduce the Revised National Curriculum Statements illustrates that this model did not have positive impact on the teachers who attended the training.

Alternative methods to the training model of professional development are beginning to emerge and seem to be more in line with addressing the present reform initiatives. The study undertaken by Graven (2004) is an example of the aspirational model of professional development which was structured in a way that enhanced participation in a community of practice. In this South African study, the participants responded positively to this type of structuring. For example, educators were encouraged to run workshops and to reflect on their practice since “recipes” for teaching were not prescribed. The programme took its direction from the participants. It assisted the teachers to network in wider mathematics communities and it supported teachers in sharing their knowledge and experiences with other teachers in and beyond their communities. A significant point to note is that the participants viewed this study as being developmental rather than judgmental. They emphasized the importance of

not being “dictated to” as well as, the importance of there being “a lot of personal interaction”.

This study illustrates the positive effects of the aspirational model of professional development on the South African teachers’ learning experiences.

As the study proceeded, strong bonds of communal support between the participants developed as they informally shared resources, discussed and debated their day-to-day problems relating to general school and departmental pressures (Graven, 2004, p. 188).

Having used the two South African studies as examples to map the characteristics of two models of professional development, namely, the deficit and aspirational on to, it is important to establish what alternative views about professional development initiatives exist.

Teachers’ professional development should be refocused on building learning communities, says Lieberman (2008). She argues that teacher communities are by far the most effective form of professional development. They are focused, continuous and sustained, not episodic or short term and serve to provide teachers with opportunities to learn from one another inside and outside the school.

The different models of teacher learning discussed later on in this chapter draw attention to the fact that internationally the move is now *away* from “direct teaching” to practices that involve “learning in the school” (Lieberman, 2008, p. 592). This broader approach also moves the teacher beyond “learning” about new ideas to being “actively” involved about decisions.

Shulman (2004) also lists learning communities and collaboration as principles which underpin effective professional development. By this it is understood that when teachers collaborate they work in a manner which scaffolds and supports each other’s learning. Teacher communities which are organized as a group of teachers, a department, a team or a group of schools are seen as an approach to meeting the challenge of improving schools in the fast-changing global society. Darling Hammond and Richardson (2009) too, say that effective professional development brings to light the importance of collaborative and collegial learning environments.

## 2.3. Teacher Learning

Teachers' professional learning can be seen as impacting on one's "professional knowledge, skills, attitudes, beliefs or actions" explain Fraser et al., (2007) and that teachers' professional development can be seen as "the broader changes that may take place over a longer period of time resulting in qualitative shifts in aspects of teachers' professionalism" (p. 157). Day and Gu (2007) hold a similar view about teacher learning and teacher professional development. Moreover, teacher learning can also be influenced by a variety of issues and they list these as being: "perception of the work environment and the benefits of participation, self-efficacy, aspirations for career advancement and events in their lives outside" (Maurer and Tarulli (1994, as cited in Day and Gu, 2007, p. 427). These factors, they explain, can either positively or negatively affect a teacher's motivation and commitment to their professional learning and growth. This in turn will affect how the school and the teacher benefits from this commitment to learning (ibid).

### 2.3.1 Defining Teacher Learning

The field of teacher learning is vast and what we know about teacher learning is "rather puzzling" (Wilson and Berne, 1999, p. 173). The reason for this, they say, is "due to the scattered, serendipitous nature of teacher learning" (ibid). It is important to note that while the most relevant literature in this field was reviewed by them, the studies cited failed to provide a definite definition of teacher learning. Similarly, Evans (2002) points out that definitions for teacher development are also "almost entirely absent" from the literature in this field. She adds that even the "leading writers" in the field have failed to define the concept exactly (p. 124). With regard to teacher learning, researchers in the field have coined terms that were in keeping with the nature of their different investigations and defined the phenomenon in terms of *how* it happens and not what 'teacher learning' *is*.

These are some of the ways in which researchers have attempted to define teacher learning. Firstly, Lohman and Woolf (2001) discovered through their study on self-initiated learning activities of American public school teachers that the experienced teacher engaged in three main types of learning activities. 1. Knowledge exchanging – teachers shared and reflected on others' practices and experiences by talking, collaborating, observing and sharing resources. 2. Experimentation – teachers tried out new instructional tools and techniques. 3. Through environmental scanning – teachers individually scanned and gathered information from sources outside the school (as cited in Henze et al., 2009, p. 186).

Secondly, Lieberman and Pointer Mace (2008) describe how teachers learn: (i) through practice – learning as doing, (ii) through meaning – learning as intentional, (iii) through community – learning as participating and being with others, (iv) through identity – learning as changing who we are. They argue that teachers’ professional development should be refocused on building learning communities.

Thirdly, it can be said that Kwakman’s (2003) definition of teacher learning captures the essence of this concept. She defines teacher learning in the workplace by using three important principles: (i) learning is seen as participation in activities, (ii) learning is individual as well as social in nature, and (iii) learning is necessary for teachers to develop professionally. She adds that one can learn by reading, through doing, through reflection and through collaboration and it is influenced by personal and contextual factors.

This study defines teacher learning in the following way: teacher learning is a dynamic process that leads to positive, meaningful changes in the way a teacher reflects on his/her practice and in the way he/she practises in the classroom. It requires a teacher to be *open and willing* to learn. This process involves both planned learning and unplanned, incidental learning. Some examples of how *planned* learning takes place include: choosing to find resources and information for a topic, learning by conscious reflecting on one’s practice, learning by planning lessons, learning by practising exercises from textbooks or practising experiments., choosing to observe colleagues teaching. Examples of how *unplanned*, incidental teacher learning occurs include: learning from one’s learners, learning from colleagues during tea time and lunch time chats, learning by trial and error and learning by observing other colleagues. Teacher learning is both individual and social in nature and impacts on the learner’s learning either directly or indirectly.

## **2.4 Forms of Teacher Learning**

According to an article on teacher learning, there are three types of teacher learning. These are: formal learning, non-formal learning and informal learning. (A Memorandum on Lifelong Learning, n.d.).

For the purposes this study, the focus is on formal learning and informal learning.

### **2.4.1 Formal Learning**

This form of learning is described as learning which takes place in “education and training institutions, leading to recognized diplomas and qualification”. This learning form has been

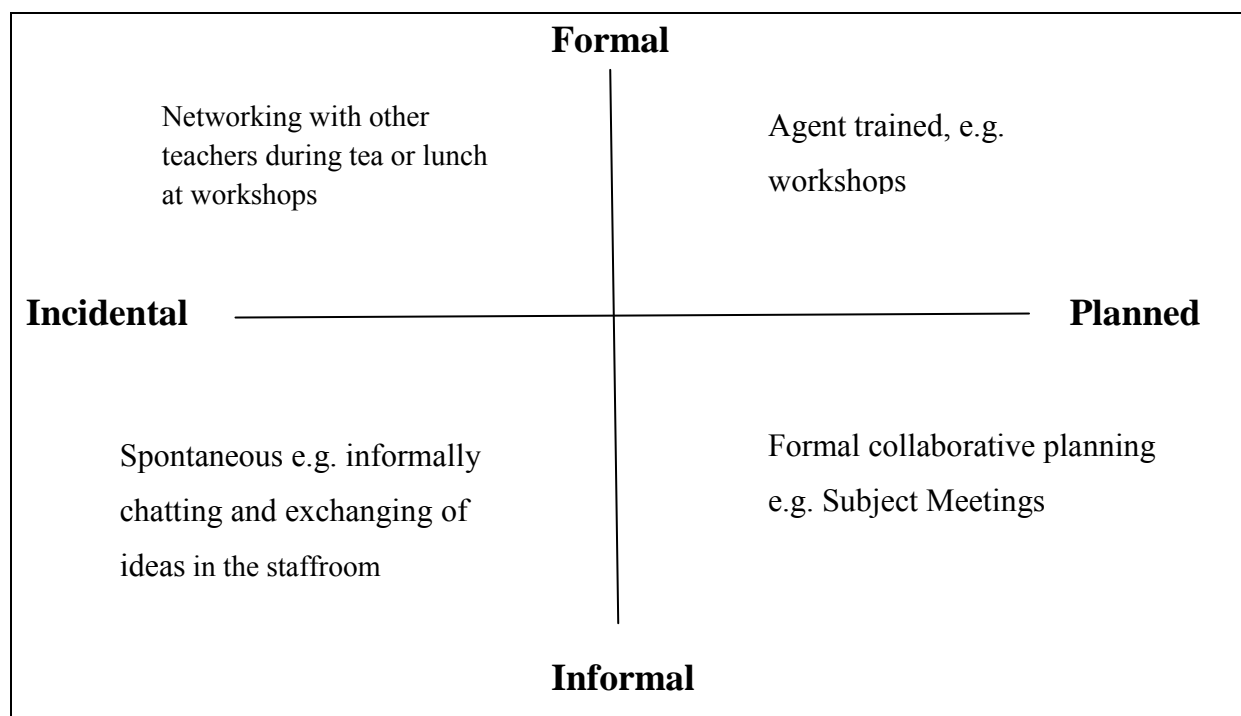
dominant in “policy thinking, shaping the ways in which education and training are provided and colouring people’s understandings of what counts as learning” (A Memorandum on Lifelong Learning, n.d.).

## 2.4.2 Informal Learning

Informal learning has been described as the “oldest form of learning and remains the mainstay of early childhood learning”. In addition, informal contexts are described as abundant sources in which teacher learning can thrive and “it could be an important source of innovation for teaching and learning methods” (A Memorandum on Lifelong Learning, n.d.).

Fraser et al., (2007) use Reid’s (2005) quadrants of teacher learning to explain the two forms of teacher learning. The quadrants consist of two dimensions of learning, that is, formal and informal learning and the planned and incidental learning. A diagrammatic representation of Reid’s quadrants of teacher learning together with an explanation of the different dimensions of learning follows:

## 2.4.3 Reid’s Quadrants of Teacher Learning



**Figure 1: Reid’s (2005) Quadrants of Teacher Learning with Examples**

On the vertical axis, formal learning involves being taught by an “agent”. This form of learning has sometimes been located within the managerial discourse. An example of this type of learning could be attending a course and learning in that context.



Informal learning, on the opposite end of the vertical axis involves the teacher engaging in his/her own learning, meaning that the teacher learns from, with, alongside colleagues at school or engages in research in order to teach new content. This form of learning can be located within the democratic discourse. An example here could be networking with other teachers.

On the horizontal axis, incidental opportunities are spontaneous and unpredictable, for example, teachers informally chatting and exchanging ideas in the staffroom. Planned opportunities may be formal or informal, for example, collaborative planning which takes place in subject committee meetings.

It can be deduced from the above quadrants of teacher learning that learning is seen as taking part in active, constructive, collaborative and context-bound activities and in light of this it can be assumed that the traditional form of professional development is not adequate to enhance teacher knowledge adequately. Moreover, one has to bear in mind that for teacher learning to be effective, suitable conditions in which teacher learning can flourish, must exist. Shulman (2004) is of the view that “school reform must give attention to creating conditions for teacher learning as well as student learning” (Shulman, 2004, p. 504).

Wilson and Berne (1999) also mention learning that takes place with colleagues informally and in the classroom. Knight (2002) cites Becher (1999) who argues that there are some professions and professionals who believe that non-formal learning is more effective than formal learning. The reason for the study undertaken by Tarc and Smaller (2007) was to ascertain what teachers felt about their own informal and formal learning. This study is of a Canadian teaching context. The findings clearly indicate that the teachers understand the importance of informal styles of learning and are extremely well engaged in this type of learning and the value that teachers attach to informal teacher learning was a “dominant research finding” (Tarc and Smaller, 2007, p. 123).

Moving on from the discussion that dealt with teacher learning, the next step is to ascertain what kinds of knowledges teachers need in order to deliver the curriculum effectively.

## 2.5 Taxonomy of Teacher Knowledge

To help one gain a better understanding of the kinds of knowledge a teacher needs the taxonomy of the different types of knowledge developed by Cochran-Smith and Lytle (1999) is useful.

These knowledges are:

- (i) knowledge-for-practice, that is, knowledge derived from outside experts,
- (ii) knowledge-in-practice is knowledge that is developed as teachers go about their daily routines,
- (iii) knowledge-of-practice is knowledge seen as the conscious pulling together of knowledge derived from both the outside expert and their own inquiry into their daily practice (as cited in Wood, 2007).

Furthermore, this taxonomy of knowledge can be mapped onto Reid's (2005) quadrants of teacher learning. For example, knowledge-for-practice, that is, knowledge derived from outside experts, can be linked to the formal, planned quadrant where learning usually takes place through an "agent" and one is trained at a workshop.

Knowledge-in-practice, that is, the knowledge that is developed as teachers go about their daily routines, falls into the planned - formal, collaborative planning e.g. the subject committee meeting and incidental, spontaneous chatting and exchanging of ideas in the staffroom, quadrants of teacher learning. Knowledge-of-practice is knowledge seen as the conscious pulling together of knowledge derived from both the outside expert and their own inquiry into their daily practice. In relation to Reid's (2005) quadrants of teacher learning, this would be the example of teachers learning in all four quadrants and the overall result of which should be effective conceptual knowledge-in-practice in order to deliver the curriculum effectively.

For a more in depth look at the types of knowledges that a teacher needs to acquire, we can turn to Grossman (1990) who explains that there are many models of teacher knowledge. She builds on work of researchers at Stanford (Shulman, 1986a, 1987, Wilson, Shulman and Richert, 1987) who initially defined seven categories of teacher knowledge. Turner-Bisset (1997) presented an alternative model of teacher knowledge and more knowledge categories were added to Shulman's list of knowledge bases. She argues that while this list is more comprehensive than Shulman's list of knowledge bases, there are some categories that

overlap. However, while different researchers have developed different models of teacher knowledge, four general categories of teacher knowledge have come to be described as the cornerstones of professional knowledge for teaching. These four general categories of teacher knowledge are discussed below.

## **2.6 Types of Teacher Knowledge**

Within education circles there is a tacit understanding by education stakeholders and researchers alike that teachers need to be knowledgeable and that they have to be able to use their knowledge, skills, and competences effectively. The four cornerstone knowledges are introduced below and a more detailed description of these knowledges appears in Chapter 4:

### **(a) Content/Subject Matter Knowledge**

Knowledge of content refers to knowledge of the major facts and concepts within the disciplinary field, and the knowledge of theories within the field of education.

### **(b) Pedagogic Knowledge**

This knowledge form includes a body of general knowledge, beliefs and skills related to teaching, strategies, assessment strategies, classroom management techniques.

### **(c) Pedagogic Content Knowledge**

Pedagogic content knowledge is the pedagogic strategies specific to teaching particular subject content, for example, knowledge of how to teach children to read.

### **(d) Context Knowledge**

This knowledge refers to a teacher's understanding of the context in which he/she teaches in and the ability that he/she has to adapt his/her general style of teaching to suit the school and the learners.

In this regard, Wood's (2007) main argument is that teachers are not only "users" of pedagogical knowledge, but are also "creators", "disseminators" and "preservers" of this type of knowledge (p. 281). She points out that the quality of a learner's educational experience is dependent on the quality of his or her teacher. Wood (2007) adds that while there is little agreement by educationalists on how to ensure quality, most of them agree that quality teachers have the ability to "craft" lessons that are innovative and effective.

Teacher knowledge can also be categorized into procedural knowledge and propositional knowledge. Among educationalists there is consensus that Initial Teacher training cannot address all the “propositional knowledge” and the “procedural knowledge” which one needs. Tomlinson (1999) supports the view, however, that professionals need both procedural and propositional knowledge (as cited in Knight, 2002).

### **2.6.1 Propositional Knowledge**

Eraut (2002) explains the first form of knowledge which is the codified, academic knowledge which stems from the assumption that learning is a “cognitive of the mind activity or an accumulation of propositional knowledge which can be transferred to practice through a variety of contexts”. This knowledge form is described as being “embedded in texts, databases, cultural practices of teaching, studentship, scholarship and research” (as cited in Wilson and Demetriou, 2007, p. 215). Content knowledge or subject matter knowledge is often seen as propositional knowledge. Grossman (1990) explains this knowledge form as having knowledge of the subject itself. More specifically it applies to having knowledge of the main facts and concepts within a subject and the relationship that exists between them.

### **2.6.2 Procedural Knowledge**

The second form of knowledge is practical and often context specific. Eraut (2004) refers to this knowledge form as “cultural knowledge” and Bernstein (1999) calls it “horizontal knowledge. Procedural knowledge is “not easily codified” but still plays an important role in school-based practices and activities. It is difficult to represent in text form because it is usually acquired informally through participation in social activities (as cited in Wilson and Demetriou, 2007, p. 215). This knowledge can be linked to what Grossman (1990) refers to as pedagogic knowledge - knowledge which includes one’s general knowledge, beliefs and skills that are necessary for teaching, for example, having knowledge about learning and learners, knowledge of classroom management, etc.

## **2.7 Some of The Ways Teachers Learn**

Having already discussed the types of knowledge a teacher needs and distinguished between the three kinds of learning that exist, the next step is to examine some of the methods teachers use to learn.

Wilson and Berne (1999) differentiate between how beginning (student) teachers and practising teachers learn and list the most common examples. Beginning teachers learn at college or university sometimes when they work in the field and practising teachers “participate in mandatory part-day or day-long workshops sponsored by their school districts” (Wilson and Berne, 1999, p. 174). McIntyre (1993) argues that reflection is a more effective way of learning for experienced teachers than for beginning teachers because the beginning teacher is more able to learn through deliberating about the nature of the expertise that he or she wants to develop than through reflecting on what is after all their very limited experience (as cited in Hagger et al., 2008, p. 161). Furthermore, Day and Gu (2007), build on the seminal study by Huberman (1993) of the lives of Swiss secondary school teachers. They discovered that teachers’ work and lives covers “six professional life phases”. „Professional life phase’ refers to the number of years that a teacher has been teaching. Usually the years of experience are in relation to the teacher’s age, however, some teachers have less experience as a result of entering the profession later or in some cases have had a break in years of service.

The different phases are **0 - 3years** (learning which builds identity and classroom competence), **4 - 7 years** (developing professional identity), **8 - 15 years** (defining work-life balance), **16 - 23 years** (managing work-life tensions), **24 - 30 years** (adjusting to change), and **31+ years** (sustaining commitment). Each of the different phases has unique characteristics to describe the teacher in that particular phase and the key characteristic has been tabulated below:

<b>Professional life phase of teacher</b>	<b>Characteristics</b>
1. 0 - 3 years	High level of commitment to the profession.
2. 4 - 7 years	Promotion and additional responsibilities impact on the teacher’s sense of motivation, commitment and effectiveness.
3. 8 - 15 years	The majority of teachers have begun to experience additional pressure in managing their personal and professional lives.
4. 16 - 23 years	Whatever the experience was in the previous phase, the teacher has a more defined sense of professional identity.
5. 24 - 30 years	Teachers are more than likely to face extreme professional life phase scenarios. Their identity is constantly challenged by the need to adjust.
6. 31+ years	Main source of job satisfaction - learner progress and positive learner-teacher relationships, ill health will be of primary concern.

**Figure 2: Professional Life Phases of Teachers (Day and Gu, 2007)**

Focusing on how beginning teachers learn, it has been found that they need to learn from other people's ideas, i.e., experienced teachers, educational researchers and scholars. The new teacher needs to critically look at all these ideas as well as their own ideas. He/she needs to know how learners learn and what they should learn. The new teacher should be able to "deconstruct" subject knowledge in a way that the learner can make meaning of this knowledge and be able to use appropriate techniques to help learners' learning (Wilson and Demetriou, 2007). However, Knight (2002) suggests that as the teacher gains experience and becomes "more expert", they rely on "automated, embodied and intuitive knowledge which is almost procedural in nature" (cited in Wilson and Demetriou, 2007, p. 216).

Informal learning activities, it seems, do play an important part in the enhancement of professional capacity. Lieberman (1995), points out that those stakeholders of education who embrace the traditional view of staff development advocate that the authentic opportunities to learn from and with colleagues inside the school do not *count* as much as those staff development opportunities that take place outside the school. Perhaps the importance of informal learning has not been sufficiently recognised because the types of informal learning activities are not generally recognised as acceptable models of professional development. The arguments emerging from the literature reviewed indicate strong support in favour of the move away from the traditional model of professional development to the situated model of teacher learning.

In contemporary research, evidence exists that teachers learn best when they are members of a learning community. McLaughlin and Talbert (2006), explain:

that school-based community is uniquely situated between macro systems level directives and resources (whole school) and the micro realities of the teacher's classroom. The school-based community manages from the middle and in so doing negotiates the policy demands at the top and the local situation at the bottom (as cited in Lieberman and Pointer Mace, 2008, p. 228).

The school-based community helps to build the school vision – a way of working that upholds the context and culture of the school.

In support of workplace learning, a longitudinal study of Early Career Professional Learning was undertaken by Eraut (2007). The study focused on newly qualified nurses, graduate engineers and trainee chartered accountants in their first three years of employment.

The study highlighted some interesting findings. While this project was conducted with people outside the teaching profession, many of the findings can be applied to teachers and how they learn in the school environment (workplace).

This project confirms that the majority of professionals' learning takes place in the work environment. Eraut (2007) argues that while formal learning "contributes most when it is both relevant and well-timed" it still needs further workplace learning before it can be used effectively (p. 419). The data indicates that there is substantial scope for improving workplace learning in a wide range of contexts. The current neglect of workplace learning can be remedied by all the stakeholders concerned. He explains that some of the key findings from the project "support, enhance and exemplify in greater depth and detail the results of previous projects undertaken". In other words, these findings validate the findings from a previous study which looked at a different group of workers in different working environments.

The findings from the study on Early Career Professional Learning at Work included: (i) support and feedback which is important for learning, retention and commitment, (ii) enhancing the quality and quantity of workplace learning by increasing the opportunities for consulting and working alongside others, (iii) managers (in the school context, the school's management team) have a most important influence on workplace learning and culture that extends beyond their job descriptions, (iv) novices, mentors and managers need to have: (a) greater awareness of the range of ways people learn, (b) the ability to discuss learning needs in the context of a record of progress and (c) the ability to identify and focus on factors which enhance or hinder individual or group learning (Eraut, 2007, p. 420).

As mentioned earlier, in relation to teachers learning in a more situated context, Lieberman and Pointer Mace (2008) advocate that teachers' professional development should be refocused on building learning communities and argue that teacher communities are by far the most effective form of professional development. To recap, they say that teacher communities are focused, continuous and sustained, not episodic or short term and serve to provide teachers with opportunities to learn from one another inside and outside the school.

In order to balance the above views, one must also consider the converse views of teacher communities found in the South African study conducted by Whitelaw et al., (2007) during their investigation into the "life world" of newly qualified teachers. The findings in their study indicate that novice teachers have difficulty in fitting into the discourse community of the school.

The novice teachers are really only “tentative members” of a “pseudo community” a term that was coined by Grossman et al., (2001), to describe one of the phases of building a teacher community of learners.

The findings reveal that the current staff was not open to engaging with new teachers in “any form of social groupings” – other than what Hargreaves (1989) calls a “contrived community” (as cited in Whitelaw et al., 2007, p. 8). Whitelaw et al., (2007) argue that any opportunity to engage in “discussion, reflection and learning are minimised” because of “playing community”. They use Veresov’s (2007) interpretation of “interiorization” – which is the theory of building a work community, to stress that novices need role-models and mentors with whom they can develop knowledge, skills, values and attitudes needed in the profession. For novices to develop into successful practitioners they need assistance so that they are adequately prepared to work within the school environment.

The researchers conclude by saying that in South Africa, “cultural norms” for communication in the work place serve to discourage honest communication and building of communities. They also see teacher development, more importantly, the induction of novices, as being the responsibility of the school.

## **2.8 Models of School-based Teacher Learning**

From the US education perspective, the different models of teacher learning draw attention to the fact that the move is now *away* from “direct teaching” to practices that involve “learning in the school” (Lieberman, 2008, p. 592). This broader approach also moves the teacher beyond “learning” about new ideas to being “actively” involved about decisions. Wood (2007) also mentions that contemporary literature is calling for a shift towards establishing and sustaining learning communities. By contrast, the formal, workshop model of teacher learning is still the dominant model used in the South African education arena.

### **2.8.1 Collaboration and Learning Communities**

Collaboration and learning communities are listed by Shulman (2004) as principles which underpin effective professional development. Wood (2007) also offers examples of teacher learning communities: “professional networks, critical friends groups, study groups and teacher research collaboratives” (p. 284). She explains that these learning communities provide the settings for teachers to learn and build knowledge together.



Shulman's (2004) main argument is that "school reform must give attention to creating conditions for teacher learning as well as student learning" (p. 504). Learning from experience is one of the requirements of any school reform. He explains that "authentic and enduring learning occurs when the teacher is an active agent" (ibid), that is, being actively involved in the learning process. Nevertheless, being involved in activities and experimentation alone is insufficient, it is important for schools to create opportunities for teachers to become more reflective about their work. And that authentic learning works best in a community made up of members who have different strengths and who are able to engage in discussion which allows knowledge to be shared within the group.

Moreover, central to effective professional development is the principle of emotion. The learning that occurs in professional development is not solely intellectual or cognitive in nature therefore, the elements of enthusiasm and passion about the learning must be present. Day and Gu (2007) describe teacher learning as ideally a process in which self-motivated and self-regulated and it involves both intellectual and emotional development. However, the conditions that teachers find themselves working in do not always encourage this process.

Lieberman (1995) believes that the approach to teacher learning today goes beyond teaching being considered as technical. She says it has become imperative for individuals to redefine their work in relation to the way the entire school works because reform and restructuring of schools places demands on the whole organization.

Holding a similar view is Schön (1983) who argues that teachers need to be more than "just technicians implementing others ideas" (as cited in Wood, 2007, p. 283). Teachers are urged to be "thinkers", "inquirers", and to conceptualize (ibid). The general consensus among researchers in this field is that people learn best through active involvement and through thinking about and becoming articulate about what they have learnt.

Abrahams' (1997) study in South Africa, demonstrates that collaboration at a different level provides emotional and professional support to teachers. This study looks at a few perceptions of teacher collaboration. At a very basic level it has been identified as a common characteristic of schools demonstrating improved school achievement. Firestone and Pennel (1993) explain that teacher collaboration has socio-cognitive and affective dimensions. Such collaboration provides opportunities for teachers to learn and to develop a sense of collegiality or "shared endeavour". At another level, Warren Little (1982,) suggests that teacher collaboration requires a degree of collegiality (as cited in Abrahams, 1997).

Teachers, who are in schools defined as successful, tend to discuss, design, conduct, analyse, evaluate and experiment with their teaching. These interactions have the function of empowering teachers and preparing them to engage in shared decision-making, both of which are vital for school improvement. At the same time, Smith (1987) argues that collaboration must move beyond “trading stories about problematic students” into the arena of proactive exchange so that teachers can set school goals and oversee their own professional development (as cited in Abrahams, 1997).

Some of the benefits of teacher collaboration include improved learner behaviour and achievement, increased teacher satisfaction and adaptability, increased commitment and the creation of learning opportunities for teachers. Abrahams (1997) writes that collaboration as a model of teacher learning in the South African teaching context provides emotional as well as professional support and it is therefore important to take cognizance of the South African context prior to 1994.

The school culture in South Africa generally, was affected by apartheid. This system of inequality impacted directly on the negative, often suspicious manner in which collaboration was viewed. Since the concept of collaboration during the initial stages of this study undertaken by Abrahams (1997) was viewed negatively. The researcher had to use a specific definition to include the positive types of collaboration the study was pursuing.

The findings from the study also revealed that teacher collaboration generally, was supported by the respondents of the study. The respondents agreed, some strongly, that as professionals, teachers need to work together and support each other in the schooling process. Generally the respondents valued the “affective (social)” purpose or function of teacher collaboration and did not see it as a “waste of time” (Abrahams, 1997, p. 420).

Some respondents preferred “structured collaboration” and spoke of the need to balance teaching loads and time-tables. It was found that teachers generally, had to engage in collaborative activities in order to understand and deal with the demands of Outcomes Based Education and Curriculum 2005. Nevertheless, it is unclear why the Department of Education still seems to persist in favouring the formal, workshop learning approach to teacher learning.

There are a number of alternative forms of teacher learning which lean towards collaboration and communities of practice but which differ in approach.

These alternative forms of teacher learning can perhaps be regarded as subsets of collaboration and communities of practice. For example, Darling Hammond and Richardson (2009) describe the Professional Learning Communities (PLC) model of teacher learning. Mawhinney (2010) explains the concept of Professional Knowledge Sharing and makes reference to other forms of knowledge sharing which take place in congregational spaces. The discussion around the subsets of collaboration and communities of practice begins with a look at Professional Learning Communities (PLC).

### **2.8.2 Professional Learning Communities (PLC)**

Darling Hammond and Richardson (2009) say that sound professional development initiatives will highlight the importance of “collaborative and collegial learning environments” which allow the development of communities of practice. This in turn will lead to dealing with school change beyond the classroom. In this way teachers act as “support groups” for each other in their immediate surroundings. Teachers, who work in this type of environment, will be encouraged to make enquiries and to reflect on their practice. This type of active involvement has the effect of transforming teaching strategy not merely functioning as a cover for old teaching strategies.

The Professional Learning Communities model of teacher learning points to the effectiveness of sustained, job-embedded and collaborative teacher-learning strategies. PLC is a model in which teachers work together and engage in continual dialogue to examine their practice and student performance and to develop and implement more effective instructional practices. In the USA, the efforts to develop professional learning communities have been hindered by individualistic norms and school structures that severely limit time for collaborative planning. Reformers and teachers too, do not always have an idea of how teachers can work and learn effectively together. What the researchers say is that a PLC model can change practice and transform student learning when there are processes and structures in place to allow for joint work (Darling Hammond and Richardson, 2009, p. 52).

It is important at this juncture to take note of recent developments in the South African education context. The Integrated Strategic Planning Framework for Teacher Education and Development in South Africa is the current policy document which outlines how the quality of teacher education and development will be improved over time. Provincial Education Departments have been given the responsibility to be the “lead agencies” responsible for a range of structures to be established. Among these structures called for are Professional

Learning Communities (PLC). The PLCs have been described in the policy document as follows:

Communities that provide the setting and necessary support for groups of classroom teachers, school managers and subject advisors to participate collectively in determining their own developmental trajectories, and to set up activities that will drive their development (DOE, 2011, p. 14).

While the policy document gives an overview of how the PLCs will function, two key points relevant to this discussion should be noted. Firstly, the PLCs will assist teachers to integrate their own professional knowledge with the latest research-based knowledge about content and practice. Secondly, the PLCs, will allow groups of teachers to engage in a variety of activities including:

- (a) developing expertise in the analysis of learner results on evidence-based assessments, in order to determine teachers' own development trajectories,
- (b) curriculum orientation activities – activities to develop understanding of and the ability to use the Curriculum and Assessment Policy Statements (CAPS),
- (c) learning how to interpret and use curriculum support materials such as the workbooks,
- (d) working together to learn from video records of practice and other learning materials.

While in the USA, the efforts to develop professional learning communities have been hampered by individualistic norms and school structures that severely limit time for collaborative planning; the South African effort to develop Professional Learning Communities is set to take place *outside* the school.

With regard to the US context, researchers say that a PLC model can change practice and transform student learning when there are processes and structures in place to allow for joint work (Darling Hammond and Richardson, 2009).

The same may be true for the South African context if reformers acknowledge the value of teachers learning from, with, and alongside colleagues in Professional Learning Communities inside the school. Some examples of these practices include: “teams of teachers working together, planning lessons, reviewing learners’ work, comparing work from the different classes in an attempt to understand why certain pedagogies seem to work more effectively than others” (NSDC Policy Points, 2009, p. 2).

### **2.8.3 The Teacher Lounge and Professional Knowledge Sharing**

The golden rule which is taught to student teachers during initial teacher training in the US education context is to “stay out of the teacher lounge” (Mawhinney, 2010). She adds that this “rule” has been made without any context or understanding of what transpires in this space. The teacher lounge is looked at as a “place” and not a “space” that can be an extension of the classroom.

Mawhinney (2010) discusses the effectiveness of Professional Knowledge Sharing (PKS) model of teacher learning in which teachers learn in congregational spaces like staffrooms or teacher lounges. Teacher education programmes specifically focus on teacher-to-student relationships and the data emerging from the Mawhinney (2010) study, illustrates the importance of teacher-to-teacher relationships in schools. She cites a fascinating hypothesis by Thomas (1987) about the teacher lounge as a space.

Thomas (1987) talks about teachers experiencing “lounge fatigue” while interacting within the teacher lounge. This hypothesis is based on the assumption that teacher lounges are negative spaces – usually because of gossip. Keller (1999, 2000) classifies lounge interactions into two categories. These categories are: TLC (teacher lounge caring) and TLT (teacher lounge toxins).

The first type of interaction, TLC, shows improved teaching, compassion to learners or other areas of positive development. The second kind of interaction, TLT, consists of comments that promote degrading views of learners, fellow professionals, general dislike for the occupation, and a lack of concern for improving teaching performance (as cited in Mawhinney, 2010). The view of teacher lounges as negative spaces has been passed down for generations. The call now is for Teacher Education programmes to specifically focus on encouraging teacher-to-student relationships.

The US Professional Knowledge Sharing (PKS) model of teacher learning has had a diverse effect on those who use it. Firstly, it has helped teachers informally learn and understand the practice of teaching. Secondly, it has resulted in spontaneous collaboration and creating of various projects. Thirdly, it has allowed teachers to collectively share information which has also been known to filter back into the classroom, either directly or indirectly.

Mawhinney (2010) cites a few researchers who have used various approaches of this model of teacher learning have documented that teachers use their lunch time space for professional knowledge sharing. It is in this space that an “exchange” of information to support

development with profession occurs. Teachers use this time to have informal conversations about the profession. Professional knowledge sharing and spontaneous collaboration also has the effect of impacting on inter-disciplinary teaching units. In one example, collective sharing was used to plan an excursion.

This model of teacher learning is said to take place readily and in various ways. These are some examples: (a) novice teachers gain knowledge and develop their skills, (b) spontaneous collaboration takes place, (c) ideas and concepts are clarified and (d) collective planning occurs. In addition to this, positive relationships flourish since it allows for growth, development and sustainability within the profession. The spontaneous collaboration aspect encourages contribution of ideas for the classroom. The data emerging from research into the use of this model indicate that teachers are providing sustained professional development for their colleagues (Mawhinney, 2010).

### **2.8.3.1 Interactive Professionalism**

The Ben-Peretz and Schonmann's (2000) study in Israel describes lounge interactions as the Interactive Professionalism model of teacher learning. This model is a process whereby teachers have opportunities to collaborate on projects and issues within the classroom and is similar to the Professional Knowledge Sharing model of teacher learning (as cited in Mawhinney, 2010).

### **2.8.3.2 The Beehive Activity Model**

Another positive example of an alternative form of teacher learning is the Beehive activity form of teacher learning coined by Paine et al., (2003) during research in China. It refers to how informal conversations in congregational spaces – “beehive”, help new teachers build up knowledge from veteran teachers (as cited in Mawhinney, 2010).

In the Mawhinney (2010) study, a student teacher received mentorship from a veteran teacher. The student teacher used the knowledge she developed in the space to her benefit. She built relationships with other teachers as she developed her skills within the profession. The student teacher said that the lunch time conversations she had with the veteran teacher provided her with an opportunity to learn informally from this veteran teacher. Another teacher described how she used the lunch time space as a place of learning and developing an understanding of the profession. She would seek advice directly from veteran teachers and the responses that she received reaffirmed for her that she was a teacher in the making and that she needed to have more confidence in what she had to offer her learners.

## **2.9 Conclusion**

Internationally, we see that there is a growing trend for teachers to use limited time (during lunch, after school, etc.), to engage in informal learning thus strengthening their practice.

The arguments emerging from current studies are in favour of this change because learning is viewed primarily as social in nature and when teachers work in isolation, they tend to lose interest in their work and the school itself.

In South Africa too, there seems to be good support for collaboration and communities of practice as models of teacher learning (Abrahams, (1997), Graven, (2004)). These learning communities offer opportunities to tap the teachers' tacit knowledge. This study also aims to address the gap in South African literature on the contemporary educational phenomenon of informal learning by investigating how teachers learn informally at school.

The next chapter, Chapter 3, focuses on the Methodology used in this study. It describes in detail the techniques used in the data collection process.

## **Chapter 3: Research Methodology**

### **3.1 Introduction**

This chapter deals with the research methodology and the methods employed in this study. The discussion centres on the following aspects of the research design: (i) research paradigm and methodology, (ii) key research questions, (iii) access and location of the study, (iv) sampling, (v) research instruments, (vi) design limitations, (vii) reliability and trustworthiness, (viii) limitations of the study and (ix) ethical issues.

### **3.2 Research Paradigm**

This qualitative, empirical research study investigated a contemporary educational phenomenon using the exploratory, descriptive style of case study methodology. The study falls into the interpretivist paradigm and was approached from a learning in socio-cultural context perspective. My understanding of the interpretivist paradigm is that it places emphasis on meaning. That is, the aim of research is to discover and understand how people make meaning of their experiences in their social world. It is also concerned with interactions but more importantly this paradigm privileges the participant's perspective. From a socio-cultural perspective teacher learning is considered to be reflective, discursive and collaborative, and takes into account teacher expertise. Given the nature of the investigation undertaken, that is, to understand *how* teachers learn informally in school, it was applicable to approach the study from this perspective.

### **3.3 Methodology**

As the researcher, I have an interest in teacher learning and the purpose of the study was to understand better how teachers learn informally in school. The choice of using case study methodology for this research was informed by the nature of the investigation and the kinds of data I envisaged would emerge. Feagin, Orum and Sjoberg (1991) describe case study as being the “ideal methodology” when a “holistic, in-depth investigation is needed” (as cited in Tellis, 1997, p. 1). Case study is also said to allow for a rich, detailed study of educational phenomenon. Tellis (1997) adds case study is designed to “bring out details from the participants view point because of the use of multiple sources of data” (p. 1).

Rule and John (2010) deal extensively with case study methodology and they draw on others who have wide experience in this methodology. The earlier works of these experienced



authors assist in giving the researcher a sound understanding of this methodology through the detailed procedures which have been developed. For example, Bogden and Biklen (1982), Stenhouse (1985), Stake (1995) and Yin (2003) are used to explain the various styles of case studies. Firstly, Bogden and Biklen (1982) provide a typology of case studies. Secondly, Stenhouse (1985) distinguishes between four broad styles of case study: (a) ethnographic case study, (b) evaluative case study, (c) educational case study and (d) case study in action research. Thirdly, Yin (2003) identified differentiates between three specific styles of case study: (a) exploratory case study – involves a grounded theory, (b) explanatory case study, and (c) descriptive case study – presents a complete description of a phenomenon within its context (p.3). It was interesting to note that Tellis (1997) adds that Stake (1995) included three other types of case study: (i) intrinsic case study – when the researcher has an interest in the case, (ii) instrumental case study – is when the case is used to understand more than what is obvious to the observer and (3) collective case study – is when a group of cases is studied (as cited in Tellis, 1997, p. 1).

This case study falls into the intrinsic category because it stems from my own interest in the phenomenon of informal learning. Moreover, this study has not been commissioned by any external source for investigation. In terms of case study methodology the contemporary educational phenomenon under study is *informal teacher learning* and it is a case of *teacher learning within one high school*.

As a methodology, case study is said to allow for a rich, detailed study of educational phenomena. Case study research involves “in-depth, intensive enquiry reflecting a rich and lively reality of the case”. This view is supported by De Vos et al, (2002) who say that a case study is an intensive study of a specific individual or specific context. It is worthwhile to take note of how Merriam (1998), characterizes qualitative case study and how these characteristics apply to this study:

- As particularistic – it focuses on a particular situation. In relation to this study the case study is the investigation of how experienced and novice teachers learn informally at a secondary school.
- It is descriptive – it presents rich, thick descriptions of the phenomenon under study. To link this characteristic to this study a narrative for each participant was written to illustrate in detail the participant’s experiences and reflection of how they learn, what they learn, where they learn and with whom.

- It is heuristic – it enhances the reader’s understanding of the phenomenon. In relation to this study, the instruments used to generate the data, namely, journal entries and photographs were used so as to enhance the readers’ understanding of informal teacher learning through the participants’ experiences.

A number of writers, (e.g. Merriam and Simpson (1984); Bell (1987)), identify strengths and limitations of the case study approach: (a) danger of distortion because it not easy to cross-check information, (b) there might be influence of particular sources that are consulted, (c) subjectivity of the researcher can also be an issue, (d) the positionality of the researcher is likely to influence how the case is constructed and what it reveals and (e) its applicability is restricted as the findings are not generalizable (as cited Rule and John, 2010).

Rule and John (2010) explain that good case studies offer a rich store of information about a phenomenon. Firstly, they cite Geertz (1973) who says that case study strives to portray what it is like to be in a particular situation – to be able to catch the close-up reality and to write a thick description. Secondly, they bring in Cohen, Manion and Morrison (2000) who add that case study aims to illustrate the participants’ lived experiences of, thoughts about and feelings for a situation.

Researchers in the field of teacher learning are investigating the shift away from traditional forms of professional development outside the school as the way in which teachers learn, to an alternative, informal approach of learning inside the school with colleagues. This study was bound by two factors, that is, time (four months) and by a single case (a group of novice and experienced teachers in a high school).

### **3.4 Key Research Questions**

The following research questions were identified as being essential in refining and sustaining the focus of the study:

1. What do the selected teachers understand by the concept teacher learning?
2. In what ways do teachers learn informally at school?
3. What kinds of knowledge do teachers learn informally at school?

The findings from this research could be useful to:

- Teachers who would be interested in engaging in informal learning, yet lack the confidence to engage in this form of learning.

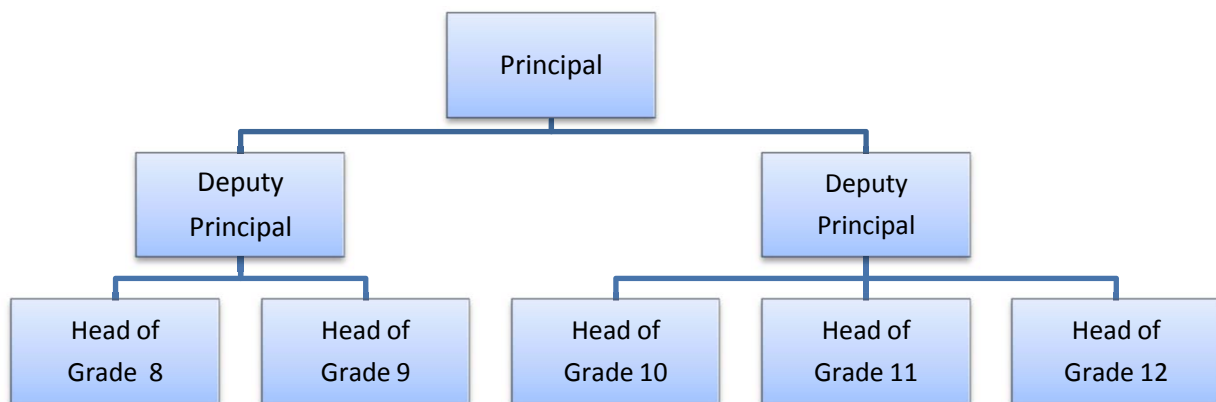
- Principals and school management teams to support informal learning initiatives and create the environment where informal learning can thrive.
- Teacher education stakeholders who design initial and in-service teacher education programme modules.

### 3.5 Access and Location of the Study

The research was conducted at my own school which is the real-life working context of the participants. I am Head of Department at my school and at a management meeting I sought permission from my principal to conduct the research at the school. Furthermore, my request was supported by a letter from my supervisor explaining the nature of the study and the offer to respond to any queries that might arise during the course of the study.

I teach at a suburban government high school for girls. The school is situated in a picturesque estate in the province of Kwa-Zulu Natal. At the time of the study the school had an enrolment of approximately 1 200 learners and a staff complement of 82.

The breakdown is as follows: 38 teachers are government employed, 26 teachers are employed by the school's governing body and 18 other personnel make up the administrative staff component – the secretaries. This number of administrative personnel excludes the support staff – the grounds men and cleaning team at the school. The school's management team is represented in the organogram illustrated below:



**Figure 3: School Management Organogram**

While the Heads of Grade are responsible for general administrative duties and pastoral care of the learners in each of the respective grades, Level 1 educators take on the role of Subject Head within each of the subject areas. Subject Heads are responsible for the general

administrative duties in each subject department including convening the fortnightly subject committee meetings.

Subject mentors are also identified within each department and are responsible for mentoring new members of staff into the respective departments. A new staff orientation programme is part of the mentoring programme for all new members of staff in order to help them integrate into the school context with ease.

In addition, the school has an effective mentoring programme in place and hosts University of Kwa-Zulu Natal (UKZN) and University of South Africa (UNISA) student teachers for the Post Graduate Certificate in Education (PGCE) school experience programme. I am the school's Liaison Mentor and I co-ordinate the internal logistics of running the school experience programme as part of my portfolio as Head of Department.

The case study school is well resourced and produces excellent results both academically and on the sports field. In addition to a sound academic programme, dynamic societies and cultural programmes are also in place to facilitate the all-encompassing development of the learners.

### **3.6 Sampling**

The participants for Stage 1 - 3 of the study were a group of five teachers, both novice and experienced. Through my interaction with my colleagues, I discovered that some of them were engaging in some form of informal learning in order to effectively deliver their respective curricula and the others were engaging with other members of staff for ideas on how to deal more efficiently with challenging teaching loads. I was interested to learn how they went about this. For example I wanted to find out how Michelle, a first year novice, was coping with the challenges of being a class teacher as well as having to deal with a demanding teaching load. Although Terry is a second year novice, my intention was to learn what coping strategies she had in place to handle her teaching now that she had a one year of experience under her belt. Both Sharon and Soreta are experienced teachers who had to deal with curriculum issues. I was curious to learn how they went about learning the new content they had to teach to their learners. Finally, I interested to learn how Kelly adapted her teaching style in order to incorporate the use an Interactive Smart Board in her lessons.

Thus, while the sample is purposive it was selected through a direct approach. The group was composed as follows: Michelle is a first year novice who teaches in the learning areas of

Life Orientation and Technology (FET and GET phase. Terry, a second year novice, teaches Mathematics and Mathematical Literacy (GET and FET phase).

Sharon is an experienced Physical Sciences teacher (FET phase). Soreta is an experienced Computer Applications Technology teacher (FET phase) and Kelly is an experienced Language teacher and Subject Head (GET and FET phase). The table below indicates the biographical details of the participants and the names used are pseudonyms.

<b>Names *Pseudonyms</b>	<b>Subject and Phase</b>	<b>Number of years as a teacher</b>	<b>Number of years at the school</b>
1. Michelle*	Life Orientation and Technology (FET and GET)	1	1
2. Terry*	Mathematics and Maths Literacy (FET and GET)	2	2
3. Sharon*	Physical Sciences (FET)	21	3
4. Soreta*	Computer Applications Technology (FET)	22	15
5. Kelly*	Languages (FET and GET)	9	9

**Figure 4: Biographical Details of the Participants**

I began the research process by getting the necessary documentation (consent forms) and stationery (journals, flip files) organized for the meeting I had scheduled. The first meeting was held during a lunch break in the school's marking room. I outlined the agenda for the meeting and proceeded to thank the participants for agreeing to participate in my study. I went on to outline the nature of the study and why I had decided to focus on this group of teachers specifically. Each participant was given a copy of the research design detailing the four stages of the data collection. This schedule also included tentative dates by which each stage had to be completed. The participants were informed of the ethical issues of the study and the precautions that would be taken to ensure confidentiality and anonymity. They were also told that they would not be disadvantaged should they choose to withdraw from the study at any stage. They were given a consent form outlining all the above mentioned details in writing which they then signed and returned to me. From this point on the study began to unfold.

### 3.7 Research Instruments

This case study was designed to unfold in three (3) different stages and a data collection instrument was designed specifically for each stage in the process so that qualitative data could be generated most effectively. The data collection schedule is presented in the table below:

Stage	Method	Participants	Time frame	Kinds of data collected	R.Q. answered
1	Journals	All 5 participants	Over 2 months	Qualitative	1 – 3
2	Photographs	All 5 participants	Beginning August	Qualitative	2, 3
3	Photovoice (participant)	All 5 participants	November	Qualitative	2, 3

**Figure 5: Data Collection Schedule**

#### 3.7.1 Journals (Stage 1)

Using journals as a data collection instrument requires one to keep a written record of one's experiences. In this case study, the participants were required to make journal entries of their learning experiences and reflect on their practice. Smith (2006) describes a journal as “a bound note book, a ring binder full of paper, a collection of electrical particles on a computer disc or an audio tape.” He says that people journal in different ways and he draws on Klug (2002) who explains:

A journal is a tool for self-discovery, an aid to concentration, a mirror for the soul, a place to generate and capture ideas, a safety valve for the emotions, a training ground for the writer, and a good friend and confidant (as cited in Smith, 2006, p. 2).

Dunlap (2002) says that journaling is a “unique data collection method” which can be used to “capture and track perceptual change and it also encourages reflection”, and Fellows (1994) adds that journal writing provides the researcher with a window into the students thinking process” (as cited in Dunlap, 2002, p. 2).

Smith (2006) says that all journal writing must involve learning at some level. Since the aim of this study was to understand what knowledges the participants learn, where they learn these knowledges, in what ways they learn and from whom, the above descriptions of the journals as a data collection instrument encapsulates the essence of how journaling applied to this study. As a researcher, the participants' journaling provided me with a "window" into how they engaged in informal learning activities. Moreover, it encouraged them to be reflective of their learning and of their practice as teachers too.

Each of the five participants was given an A4 notebook to record their reflections of their informal learning experiences. One of the participants chose to record her experiences electronically, using a computer. The participants were told that this was their book in which to write about the way they think about and experience their own development and learning. I asked them to be as open and as honest as possible and assured them that the journals would be treated completely confidentially. They were also told to write as much as they were able to and they were asked to be quite specific as they described their experiences.

As a means of getting the participants to engage with the project I asked each participant to write an autobiographical account (her own story) of how she came to be a teacher. To help them to focus on this entry, I asked them to identify and describe critical moments of their informal learning experiences. They had to write about specific people, events and things that impacted on their learning.

The participants were given a set of focus questions once a week over a nine week period to facilitate the process of focused and sustained journaling. The journal questions and two samples of the journal writing are found in Annexures D1 – D9. I devised a simple method of writing a personalized letter to each of them. In this letter, the focus questions were set out and I outlined what they needed to do. The participants said that this worked well. It was an organized method of dealing with the focus questions. They would eagerly look forward to the set of questions and instructions they received each week. I think that the personal attention they received from me helped them to take ownership of the study. Moreover, they were keen for me to read their entries and in this way I was able to assure them that they were on track.

The questions posed each week were designed to generate rich, detailed, textured data about specific experiences. This method was effective because each week they had to deal with a different aspect of their learning and development. The aspects covered included: (i) their understanding of the concept teacher learning, (ii) the spaces and places where they learn

most effectively, (iii and vi) describing incidents where they learnt new content knowledge, assessment strategies and classroom management strategies, (iv) reflecting on their development as teachers, (v) reflecting on what they needed to enhance their development, (vi) reflecting on how they learnt to be proficient (experienced teachers)/how they were learning to become proficient (novice teachers), (vii) reflecting on spaces that shape how they learn, (viii) reflecting on their professional development. I believe this method did allow for more focused journaling and detailed, textured data did emerge.

The data were analysed by reading the journal entries in detail, thereby looking to identify patterns and themes that emerged around the knowledges the participants learnt, the ways in which they learnt these knowledges, the spaces in which they learnt these knowledges and with whom.

While there are many benefits to journaling as a data collection instrument, the Aimi et al., (2009) study undertaken to investigate the use of journal writing in the science classroom brings to our attention some of the weaknesses of journals as a data collection instrument. Essentially journals were used to determine how students perceived journal writing activities in the classroom and to ascertain how journaling was used by teachers and learners to reflect on teaching and learning experiences. The findings from their study indicate that there could have been improvement in writing and observational skills which would have had the overall effect of improved academic performance. There was no confirmation of this. The weakness, however, was that the students could have written in a way to “please the teacher”. There was evidence that the female students wrote more than the males. A very real weakness was that students could have become frustrated by the overall amount of writing that was involved. Here again, the researchers were not able to confirm this.

### **3.7.2 Photographs (Stage 2)**

Photographs taken by the participants were used as a data collection instrument to determine and understand visually, the spaces where the participants’ learning takes place and it helps to answer Research Questions 2 and 3 - 2. *In what ways do teachers learn informally at school?* 3. *What kinds of knowledge do teachers learn informally at school?*

Warren (2005) explains that the “visual dimension” of social life is gaining attention within organizations and management studies. She adds that the “visual world has become another “text” that can be read and one that gives us clues about those who produce it.



Wagner, (1979), Collier and Collier, (1986) describe photo-elicitation as a method that uses images (photos) as a stimulus to draw out information from the participants (as cited in Warren, 2005, p. 865). Native image making is a term coined by Wagner (1979) for the process of researching another's world (ibid).

As the researcher, this method helped me to understand how the participants in this study made meaning of what they do. In this study, the photos also served to verify the responses that were emerging through the journal entries. It was an effective tool for getting the participants to express their lived experiences. Since all photographs evoke memories, they are therefore symbolic in nature. In this case the photographs represented symbolic spaces where the participants in the study engaged in their learning. Moreover, for the purposes of this study, the photographs contextualized visually for the researcher, how the participants learn informally in the spaces that were photographed.

The spaces they photographed may or may not have included other people. The participants were reassured that their ideas were important and not their photographic expertise. The photographs were used as a stimulus during the individual interview session where they were asked to talk about why they had chosen those particular spaces. The idea was to get them to lead me through their photo album during the interview.

This stage of the study unfolded in the following way. Each participant was given a disposable camera. They were asked to take approximately 15 photos of the spaces where they believed that they learn informally and develop their professional practice as teachers. Once they had taken their photos, I had the photographs developed. Each set of photographs was given back to the participants. They had to go through the photos and choose about 5 - 8 photos that they wanted to talk about in the interview. The photographs had to be numbered. The photographs appear as part of the narratives and will not be attached as a separate annexure.

### **3.7.3 Photovoice (Stage 3)**

There are four basic variations to the process of photo-interview. Photovoice, the term coined by Wang (1999) to get communities to "point and shoot" cameras in community projects, is being used increasingly in educational research in South Africa.

Mitchell (2008) explains that researchers internationally and nationally are building on the work of Wang (1999). Researchers in South Africa are looking into a variety of issues including the HIV and Aids pandemic through their work in rural areas with teachers and

health care workers using photovoice methodology. This study used a variant of photovoice because as the researcher, I wanted increased participation and buy-in to the study from the participants. With photovoice, the power of the participant is increased. The participant's voice is heard. The photograph as "voice" communicates something to a wider audience through its "iconography" and it activates the "voice", meaning that it gives the participant something to talk about which they own, because they made it themselves (Warren, 2005, p. 869).

In another instance, it could be said this style of interviewing also falls into the Key-Informant approach. I was collecting data from persons who are unique because of their positions or experience. This method allowed for detailed, descriptive data to be gathered from the participants which could be to answer the research questions. Furthermore, it allowed me to probe and clarify the data in the journals in instances where the information was insufficient and unclear. The approach described below applies to all the participants in the study.

The interview was conducted by telling the participant that the interview would be audio-recorded. I began the interview by welcoming the participant, thanking her for participating in the study and reminding her of the ethical issues that framed the study. I went on to outline the nature of the interview. I did this by explaining the photovoice technique of interviewing. The interview proper began with me asking the participant a few questions to elicit biographical details.

By approaching the interview in this way, it had the advantage of settling and relaxing the participant. Thereafter, I asked the participant to tell me about each of the photographs she selected for the interview. It was as if the participant was taking me through her photo album.

She was willing to talk and this was because she was in control. The photo certainly evoked memories and it allowed the participant to think and reflect more deeply on her experiences. Each interview lasted between 30 - 45 minutes. The tapes were transcribed for the participant to verify the description and interpretation of the data and to facilitate in the analysis.

Once the interview process was over the transcripts were transcribed and given to the participants to verify. After this step had been completed it was time begin the data analysis process by reading each transcript in detail. The patterns and themes which emerged around the knowledges the participants learnt, the ways in which they learnt these knowledges, the

spaces where they learnt these knowledges and with whom were identified and coded. The first layer of analysis was completed. The next step was the process of writing a narrative for each participant. The journal entries and the interview transcripts were used as the basis for the writing of these stories. The narrative writing was really the second, deeper level of analysis. The different knowledges that were learnt and from whom they were learnt, the spaces where these knowledges were learnt and from whom they were learnt, were then identified and categorized by using Grossman's (1990) conceptual framework of teacher knowledges. Finally, the new teacher learning quadrants adapted from Reid's (2005) quadrants of teacher learning and Kwakman's (2003) views on how teachers learn was used to plot the knowledges learnt and the ways the knowledges were learnt.

The narratives were also given back to the participants to check the accuracy of their stories. The reactions from the participants once they read their stories were quite enlightening. They were all delighted to see their stories "come to life". They said that while they had a tacit understanding of the value of their informal interaction with colleagues, they did not really understand the significance of this interaction. This experience had the value of getting the participants talking about and sharing their learning experiences with each other. They compared how they learn, what they learn and with whom.

### **3.8 Design Limitations**

One of the limitations to the study was my position as teacher and researcher in my own school. I needed to develop a relationship of trust with the participants on another level in order for them to fully embrace the study and participate without feeling threatened in any way. I believe I achieved this through personalizing my correspondence to them. They were continuously assured that their entries were confidential and this gesture helped them journal with more depth.

However, one other limitation of researching in one's own real-life working context arises when deadlines have to be met. I think that I would have adopted a more clinical approach to getting back data from all the participants had I chosen to research outside my own work environment. I constantly had to extend deadlines to have data returned to me for one of the focus group participants.

Perhaps I was a little afraid of the implications of insisting that things had to be returned to me on time – after all this was my colleague at another level, in another space

### **3.9 Trustworthiness**

The verification of the transcripts was the method used to strengthen the trustworthiness of the data. The interview was also used to clarify issues that were not too clear in the participants' journals. The technique of using multiple methods for the data collection, (journal and photographs) added layers to the data.

Moreover, I kept in touch with the participants all through the study, without them feeling smothered. They appreciated this approach and were keen to have me read their journal entries. The feedback that I gave them in their journal encouraged them to reflect more deeply.

Certainly the results emerging from this study cannot be replicated. However, the use of journals, photos and photovoice as data collection instruments are trustworthy methods to understand how people make meaning of what they do.

### **3.10 Ethical Issues**

This study strictly adhered to the ethical principles of research by: (i) explaining the nature of the study to the participants, allowing them to make an informed choice to participate voluntarily in the study, (ii) assuring them of the confidentiality of the information they provide, (iii) informing them of their autonomy and letting them know that they are free to withdraw from the study at any time, (iv) requesting their permission to tape-record the interviews and (v) getting them to sign a consent form detailing all of the above. The University of Kwa-Zulu Natal protocol for getting Ethical Clearance was followed (see Annexure A).

The next chapter, Chapter 4 presents and discusses the Theoretical and Conceptual Frameworks used to frame the study and centre the data analysis process.

## Chapter 4: Theoretical and Conceptual Frameworks

### 4.1 Introduction

This chapter describes the theoretical and conceptual frameworks of this study. The theoretical framework relates to the principles underpinning a socio-cultural perspective on teacher learning as discussed by Kelly (2006). The study used Grossman's (1990) model of teacher knowledge to describe the types of teacher knowledge the participants learnt and continue to develop and it draws on the work of Reid (2005) and Kwakman (2003) to analyse the ways teachers learn informally.

### 4.2 Socio-Cultural Theoretical Framework

Kelly (2006) discusses two different theoretical approaches to teacher learning, that is, the cognitive approach and the socio-cultural approach. There are many cognitive models of teacher learning and these models essentially share a common view that teachers acquire skills, knowledges and understandings in one setting and are able to make use of what they learnt and apply it elsewhere. The cognitive approach to teacher learning is also said to be underpinned by a "simplistic notion" of teacher learning – the main critique of this approach is that this transfer of knowledge often does not take place.

Kelly (2006) acknowledges researchers such as Lyle (2003), Dunscombe and Armour (2004), Hoban and Erickson (2004) who have responded to the cognitivist view of teacher learning by looking at the socio-cultural perspective advocated by Lave and Wenger (1991) and Wenger (1998). The socio-cultural approach argues that teacher learning is reflective, discursive, and collaborative, inclusive of teacher expertise. The main thrust being that teacher learning should be *situated in the workplace*. Kelly (2006) explains that many theories and views of teacher learning can be found within wider socio-cultural perspectives but all have a different view of teacher learning from that which cognitivists promote.

Kwakman (2003) also describes and analyses two theoretical approaches, namely, the Cognitive Psychological Perspective and the Professional Development Perspective. She does this to "develop a rationale for further study into alternative professional development approaches" (Kwakman, 2003, p. 150).

The Cognitive Psychological Perspective as analysed by Kwaakman (2003) requires teachers to learn new ways of teaching, to construct their own knowledge, direct their own learning. Furthermore, this perspective advocates that the teacher does not learn by transmission of

knowledge alone, rather a conducive environment has to be created in which a teacher can be responsible for his/her learning. This perspective gives a lot of importance to the role staff developers' play and supports learning setting outside the classroom. This is because the workplace is not seen as being appropriate for learning goals to be achieved. However, Putnam and Borko (2000) argue that while learning away from the classroom can be regarded as a "valuable opportunity to learn and think in new ways", it is not easy to simply integrate these newly acquired ideas into one's immediate method of practice. The assumption here is that knowledge acquired at one site is easily transferred to another site. Kelly (2006) argues against the cognitive model saying that it lacks the capacity to take into account the "complexity of teacher learning" in a number of areas.

Kwaakman (2003) explains that the Professional Development Perspective advocates that teacher learning does not primarily address fact-based knowledge. Teachers have to learn new concepts of content and pedagogy and have to take on new roles. It is important for them to acquire competencies to fulfill the new roles. The working context is seen as suitable because new competencies can only be developed in practice. The teacher is seen as "key" in directing and organizing his/her own learning. It is believed that traditional professional development does not help teachers learn how to teach for understanding. Teachers have to develop competencies to be able to teach for understanding effectively. This perspective also supports the idea of professional communities as learning settings. The assumption here is that the transfer of knowledge does not happen easily and thus learning should be situated.

Kelly (2006) and Kwaakman (2003) have similar views about the theoretical approaches to teacher learning. The differences between the cognitive perspective and the social-cultural perspective as discussed by Kelly (200) have been summarized and are presented in a table on the next page.

<b>Cognitive perspective</b>	<b>Socio-cultural perspective</b>
1. Teacher expertise is in the minds of individuals. Teacher knowledge does not account for knowledge-in-practice and knowledge-of-practice.	1. The process of knowing does not reside within the individual, it is distributed across teachers, learners, etc. Expert teachers have an active and productive relationship with knowledge-in-practice and knowledge-of-practice.
2. It separates the acquisition of knowledge, skills and understanding and assumes that the process of transfer occurs.	2. Teacher expertise is linked to circumstances in which it's applicable, to particular working practices, their associated ways of thinking which define their school circumstances.
3. Does not recognize a closer, more complex relationship in which „knowing’ is distributed across teachers, learners, resources, etc. Learning moves you from being a novice to an expert.	3. Teacher learning is the movement of teachers from novice to expert participation in working practices and their associated ways of knowing and thinking which define particular school circumstances.
4. It ignores the wider social context in which teachers work, their perspectives and their identity as teachers.	4. Teacher identities are significant and revealed in the stances that teachers adopt in their working lives.

**Figure 6: A Comparison of the Cognitive Perspective and the Socio-cultural perspective on teacher learning (Kelly, 2006)**

The cognitivist model does not acknowledge what Schön (1983, 1987) calls „knowledge-in-practice’, what Sternberg and Horvath (1999) call „tacit knowledge’ or for a process of „knowing’ which is „distributed’ according to Pea (1993) or „stretched’ as Lave (1991) indicates, across people and settings (as cited in Kelly, 2006).

The socio-cultural perspective argues strongly that teachers have both implicit and explicit conceptual resources at their disposal. The implicit conceptual resources and the explicit conceptual resources that teachers possess really are a teacher’s knowledge-in-practice and knowledge-of-practice.

Knowledge-in-practice refers to one's 'tacit' understanding that develops with one's teaching experience and can be equated to procedural/"how to" knowledge discussed by Knight (2000). Knowledge-of-practice refers to, for example, one's knowledge of the discipline - Physical Sciences or Mathematics, or one's content knowledge and pedagogic knowledge and it can be equated to "propositional knowledge" described by Knight (2000).

To reiterate, this study is located within the broad principles of a socio-cultural perspective on the teacher learning process. Its purpose is to investigate the contemporary phenomenon of informal teacher learning in order to understand: (a) the kinds of knowledges the participants in the study learn informally and (b) the ways they acquired these knowledges and how the acquisition of the different knowledges impacts on their conceptual knowledge-in-practice which is understood to be "a distributed, dynamic process resulting from collaborative actions of teachers and students together in the context of their own work" (as cited in Kelly, 2006, p. 510).

To place this study in context it is important to remember that presently, many professional development initiatives create opportunities to develop knowledge-of-practice alone. This form of knowledge is important but its dominant focus in professional development highlights the cognitive view, that knowledge acquired in one setting can be taken and applied to one's practice in the classroom. Desforges' (1995) review of literature, however, shows that "knowledge acquired in one setting is seldom used by learners in other settings", (as cited in Kelly, 2006, p. 506).

Drawing on the literature examined for this study, the view is that different models of teacher learning draw attention to the fact that in the international education arena, the US education context in particular, the move is now, *away* from "direct teaching" to practices that involve "learning in the school" (Lieberman, 2008, p. 592). With the proposed establishment of Professional Learning Communities by the Department of Education, the South African education arena too, seems to be leaning towards this form of teacher learning.

### **4.3 Grossman's Conceptual Framework of Teacher Knowledges**

In order to answer research question 3, it was necessary to use a framework which describes the different kinds of teacher knowledge. There are various models of teacher knowledge and we begin with Reed (2009) who acknowledges the work of researchers from the UK – Banks, Leach and Moon (1999), the US – Darling-Hammond (2006) and South Africa – Adler, Slonimsky and Reed (2002) and Morrow (2007b), education contexts. She explains



how each of these models was conceptualised and takes note of the “variations in terminology and the examples” the models include. Reed (2009) identified five common elements emerging from all of these models. She points out that the central element found in the models conceptualised by Darling-Hammond (2006) and Banks et al. (1999) is that of “teachers’ histories and identities”. However, none of the models took into account the elements of “knowledge of self as learner and teacher” and “academic literacy” (p. 180).

The model of the knowledge base for teacher education that Reed (2009) conceptualised takes into account the five common knowledges she identified and includes “knowledge of self as learner and teacher” and “academic literacy”. The knowledges required are listed below:

- (a) subject or disciplinary knowledge
- (b) pedagogic knowledge
- (c) knowledge of how learners learn
- (d) knowledge of curriculum
- (e) contextual knowledge
- (f) knowledge of self as learner and teacher
- (g) academic literacy

While Reed’s (2009) model was developed specifically to use as a framework to analyse distance education material for teachers, which is a formal, planned learning opportunity, it is not completely applicable to this study. However, it is important to take cognisance of Reed (2009) who highlights the groundwork undertaken by earlier researchers on the kinds of knowledges a teacher requires.

Moving on, it is evident that there are four cornerstone knowledges which every teacher requires. Grossman (1990) discusses the knowledges teachers acquire and builds on the research undertaken by Shulman (1986a, 1987) and Wilson, Shulman and Richert (1987) to examine the four basic aspects of teacher knowledge which she describes as the “cornerstones of the emerging work on professional knowledge for teaching” (as cited in Grossman, 1990, p. 5). While this work was done more than two decades ago, these four basic aspects of teacher knowledge remain at the core of the debate around what constitutes professional knowledge and how to conceptualise this knowledge. Therefore, the work of

Grossman (1990) was used as a framework to describe the different kinds of teacher knowledge and these cornerstone knowledges are described as follows:

#### **4.3.1 General Pedagogic Knowledge (PK)**

This knowledge type includes one's general knowledge, beliefs and skills that are necessary for teaching. More specifically it includes having knowledge about: learning and learners, knowledge about the general principles of actual instruction, knowledge of classroom management and knowledge of the overall aims and purpose of education.

#### **4.3.2 Subject Matter Knowledge (Content Knowledge)**

Subject matter knowledge involves having knowledge of the subject itself. It refers in particular to having knowledge of the main facts and concepts within a subject and the relationship that exists between them. This knowledge form is also about having knowledge of the theories of learning. Shulman and Grossman (1987) say that a teacher's knowledge of the content does influence what and how he/she teaches.

#### **4.3.3 Pedagogic Content Knowledge (PCK)**

Research indicates that teachers draw on knowledge which is specific to teaching particular subject matter. Grossman (1990) draws on Shulman (1986a) who refers to this knowledge type as pedagogic content knowledge (PCK). He includes the following as examples of PCK: regularly taught topics, useful representations of these ideas, the most powerful analogies, illustrations, examples, explanations and demonstrations to make the concepts understandable to others. Other relevant examples of what Shulman (1986a) believes constitutes PCK are: an understanding of what it is that makes a topic easy or difficult and the conception and preconceptions that learners of different ages and backgrounds bring with them to the learning of these frequently taught topics.

Grossman (1990) also discusses the four central components of PCK.

These are:

- knowledge of the purpose of teaching a subject at different age levels.
- knowledge of what learners should already know about a topic and what they are likely to find difficult.

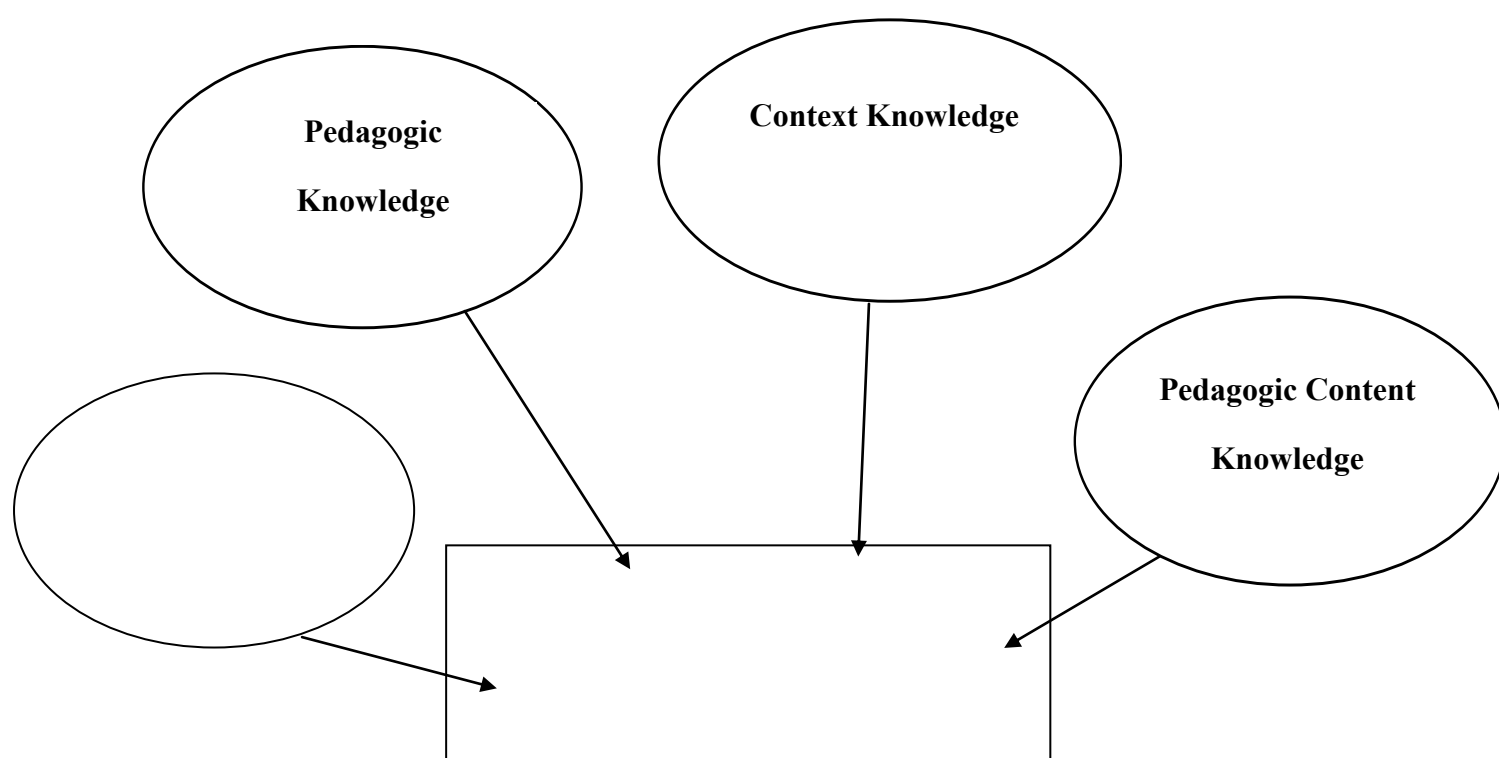
- curricular knowledge - knowledge of the curriculum materials available as well as the horizontal and vertical curricular of a subject.
- knowledge of instructional strategies for teaching a particular topic. The experienced teacher will have a strong repertoire of metaphors, experiments, explanations etc. Beginning or novice teachers are still in the process of developing their instructional strategies.

#### 4.3.4 Knowledge of Context

This knowledge type requires the teacher to develop an understanding of the unique context in which he/she works. The teacher will need to adapt his/her style to suit the needs of the school environment and the learners. The teacher's knowledge, if it is to be effective in the classroom, needs to be context specific. It can be said that the ability of a teacher to acquire the four basic knowledges and put these into practice effectively will impact positively on his/her conceptual knowledge-in-practice.

A diagram to this effect was created to give a visual perspective of the different knowledges and how they feed into a teacher's conceptual knowledge-in-practice.

#### 4.4 Grossman's Conceptual Framework of Teacher Knowledge



**Figure 7: A Diagrammatic Representation of Grossman's (1990) Conceptual Framework of Teacher Knowledge**

Having explained the different kinds of knowledges that teachers require and perhaps need to acquire, the next part of the discussion focuses on teacher learning and the ways teachers come to acquire these knowledges.

The study draws on the work of Reid (2005) (see Chapter 2) and Kwakman (2003) to analyse the ways teachers learn informally. The discussion begins by giving an explanation of how the key concept of teacher learning was used in this study.

## **4.5 Defining the Concepts used in the Study**

### **4.5.1 Informal Learning**

Eraut (2004) defines informal learning as:

*“Learning that comes closer to the informal end rather than the formal end of a continuum. Characteristics of the informal end of the continuum of formality include implicit, unintended, opportunistic and unstructured learning and the absence of a teacher”* (p. 250).

According to Eraut (2004) informal learning is different to formal learning because of the “flexibility” and “freedom” it allows the learner. While informal learning takes into account the importance of learning from others (social aspect of learning), the individual aspect of learning too, is hugely important and it is acknowledged. Furthermore, informal learning is described as a type of learning which takes place in a variety of spaces.

### **4.5.2 Formal Learning**

Having taken into account how Eraut (2004) defines informal learning, this study acknowledges that formal learning is different to informal learning. Thus it describes formal learning as one’s primary, secondary, tertiary and post tertiary learning in institutional spaces. In addition it can be seen as a type of learning that takes place in a structured manner, within a contextualized environment and in the presence of a teacher.

### **4.5.3 Activities that Result in Learning Informally**

Eraut (2004) identified four main types of “work activities” that result in learning:

1. Participation in group activities
2. Working alongside others

3. Tackling challenging tasks
4. Working with clients

## **4.6 Kwakman's Concept of how Teachers Learn**

Kwakman's (2003) definition of teacher learning captures the essence of this concept and is applicable to this study. She defines teacher learning in the workplace by using three important principles: (i) learning is seen as involving participation in activities, (ii) learning is individual as well as social in nature, and (iii) learning is necessary for teachers to develop professionally. She adds that one can learn by reading, through doing, through reflection and through collaboration and that learning is influenced by personal and contextual factors.

For this study, under the broad category of informal learning, new quadrants of teacher learning was developed by adapting Reid's (2005) quadrants of teacher learning and Kwakman's (2003) concept of the ways teachers learn.

These quadrants were created as a „heuristic' - a model and were used to organise and understand the data so as to describe the real world of the participants. Furthermore, it must be noted that due to the „porousness' of the boundaries set up (particularly between whether an activity is planned or unplanned), the activities could sometimes fit into more than one quadrant and the activities could be found to slip between the quadrants. The quadrants are made up of the following categories:

### **4.6.1 Individual Unplanned Learning (Quadrant 1)**

Examples of individual, unplanned learning with or without resources are reading books and coming across something relevant for own teaching, reading the newspaper and finding a relevant article for a teaching resource, surfing the internet and finding a relevant resource or information, incidentally listening to revision programmes on the radio.

### **4.6.2 Individual Planned Learning (Quadrant 2)**

These learning activities can be subdivided into:

Engaging in studying, planning to find resources in books or on the internet, choosing to practice a new experiment that one is not familiar with, choosing to practice new content material that one has not taught before (e.g. doing the textbook exercises), planning to use the Internet to find specific teaching resources

### **4.6.3 Unplanned Social Learning (Quadrant 3)**

Informal, spontaneous activities that include chatting at tea and lunch time in the staffroom or in the corridor or during free periods.

Working alongside each other by practising together, sharing ideas, collaborating, informing one another of subject related issues. Blogging, interacting with colleagues via emails.

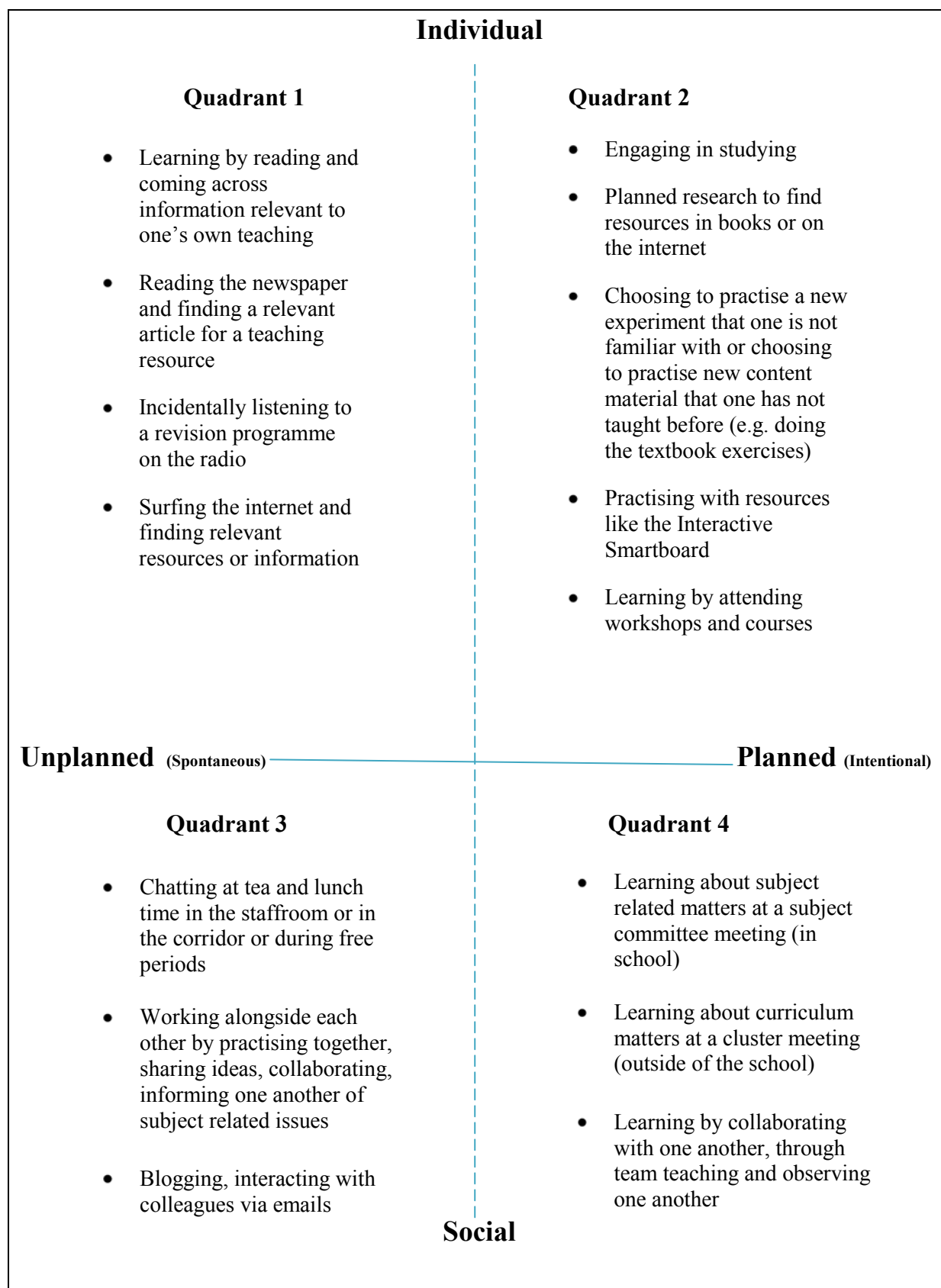
### **4.6.4 Planned Social Learning (Quadrant 4)**

This category refers to intentional learning that takes place socially with or without resources.

Learning about subject related matters at a subject meeting (in school) or learning about curriculum matters at a cluster meeting (outside of the school) or by team teaching and through observing one another are examples of planned, social learning.

A visual representation of the quadrants of informal teacher learning adapted from Reid, (2005) and Kwakman, (2003) appears on the next page.

## 4.7 The Quadrants of Informal Teacher Learning



**Figure 8: The Quadrants of Informal Teacher Learning with Examples -**

Adapted from Reid (2005) and Kwakman (2003)

The following are examples taken from the narratives to show how the conceptual frameworks were used to analyse the data.

1. Kelly, the language teacher moved into a classroom with a Smartboard, and said that she came in during the school holiday to practice so that she was competent to teach using the Smartboard when her learners came back the following term, I took this to mean that Kelly was refining and enhancing her pedagogic content knowledge and she did this an individual capacity with resources in a planned manner.
2. Terry, the novice Mathematics and Maths Literacy teacher said that she learnt how to set exam papers from Ellen, a colleague, during her free period. I coded this as learning pedagogic content knowledge by working alongside a colleague in a planned manner.
3. Soreta heard about an „online internet course’ through yahoo groups made up of teachers who teach CAT and IT and registered for it. The yahoo group she belongs to communicate about subject area matters. I took this to mean that Soreta was developing her curriculum knowledge and content knowledge by learning socially in both an unplanned and planned manner.
4. Michelle said that the subject committee time is valuable to her. The purpose of this meeting is to discuss and plan the content that is going to be taught in the different grades. I coded this as Michelle developing and learning different knowledges through group activities in a formal planned time by discussing and interacting collegially with colleagues.

## **4.8 Conclusion**

In conclusion, this chapter outlined the principles underpinning a socio-cultural perspective on teacher learning and conceptual frameworks used in this study to describe the types of teacher knowledge and the ways teachers learn. The study used Grossman’s (1990) model of teacher knowledge and the work of Reid (2005) and Kwakman (2003) to analyse the knowledge teachers learn and the ways teachers learn informally. The concepts used in the study have been defined and examples from the participants’ narratives have been used to indicate how conceptual frameworks informed the data analysis. The next chapter, Chapter 5 is a presentation of the participants’ narratives and it is also the first level of analysis in the analysis process.



## Chapter 5: Narratives

### 5.1 Introduction

This chapter deals with the participants' real, lived experiences of engaging in teacher learning. These participants are both novice and experienced teachers and it was through my social and collegial interaction with them that I discovered that they were involved in some form of teacher learning. The data shows that each teacher has a diverse, unique and interesting approach to teacher learning. Having used photographs, photovoice and journal entries as data collection instruments, the narrative style of writing seemed to be an appropriate approach to use in order to illustrate their learning experiences. The narrative accounts that follow tell the story of how each participant engages in learning, what it is that they learn (what kind of knowledge is acquired) and how they learn (using the broad categories of informal learning – social and individual learning and planned and unplanned learning). I begin with Sharon's story.

### 5.2 Sharon – The Experienced Physical Sciences Teacher

Sharon comes from a family of teachers and she describes herself as having many faces – wife, mother, teacher, community member. She has been teaching for 21 years. Her husband is also a teacher and they have a most unusual approach to “staying fresh and not frustrated” in the profession. They decided early on in their careers to change schools every 5 or 7 years. This has also meant moving their home. In this way Sharon and her husband have taught in 8 different schools and she jokes that they now have “*a blueprint for the creation of an ideal school*”.

For the first two years after completing matric, she studied medicine at Wits University but she switched to do teaching because she found that she really was having difficulty adjusting. She then studied for a Junior Secondary Education Diploma (JSED). Sharon describes her experience as a learner at school as an enjoyable one.

*“I loved going to school. It was a community based experience. You had your siblings, cousins and neighbours attending the same school. The school environment was safe and secure and you felt comfortable and settled in quickly because you had familiar people around you. There was no need for ice-breakers in those days”.*

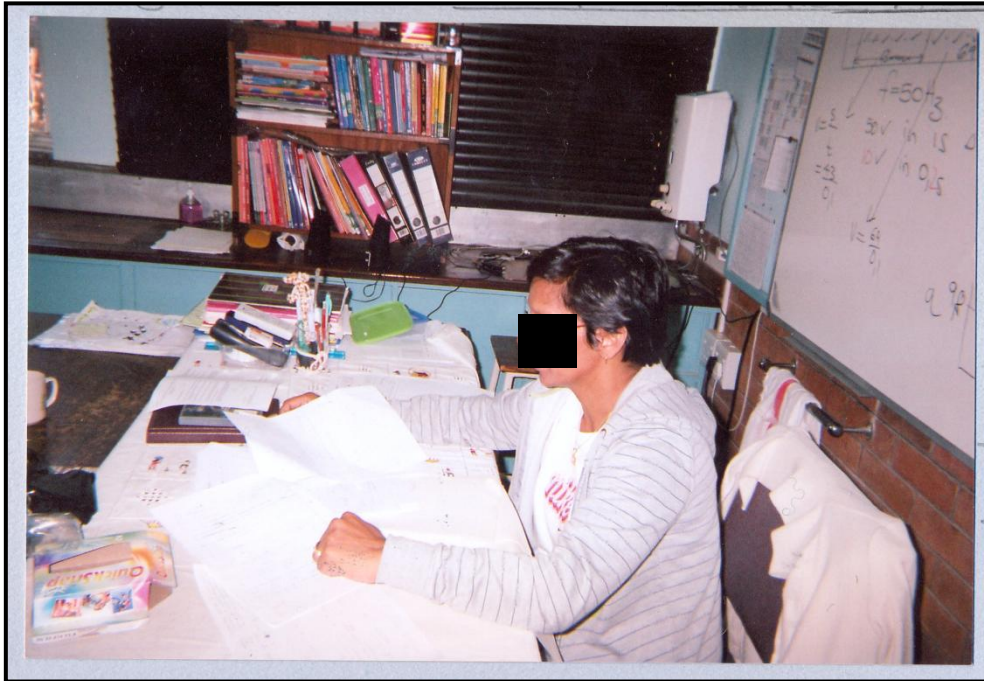
Looking back, she realized that she loved teaching and that it was her calling to become a teacher. At the time of the study she has been teaching at the case study school for 3 years.

She teaches Physical Sciences in the Further Education and Training Phase (FET) to Grades 10, 11, and 12 learners. Sharon shares the Physical Sciences teaching load with two other colleagues, Priscilla and Sue. Mandy is the lab technician and she works between the Life Sciences Department and the Physical Sciences Department, co-ordinating and setting up the practical experiments. The Physical Sciences Department is well resourced and recently all three teachers received Interactive Smartboards. Learners show a very keen interest in Science as a subject for Matric. As a result of the large number wanting to choose Science, their Grade 9 Mathematics mark is used to screen them. In the 2010 Matric Examination, the Physical Sciences Department achieved 31 distinctions out of a total of 72 learners. In Grades 10 and 11 the learners also generally produce good results.

Sharon understands the concept of teacher learning as “learning from various sources which include learning from TV, learning from my learners, learning outside the classroom as well as learning as an individual”. She added that teacher learning does not only relate to subject content learning but to any kind of learning that would improve one as a teacher. An example that she offers is, *“learning about how to approach (the method) the content of your subject in order to clearly and effectively transmit your message to your learners”*.

Sharon also believes that one has to be open to life-long learning and describes herself as self-motivated. She has to engage in research to learn more about the new content for her subject before she teaches it.

Sharon photographed spaces in which she learns. She took photographs of herself in her lab, with her colleagues and in her car. These photographs indicate that she is able to engage in social and individual learning as well as planned and unplanned learning. The photographs also confirm her view that teachers learn by observing, interacting, conversing, by doing and by working with others. She took me through her “photo album” recounting the kinds of knowledges she learnt in these different spaces and the ways in which she learnt these knowledges.



**Photograph 1**

**Photograph 1** shows Sharon engaging in individual learning with resources. She said that she spends most of her free time in her lab at school planning and preparing for her lessons. In this space she has easy access to her research books and other resources such as her computer and equipment for practical experiments. Her content learning takes place in this space. Preparation of lessons in this space also serves to enhance her pedagogic content knowledge. Sharon said that planning her lessons is key to the following aspects of her teaching: (i) selection of content, (ii) sequencing of content and (iii) the pace at which the content is taught. She said that she develops her teaching strategy (methodology) when she plans how to teach new content.

Sharon also spoke about the importance of having knowledge of how her learners come to know her subject. Through her experience as a Physical Sciences teacher, she has learnt not to make assumptions about what her learners might already know. She taught at a high school for 14 years before moving to a primary school for a few years. It was at the primary school that she became acutely aware of how negligent it is on the part of the teacher to assume what the learners already know. Her approach to teaching content in high school previously, was to go into the difficult problems and then get the learners to work through the easy problems as homework. She did this on the assumption that the learners who choose Physical Sciences have been screened to do the subject. Now she teaches every section “like telling a story”.

Sharon said that if the learner already knows the content, then this method only serves to reinforce what is known. She used the example of the term “rest” to explain what she meant.

In Science the term “rest” means “zero”. If a learner does not understand the basic terminology an entire section is lost to him or her. *“Teachers often assume that learners know things, I did too and the results were disastrous”.*

Clearly, as an experienced teacher Sharon is demonstrating good understanding of how her learners learn and how their contexts impact on them learning about the subject. In other words, she has strong pedagogic content knowledge (PCK). She incorporates the technique of drawing stick figures to make concepts clear. She laughed as she recalled a lesson when she drew a trolley to make a point clear. One of her learners came up to her later and said,

*“We laughed at your drawing of the trolley and said that it looked like the Flintstone’s car, but we all remembered the problem so well.”*

Sharon described the different ways in which she learns. She said that learning content usually involves her working on her own. If she needs clarity on some aspects of content, the curriculum or even school related issues she discusses it at a subject committee meeting. In this way she is able to confirm her views on aspects of the content as well as eliminate any misconceptions that may arise. Subject committee meeting times at the case study school have been officially set aside by the school’s management. A subject committee meeting alternates with a staff meeting which is held on a Wednesday afternoon. This is an example of learning content knowledge, curriculum knowledge and contextual knowledge socially in a formal setting.

**Photograph 3** was taken in her car. Sharon is sitting in her car listening to her radio while she is reading. She said that she usually does this while waiting to fetch her son from sport. This space and time allows her to catch up on her reading which she said enhances her content knowledge. Moreover, this space allows her to be prepared at all times for her lessons. *“I always know what I am going to teach”*. One afternoon, while she was listening to the radio in her car, she heard some very important information about her subject. She was tuned into a phone-in-programme being aired on a local radio station. This particular programme was designed to assist matrices with their revision.



**Photograph 3**

Each afternoon a different subject was discussed. As it happened, she was tuned into the Physical Sciences revision programme. Sharon discovered for the very first time that afternoon that the section on Lasers had been removed from the syllabus. Luckily for her, she had planned to teach the section later on in the year. Secondly, Sharon learnt a new teaching strategy.

*“You know, you can read a textbook and know what you are going to teach, but to hear the style and the manner the experts on the show use to teach and to put across the content are so valuable. I learnt teaching strategy from the radio”.*

Thirdly, Sharon made notes from listening to the experts in the field and she took this information back into her classroom. Sharon used what she learnt on the radio on another level as well. During tea time she sits with friends who teach other subjects. In this space she was able to share with them what she heard on the radio about their subjects. She wanted them to be aware of some of the concepts and issues that were discussed on this revision programme.

In this instance, while the learning took place as an individual, what followed can be described as a group activity in an informal context - at tea time with friends. Sharon shared what content knowledge she learnt about other subjects with her friends.

Another aspect of her knowledge that she was able to enhance was her classroom management strategy which is also called pedagogic knowledge. In a journal entry, Sharon described how she acquired this knowledge.

The focus of journal entry 3 was to get all participants to reflect on an incident where they learnt a new classroom management strategy. The participants had to describe how they learnt this strategy and from whom and in what context. During tea one day Sharon chatted to Terry, a friend she sits with, about a concern that she had. She was worried that some learners were “slipping through her fingers” and the main reason for this was the way the lab counters were arranged.

She found it difficult to monitor the learners sitting at the middle tables because she was not able to get to them physically. Terry is an old girl of the school and she explained to Sharon the method her Science teacher used. Apparently he would get each row to move one row forward every week. Sharon thought that this was a good technique and modified it slightly. Not only do her learners move one row forward she also gets them to also move two spaces to the right. In this way the learners were rotated within the lab and Sharon had more contact with them. This is an example of acquiring pedagogic knowledge in an informal way from a colleague.

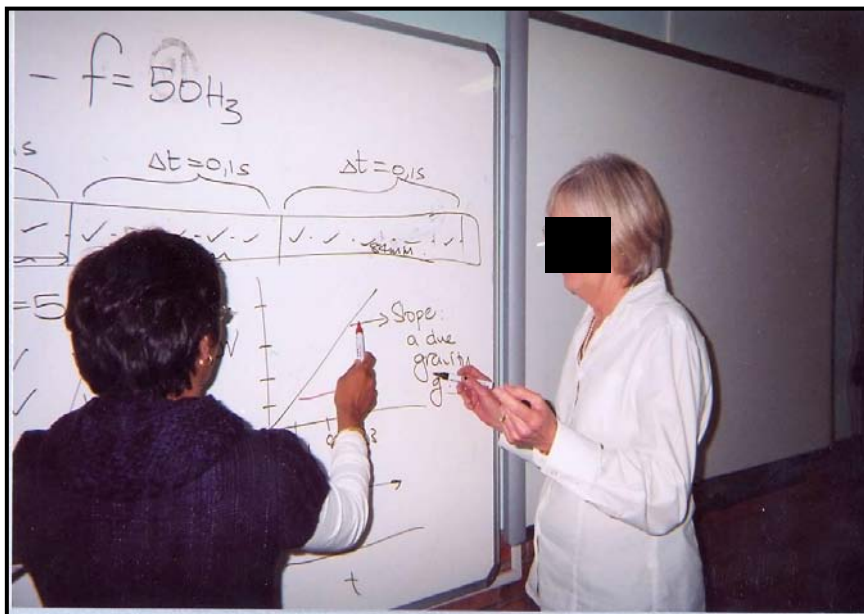
Coming back to her own learning, Sharon describes her immediate support team in **Photographs 8 and 9**. The learning style in focus in these two photographs falls into the category of working alongside colleagues. Both photos were taken in Sharon’s lab. She describes this space as the space where her content knowledge of the practical component of Science is developed.

In **Photograph 8**, Sharon and Priscilla work closely together in developing the content which has to be taught. Reflecting on **Photograph 8**, Sharon explained that the Revised Curriculum Statement brought in new content, some of which both she and Priscilla did not cover at university. She added that because the syllabus is so wide, “*We have to decide and find the middle ground of what has to be covered together*”. Sharon and Priscilla learn from each other by discussing and collaborating. The topics that have to be covered in their subject do not appear in the textbooks, so they have to research, learn the content and then teach it to their learners.

*“We work closely together in a collegial atmosphere to ensure the smooth running of the department as well as the practical component of the syllabus”.*

In journal entry 3 Sharon also described how she goes about learning new content.

*“I use a few reference books and study like a student, making summaries and notes as I go along. Then I do the calculations and note the possible errors that the learners might make”.*

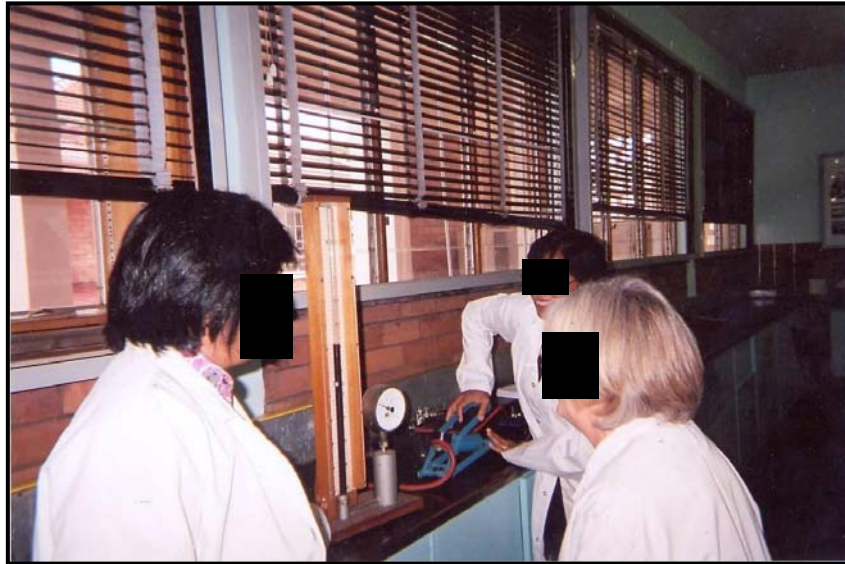


**Photograph 8**

In this way Sharon and Priscilla have come to recognize how their learners can come to understand the content effectively.

The next photo is of the Science team. Sharon chose **Photograph 9** to talk about because Science involves a lot of practical work. Mandy, the lab technician, pictured on the left, plays an important role in the setting up of the experiments with Sharon and Priscilla. Mandy helps with the logistics of running the pracs. Sharon said that they always try out the experiments before they introduce them to the learners.





**Photograph 9**

In this way they are able to anticipate pitfalls they might encounter. Sharon trained as a teacher about 20 years ago. The case study school is 90 years old and she explained that things have changed quite a bit. These changes have led her to replace equipment and change some methods of doing the experiments from the way they were previously done.

*“For example, I have modified how the ticker timer was used previously. With my new, improved method, I now have the entire class working on the exercise in 10 minutes. The previous method was too cumbersome for me”.*

This example is indicative of Sharon being able to take what is available to her and by drawing on her own experience she is able to modify the system to suit her needs. In other words she is refining her contextual knowledge as well as her pedagogic content knowledge. She says,

*“It is a two way learning stream. I learn to use some of the different equipment available and sometimes I modify what we have”.*

Sharon proceeded to explain how she developed her technological knowledge. In 2009, she was fortunate to have an Interactive Smartboard installed in her lab. Previously she had not tried to learn how to use one, but now having been given one, she made a conscious decision to try her best and learn how to use it effectively. Moreover, she was determined that she was not going to use the Smartboard as a “glorified blackboard”. Sharon describes what she learnt in a short time as “amazing”. Firstly, her limited computer skills improved. She comes from a generation of teachers who used a manual typewriter and later progressed to



using an electronic typewriter. So she was really scared to use the Smartboard and believed that if she did something wrong, she would cause the network to crash. Sharon soon discovered that this would not be the case. With the assistance of her younger friends, whom she describes as “computer boffins” she began to grow in confidence.

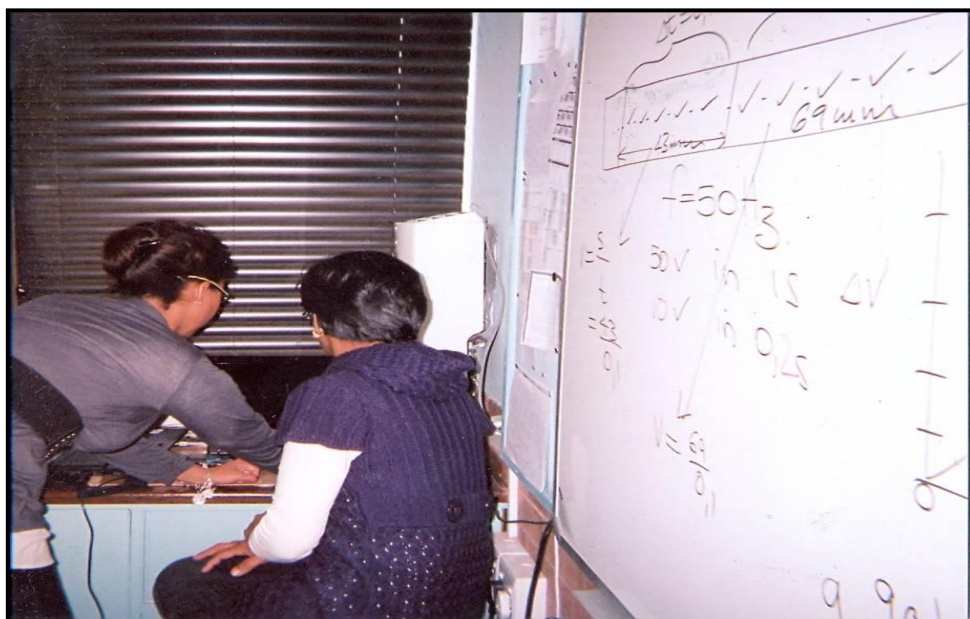
Having already described herself as “self-motivated”, once she got over her fear of using this Technology, she practised her newly learnt skills. During tea time she would ask her friends how to do something. She was firm that they needed to show her rather than tell her what to do,

*“Sometimes they would say, “Just do this”, and I would tell them to come and show me how to do what I needed help with. This is how I learn”.*

Now Sharon is able to download information from the internet, she knows how to save and access the information. She surfs the net until she finds suitable websites to download information from. Sharon uses the Excel programme to set up an electronic mark book and she also generates her marks electronically. She adds, “Now I feel as if I can’t live without it”. Sharon was not embarrassed or afraid to ask for help when she needed it. Her learners love it when she uses the Smartboard. Sometimes they also help her when she is not able to get it to do what she wants. The learners are patient with her and encourage her to try different things until she is able to sort out the problem.

Once she got over her initial fear and as her confidence grew, Sharon explored different ways to complement her lessons. She is now able to instantly call up a graph or add a picture to make a concept clear. The Smartboard Technology even allows her to bring up notes from a previous lesson to recap a point. Her newly learnt skills and knowledge are allowing her to make a subject which is abstract to some extent more accessible through the use of the visual.

The fact that Sharon was open to learning new skills, made it possible for her to learn this new technological knowledge as well as develop her contextual knowledge. She learnt new skills through demonstration and practise. The story that **Photograph 10** tells us is a good example of learning technological knowledge informally from colleagues in the school setting.



**Photograph 10**

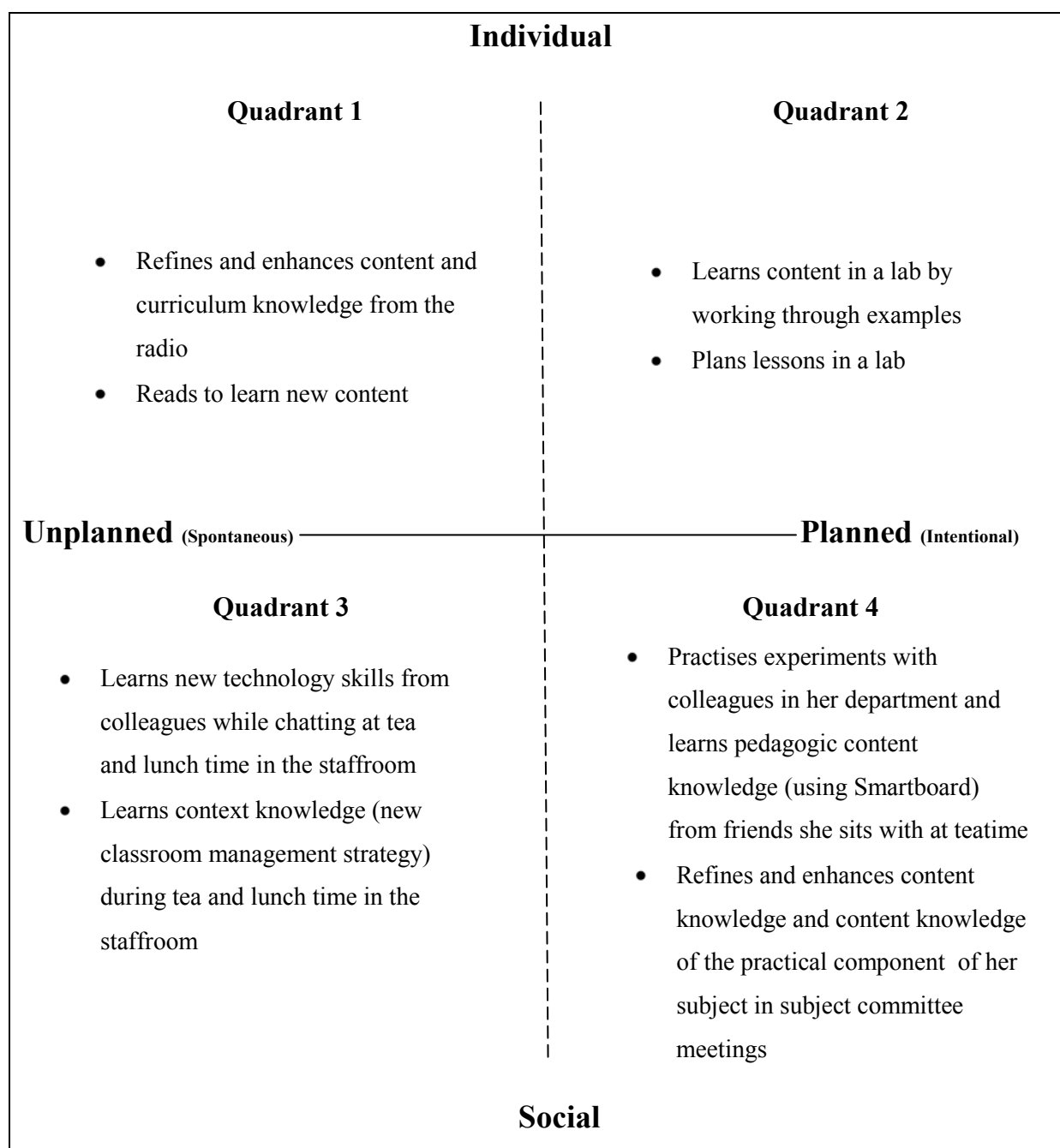
The story of how Sharon learns can be summed up as follows. It is evident from the data that Sharon is motivated and willing to learn. She develops and enhances her content knowledge, pedagogic knowledge, pedagogic content knowledge and contextual knowledge at school, in her lab with her immediate support team – Mandy and Priscilla. While a collegial culture exists within the Physical Sciences department, there is evidence that Sharon is developing her content knowledge individually. She shows good understanding of how her learners learn because of the way she learns the new content she has to teach. Therefore, she is able to anticipate the errors they could make and the misconceptions they might have.

The Physical Sciences department is well resourced and Sharon made a conscious decision to develop her technological skills which continue to improve her contextual knowledge. These four “cornerstone” knowledges of teacher learning feed positively into Sharon’s conceptual knowledge-in-practice. Sharon learns by doing, by talking to colleagues, through demonstration, by practising new skills, through reading, by listening to the radio and from her learners.

Sharon prefers the informal, more hands-on kind of learning - learning which is mostly unplanned and takes place individually as well as socially alongside and with colleagues.

*“I feel that I would benefit more from actually doing a prac as opposed to looking at a person using a diagram to explain how it should be done. I remember things better if I experience it”.*

The data that emerged from Sharon’s story of how she learns informally have been mapped on the quadrants described in Chapter 4. It illustrates visually how Sharon engages in informal learning at school. Having identified the different ways in which Sharon learns it is evident that she learns both as an individual as well as socially. More specifically she learns new content knowledge on her own. The other knowledges, that is – pedagogic knowledge, pedagogic content knowledge and context knowledge are learnt socially, either alongside or from her colleagues. For Sharon, teacher learning can be located mostly within the unplanned and planned social quadrants of teacher learning.



**Figure 9: Sharon’s Style of Informal Learning**

### 5.3 Soreta – The Experienced CAT Teacher

Soreta really wanted to be a nurse. She explained that there were not many career options available, just the normal careers like teaching and nursing. She even worked at a bank before finally embarking on her career journey. Soreta said that her parents were “*security conscious*” about career choices and this had an influence on her.

Nowadays there are more options available, especially to women, and the young people of today are risk takers. So before she really made a career decision, she went to work in a hospital for a month. This is what happened,

*“I wanted to become a nurse and I really wanted to be a theatre sister. I went to a hospital in Potchefstroom for a month. I believe it was the day to day intervention in the treatment of the patients that got to me and it was then that I realized that this was not for me”.*

She fondly recalls her mum relating an incident from her childhood. Soreta was about 8 years old – in Grade 3. She would place all her dolls and teddies in a row and teach them the work she had been taught at school earlier that day. If the dolls and teddies did not respond as she wanted them to, she would smack them with her ruler. Soreta laughed as she said,

*“Now that I reflect on this, the teacher would smack us in class if we did not know the answer to a question. I was role-playing my experiences from the classroom.”*

Reflecting on her own school experience, she remembered that the teachers were “*dedicated and taught with passion.*” Soreta fondly remembered Mrs Roberts who taught her Business Economics and Typing. She described Mrs Roberts as someone who worked hard and expected the same work ethic from her learners. Soreta said she enjoyed Mrs Roberts’s dedication to her learners. Mrs Roberts would teach the skills with ease and made it so easy for Soreta and her friends to understand. It was Mrs Roberts who encouraged her to choose the teaching profession. Soreta said:

*“I love imparting knowledge to other people and I enjoy learning. Mrs Roberts was confident that I should become a teacher and I valued her opinion.”*

Soreta decided that high school was definitely where she wanted to teach. She wanted to impart more specific, content based knowledge, “*not just bits of information.*” She has been teaching for 22 years and has been at the case study school for the last 15 years.

Soreta completed the Hoër Onderwys Diploma, Verdere Diploma in Onderwys (Durbanse Onderwys Kollege) and what is most interesting is that Soreta's major subjects are Botany and Zoology. In her first year of teaching, however, she had to teach Typing and Biology. She explained that she achieved an "A" symbol for Typing in matric and the data base obviously threw out her name as a possible Typing teacher. Having to meet the needs of the school she was appointed to, she taught Typing. This is how she ended up teaching in a different subject area altogether.

Initially, she taught Typing on an electric typewriter. The subject Typing then changed to Computyping and more recently it became Computer Applications Technology (CAT).

Soreta understands the concept teacher learning to be personal growth in subject knowledge by learning new concepts and skills. She also sees teacher learning as being able to incorporate one's personal learning experiences to teach one's learners. In this way Soreta's learners grow from her own experiences. She added the following:

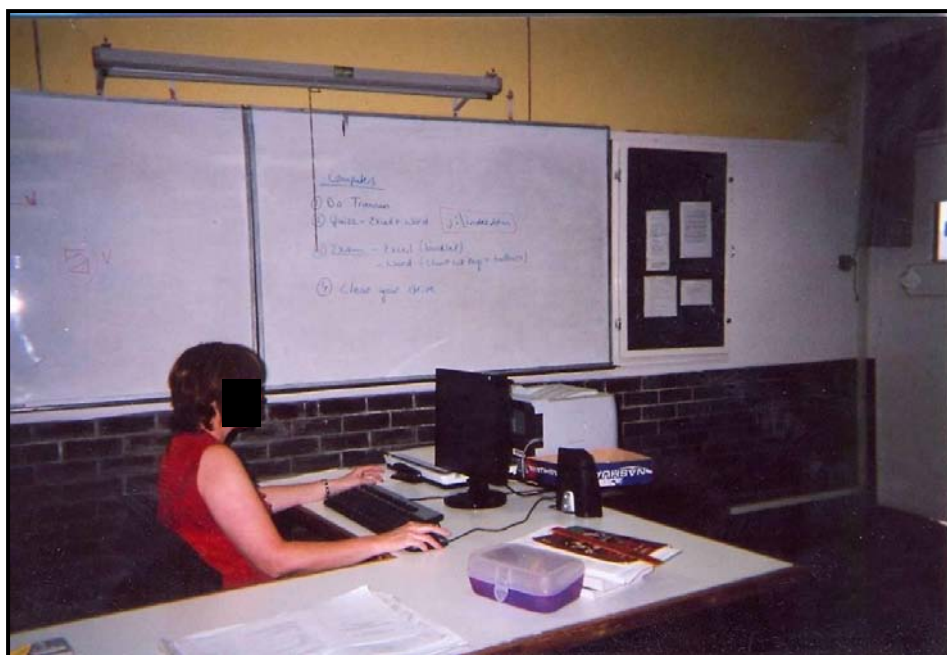
*"As teachers we need to learn all the time. You need to keep your mind open to learning at all times. We learn from the things and people around us. Teacher learning is not about sitting at a desk with a textbook and learning from it. Learning is an activity in progress, it is not something that suddenly happens and it is something that is not confined to one space".*

When Soreta was approached to consider being a participant in this study, she was already engaged in teacher learning. Her reason for studying again was due to the changes in the CAT curriculum. Soreta explained that when Computyping changed to CAT only 5% of the Computyping syllabus remained. Computyping consisted of typing documents in Word only. CAT consists of Word, Excel and Database (application programmes). CAT also has a theory component. This drastic change in the curriculum compelled her to engage in some form of learning to improve on and enhance her content knowledge, more specifically, her knowledge of computer theory.

The course that Soreta registered for will be discussed in detail under Photograph 5. It has, however, been referred to, in the photographs of some of the other spaces where her learning takes place, as the „online course'. For this study, Soreta photographed different spaces where she learns different knowledges. These spaces include her CAT classroom, her study at home, Lucy's (a colleague) CAT classroom and the school's IT consultant's computer

laboratory. Soreta chose these photographs because the people and these spaces have impacted significantly on her informal learning at school.

She teaches Economic and Management Sciences (EMS) to Grade 9 learners and Computer Applications Technology (CAT) to Grade 10, 11 and 12 learners. While she teaches both EMS and CAT, the learning area in focus for this study is mainly Computer Applications Technology (CAT).



**Photograph 3**

**Photograph 3** is a picture of Soreta's CAT classroom. This is her teaching area. She explains that most of the studying that she is engaged in impacts on and applies to this teaching space. It is here that her content knowledge is improved on. Her involvement in studying, she explains, is not just for her own enrichment, it is more for what she can do to get the content across to her learners. This space is where she first learnt about the internet. In the picture we see Soreta engaging in individual learning with resources. The resources pictured in this photo are her day book - which really is her adaptation of the requisite forecast (a Department Of Education requirement), her computer, the printer, the scanner and a data projector which is mounted.

Her day book is used daily. It contains her timetable and in it she writes down the exercises she will be looking at for the different subjects and grades she teaches each day. She then transfers this information onto her white board and numbers each exercise in the order she

wants the learners to work through them. Soreta describes herself as being quite structured and adds that her learners know this about her. In this way her learners know exactly what they are going to be doing for their lesson from the moment they walk into the classroom.

It is evident from this planning technique that Soreta has well developed pedagogic content knowledge, that is, the selection and sequencing of the content to be taught.

*“I know exactly what I am going to do in that lesson and I know that in the time I have, I will be able to fit it all in properly.”*

She also has easy access to textbooks in this space. These are the books she uses when she does the exercises with the learners. In a journal entry, she explained how she learnt new content knowledge in her classroom in order to teach it to her learners. She worked through the explanation of the *nested if function* in the textbook and went on to simplify the definition by saying “*In computer code, condition tests with two or more levels of selection statements*”. To make sure she understood this function well, she worked through exercises from the learners’ textbook. She was now a position to anticipate the difficulties the learners might experience and assist them if they needed it. This is an example of Soreta developing her content knowledge and enhancing her pedagogic content knowledge as an individual in a planned manner.

Her computer is vitally important to her teaching in this space. It is one of the resources that she uses constantly. The data projector which is not in the photograph is the other resource which plays an important role in her teaching. Initially she did not have a data projector. She explains that it was difficult then because one usually tends to talk a little faster because one knows the content. Some of the learners would keep up and others would be left behind - completely lost. She found that these learners really lost out on the content being taught. So the data projector makes it more visual for them. The practical component of this subject area is very visual. The projector in this space is mounted for easy use. So a normal lesson will unfold in the following way: Soreta would begin teaching, she then would move onto the white board to write something - usually something that she wants the learners to take note of and finally she would use the data projector to explain a concept or to demonstrate a technique in more detail. This too, is a good example of how she sequences and paces the lesson and it is indicative of sound pedagogic content knowledge.

*“The children’s listening skills are not so good anymore and so they need to be able to physically see that this is where I go to click and so on.”*

She said that this is the way she talks them through the process. She explains the concepts and functions as she goes along so that they understand why she is clicking on a particular icon. This method ensures that they get a full, rich picture of what is being taught.

Soreta arrived at this method of teaching the practical component of her subject from her experience of children not listening carefully to instructions. She said it is also because she is quite a visual person herself. Several learners who take this practical course might also be visual. Having listened to her learners and how they felt lost with just being spoken to, she changed how she taught the practical component of her subject. She is the kind of person who always takes her learners' needs into consideration and asks them "*Does this work for you?*" "*What do you think we can do differently?*" She says that she is very open with her learners and that they know that she does not know everything. She often asks them to look for something for her. She added, "*I have also been learning like this.*" In the examination the learners are required to do different processes and so by being taught in this way, they are able to help themselves. Soreta arrived at this method, through trial and error and it is working successfully for her. Once again Soreta demonstrates good understanding of how her learners come to learn about her subject.

In another journal entry, Soreta said that the main area she felt needed to be developed was her knowledge of computer theory. She also needed to think of an effective way to teach the theory component. Soreta emailed an author of a textbook that she uses. She asked the author how she could improve on her theory knowledge. The author suggested that Soreta purchase a particular book. Soreta bought this book and found that it was helpful to use to improve on her theoretical knowledge. This too, is an example of individual learning in a planned manner.

The scanner in this space is the other resource that Soreta uses regularly. She has taught the learners how to use the scanner. Firstly, she used the data projector to explain how they would go about using the scanner. Thereafter, she got them to come up and use the scanner in small groups. So in this way the learners experienced first-hand how to use this piece of equipment. They learnt the theory and then had the practical experience of using a scanner. Soreta was able to share her content knowledge and technological knowledge (using a scanner) with the learners. She created multiple-choice questions to test her learners' computer theory knowledge using the "Hot Potato" software programme. This programme marks the learners' work on the computer. In this way they get instant feedback. She also created more experiential assignments.



Soreta explains how she did this in the following example:

*“In Grade 10, the CAT learners learn about the scanner in theory. I drew up an assignment asking them to create one scrapbook page. They had to scan the objects. After they scanned the objects into Word they had to send me an email with the scanned document as an attachment”.*

From the above examples it is clear that Soreta has things in place to help her enhance her computer theory knowledge and she has definitely found creative, effective ways to teach and test the computer theory of her learners. Soreta comes across as being highly self-motivated and has no problem asking for help and advice when the need arises.

The printer in this space is used to print the work the learners would have completed during the lesson so that it can be marked.

What Soreta does is that she marks their work off their monitors. While it does take time to mark in this way, it is beneficial to the learners because they get to go through the exercise again as they correct it. Soreta finds that this is also an effective form of remediation.

It is through her experience as a CAT teacher that she devised this new method of marking. She said the cost of printing is expensive and the learners don't always mark their work properly. This new method of marking takes care of two very real problems she experiences in her classroom.



**Photograph 5**

The „online course’ is discussed in this part of the story because it is directly related to the space photographed in **Photograph 5**.

This is the space in which Soreta engages in her online learning. The teacher learning that takes place here is an example of individual learning with resources on one hand and on the other hand it is a group activity because she learns online during the group discussions. The space is Soreta's study at home. Initially this was her other spare room. Now she describes it as *"my work space."* It is a simple, comfortable space in which she has her computer and printer set up. The room has lovely natural lighting which is ideal when she does her painting by numbers.

As already mentioned with the curriculum changes that came with the introduction of Computer Applications Technology, Soreta felt that it was important for her to improve on her knowledge of computer theory as well as in some new areas of the curriculum. The area that she was lacking in was in the use of the internet. More specifically, she had to develop her knowledge of the internet, keeping up to date with what is going on, on the internet. *"People did not realize how much the subject had changed and so it became my problem to deal with"*. This meant that it became her responsibility to develop her knowledge. Soreta heard about the 'online course' through yahoo groups. Yahoo groups are made up of teachers who teach CAT and IT and they communicate about subject area matters.

With all that one has to do as a teacher, Soreta explained that she did not have the time to *"sit and play on the internet"*. This prompted her to register for the online course through the University of Cape Town (UCT). The 'online course', "Superinternet User Course" forced her to sit down and learn how to use the internet effectively and then take this knowledge back into the classroom. In order to fully participate in 'the online course,' Soreta had to set up an internet connection. She had to buy a 3 gig modem and it was then that she learnt how to convert airtime into data bundles. Before the 'online course', she did not know how to do this. She took this information back into her classroom. Soreta told her learners the process she followed and where she bought the items, they compared prices and actually learnt from her experience.

She said that some of the learners did know what to do but there were others who did not. From this perspective it was good for her because her knowledge grew. She learnt about the different searching techniques that could be used on the internet. The technical knowledge (searching skills) that she learnt here she taught to her Grade 10, 11 and 12 learners to help them with their Practical Assessment Tasks (PAT). In this component (PAT) of their syllabus the learners are expected to engage in research. They have to be able to analyse and present the data generated from the research.

Soreta also taught them how to check when a website was last modified. One of the requirements for their Practical Assessment Task (PAT) asks that the learners state whether the document or website they used was current or outdated. The content/technical knowledge that Soreta learnt through the online course, was shared with the learners. They developed the technical knowledge (skill of searching) needed for their subject and thereafter were able to take this knowledge into any other kind of research they might have to engage in.

In a more personal context a friend showed her how to download photographs from her cellphone to her computer. She did not know how to do this and thought that it was more difficult than it actually was. Reflecting on this, she realized that she probably lacked the confidence to do these very routine things.

Getting back to the „online course’, she said that it was well structured and discussion groups were set up so that you could ask questions. Soreta used the following example to show how the discussion groups worked.

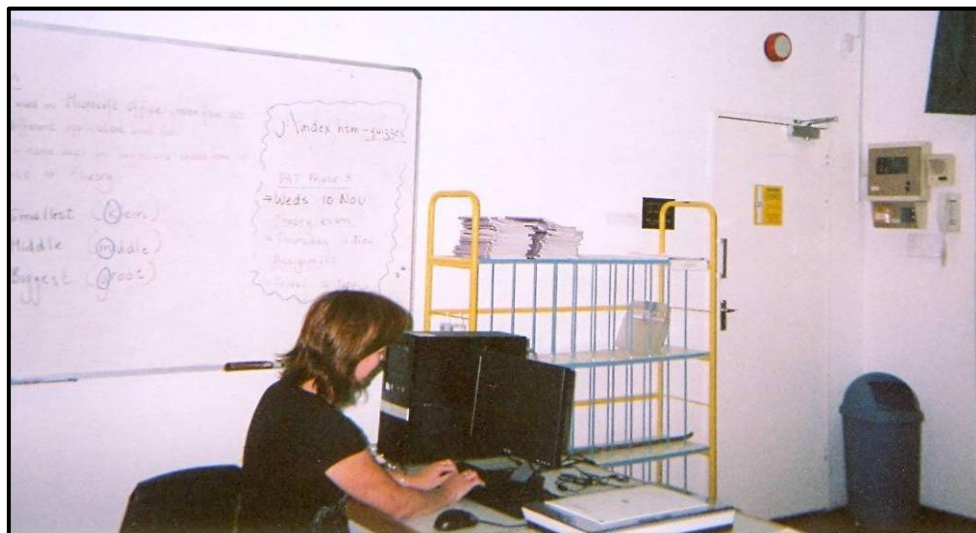
*“The learners and I experienced a parameter problem which is related to database. I sent an email to my yahoo group and Marius (an IT person) explained in an email to me what I needed to do. I took the information back to school and we were able to fix the problem”.*

Soreta said that she took what she learnt in her discussion group back to her classroom to fix a problem that the learners were experiencing when they worked with data bases. She took a learner’s file which had the problem. She called up the error and then taught the class step by step how to correct the error and what to do if they experienced it again.

She also learnt how to blog, to check the date of a website, she was introduced to other teachers in the same field and so emails are being sent between CAT and IT teachers. If anyone has a question, an email in this regard can be sent to the group. Soreta has access to the question being posed and the responses that are given. There is always information about new courses, new software, and a new website with good information that the learners could use. All this information is sent to her. All Soreta has to do, is check to see what she wants to use. In this way she is broadening her knowledge base all the time.

The „online course’ she says, not only gave her the confidence to use the internet, it taught her that she is more capable than she believed herself to be.

She also learnt that there is so much more out there that could be used in her classroom. She taught her learners to get involved in discussion groups because there is so much knowledge to learn and share, thereby extending their knowledge bases.



**Photograph 4**

**Photograph 4** is of Lucy's classroom. Lucy is Soreta's colleague who shares the CAT teaching load with her. In the picture we see Lucy seated at the computer. Jascinta (another colleague) and Soreta share the EMS teaching load. The discussion in this photograph begins with Lucy's role and how it impacts on Soreta's teaching at the case study school. Jacinta's role in Soreta's learning will be described later on in the story.

Soreta says that she and Lucy work very well together, they complement each other very well. Lucy is a member of a committee of CAT teachers and she represents Pietermaritzburg. Soreta explained that Lucy attends a meeting once a term and brings back information about their subject. When Lucy attended her CAT meeting recently she brought back information about a magazine which was designed to improve one's computer theory knowledge. Subsequently, they received an email from one of their subject advisors who recommended that they buy the magazine. Not only is Soreta using this magazine, she also told her learners about the magazine and in this way the learners too are improving and developing their knowledge of computer theory.

Soreta and Lucy often do team teaching. On one occasion Soreta and Lucy brought their classes together to teach them calculation in data base. Soreta explains that she knew Lucy's technique was a bit better than hers but she did not know exactly how Lucy went about

teaching the calculations. They brought the classes together, Lucy taught calculations in data base while Soreta walked around the class and monitored the learners as they worked.

At the same time she listened to how Lucy was bringing the concepts across to the learners. Soreta is learning pedagogic content knowledge collaboratively by observing a colleague.

*“Just watching her and how she approached the section opened new avenues for me and how I teach calculations. It was amazing to see how someone else actually goes about teaching the calculations. Watching someone teach the calculations is very different from chatting about how you should approach teaching calculations”.*

Soreta added that it is not easy to always bring across a concept clearly to the learners. One may understand the concept but may not always transmit the concept effectively to the learners. At the moment Soreta has the top group and they tend to work things out for themselves. She needed to be clear about how to convey the content effectively when she has the weaker group next. In this way she was improving her teaching strategy in order to cope with a weaker class, in other words, she is improving on her pedagogic content knowledge.

Soreta and Lucy work alongside each other all the time. Soreta is often in Lucy’s room discussing things and organizing their work so that they are both clear about their sequencing and pacing of the content they have to teach. She explains that it is not a structured meeting time,

*“We often talk about ideas, go off and think about them and then come back together to plan how we will approach the idea”.*

Soreta describes herself as more of a “bullet type of person”. Lucy writes more. So in looking at the way Lucy structures things Soreta has learnt a lot. Lucy too, learns from Soreta. She says that they learn classroom management, content knowledge and overall organizational technique from each other. Being organized is very important to both of them because of the masses of data that they work with.

Soreta said,

*“If we are clear in our thinking, then the learners are clear about what we require from them. They (learners) pick up on how we think and get the idea of how to organize themselves.”*

Soreta said that because she is quite structured in the way she organizes her lessons, the learners too are developing this skill. She has taught them to mark their own work using all the resources she has put in place for them electronically. If they do not mark their work properly, she sends them back to do it. She believes that they have all the resources available and that they must learn responsibility. Soreta is happy that most of her learners are developing in this way. Soreta demonstrates good contextual knowledge. The CAT department is well resourced and while she makes excellent use of the teaching resources available to her, she expects her learners to do the same.

Jascinta, Soreta's EMS colleague helped her to work out a work scheme for the order in which to teach the content. This would be an example of Soreta enhancing her pedagogic content knowledge and another example of working alongside a colleague collegially. Soreta describes Jascinta as being a highly organized person. Soreta said, *"I learnt how to be more organized in the paper format."* What she means is that in CAT all her work is organized electronically. Unlike CAT where Soreta has a textbook that she follows, just seeing how Jascinta worked out a system to teach the EMS content, makes it easy for Soreta to deal with this subject area. Jascinta helped Soreta to manage the EMS resources manually. What they did was to create booklets which contain templates of the different books of accounts (journals, ledgers, etc.) and the actual exercises the learners need to work through. They have even gone to the extent of storing the model answers electronically and they taught the learners how to access the model answers and mark their work. Soreta learnt about this while chatting to Jascinta at teatime in the staffroom one morning. They worked alongside each other to develop Soreta's pedagogic content knowledge.

The last photograph, **Photograph 7** was taken in the IT consultant's computer laboratory. Isabel is Soreta's colleague who teaches computer literacy. Soreta explained that Isabel's computer knowledge is very good. Isabel impacted on Soreta's learning in the following way.



**Photograph 7**

Recently Isabel introduced Soreta to two new programmes, “Hot Potatoes” and “Front Page”. She showed Soreta how to link these two programmes. These are fun programmes which allow computer theory to come alive. These are interactive programmes designed to improve one’s computer theory knowledge in a fun way. Once again it is clear that Soreta took different steps to make her teaching of computer theory creative and effective for her learners. She enhanced and developed her pedagogic content knowledge, that is, her computer theory knowledge in this way.

Soreta’s account of how she learns can be summarized as follows. The data indicates that she is willing and open to learning and that she is self-motivated. The data also shows the different approaches she embarks on to learn and enhance content knowledge, pedagogic knowledge, pedagogic content knowledge and context knowledge. It is evident that Soreta tends to learn content knowledge individually with resources by reading, and by practising. She learns pedagogic content knowledge collaboratively, usually in a planned social way by working alongside colleagues, mostly in school.

She also learns through interacting, talking, enquiring. This form of her learning comes across as being very collegial and can be described as unplanned social learning which happens when she chats informally at teatime in the staffroom. When she works alongside colleagues like when she team-teaches with Lucy and discusses other issues related to their subject area these are examples of planned, social learning. Moreover, Soreta also learns pedagogic content knowledge and content knowledge with colleagues outside the school in her cluster meetings. This form of her learning too can be described as planned, social learning.

Soreta's registration with UCT to do the 'online internet course' to improve on her content knowledge (computer theory) is another example of planned social learning. In this instance she learnt via emails, through online group discussions and by blogging.

Reflecting on the experience of learning online, and working closely with colleagues, Soreta had this to say about her learning:

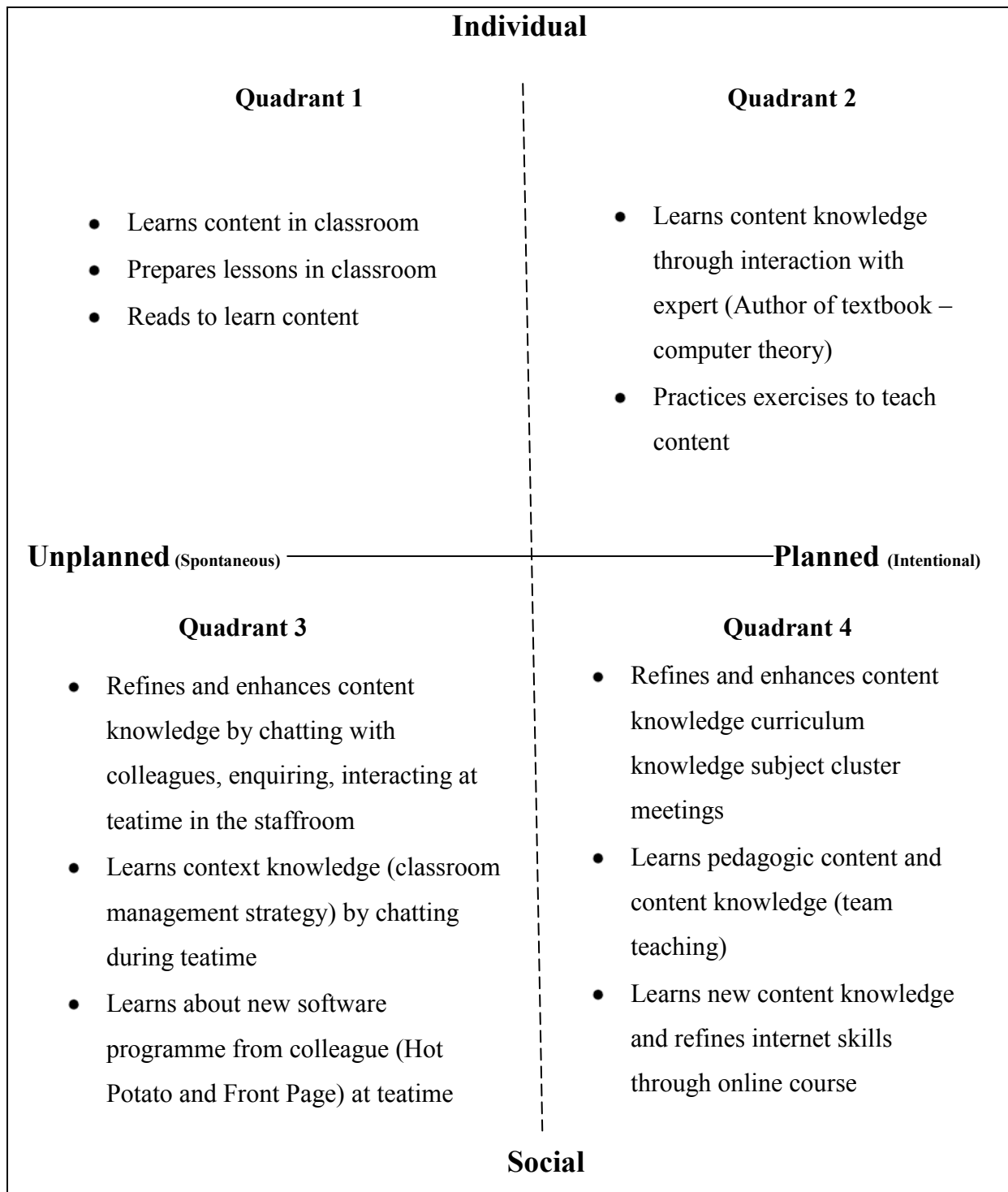
*"When I look back, I've been learning in steps. I have not learnt everything at one time. My learning has been experimental. It is a process that I am going through. It was a journey that I had to go on".*

Soreta said that her learning will be on going because of the nature of the subject she teaches. Soreta said that she does not only learn by doing, she learns by asking and interacting with others, too. She prefers the informal, more hands-on form of learning.

*"You know, you go to these workshops, and the people just talk. There is nothing else going on. You just sit there and get all this information, not doing anything at all with it. I have grown from learning informally."*

It is apparent that Soreta learns both individually and socially and this in turn feeds positively into her conceptual knowledge-in-practice. More specifically she learns content knowledge individually with resources. All her other knowledges are developed, refined and enhanced socially, alongside colleagues at school and from other colleagues outside school through the yahoo group. Soreta's style can be located mostly within the unplanned and planned social quadrants of teacher learning.





**Figure 10: Soreta's Style of Informal Learning**

## 5.4 Michelle – The Novice Life Orientation and Technology Teacher

When Michelle finished Matric in 2001, she had no idea what she wanted to study, let alone what work she wanted to do. She always wanted to au pair, but her parents thought that she was too young to embark on this form of employment or career straight after school. So they suggested that she do a certificate in Public Relations before she went overseas. Michelle did as her parents suggested. She enrolled for a course at Varsity College and as she reflected on this experience she had this to say, *“It taught me so much about organization and business, skills which I still use today”*.

Michelle did get to follow her dream of being an au pair. She described her year in America as *“unbelievable”*. She said, *“I learnt so much about life and myself and I saw so much”*. Through this experience Michelle made lifelong friends and she is still in contact with her host family. She briefly described her experience as an au pair as follows:

*“I looked after three children, twins (4 years old) and a 3 year old. I guess on some level this was when I realized I wanted to work with children. During this year, I decided that I wanted to study Law and Psychology and so I enrolled at UKZN for the 2004 academic year”*.

Although Michelle enjoyed the legal subjects she enjoyed psychology much more. In her third year, she did a course which involved service learning and together with a friend she taught Life Orientation to a Grade 11 class at a local co-ed High school once a week. She exclaimed, *“Now that I loved!!”* Michelle also did some volunteer work at Fort Napier Hospital. At this point in her studying, she wanted to go into Clinical Psychology and did her Psychology Honours through UNISA.

One of her subjects required that she do some volunteer work and so Michelle contacted one of the counsellors at the case study school who asked her to come in and work with the school’s Peer Counsellors and help during their Awareness Week. Michelle was also given the opportunity to teach a few Life Orientation classes. While she enjoyed doing all of these things, she said, *“Teaching never occurred to me as a profession”*.

Her dad who was a teacher for many years encouraged her to do the Post Graduate Certificate in Education (PGCE) and she thought - *“He’s crazy – I would **never** go into teaching”*.

However, when she sat down and seriously thought about it she realized, *“I love working with people, I love children and adolescents, so why don’t I give it a try?”*

Her PGCE year was a difficult year. There was a lot of work, but the teaching practical experience was beneficial. Although she missed Psychology, it was incorporated into her two teaching specializations, that is, Life Orientation and Guidance and Counselling. Her third specialization was Technology which she really enjoyed because it was so practical. During her examinations in November that year, she received a phone call from the case study school telling her that there was a vacancy for 2010.

*“I was so excited when I got the job. As one can tell, I love the school and seem to keep coming back. I am here today, teaching Grade 8 to Grade 11 and loving it”.*

Michelle is in her first year of teaching and the case study school was the first school she was appointed at to begin her career as a teacher. Michelle had this to say about the concept teacher learning,

*“I think teacher learning has two aspects, there’s your formal degree aspect where you get your qualifications and then the informal learning – learning at school, learning from people, learning on the job as you are going along”.*

In describing her own teacher learning, she said that she learns most effectively at home in her own time where she can think about a topic, read and research about it. Michelle also learns by speaking to other people and by observing. She now takes more interest in learning how machines, appliances and cars work. Michelle is reading more about nutrition and health. She offered this example of what she means,

*“I often discuss teacher related topics at teatime with colleagues I sit with but if I am still not sure about something or we don’t have the time I make an appointment with my Subject Heads to discuss the matter further. I also believe that when you have knowledge about something you enjoy it more and it changes your attitude. When you have a positive attitude, you value your subject and want to teach it in an interesting, creative way”.*

Both Michelle’s Subject heads are always willing to help. She added that the subject committee meetings also help to clarify uncertainties. Her colleagues in LO, for example, *“are very helpful and useful for sharing ideas on how to teach a certain section and for getting information about a topic”*. Because this is Michelle’s first year of teaching she has not taught or learnt about many sections in the syllabus. Therefore, she has to research. This is to first of all make sure that she understands the section before she even plans how to teach the section. Michelle said that she still feels *“slightly nervous”* but she reassures herself that

by next year she would have taught everything at least once and this would make things easier for her. The Grade 8 Technology learning area is semesterized and this does ease the pressure a little bit because she already has all the resources she needs. In this way too, she is able to anticipate where there may be pitfalls and she has the experience of the first semester to deal with it.

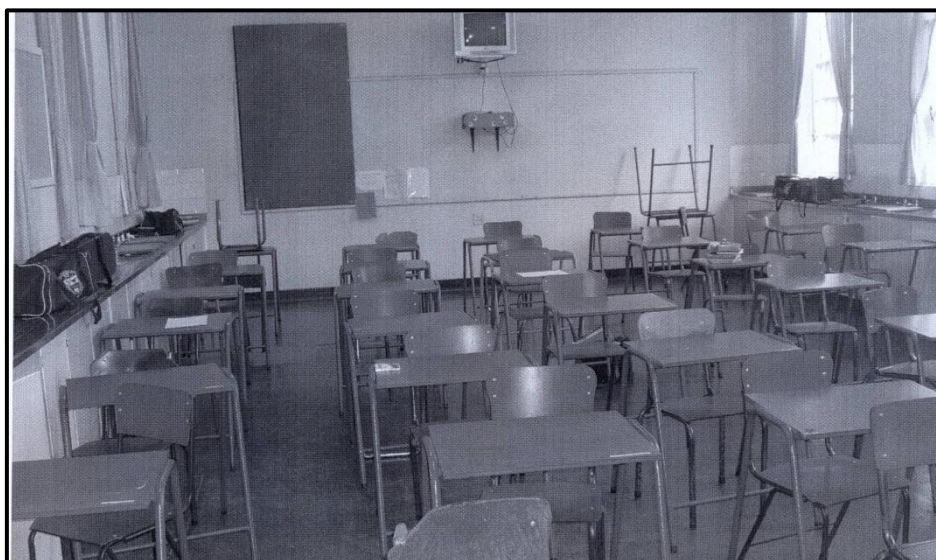
Michelle said that her main area of development would be to make the content relevant to her learners. She explained that Technology is often viewed as a “boys” subject, but in reality, it is useful to everyone. Her challenge is to make it relevant to her learners. The Grade 9 learners had just completed a section on structures where they had to do a bit of construction. They enjoyed the section. The next section, Mechanics, in the syllabus deals with levers, pulleys, gears, hydraulics, pneumatics, etc. The learners view this section on Mechanics as irrelevant in their lives. Michelle’s task is to change this attitude and so she engages in research to find creative ways to teach this section at a basic level using examples that are relevant to the learners. In addition to her own research, Michelle and the Technology team did sit down together and discuss this topic and came up with other relevant ideas and examples to use in teaching this section.

Being a novice, Michelle sometimes finds it quite difficult to keep track of everything and to stay patient too. She described herself as being a very organized person, but having to keep track of 14 classes sometimes overwhelms her. Michelle explained that she would be totally lost without her day book. This book is where all her lesson plans and dates of important activities are noted.

She said,

*“I sometimes forget to look ahead and I realize at the last minute that I need to do research for a new topic. Then I panic, I either have to think on my feet or do some quick research which I know is not perfect, and I know that I can do better the next time I have to teach the topic.”*

The next part in Michelle’s story looks more closely at the kinds of knowledges Michelle learns and how she goes about learning the different knowledges. Michelle also had the opportunity to photograph the spaces where she learns and she chose a set of photographs from her “photo album” that she discussed. She also made journal entries which will be referred to as her story unfolds.



**Photograph 1**

Her story of how she learns began with the space photographed in **Photograph 1**. This is a picture of her classroom and it is the home class to her Grade 8 learners whose role in Michelle's learning will be discussed later on in the story. In this space she teaches Life Orientation and Technology. Michele has a spacious classroom which she said is normally set up so that group work is easily facilitated. In this picture, however, the classroom was set up for the examinations. The classroom generally has colourful posters related to Grade 8 and 9 Technology pinned up. Michelle said that the posters are a good tool to use in her Technology teaching because the images are bigger and in detail. She has posters for the different sections she teaches and changes the display accordingly. There is also a television and DVD player which she mainly uses for her Life Orientation lessons. The LO department tries to show the learners relevant movies or educational DVDs once a term. Michelle watches the DVD first to check that it is appropriate as well as to familiarize herself with the content so that she can discuss it with her learners afterwards.

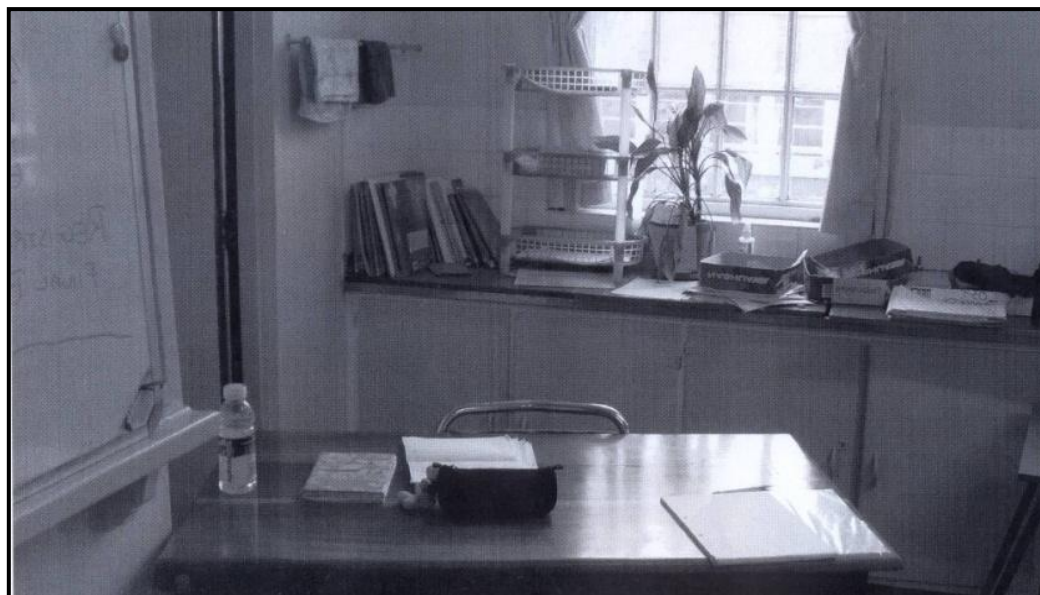
Michelle's learning will be described as it happens in both the subjects she teaches. She explained how her planning for Life Orientation takes place. The LO department meet regularly once a week during break in the school's Boardroom for a subject committee meeting. The purpose of this meeting is to discuss and plan the content that is going to be taught in the different grades.

This time is also used to check that everyone is on track, according to the work schedule, at the same pace and if there are problems being experienced. Michelle said that for her, this is a valuable time.

*“It makes me feel secure knowing that other people are at the same pace as me, that I am not going too fast or too slow. Also, just to know that if there is a problem or someone is battling, we’re all in it together, not just me alone”.*

Another example of how Michelle learns was described in a journal entry. She had to teach a section on HIV/AIDs to her Grade 8 LO classes. The learners brought up a topic related to HIV and she was not entirely sure about the answer. So at tea that morning, Michelle asked one of her LO colleagues what she thought. They discussed the topic and how Michelle would approach the query. When Michelle taught the same section to another Grade 8 class, she felt that she was better equipped to answer their questions. Thus she learnt new content knowledge by talking to a colleague and discussing the topic. This example that Michelle gives, is indicative that she is learning context knowledge (LO department requirements), content knowledge and pedagogic content knowledge. She learns these different knowledges through group activities in a formal planned time, that is, during the subject committee meetings by discussing and interacting collegially with colleagues. Her learning also takes place informally during teatime in the staffroom when she discusses and chats to colleagues.

The space where Michelle first learnt the content knowledge to teach the section on structures in Technology is described in **Photograph 4**. This is her learning space in her classroom.



**Photograph 4**

We can see the textbooks and the white board and her plant which she laughed and said, *“It keeps me happy”*. These items are her teaching resources which she has easy access to.

These resources impact directly on her learning and teaching. She explained that she learnt the content in this space in her free time or after school.

Firstly, she learnt the content of structures by reading through notes. In order for Michelle to teach this section effectively, she explained that she had to know the content of this section very well. She had learnt some of the content knowledge in her university course, while studying to teach Technology. However, she had to develop the rest of the content knowledge herself. Michelle learnt this content knowledge from books, textbooks in particular.

Secondly, she learnt the content from actually watching the learners physically working with the structures as they went about constructing them. This section on structures in Technology required that each learner had to construct an aspect of a playground.

Michelle took a photograph of her Grade 9 Technology learners. She explained that this group had just completed the section on structures and she was very excited about the outcome and wanted to share some moments from that experience.

*“I taught the learners from textbooks and overhead notes that were prepared in the past. So I had to read and understand the content myself before I could teach them. This was my first real practical lesson for Technology where I had to make sure that there wasn’t glue hanging from the ceiling and that the learners did not saw off their fingers. That was a challenge for me in a way, to keep control in the classroom”.*

For Michelle, it was a wonderful experience to see how her learners had taken what they learnt about the different aspects of structures in theory and put it together practically, in their construction of the playground equipment. In this way she had a „multimodal’ perspective of how they understood the content – the way they transferred this content knowledge to the practical situation.

She explained that when she goes about learning content knowledge for Technology she would immediately clarify aspects she does not understand with her Head of Subject. This would take place when they are both free or after school. What this means is that on one level Michelle had learnt content knowledge individually with resources by reading and from her own experience of being taught the content when she was studying herself. On another level, she enhanced her content knowledge by having to teach the section on structures and by discussing and interacting with her colleagues. In addition, she developed aspects of

general pedagogic content knowledge, that is, classroom management by taking control of her class and managing them in an organized way during a practical lesson.

Another time, when she was unsure about a new section in Technology, Michelle set about getting a variety of textbooks on Technology and Consumer Studies. She went home and looked over the section. Afterwards, she said, she understood the section better and had greater content knowledge to teach from. These are examples of learning by working alongside a colleague, collegially and learning individually with resources.

In a journal entry she described how she learns new assessment strategies. She said that each time she sets a test she is learning new ways of asking questions and thus new assessment techniques. She also looks at journals from the previous years and in there she is able to see the content and assessment strategies used previously. Michelle always gets her Subject Head to check that the level of questions is appropriate and the wording of the questions is clear. These are other clear examples that Michelle learns content knowledge and assessment strategies both individually with resources and by working alongside a colleague.

Coming back to her classroom space, Michelle had this to say about her Grade 8 home class. At the beginning of the year, the class was new and did not know their way around the school. Michelle herself was new and in this way she said, they learnt from each other. Classroom management is often a challenge for novice teachers and Michele was no exception. Michelle learnt to manage her class through *“trial and error.”*

At the beginning, she explained that if she asked them to be quiet and they did not listen, she would wait until they were quiet before she continued. In this way she thought she found a method which worked and used it.

*“My Grade 8 home class tends to be very noisy. I was becoming a bit desperate and a colleague told me what works for her and so I decided to try this method too. Last term (in winter) I decided to lock them out of the class in the mornings and during the breaks.*

One day, however, the method which Michelle thought was working well seemed to have failed for some reason. In a journal entry, Michelle explained what had happened. On this particular morning, her home class - the Grade 8s, would not settle down during the registration. Michelle waited for them to be quiet and then she spoke to them about being respectful and having manners.

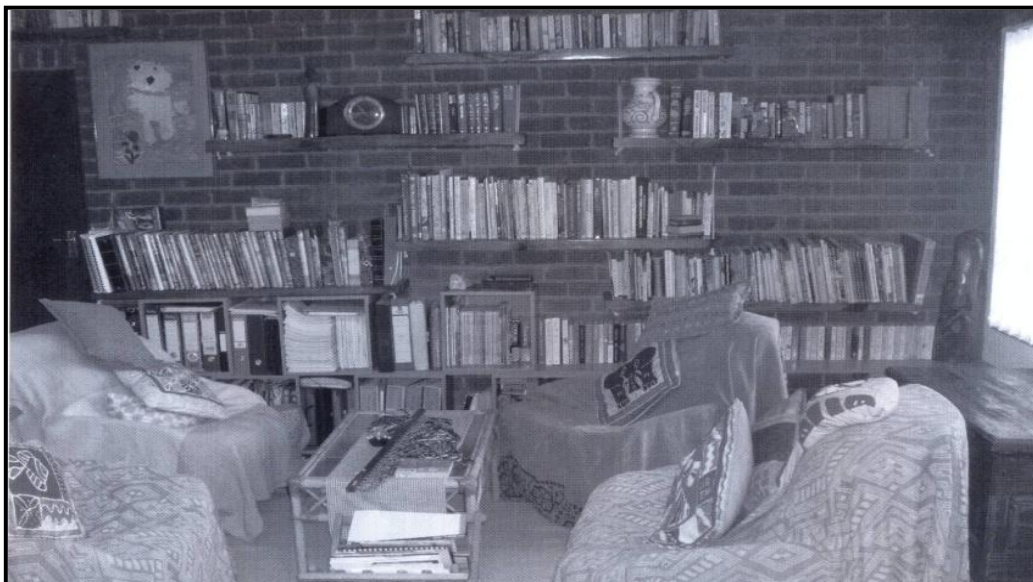


Later on in the day they arrived for their Life Orientation “*walking in shouting and screaming as if they owned the place*”. The class would not settle down and Michelle was really upset and walked out to get some fresh air when she met a senior member of staff. She explained to him what had happened. This is the advice he gave her.

Mr Green had had a similar experience. So he got his class to practice lining up outside his classroom quietly and then they had to walk in, in silence. The class had to wait to be greeted and thereafter they had to sit silently. Michelle thought that this was a good idea. When she got back to the class she asked them to leave her class and line up outside and then walk in, in silence. She got the class to do this over and over, until she thought that they had calmed down enough and that they knew she was serious about her expectations of them.

They were also told that if they stepped out of line, they would practice good classroom manners during their break. In the days that followed the class settled down much better. From these examples, Michelle shows evidence of learning and developing pedagogic content knowledge through group activity - chatting informally to colleagues as well as individually, through trial and error.

Reflecting on her last two photographs, **Photographs 2 and 3**, Michelle describes her study area at home.



**Photograph 3**

**Photograph 3** is really an extension of her study where she often sits and marks. She said that she feels comfortable in this space at home. *“It’s my environment, my space and I need to be comfortable when I am learning or doing work”*.

In **Photograph 2** we can see her desk, computer and the books she has around her. Michelle often uses the internet in her learning. This is the resource she works with after consulting the relevant textbooks.



**Photograph 2**

She said,

*“I use the internet for new information. I research a topic I know little about. Specifically in LO, when I teach HIV/AIDS. I know the basics. If I need new information, new stats, I research on the internet”*.

Reflecting on her experience as a novice teacher thus far, Michelle said that she needs time and support to enhance her development as a teacher overall. She said that she gets lots of support in LO.

In Technology there are only three people teaching the subject and Michelle feels she needs more support in this learning area. While her subject Head is very supportive, she explained that it is quite “tricky” to get everyone together to make sure that they are all on the same page and working at the same pace. However, when they do meet during a subject committee meeting, she finds it beneficial. As she already mentioned, the Technology team met and

discussed how they were going to go about teaching Systems and Controls. Michelle's task was to put together some worksheets and model answers for the different sections. She said that just by listening to how the section was taught the year before, and by having the opportunity to put the worksheets together, it helped her to familiarize herself with the content.

*"I like to discuss the work and be ready for the next section. In Technology, this is not always possible. For some teachers, Technology comes second to the other subject they teach but I have to put both my subjects first and this is difficult when you don't have proper communication and support. I think that if we were able to discuss more ideas together and put more time into research, this would help my development as a teacher a great deal. I would feel more confident about my content knowledge".*

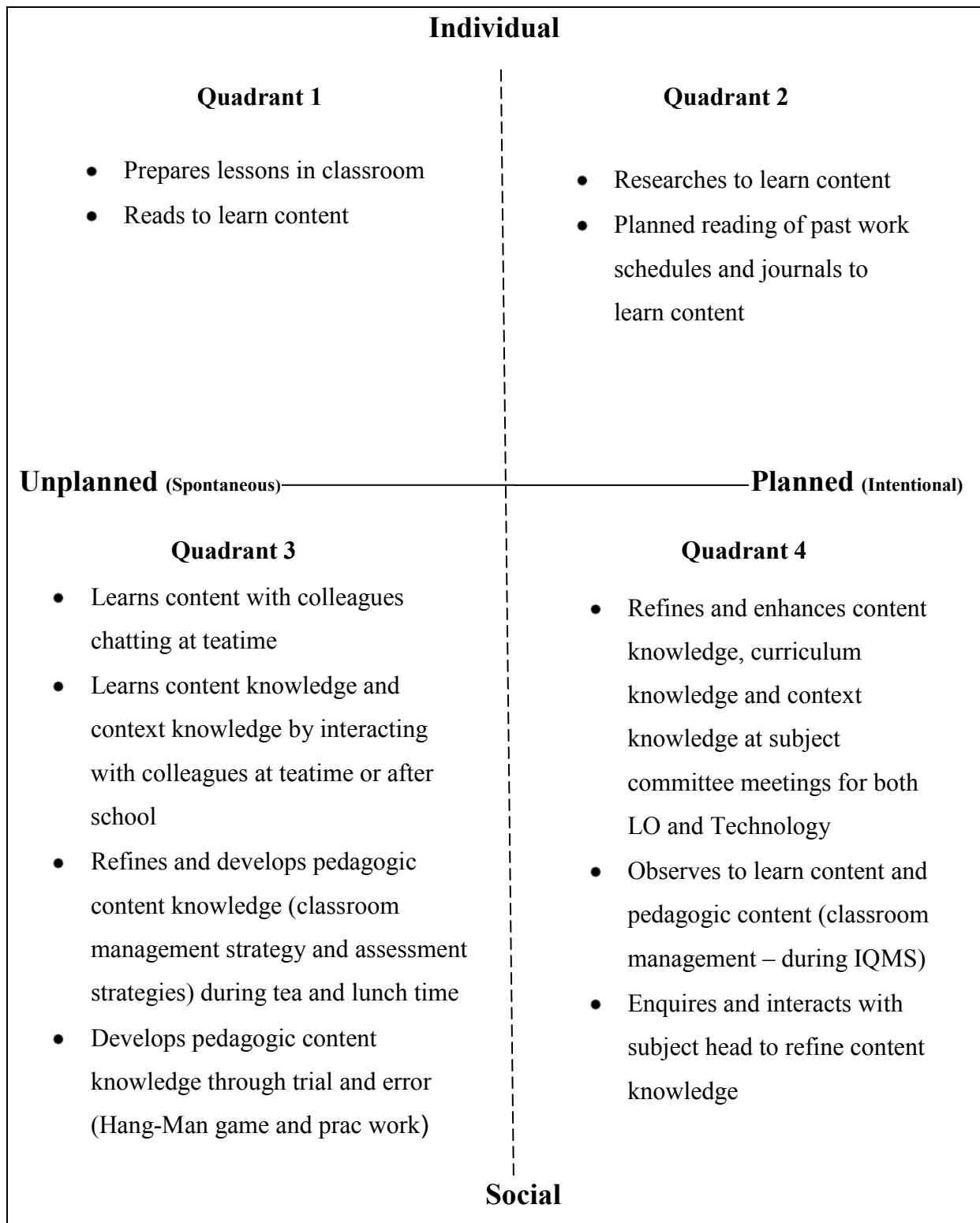
She also started playing "Hang-Man" with her Technology classes. This is another teaching strategy she came up with. She does this at the end of lesson if there is time. Michelle modified the game by using terms out of the learners' Technology notes and in the game she gets them to explain the terms. She describes this as a fun way to familiarize the learners with the content. Michelle said that she plans to continue using this teaching strategy; it is working for the learners who seem to have difficulty grasping some of the concepts in this learning area.

Michelle said that at this stage in her career, the formal, workshop style of learning and the informal, learning on the job style are important to her. Her curriculum and content knowledge are developed in the formal workshop style of learning. Her content, context, pedagogic content knowledges are all enhanced and developed as she learns informally at school. This is done either individually with resources or socially through formal group activities (subject committee meetings) or through informal group activities (chatting with colleagues during tea).

She said that she is becoming more aware of her informal learning processes and she has realized that she is learning all the time. Even the Integrated Quality Management System (IQMS) process has made her more aware of her growth as a teacher. This process has allowed her to be aware of what she is doing, where she has to change and where she has developed and changed thus far. This process has allowed her to reflect on her teaching and where she can improve.

To sum up how Michelle learns, it is clear that she is an organized, self-motivated person. Michelle learns both individually with resources and socially through formal and informal group activities. The formal, social group activity – subject committee meetings are valuable and beneficial to her development of her content knowledge and context knowledge. Informal, social group activities – working alongside, interacting, discussing, talking to and observing other teachers, helps Michelle to develop her content and pedagogic content knowledge. When she engages in informal, individual learning with resources like reading, researching on the internet, learning through her own experience and learning through trial and error, she also develops her content knowledge and pedagogic content knowledge.

It is evident that Michelle learns both individually and socially and this in turn is feeding positively into her conceptual knowledge-in-practice as a novice teacher. All her other knowledges are developed, refined and enhanced in an social context alongside colleagues at school either at teatime or formally during subject committee meetings or when she observes other members of her developmental support group (DSG) during the IQMS process. Michelle's style of teacher learning can be mostly located within the planned and unplanned social quadrants of teacher learning.



**Figure 11: Michelle's Style of Informal Learning**

## 5.5 Kelly – The Experienced Language Teacher and Subject Head

Education has always been given high value in Kelly's family. Her mother trained to be a teacher although she never taught outside the home. She did, however, teach Kelly and her two sisters before they went into Grade One. Kelly describes her mum as being a role model when it came to the art of teaching. Even with her grandchildren, Kelly's mum continued to be supportive and she is known to buy educational books for them.

Kelly was critical of her own approach to school and said,

*"I had no interest at school and was pleased to achieve merely adequately. In fact, I hated school, so it was ironic that I've ended up back in the same institutional environment I despised at an earlier time in my life".*

She described a vivid memory she had when she was a Grade Two learner. The teacher asked them what they wanted to be when they grew up and they had to make a poster showing this. Kelly did not want to do anything other than be a mother and a wife – like her own mother. But Kelly was told that she would need to choose something, so she eventually decided that she would do teaching. She smiled as she recalled her mum telling her that she would be a good teacher.

Kelly did marry young and she wanted to be just like her mother. She enjoyed being with her children and being supportive of her husband though circumstances later on dictated that she needed to find employment. A friend who was studying at the time encouraged Kelly to go back and study. She finished her major in Psychology and enrolled to do the Postgraduate Certificate in Education (PGCE). She chose English and School Guidance as her subjects and that was how Kelly got into teaching.

Kelly has been teaching for 9 years and she has spent all of the 9 years at the case study school. Kelly enjoys teaching and said that she has her good and bad days. She is a quiet natured person and said,

*"Sometimes I find it is demanding to be constantly in the position of actor and presenter and being vibrant, drawing the attention and interest of 35 learners and five consecutive classes during The 'online course' of the day".*

One of the things she likes most is the creative part of being a teacher, the resource development aspect of it. She added that just knowing that you have helped to develop a learner's understanding, is a privilege.

Kelly understands the concept teacher learning as learning that comes from discussions with other teachers, it comes from discussions with learners, and it also comes from sources like books and the internet.

*“Teacher learning takes all of these places of learning, and all the content gleaned there from, and puts it together into the neat package of the teacher. The process is dynamic – there is give and take involved, and the process never stops”.*

Kelly chose a series of photographs that she wanted to tell her “learning” stories about and she began with **Photograph 19**.



**Photograph 19**

This is a picture of the English Department corridor. She explained that all the teachers who have classrooms along this corridor are full time English teachers. They are 12 members in the English department. Kelly said that she probably learnt the most in terms of teaching English to school children, that is, pedagogic content knowledge, as well as content knowledge - subject matter knowledge, she had to teach from the teachers placed along this corridor.

*“It represents a body of knowledge, that common body of knowledge, which is held by the members of the English department from which I was able to draw on by being part of that department”.*



Kelly's learning in this context can be described as social learning in an unplanned manner because she learnt from being part of a group of teachers and the knowledges that she developed would be content knowledge and pedagogic content knowledge.



**Photograph 3**

**Photograph 3** is of her desk. In focus is her computer and on the screen we can see that it is open to the Google search engine. This is one of the most useful default settings to her when it comes to searching for information. Her computer has become a very important resource in her teaching and in her planning. She offered the following example of what she means.

*“If you need one particular poem and you have a bookshelf of books to sift through, it would take hours. For me it is enormously useful to do a quick search for a poem or a video clip that is going to give context to the book that I am teaching, or a picture that is going to highlight the subject of the poem I’m teaching”.*

While on the subject of her computer, Kelly moved on to **Photograph 15**, which shows her Interactive Smartboard. The computer works in conjunction with the Smartboard. All that she mentioned above can be displayed on the Smartboard for the learners to see.

She said that this works fantastically and because learners learn in so many ways, the use of the Smartboard in her teaching appeals to them on an audio level as well as visually.

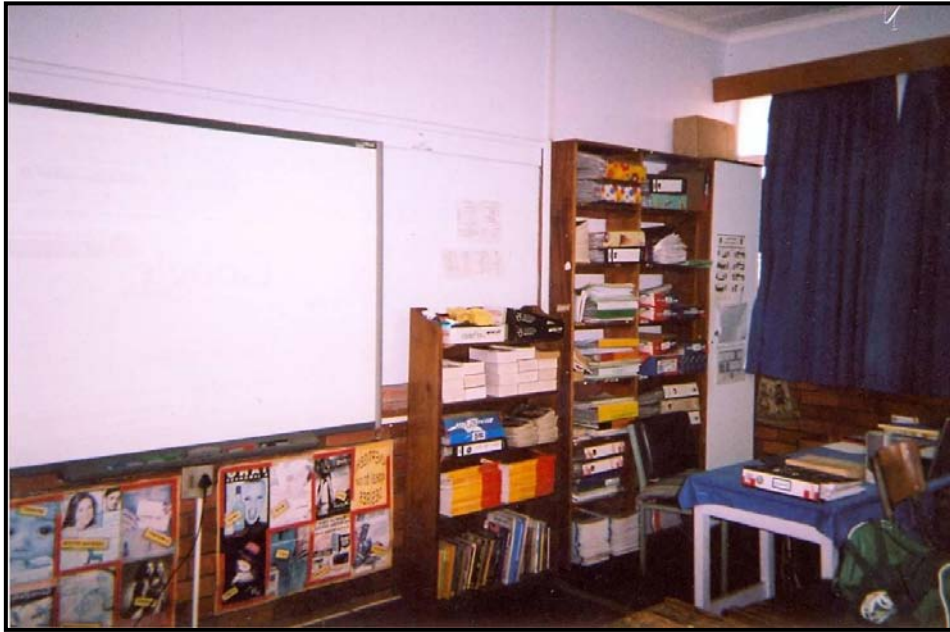
Coming back to **Photograph 3**, she said that this picture was quite symbolic of how her desk often looks. Her daybook and diary are visible. The daybook plots her work schedule for the



term. Kelly updates this book everyday so that she is conscious of what she is doing, where she is at, and where she has to get to. She developed this book on her own. Kelly observed how different people ruled up their daybooks and came up with a system that was meaningful to her and one that was easy to read at a glance. This daybook is central to her planning, which is a key aspect in her teaching, and this skill or knowledge form falls into the pedagogic content knowledge category. It can also be said that Kelly developed this knowledge from observing how other teachers used a daybook.

The file in the picture is also significant and a little later in the story its significance will be described. Kelly moved into a classroom with a Smartboard in the second quarter of the academic year. Prior to moving into this classroom, she had nothing to do with this form of technological resource. Kelly made this transition in her teaching when a colleague from her department left the school. She said she had all of one hour to go over the basic functionality of the Smartboard before her colleague left. She is, however, very computer literate and her level of computer literacy was crucial to her learning of how to use a Smartboard. Kelly had to learn the programme “Smart Technology” which is used to run the Smartboard. She came in during the school holiday to practice so that she was competent when her learners came back the following term. Kelly is now using the laptop more fully as a teaching aid. As a result, she is in the process of transferring all the resources that are in the hardcopy format stored in the file referred to earlier, to the digital format so that it can be used via the Smartboard. This too, is an example of Kelly refining and enhancing her pedagogic content knowledge. She does this in an individual capacity with resources in a planned manner.

For Kelly, the decision to use the Smartboard has added a different dimension to her teaching and for her learners the lessons are more stimulating. She explained that Smartboard Technology definitely enriches the learner, if it is used properly.



**Photograph 15**

Here too, it is evident that Kelly is improving her pedagogic content knowledge (using a Smartboard effectively) and she is developing her context knowledge by adapting her teaching style in order to use the resources she has available in her department. Kelly demonstrates that she is learning these knowledges individually in a planned manner with resources.

**Photograph 2** is a picture of her classroom and it represents her teaching space. Normally this space is filled with 35 learners. She said that she has learnt a huge amount from her engagement with the different classes she taught over the years. Kelly said that it does not matter whether it is a good class or a weak class, one learn things from these different groups and what one learns is valuable and will add to one's body of knowledge and strategies of how to best to convey information. She described an experience she once had,

*"I remember I was a new teacher and it was a Grade 8 class. I had never taught grammar at school before and I was being questioned about things I was teaching. As a new teacher, I did not have a huge foundation of knowledge so I told the class, 'let me quickly go and ask the teacher next door'. This class prompted me to develop my own knowledge and understanding. I had to go and ask my English corridor for help as well do research for information".*



**Photograph 2**

Moving on to the actual arrangement of her classroom, the desks are arranged so that there is a central aisle. Floor space is important to Kelly because she likes to walk around the classroom whilst she is teaching. Kelly described how she came to learn about classroom management in a journal entry:

*“When I was a student teacher, I had an excellent mentor. She had a similar personality to me and so I related well to her style of classroom management. Her manner of walking around the class, being personable with the learners and praising their efforts, were things that I emulate in my own manner of teaching and engaging with the class”.*

In this way she continues to monitor and support her learners and it also allows her quick and easy access to see if they are doing what they are supposed to be doing. In terms of classroom management, Kelly said that she is able to have individual conversations with her learners and it also gives the learners the opportunity to quietly ask for assistance.

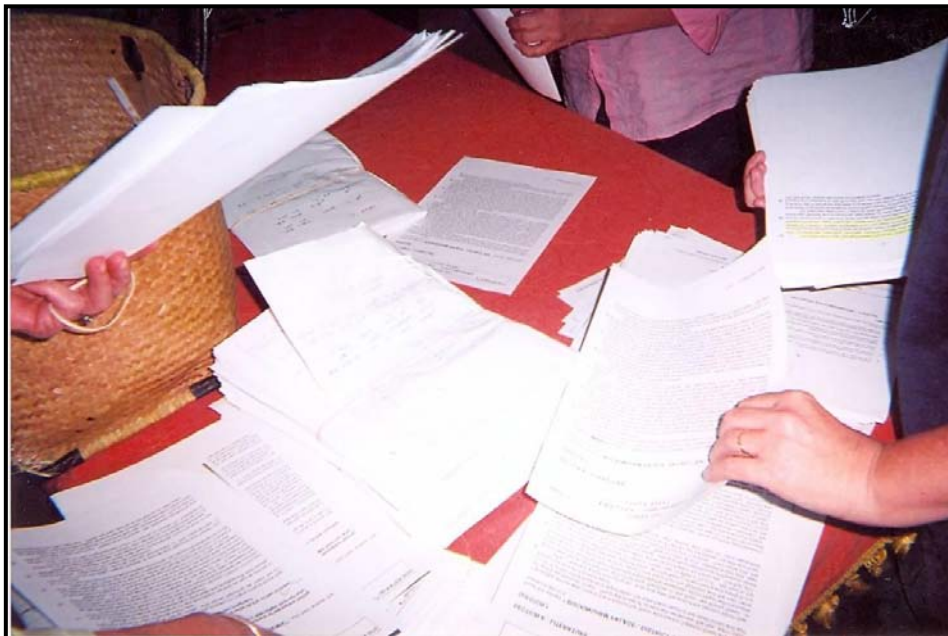
Some of them might be embarrassed and intimidated to ask questions and show the rest of the class that they don't know what is going on. So, for Kelly this is quite a valuable aspect of her teaching. This is also a good example of how Kelly learnt pedagogic content knowledge.

She learnt this knowledge by working alongside her mentor during her teaching practice and now through her experience she has refined her knowledge of how her learners come to learn her subject.

Kelly took a photograph of the school's library. The library has twice won accolades for being the best school library in Kwa-Zulu Natal. While it is the research hub for the learners, Kelly describes the library as her last resource. She usually begins to search for information close to home. Her order for doing a search for information is as follows: she begins with Google, and then proceeds to her own bookshelf, next she goes to the English department stockroom. If all these resources and members from her tea table have failed to help, then she goes to the school library. In the library she either searches the shelves or gets the librarians to help her source the information she needs. Kelly added that the teacher has to be motivated to go and do the research on his/her own. This is a clear example of how Kelly develops her content knowledge. She does this firstly, in a planned manner as an individual with resources as well as socially, when she directly seeks the help of the librarians, and thereafter, through group activity in an unplanned, social context (at teatime with colleagues).

Kelly described the English stockroom in the next photograph, **Photograph 11**. This particular shot shows a pile of exam papers that had just come in.

The procedure that the English Department follows is to firstly, count and check that all the papers which the invigilators indicated had been written, correlate with the number of learners in the grade. Thereafter, they spend a lot of time moderating and going through the memorandum.



**Photograph 11**

This is the time when they discuss the expected answers and then each teacher will go off to mark in her own classrooms. As the marking of scripts proceeds, Kelly said,

*“We still come back and ask our peers, what do you think of this, am I too strict here or too lenient there? We work together collectively”.*

The table in the picture is also significant in terms of it being in the stockroom because it is the place that they have their subject meetings. It is a formal gathering of the department to discuss, understand and co-ordinate where they are going and what is important that needs to be covered. It is here that they experience a unity of purpose. While this space serves as a functional, practical space, it is also a learning space. Kelly explained the purpose of this space as follows:

*“The Grade 12 teachers in particular have used this space. We meet once a week and discuss and make sure that we all know and understand the depth of the literature that we need to teach. If you are on your own you can’t explore to the same depth perhaps.*

*These meetings have been useful to me. Often with poetry, you have to spend quite a lot of time making sure that you understand the poem properly and are looking at all the elements entailed in the poem. Particularly because there are so many experienced teachers in the department, I have found this very useful, I really have”.*

As subject head, Kelly has an administrative role to play. She learnt about being a subject head by being *“thrown into the deep end”*. The person who was subject head before Kelly would every so often check if Kelly had done something or the other. She said that she would be *“in a flat panic”* because she had not done it because she did not know she had to or had even thought of it. Kelly explained that she sort of muddled her way through and made mistakes as she went along.

But now that she has been subject head for many years, everything rolls along smoothly. She also said that her work does not take the same degree of effort as when she first started.

Kelly laughed as she added,

*“I’ve also developed a few tricks along the way, for example, I now have all these little portfolios, so I delegate work to other members of the department. We have someone in charge of exams and so this person would keep all the paper work on track. Somebody else is in charge of processing the books and DVDs when*



*they come in and I got somebody else in charge of competitions. This eases the pressure on me”.*

Every subject committee meeting has an agenda which is followed. Once the usual business of post, policy and other subject related matters are discussed, Kelly offers the opportunity to those teachers in charge of the different grades to discuss problems experienced with the work being taught, or if teachers are having difficulty or generally to check if everyone is on track. Closer to the exam period, they usually discuss the setting of examination papers, what is going to be in them, who is going set them, etc.

It is clear from the above examples that Kelly continues to develop her content knowledge, pedagogic content knowledge and context knowledge in this space. These different knowledges are learnt and being learnt on different levels. She learns on one level through group activity (formal) in a planned context (subject committee meetings). On a second level she learns as an individual through trial and error (learning duties of subject head).

The third level on which Kelly is developing her content and pedagogic content knowledge is related to **Photograph 21**. This is a picture of where Kelly sits during tea and lunch time in relation to everyone else.



**Photograph 21**

In another journal entry she said that her colleagues are her friends. They sit together at tea and joke about their own mistakes and about the “*silliness*” of learners when it comes to the subject they teach. She sits next to the Deputy Principal and the Acting Principal and the rest

of the English Department and said that all these people have been supportive of her development not only as a teacher but as an individual.

Kelly explained that colleagues who are friends are one of the most valuable resources a teacher can have – *“they want my success as much as I want theirs”*. There is a lot of informal learning that goes on in this space.

*“For example, I would say to somebody – how far are you gone in this book? What chapter are you on? In this way I can assess my own pace and see that I’m obviously going into too much depth and I need to speed up a little bit. Or else I might ask somebody else about their take on a particular character – somebody said this about a particular character, do you agree with this? There are other times when someone will bring an essay or two and ask one of us to have a look”*.

Kelly explained that none of her colleagues are put out by talking or discussing subject related issues at tea or lunch time. They all have common interests. There has been so much that she learnt in this space and of all things, she really values this space. She added that one of the things that *“irk”* her is that some of the new teachers in her department do not want to share space and she thinks of how deprived they are of the opportunity of learning.

*“I really can’t emphasize enough how valuable this space can be. You can ask informally, it is not like you are going to show yourself up as being naïve about something. It is the informal tapping into a common pool of knowledge without feeling like I have to go out and make the effort”*.

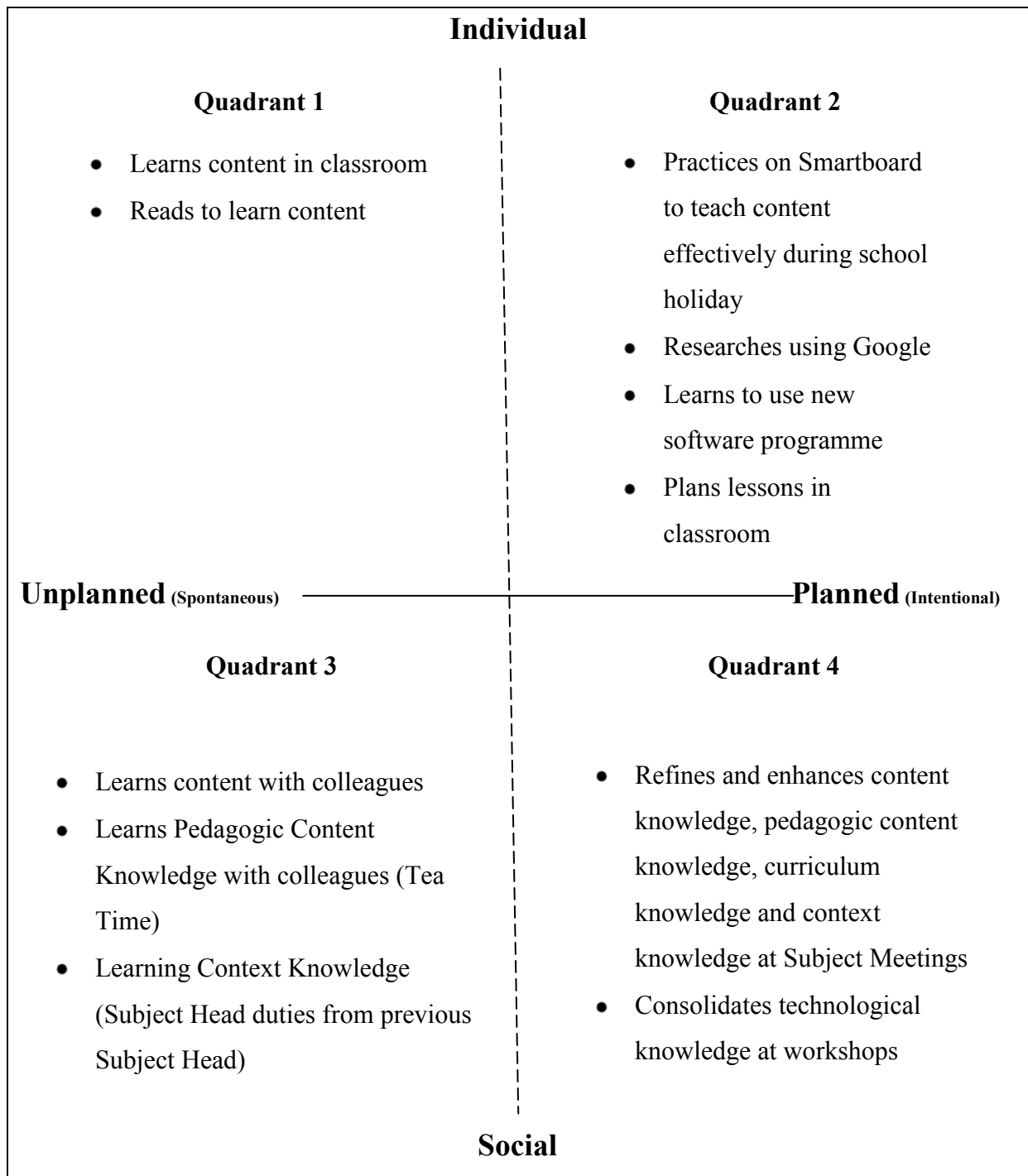
At this third level, Kelly is learning through group activity (informal – chatting at tea), in an unplanned, social context.

In concluding Kelly’s story, she can be described as an organized and motivated person. She developed her content knowledge, pedagogic content knowledge, curriculum knowledge and context knowledge as an individual with resources and by working collegially with her colleagues.

The new quadrants of teacher learning which appears on the next page, illustrates how Kelly engages in informal teacher learning at school. Kelly’s style of informal learning can be plotted in all four quadrants but it is located mostly within the social planned and unplanned quadrants. This in turn feeds positively into her conceptual knowledge-in-practice. She specifically learns new content knowledge as an individual with resources.

All of her other knowledges are being developed, refined and enhanced as she works alongside colleagues at school. This learning takes place in either the informal group activity context during tea or lunch time or in a formal planned context like the subject committee meetings.





**Figure 12: Kelly's Style of Informal Learning**

## 5.6 Terry – The Novice Mathematics and Maths Literacy Teacher

For Terry, teaching has always been in her blood. She comes from a family of many teachers. Both her parents are teachers and she has uncles and aunts who are also teachers. Terry has early memories of being fetched from school and taken to one of the schools where her parents taught. When she visited either one of her parents she vividly remembers writing on the chalkboard and saying to herself, *“I wanna do this one day”*. Terry loved everything about school.

She describes herself as one of those people who woke up each morning and wanted to go to school. School was always enjoyable for her. She often found herself teaching her younger brother and enjoyed helping him with his homework.

It came as no surprise that she wanted to be a teacher. Mrs Nevins, Terry’s Grade 10 and 11 Mathematics teacher made a huge impression on her. Terry wanted to be a teacher just like Mrs Nevins and so she made the decision to specifically teach Mathematics. Terry is an old girl of the case study school. She completed a B Ed degree and has been teaching for 2 years. This is her third year at the case study school. In her first year at this school Terry taught part-time as part of a learnership programme. She said that she is still fresh, she has new ideas and she is passionate about her job.

Terry explains the concept teacher learning as teachers learning all the time. She explains that one of the seven (7) roles of a teacher is to be a lifelong learner and feels that teachers learn constantly and this learning takes many different forms. She said some of the things teachers learn include content knowledge for the various subjects, teachers learn how to handle managerial tasks and discipline issues, teachers learn about Technology and about keeping up with our ever changing world. Terry said that she is constantly learning from her learners.

*“It’s the new things that you come across all the time. Teacher learning is also about keeping yourself updated with the curriculum, new teaching styles and content. It is not always about the curriculum but about learning about other stuff as you go along. Teacher learning also takes place when we learn from the diverse pupils that we teach. Adapting to our contexts that we teach in can also constitute teacher learning”.*



**Photograph 8**

Terry was also asked to choose a set of photographs to talk about and she began with **Photograph 8**. In the picture we see Terry and Ellen whom Terry fondly refers to as “gogo” (a Zulu word for grandmother).

Terry said she has learnt so much from Ellen that she cannot even begin to explain the different things she has learnt and continues to learn. In a journal entry, Terry described herself as a type of person who learns from other people. More than researching, Terry finds that she likes interacting with people and watching them do things. Ellen helped Terry tremendously with her Grade 8 classes. This picture is a representation of what usually happens. If they have a common free period Terry would go to Ellen’s classroom and they would chat about different things. Ellen would be seated at her table and Terry would either be sitting or standing next to Ellen. Terry asks Ellen questions about marking or about lesson planning or for general ideas that she can use in her teaching. Terry describes Ellen as a very visual person and a lot of what both Terry and Ellen do with the learners involves getting them involved in the subject in a creative way by playing with blocks, drawing, etc. These creative ideas basically allow the learners to discover things for themselves.

*“Ellen has been such a help, not only with my Grade 8s but with teaching in general. She is a very good teacher”.*

Terry said that she learnt content knowledge, lesson and teaching styles from Ellen. The learning and development of teaching style for Terry was an important knowledge form that she learnt from Ellen. Ellen taught Terry to not only give the learners rote content to learn but to also give them formulas to work with and to engage in discovery work. Terry learnt how to set exam papers from Ellen and explained this as follows:

*“Not once in my four years at varsity were we taught or told how to set a test or exam with a memo. In my first year I had to set the Grade 8 exam. Ellen sat me down, she divided the paper and pointed out the different learning outcomes and assessment standards that had to be achieved by the learners. She then explained to me that the questions had to be pitched at the different levels. She taught me that the paper had to be balanced. We created a marking memo and here she told me about method marking and accurate consistency”.*

Ellen would get Terry to choose a question and they would look at the question together. They would anticipate the kinds of errors that the learner might make and then everything would go wrong, so they would change things around even the question order. So Terry’s learning in this example can be described as her having learnt content and pedagogic content knowledge. She learnt these knowledges by working alongside a colleague in a planned, social manner.

Terry also described how Cynthia, another colleague, impacted on her learning. Cynthia and Terry both teach the Grade 10, 11 and 12 Mathematics. In her first year at the case study school when she was doing some part-time teaching Terry was allocated to Cynthia, who became her subject mentor. Terry said that this mentor/mentee relationship still continues even though she is a fulltime teacher at the school. They work closely together in their teaching of Grade 10 Mathematics. They set tests together, create worksheets together. Terry said that it was Cynthia who taught her how to create worksheets – something she was never taught at university. She described Cynthia as being a very organized person. In addition to helping Terry with subject related matters, Cynthia taught her how to organize her folders in her laptop, how to create a seating plan using the computer instead of writing one out each time a control test was scheduled.

In this example of Terry’s learning, she clearly demonstrates that she is learning content knowledge, pedagogic content knowledge as well as context knowledge.

She is learning these knowledges in two ways. Firstly, she is learning content knowledge and pedagogic content knowledge collaboratively by working with Cynthia as they plan and prepare for the Grade 10s. This is done in a planned, social context. Secondly, she learns pedagogic content knowledge (organizational skills) and context knowledge (seating plans - a school requirement for examinations and control tests) from Cynthia by working alongside her. This too, she learns in a planned, social context.



**Photograph 6**

**Photograph 6** is of the space where Terry learns, usually during a free period, if her friends and mentor are not available to help her. This is the Maths stockroom. If Terry is teaching Grade11 Maths Literacy - data handling more specifically, she goes here to check what each of the different textbooks say and how it is taught. She uses the different ideas that she picks up as she goes through the different textbooks to create a worksheet.

Terry demonstrates in this example, that she is learns content knowledge and she has learnt this knowledge form as an individual with resources in a planned manner. The other reason this space is important to Terry's learning is that subject committee meetings are held here. These are formal, planned sessions in which content, curriculum and context matters related matters are discussed. It is also a time to check teachers' progress in respect of the work schedule for the different grades.

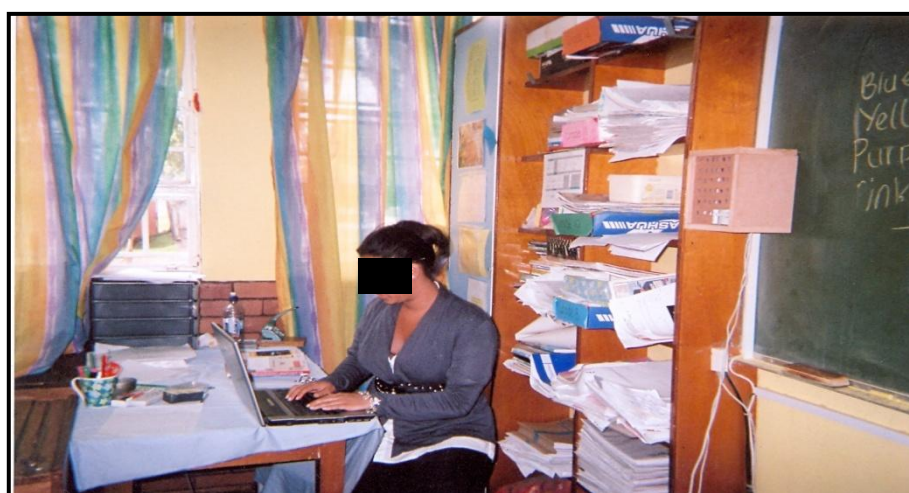


In a journal entry Terry described one other way the subject committee meeting time was used. The purpose of this subject committee meeting was for the Maths teachers to help each other use the Interactive Smartboards more effectively. In this example, Terry explained how one member taught the rest of the Maths department how to use the software programme “Autograph”. This programme is specifically designed to teach Graphs. The colleague who taught the session, demonstrated how to use the programme more effectively. Once Terry and her colleagues learnt the basics, they had to go off, learn more and practise in their own time. Terry said that she had learnt a new, more visual teaching strategy. In addition to this, she said,

*“We also taught each other little things, like how to erase notes off the board. We were taught to circle around the work and then to dot it so that everything disappears. This is just one little thing that made a difference. We learnt to save things more effectively, to use programmes like Autograph and Sketchpad, and to use colour in our teaching. We got to learn from each other and that is what I liked. It was not formal. I learnt from someone demonstrating to me in an informal and relaxed manner and not as if I am pressured into learning”.*

Terry clearly enjoys learning through demonstration. In this example, she learnt pedagogic content knowledge - teaching strategy – to use the Smartboard more effectively. She learnt this form of knowledge in a planned, social context, through group activity.

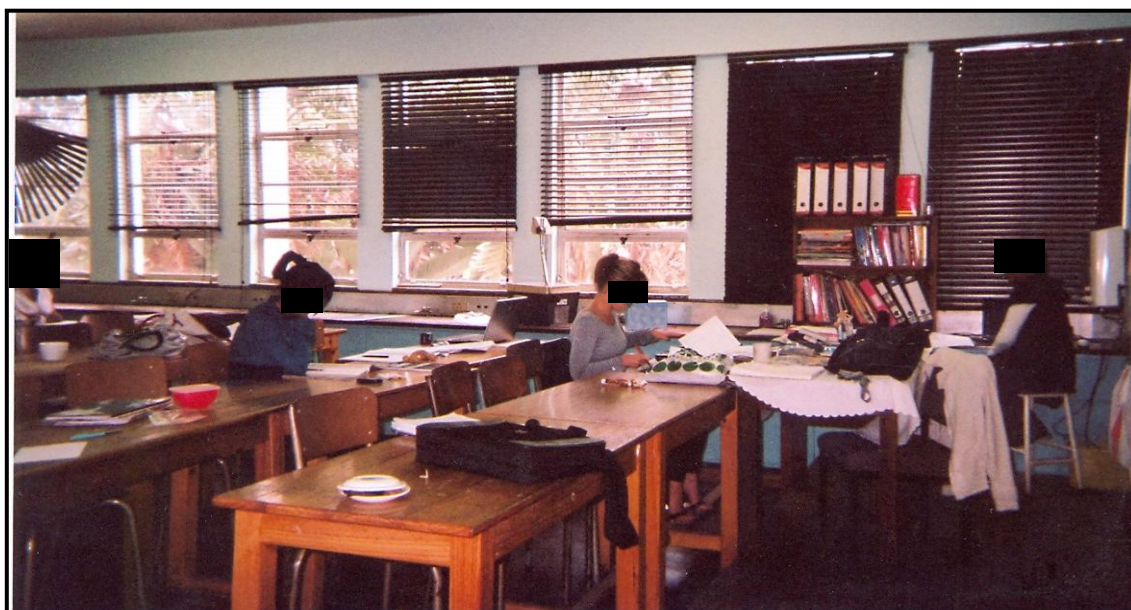
She went on to explain about how she goes about her own learning in a journal entry. She said that she learns a lot in her classroom. **Photograph 1** shows Terry in her classroom at her laptop where she has access to the internet.



**Photograph 1**

Terry wrote that sometimes while her learners are working, or during her free periods and even after school, she spends time on the internet. She surfs the net looking for suitable material, games and activities to introduce to her lessons thereby adding a new dimensions to her lessons. Terry learns by reading and through demonstration, from her learners whom she describes as “technologically savvy”. If she has a problem with her Smartboard they are able to help her sort it out. In this way she said she learnt a lot.

Terry reflected on **Photographs 13 and 15**. These photographs are significant for Terry’s learning in an unplanned social context. **Photograph 13** was taken in a colleague’s laboratory.



**Photograph 13**

In this space Terry learnt about classroom management and general administrative skills from the people in the picture. She explained that she hated the administration that was involved in the general procedure when learners brought back absentee notes. Previously when learners brought in their absentee notes, she would just pile them all into a box. If she remembered, she would send them to be filed in the learner’s file. Nowadays she has a system in place and explained how she arrived at this system,

*My friends in the picture laughed and taught me what to do. They told me that I should have a plastic sleeve for each learner and as they brought in their notes, I needed to tick them off in the absentee book and then get the learner to immediately file her note in her plastic sleeve. I thought this was a brilliant way of dealing with these absentee notes”.*

Another time, Jascinta who is a “fundi” on the computer, taught Terry how to use the computer to do her marks. These friends have helped her develop her organizational skills, skills which she really needed help with. These are examples of Terry learning context knowledge in an unplanned manner. This learning took place through group activity in a social context.



**Photograph 15**

**Photograph 15** is a shot of the area in the staffroom where Terry and her friends sit during tea time. She said that the learning that takes place in this space is similar to what happens in **Photograph 13**. Terry said that they are always talking and laughing and also learning in this space. For example, if she had a problem with a learner, then her friends would advise her on what to do.

*“I’ll say that this class was so noisy and my friends would say why I don’t try this or that. And they will always ask me how that class was and I will tell them”.*

Terry also learnt through her own experience that she can never go into a class unprepared for a lesson. She related this example. She is working on her Honours at the moment and has neglected her schoolwork a little bit in order to deal with that part of her life. She said she would find that she had not prepared herself adequately for a certain lesson and she would get up there and start teaching and then the learners would ask questions and she would not be



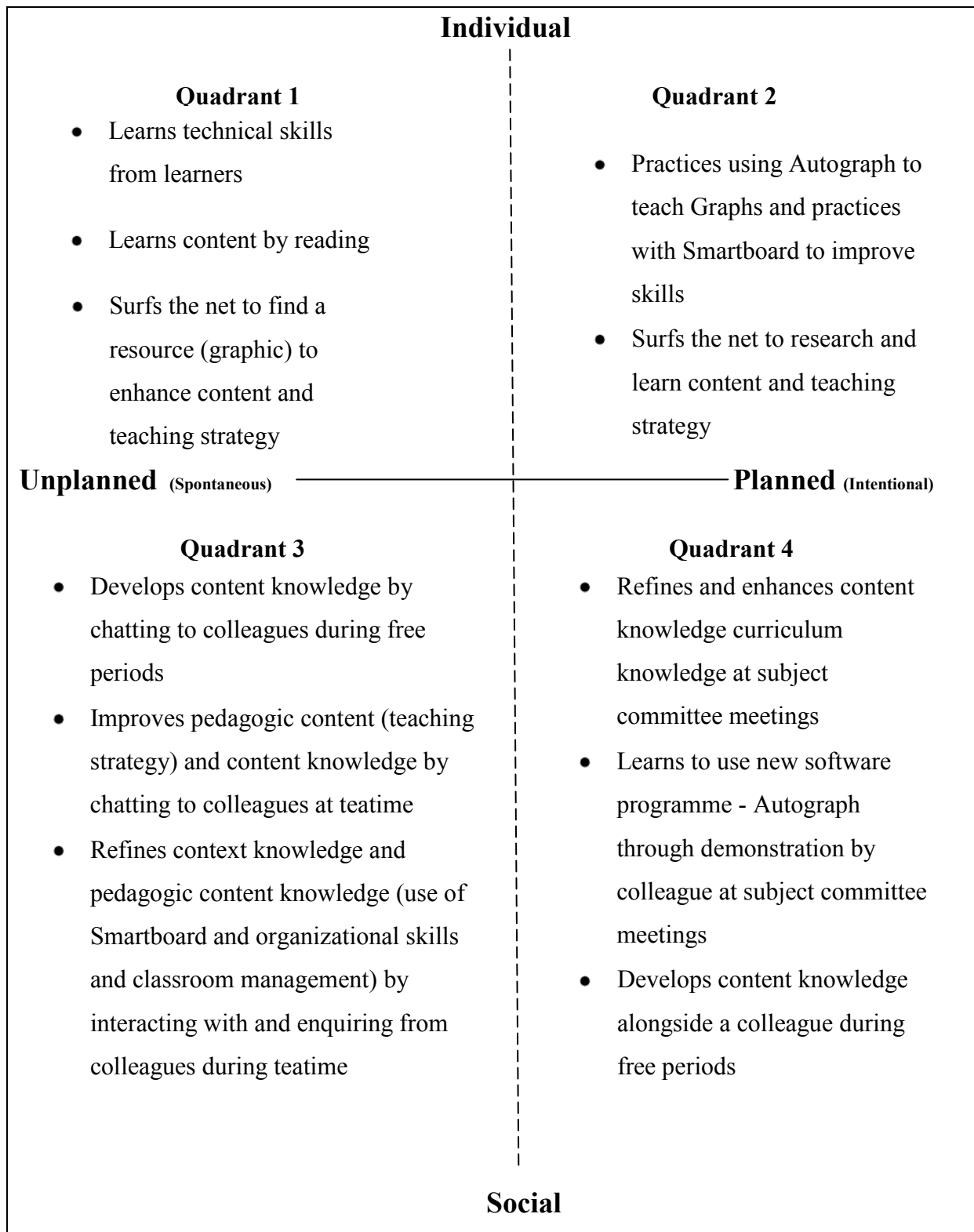
sure about little things. She added that when this happens, you learn that no matter what, you have to be prepared for your lessons because something can go wrong.

*“You learn from the mistakes you make. When I am unprepared like that and that happens, then I learn that I need to be prepared and I learn that I need to be more organized and learn time management”.*

In this instance Terry is learning that planning is key to a successful lesson. This aspect of her pedagogic content knowledge is being developed through her own experience of being insufficiently prepared for a lesson. It is clear that she is learning this knowledge as an individual through trial and error.

This is the story of how Terry the Mathematics and Maths Literacy teacher learns informally. Terry summed up her learning experiences by saying that she prefers the informal method of teacher learning. She has learnt and continues to learn and improve on her content knowledge, pedagogic content knowledge, and context knowledge. Terry learns by reading, by surfing the net, by working alongside colleagues, by working collaboratively with a colleague, through demonstration and through trial and error. Some of the knowledges are learnt in a planned and unplanned manner as an individual with and without resources and through group activity in a planned and unplanned social context. As a novice teacher, it is evident that these different knowledges are feeding positively into her conceptual knowledge-in-practice.

The quadrants of informal teacher learning indicate that Terry’s learning happens in the individual and social planned and unplanned quadrants. It is evident that Terry is learning at least one or more of the four cornerstone knowledges of teacher learning in each of the different quadrants.



**Figure 13: Terry's Style of Informal Learning**

## **5.7 Conclusion**

This chapter examined the real, lived experiences through which the participants in the study engage in teacher learning. The narrative accounts richly described what the participants understood by the concept teacher learning, the knowledges learnt and the ways in which these knowledges were acquired using the broad categories of informal learning – social and individual learning and planned and unplanned learning. The participants were quoted directly so as not to lose the rich texture of each learning experience. The new quadrants of teacher learning adapted from Reid (2005) and Kwakman (2003) were used to plot the ways these knowledges were acquired and indicates that the knowledges acquired, enhanced and developed feed positively into each of their conceptual knowledge-in-practice. The next chapter, Chapter 6, deals with the discussion of the findings and will present the conclusion to the study.

## Chapter 6: Discussion and Conclusion

### 6.1 Introduction

This chapter is a synthesis of the data analysis of this case study, which produced a range of findings that were used to answer the research questions: 1. What do the selected teachers understand by the concept teacher learning? 2. What kinds of knowledge do teachers learn informally at school? 3. In what ways do teachers learn informally at school? In addition, this case study contributed to the argument that reformers and teachers are not always aware of the value and significance of teachers working and learning together informally. While the discussion that follows is of the final, deeper analysis across the five narratives which involved identifying what was similar or different about what knowledges were learnt and in what ways they learn these knowledges, it also highlights the value and importance the participants attach to learning informally with and alongside colleagues in spaces such as the subject committee meetings and the staffroom. The first step in the analysis process involved looking at the interview transcripts and journal entries in detail to identify patterns and themes that emerged in relation to the knowledges the participants learnt and the ways in which they learnt these knowledges. Content analysis of interview transcripts and journal entries followed as the second step in the analysis process, the aim of which was to generate a rich, textured description of all the details of the participants' experiences and reflections. This step culminated with the writing of a narrative of each of the participants to capture their real lived experiences and reflections of *how* they learn, *what* they learn, *where* they learn and *with whom*. The analysis process also includes an attempt at making links to the findings of other studies in the field of informal teacher learning through the literature surveyed for this study.

### 6.2 Research Question 1: What do the selected teachers understand by the concept teacher learning?

From the data collected it emerged that generally all the participants in the study were of the view that teacher learning is a dynamic process, one that never stops. They all agreed that teachers have to have an open mind about teacher learning. Two of the participants, Sharon, the experienced teacher and Terry, the novice, said that teachers have to be life-long learners.

There was also consensus among the participants that teacher learning is activated by a range of sources and some of the common sources listed included: learning from other teachers,

learning from their learners, learning as an individual, learning from television, learning from books and learning from the internet. These views seem to be consistent with the views of Lieberman and Pointer Mace (2008) and Lohman and Woolf (2001) cited in Henze et al., (2009) about the concept „teacher learning’. However, it must be noted that Wilson and Berne (1999) explain that due to the nature of teacher learning a definitive definition of the concept is lacking. Their view became apparent through the other findings that emerged in relation to the participants’ concept of teacher learning.

There were other interesting points raised, some similar and some different, about *what* was learnt during the teacher learning process. Sharon was of the view that teacher learning does not relate to subject content learning alone, rather it relates to any kind of learning that would improve one as a teacher. Terry held a similar view and argued that teacher learning is about keeping updated with the curriculum, teaching styles, classroom management and learning about technology. She added that adapting to the context one teaches in constitutes teacher learning. Soreta, the experienced teacher, explained the concept teacher learning as developing personal growth in subject knowledge. This personal growth happens when one learns new concepts and skills.

Michelle, the novice, had the most diverse view of teacher learning. She explained that this concept has two aspects to it. The first aspect is the formal degree aspect, where one gets one’s qualifications. The second aspect is the informal learning aspect which involves one learning on the job as one goes along. All the participants agreed that teacher learning takes place in different spaces and ultimately it was seen by them as learning so as to teach effectively.

Another interesting finding to emerge from the data was around the participants’ preferred learning style. It emerged that Sharon prefers the informal, more hands-on kind of learning - learning which is mostly unplanned and takes place individually as well as socially alongside and with colleagues. She feels that she would benefit more from actually doing a practical experiment as opposed to looking at a person using a diagram to explain how it should be done and expressed that she remembered things better if she experienced them. Soreta’s experience at formal workshops was not very positive. She described her experience as one where she just sat and listened, not doing anything. So it appears that she too prefers the informal, hands-on style of learning. She explained that she “grew” from learning informally.

Michelle, the novice, said that at this stage in her career the formal, workshop style of learning and the informal, learning on the job style are both important to her. While her curriculum and content knowledge are developed in the formal workshop context these knowledges are all enhanced and developed as she learns informally at school.

Terry, the other novice, summed up her preference of learning style by saying that she prefers the informal method of teacher learning.

Kelly, the experienced teacher, feels that both the formal workshop style of learning and informal learning styles are important in the teacher learning process. She explained that formal workshops have their place, especially when there are changes in the curriculum or when information has to be cascaded to teachers. The subject workshops (Department of Education workshops) are important for evaluating education processes such as the matric examinations. There are other, privately organized workshops which she attended and found beneficial.

It is clear from the above views that the participants agreed on some aspects of what teacher learning entails. Each participant, however, interpreted and also understood the concept differently, largely as a result of how she engaged with the teacher learning process. From the varied views on what the teachers understand by the concept teacher learning, it becomes a little easier to understand what Wilson and Berne (1999) meant when they pointed out that the authorities in the field have been unable to provide a definite definition of the concept.

Kelly's view on teacher learning seems to sum up the concept succinctly. She said that teacher learning takes all the places of learning and all the knowledge learnt and puts it neatly together in a package of an effective teacher.

### **6.3 Research Question 2: What kinds of knowledge do teachers learn informally at school?**

Following on from what the participants understood by the concept teacher learning, the next logical step was to examine what knowledges they learnt during this process. It is important to bear in mind that the teacher learning process can be influenced by a variety of issues. This observation by Maurer and Traulli (1994) can be linked to this study because there are factors which influenced how the participants engaged in learning the different knowledges (as cited in Day and Gu, 2007).

The findings that emerged from the five narratives were categorized into four cornerstone knowledges (Grossman, 1990) and there is good evidence to show that the participants have all developed at least one, if not all, of the four cornerstone knowledges. The four cornerstone knowledges are: (a) pedagogic knowledge, (b) content knowledge, (c) pedagogic content knowledge and (d) context knowledge. The findings also indicate that the different knowledges the participants had acquired, feeds positively into their conceptual knowledge-in-practice.

### **6.3.1 Types of Knowledges Learnt**

#### **(a) Pedagogic Knowledge**

Aspects of pedagogic knowledge such as general knowledge and skills about learning and learners, the principles of actual instruction and the purpose of education have been learnt by all the participants during their formal training as teachers. However, the findings indicate that the participants are not only “users” of pedagogic knowledge; they are also “creators, disseminators and preservers of this knowledge form” (Wood, 2007).

The novice teachers, Michelle and Terry, are still in the process of developing their classroom management strategies and styles. They are doing this informally, by interacting with their colleagues as well as through their own experience of trial and error.

The experienced teachers, Sharon and Soreta, enhance and refine their classroom management styles and strategies by drawing on their years of experience of what styles and strategies work and what do not work. The data indicates that they still consult with colleagues informally to improve on their present classroom management techniques.

Kelly, the other experienced teacher on the other hand, learnt classroom management strategy from her school mentor during her PGCE training and over the years she has refined and adapted her classroom management style and strategy. She still chats to colleagues informally about ways to improve on her technique.

#### **(b) Content Knowledge**

All the participants, novice and experienced teachers, have learnt content knowledge - knowledge of their subjects and the main facts and concepts during their formal training as teachers.

Nevertheless, the findings indicate that the category of content knowledge is continuing to be developed, enhanced and refined through informal learning opportunities at the school.

There is strong evidence emanating from the data to suggest that all the participants in this study are self-motivated individuals who are willing and open to learning and are individuals who participate enthusiastically and are still passionate about teaching. Day and Gu (2007) have similar views about the characteristics of those who engage in teacher learning process. Some examples of the characteristics and career phases of the teacher have been identified with the participants of this study.

For example, Sharon and Soreta fall into the professional life phase of 16 - 23 years (Day and Gu, 2007, p. 436). To explain this phase clearly, it is essential to look at the 8 - 15 years phase first. Teachers who are in the 8 - 15 years category are described as experiencing the pressure of coping with the personal and professional lives (ibid). Once they reach the 16 - 23 years life phase they are described as having a “more defined sense of professional identity”. As a result of *changes to the curriculum* both Sharon and Soreta had to engage in learning of the new content in order to teach it to their learners effectively.

For Sharon, the Revised Curriculum Statement (Physical Sciences) brought in new content, some of which both she and her colleague Priscilla did not cover in University. The syllabus is so wide, that they had to decide and find the middle ground of what has to be covered together. Furthermore, the topics that had to be covered in their subject did not appear in the textbooks, so they continue to research, learn the content and then teach it to their learners. By learning in this way not only has Sharon learnt new content, she has also come to recognize and understand how her learners come to understand the content of her subject effectively. This example can be linked to what Shulman (2004) describes when he says teachers support and scaffold each other’s learning when they collaborate with each other.

In Soreta’s case, when Computyping changed to CAT, only 5% of the Computyping syllabus remained. This drastic change in the curriculum compelled her to engage in some form of learning to improve on and enhance her content knowledge, more specifically, her knowledge of computer theory. The area that she was lacking knowledge in was in the use of the internet which she had to develop. She was also required to keep up to date with developments on the internet.

It was these requirements that prompted her to register for the “Superinternet User” online course through University of Cape Town (UCT). Both, Sharon and Soreta, clearly exhibit the ability to sustain motivation, commitment and effectiveness to the teacher learning process.



Michelle and Terry, the novice teachers, in this study fall into the 0 - 3 years professional life phase category. One of the characteristics of this phase is the high level of commitment (Day and Gu, 2007, p. 434). They learn content for each of the new topics they have to teach. Both of them clarify aspects of the content knowledge, at subject committee meetings or in consultation with their subject heads. Michelle and Terry have gaps in their content knowledge and pedagogic content knowledge.

Many of the topics that Michelle had to teach in Technology were not covered at University. In order to teach effectively, she explained that she had to know the content of the topic very well. So, it became her responsibility to develop the rest of the content knowledge on topics where she had gaps. She did this by reading through notes, learning from books, textbooks in particular. The second way she learnt the content was to actually watch her learners physically work on the practical tasks of the topic. The practical component was a good indicator for Michelle of how well her learners understood the theory of the section. Michelle's learning style is consistent with the way Wilson and Demetriou (2007) describe how beginning teachers learn. These authors say that new teachers need to be able to "deconstruct" their content knowledge so that the learners can make meaning of it and use appropriate techniques" to help the learners' learning process.

Terry on the other hand, felt the urgency to develop pedagogic content knowledge when she had to set the Grade 8 Maths examination in her first year of teaching. Not once in her four years at University was she taught how to set a test or examination with a marking memorandum. Terry made the effort to seek the help of a colleague who taught her how to set a balanced paper. She learnt how to create a marking memorandum, the value in method marking and the importance of accurate consistency. In this example, Terry's learning supports McIntyre's (1993) view that beginning teachers need to learn from others, in Terry's case, she learns from experienced teachers (McIntyre, 1993, as cited in Hagger et al., 2008).

The findings revealed that they realized that they had to have strong, wide content knowledge of the different topics they were expected to teach before they actually taught them. Having a strong content knowledge base would enable them to deal with questions and queries effectively as and when they arise.

### **(c) Pedagogic Content Knowledge**

This knowledge type refers to the pedagogic knowledge one draws on which is specific to the teaching of particular subject matter. It was what Dewey (1902, 1983) referred to when he

said “teachers must psychologize their subject matter for teaching, to rethink disciplinary topics and concepts and to make them more accessible to students” (as cited in Grossman, 1990). The findings indicate that the participants in this study are developing this knowledge form through informal learning – usually socially. The experienced teachers, Sharon, Kelly and Soreta, have already developed excellent pedagogic content knowledge skills. It is evident from the examples that they provide in their narratives that their pedagogic content knowledge has developed over time, through trial and error and the experience of teaching. Nevertheless, they continue to enhance and refine this knowledge type in order to keep their approach to their subjects fresh and absorbing for their learners.

The data indicate that the novices are definitely in the process of developing this knowledge type through informal learning opportunities. The ways they go about developing this knowledge are also more socially orientated. There is strong evidence from the data to suggest that all participants’ learning of this knowledge form happens either in planned and unplanned contexts and that the development of this knowledge form is impacting positively on their overall conceptual knowledge-in-practice.

Sharon and Kelly, the experienced teachers, both had a new teaching resource in the form of the Interactive Smartboard that they had to work with. As a result they had to adapt their teaching styles to incorporate the Smartboard. Sharon not only had to learn how to use the Smartboard and the software programme, she was determined to use it effectively so that she brought in a visual perspective to the abstract concepts of the Physical Sciences. Once she learnt the basic functions of the Smartboard, she practiced so that she became competent. This is essentially her method of developing her pedagogic content knowledge.

Kelly fits into the 8 - 15 years professional life phase, more specifically into subgroup (ii) which involves developing and refining knowledge repertoires for teaching and learning (Day and Gu, 2007, p. 436). Kelly experienced a *change to her context* and had to make the transition to using the Interactive Smartboard when a colleague in her department left the school. This meant that she had to change from using the hard copy format of teaching resources to the digital format of teaching resources. Unlike Sharon, Kelly was very computer literate. Yet her challenge, like Sharon, was to be able to use the resource effectively in her teaching. She too, had to learn how to use the software programme and practiced until she became competent at using the Smartboard. The use of the Smartboard has added a new dimension to her teaching style generally.

#### **(d) Context Knowledge**

Sharon, the experienced teacher, is new to the case study school. While she has excellent pedagogical content knowledge, she had to develop her context knowledge. The data indicates that she found the need to develop an understanding of her working context and to adapt her style of teaching to meet the requirements of her department, the Physical Sciences department, as well as her learners. This finding supports Lampert's (1984) view that for teachers' knowledge to be effective for use in the classroom, it needs to be context specific (as cited in Grossman, 1990, p. 9).

Sharon learnt about the general organization of her department from her immediate support team Priscilla and Mandy. Secondly, her teaching style had to be adapted because she had to use a Smartboard to teach. She is developing her context knowledge further by learning how to use the Excel programme to process her marks which is a school requirement to facilitate end of term deadlines. She continues to refine and enhance her understanding of her unique working context and she does this informally in an unplanned, social manner with or alongside her colleagues.

The data shows that the novices, Terry and Michelle, are developing their context knowledge through informal learning opportunities. At this stage in their careers they are dependent on colleagues to help them to develop this context knowledge. This learning happens socially, in planned and unplanned contexts at the school.

Soreta and Kelly have excellent context knowledge. They have both been at the school for a long time and have become accustomed to their working environments.

Kelly, however, has had to adapt her style of teaching because she recently switched over to using a Smartboard in her teaching. She learnt this new technological knowledge individually with resources informally at the school and she was offered the opportunity by the school to attend a workshop where she was able to consolidate the knowledge she learnt on her own.

#### **6.3.2 Conclusion**

To sum up the findings emerging from the theme *Types of knowledge learnt*, the data strongly suggests that the participants are highly motivated and by their own choice, they each engaged in informal learning processes to develop their knowledge, skills and competences.

It became apparent that there were some factors that drove the process of teacher learning for them.

Sharon and Soreta took the initiative and responsibility of learning new content knowledge brought about by the *changes in curriculum*. Michelle and Terry display a high level of commitment to improving on and addressing *the gaps in their different forms of knowledges*, mostly their content knowledge and pedagogic content knowledge. Kelly also showed initiative and took responsibility for learning new context knowledge when she made the transition to using the Smartboard when she experienced *contextual changes*. While these are clear examples indicating how inner motivation is driving the process of the informal teacher learning for novice and experienced teachers at the case study school, it becomes clear too, that teacher learning can be influenced by a variety of factors.

It is evident that the participants are all engaging in different informal learning activities to develop the four cornerstone knowledges of teacher learning at school. The findings indicate that depending on the type of knowledge they learn, the participants learn either as individuals or through interaction with colleagues in a social context. From the above findings it can be argued that some aspects the participants' pedagogic knowledge, content knowledge and pedagogic content knowledge were developed during formal training. These knowledge forms, including context knowledge, continue to develop and be refined through the informal interaction with colleagues at the case study school.

#### **6.4 Research Question 3: In what ways do teachers learn?**

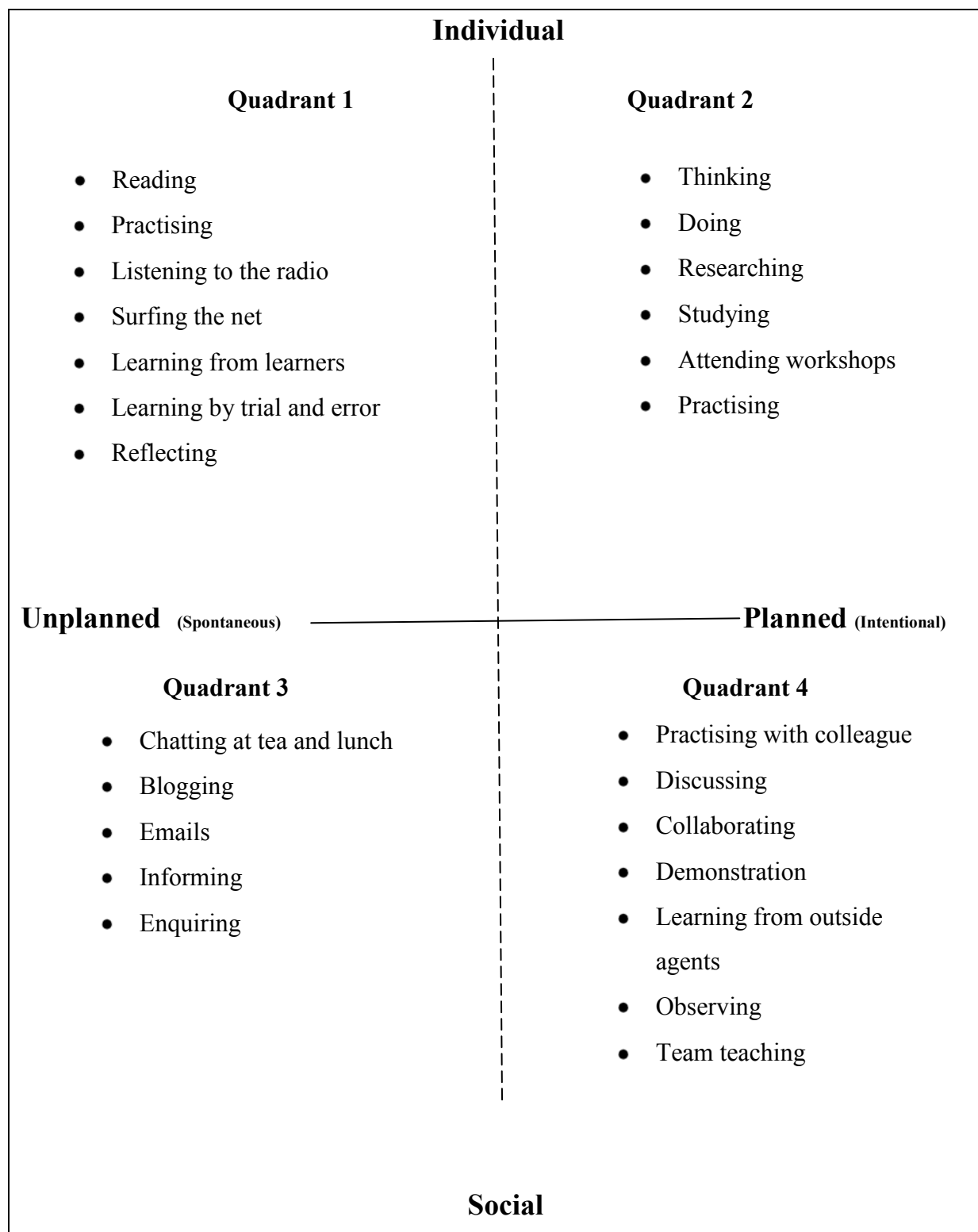
This step in the data analysis focused on how the five participants speak about the ways they learn during the teacher learning process.

The data indicates that the participants have been learning in the following ways: learning by doing, thinking, reading, practising discussing, researching, collaborating, listening to the radio, blogging, via emails, through demonstration, through trial and error, from outside agents and through team teaching. The methods are in line with Kwakman's (2003) definition of how teachers learn.

The key findings of the ways the participants learn have been categorized into three main themes: (i) learning through group activities – formal (subject committee meetings) and informal (tea time chats), (ii) learning by working alongside each other, and (iii) individual learning with resources.

The data has been mapped onto the quadrants of informal teacher learning described in Chapter 4 to give a visual representation of how the participants learn informally at school.

**The Quadrants of Informal Teacher Learning-** Adapted from Reid (2005) and Kwakman (2003)



**Figure 14: The Participants' Styles of Informal Learning**

### **6.4.1 Learning through Group Activities**

The data indicates that the participants all engaged in different forms of group activities to learn the different knowledges. The spaces where they learn have been identified as the subject committee meeting and the staffroom. They engage in formal group activities in the subject committee meeting space and they all engage in a variety of informal group activities with colleagues in the staffroom. The participants attribute a great deal of value and importance to these spaces where the teacher learning process takes place.

These spaces, the subject committee meeting and the staffroom, can be closely related to collaboration and learning communities which Shulman (2004) lists as factors which underpin effective professional development. In this instance, professional development is taking place in the form of formal and informal teacher learning through group activities inside the school.

#### **6.4.1.1 Formal Group Activities - Subject Committee Meetings**

The subject committee is an organized group of teachers from a specific department. The subject committee meeting is a time officially set aside by the school's management team for members of the different subject groupings to meet.

This meeting alternates with the general staff meeting on a Wednesday afternoon. Therefore, for the purpose of this study it has been categorized as a formal group activity. The findings reveal that all the participants spoke of the value and importance of this space in which one form or the other of their teacher knowledges were developed.

Sharon learns content knowledge by working on her own but she uses the subject committee meeting space if she needs clarity on some aspects of content, the curriculum or even school related issues. In this way she is able to confirm her views on aspects of the content as well as eliminate any misconceptions that may arise.

Soreta's subject committee meeting time is a little different because it is just Lucy who teaches CAT with her. Although their meeting time is not as structured as the bigger departments in the school, it is equally valuable to Soreta. She explained that while it is not a formally structured meeting time, they talk about ideas and then they would go off on their own to think about them. They would meet again to plan how they will approach their ideas.

The findings from Michelle's example indicate the way she learns in this formal space. Since there are only three people teaching Technology, Michelle feels she needs more support in

this learning area and she finds the subject committee meeting extremely beneficial to her learning. The Technology team meets and discusses how they are going to go about teaching the different topics in the syllabus. Once, Michelle had the task of putting together some worksheets and model answers for the different sections of a topic that was being covered. She was not sure how to go about doing this. The findings indicate that just by *listening* to how the section was taught the year before, and by having the opportunity to put the worksheets together (*doing*), it helped her to familiarize herself with the content and in the process she also learnt how to create worksheets with the model answers.

Being a novice teacher, Michelle said that this is a valuable time for her. It allows her to feel secure just knowing that other people are at the same pace as she is and that she is working at an appropriate pace. This space reassured her that if she ever has a problem help was available from her colleagues. Michelle's content knowledge, pedagogic content knowledge as well as context knowledge is being developed in this space.

The findings indicate that as Subject Head, Kelly uses this space to offer the opportunity to those teachers in charge of the different grades to discuss problems experienced with the work being taught, to check if teachers are having any difficulties and to check if they are all on track. Closer to the exam period this space is used to discuss the setting of exams, what is going to be in them, who is going set them, etc.

The data also indicates that Kelly continues to develop her own content knowledge, pedagogic content knowledge and context knowledge in this space. The data reveals that the subject committee space is a good example of how she learns through formal group activities. The Grade 12 teachers meet once a week and discuss and make sure that they all know and understand the depth of the literature that they need to teach. These meetings have been useful to Kelly. Often with poetry, one has to spend quite a lot of time making sure that one understands the poem properly and looked at all the elements entailed in the poem. The findings that emerged suggest that if you are teaching in isolation you can't always explore to the depth that is required in a subject. She has learnt about the depth a teacher needs to explore within the subject through the *discussions and interaction* she has had with many of the experienced teachers in her department in this space. This clearly is an example of Professional Knowledge Sharing taking place. Kelly's interaction with her colleagues is an example of what has been described as teachers collectively sharing information. This type of sharing of information has also been known to filter back into the classroom, either directly or indirectly.

For Terry the novice, the subject committee meetings are formal, planned sessions in which content, curriculum and context related matters are discussed. It is also a time to check teachers' progress in respect of the work schedule for the different grades. The Maths teachers have been using this time to help each other use the Interactive Smartboards more effectively. So not only are Terry and her colleagues developing their pedagogic content knowledge, but their content knowledge and context knowledge are also developed.

#### **6.4.1.2 Informal Group Activities - Staffroom Tea Time Chats**

The findings indicate that the staffroom is also a valuable space for the participants and they all learnt different knowledges in this space. It was interesting to note that Soreta did not speak of this space as a place where she learns. She explained that because she works so closely with Lucy she just uses this time to relax and regroup before she goes back to her teaching.

Terry said that she and her friends are always talking and laughing and also learning in this space. For example, if she had a problem with a learner, her friends would advise her on how to approach the issue. The data indicates the Terry is developing her pedagogic content knowledge as well as her context knowledge informally in this space.

In another example, Terry describes how she learns about classroom management and general administrative skills through informal group activity with her friends. They usually meet in Sharon's laboratory to do their marking. This time is also used to talk about school related issues. Terry hated the administration involved in the general procedure to be followed with absentee notes. Initially she would just pile all the notes into a box and if she remembered, she would send them to be filed in the learners' files. Her friends taught her what to do. They told her to keep a plastic sleeve for each learner and as the learner brought in the notes all she needed to do was tick them off in the absentee book and then get the learner to immediately file her note in her own plastic sleeve. The findings in this example suggest that Terry learnt these classroom management (administration) skills through *talking to and interacting with* her friends.

Kelly is refining, developing and enhancing her content knowledge and pedagogic content knowledge in the staffroom space. None of her colleagues are put out by talking about or discussing subject related issues at tea or lunch time. They all have common interests. Kelly said that she learnt so much in this space and of all things, she really values this space.



She described it as informal tapping into a common pool of knowledge without feeling like she had to go out and make the effort elsewhere.

When Michelle's learners brought up a topic related to HIV and she was not entirely sure about the answer, at tea that morning, she asked one of her LO colleagues what she thought about the topic. They discussed the topic and how Michelle should approach the query. Later that day when Michelle taught the same section to another Grade 8 class, she felt that she was better equipped to answer their questions. The data indicates that she learnt new content knowledge and pedagogic content knowledge by talking to a colleague informally during tea time.

During tea one day Sharon chatted to Terry about her difficulty monitoring the learners sitting at the middle tables in her lab as she had a problem getting to them physically. Terry explained to Sharon the method her own Science teacher used. Sharon thought that this was a good technique and modified it slightly and she now has more contact with her learners. The data indicates that Sharon improved on her pedagogic content knowledge by chatting informally to a colleague. From all of these examples it is evident that a strong element of collegiality exists.

In Soreta's case, the findings revealed a most unusual method of learning through informal group activity. Soreta's learners experienced a parameter problem which is related to data base. She sent an email to her yahoo group and Marius (an IT person) explained in an email what she needed to do. Soreta took the information back to school and she and the learners were able to fix the problem. She took a learner's file which had the problem. She called up the error and then taught the class step by step how to correct the error and what to do if they experienced it again. Soreta said that she took what she learnt in her discussion group back to her classroom to fix a problem that the learners were experiencing when they worked with data bases.

The findings confirm that the subject committee meeting time and tea time chats in the staffroom are valuable and important spaces where very diverse styles informal learning takes place. Therefore, it can be assumed that the case study school is in support of creating opportunities for its teachers to engage in informal learning. Moreover, the data emerging around the spaces where informal learning takes place supports Mawhinney (2010) point about professional knowledge sharing in a congregational space. It is also evident that a deep sense of collegiality exists amongst the participants and their friends and that learning in this kind of atmosphere also has a positive impact on all of their conceptual knowledge-in-

practice. In addition, the interaction and learning that takes place in this space ties up closely with one of the categories of interaction that Keller (1999, 2000) described as TLC - “teacher lounge caring” (as cited in Mawhinney, 2010).

#### **6.4.2 Learning by Working Alongside Each Other**

Learning by working alongside each other is different from learning at a subject committee meeting (formal group activity) and learning in the staffroom (informal group activity) while chatting at tea and lunch time. This form of learning is more one-on-one and it is learning that would be planned. The following examples explain this form of learning.

Sharon learns by working alongside Priscilla and Mandy in the following way. Teaching Science involves a lot of practical work. Mandy, the lab technician plays an important role in the setting up of the experiments with Sharon and Priscilla. Mandy helps with the logistics of running the practical experiments. Sharon said that they always *practise* the experiments before they introduce them to the learners. In this way they are able to anticipate pitfalls.

Soreta learnt how to teach calculations by working alongside Lucy. They engaged in team teaching. They brought their classes together to teach them calculation in data base. Soreta explained that Lucy’s technique was a bit better than her own but she did not know exactly how Lucy went about teaching the calculations. While Lucy taught calculations in data base Soreta *walked around* the class and monitored the learners as they worked. At the same time she *listened* to how Lucy was bringing the concepts across to the learners. Soreta learnt content knowledge by working *collaboratively and by observing* a colleague. She said that *watching* someone teach the calculations was very different from *chatting* about *how* you should approach teaching calculations. Soreta is often in Lucy’s teaching room *discussing* things and *organizing* their work so that they are both clear about their sequencing and pacing of the content they have to teach. Soreta develops and refines her pedagogic content knowledge and content knowledge by working alongside Lucy in this space.

Terry said that she learnt content knowledge, lesson and teaching styles from Ellen. Ellen would get Terry to *choose* a question and they would *look at the question together*. They would *anticipate* the kinds of errors that the learner might make by working on the examples themselves. Terry learnt content and pedagogic content knowledge by working alongside a colleague. Terry’s example of learning from Ellen is also a form of mentoring that could be linked to the Beehive form of teacher learning coined by Paine et al., (2003) (as cited in Mawhinney, 2009).

### 6.4.3 Individual Learning with Resources

This category of learning can be linked to Lieberman and Pointer Mace's (2008) description of how teachers learn, more specifically, by learning through making meaning, whereby learning is intentional. It is clear that participants all engage in informal individual learning with resources. Kelly generally approaches her colleagues informally as and when the need to clarify issues arises, usually during tea time.

Some of the ways the other participants go about this is quite unique. Sharon, for example, listens to the radio in her car when she engages in individual learning. This space and time allows her to catch up on her reading which she said enhances her content knowledge. The data revealed that she learnt a new teaching strategy by listening to a regular matric revision programme for Physical Sciences. Furthermore, the findings indicate that just being able to hear the *style and manner* the experts on the panel used to teach the content was valuable to her. Sharon learnt teaching strategy - pedagogic content knowledge from the radio. She also uses a few reference books and works through the content like a student, making summaries and notes as she goes along. Then she works on the calculations and notes the possible errors that her learners might make.

Soreta and Terry learnt new content knowledge in school in order to teach it to their learners. Soreta the experienced teacher, had to learn new content, computer theory content, in order to teach her learners so she worked through a textbook to gain a better understanding of the *nested if function* in excel. To ensure that she understood this function well, she worked on exercises from the learner's textbook. As a result she was in the position to anticipate the difficulties the learners might experience and she was also equipped with skills and knowledge to assist them if they needed it.

Similarly, when Terry, the novice, had to teach data handling in Grade 11 Mathematics Literacy, she used different textbooks to check how this section was approached. She then used the different ideas that she picked from the textbooks and created a worksheet on the section to extend her learners. Michelle also accessed a variety of textbooks on Technology and Consumer Studies when she was unsure about a new section in Technology. In the quiet space of her home she learnt the new content. The process of accessing different books ensured that she understood the section better and had greater content knowledge to teach from.

#### **6.4.4 Conclusion**

To summarize the discussion on the findings that emerged from the data under *The ways teachers learn*, it is clear that the participants all learn through group activities, by working alongside each other and as individuals with resources. Depending on what it is that they need to learn, the activities are either planned or unplanned. Clearly all the participants are driven by their inner motivation to learn the different knowledges in the different ways as discussed above and they can all be described as having attributes of being enthusiastic and passionate about teaching and learning.

Wood (2007) says that the quality of the learner's educational experience depends on the quality of his or her teacher. Undoubtedly the participants' drive to learn informally at school is filtering back into their classrooms where the learners are ultimately benefiting. Moreover, the findings indicate that by learning through group activities, the novice participants in particular, have been able to develop their understanding of the practice of teaching. As mentioned before, there is strong evidence that suggests that the participants and their colleagues work collegially with each other.

Examples of them working collegially can be seen in the way both the novice and experienced participants collaborated, interacted, discussed, talked about and shared information which they took back into their classrooms. This support of one another is impacting positively on all of the participants' conceptual knowledge-in-practice.

### **6.5 Significance of the Study**

In summing up the overall findings of this study, it is clear to see from the literature surveyed that the most of the studies cited focus on British and USA teacher learning contexts. Clearly there is a dearth of information about the field of teacher learning, informal teacher learning in particular, in South Africa. To place this study in context it is important to remember that presently, much of the teacher learning process in South Africa revolves around the formal, workshop style learning - usually the initiative of the Department of Education.

The main thrust of the socio-cultural perspective on teacher learning, which is the theoretical framework of this study, is that teacher learning should be *situated*. Lieberman (2008) explains that the shift in teacher learning is moving towards "learning at school". Wood (2007) says that contemporary literature is calling for a shift towards establishing and sustaining learning communities.

Amidst a negative discourse that surrounds the teaching profession and teachers generally, this case emerges as a positive exemplar of informal teacher learning within the school context. It describes a democratic discourse of professionalism for teacher development and teacher driven learning communities. Teacher learning in this case is clearly fuelled by teacher confidence and a strong willingness to participate in teacher learning activities. The broader school „culture’ is also supportive of and conducive for the informal learning process to unfold.

I do take cognizance of the following facts: (a) that the case study school is a privileged quintile 5 school, (b) that the findings which emerged are not representative of the broader South African education context and (c) that the data is self-reported. There is, however, strong evidence which indicates that teacher agency and a supportive school structure and culture are among the key attributes responsible for positive informal teacher learning processes that are unfolding at this school. Other essential attributes present include: self-motivation, enthusiasm, passion and real changes in attitude so that the process can unfold.

Teacher agency and the supportive school structure and culture are key in this case study. These factors were also key in a study undertaken to investigate why some schools were able to produce good Senior Certificate results and other schools were not (Christie et al., 2007). The Ministerial Committee report on *Schools That Work* by Christie et al., (2007), indicates “the importance of having competent teachers and how mentoring and induction and professional communities may be used to build capacity” (p. 108). In addition, the management and leadership of the participating schools supported efforts towards effective teaching and learning. The schools also had strong internal accountability structures in place. These attributes which Christie et al., (2007) discovered are similar to the attributes manifesting in the case study school.

At the Teacher Development Summit in 2009, all stakeholders present called for a “new, strengthened, integrated national plan” for teacher development in South Africa. The present South African education circumstance reveals that teachers’ poor subject matter knowledge and poor pedagogical content knowledge are also contributing to the poor quality of the present education system. The Integrated Strategic Planning Framework for Teacher Education and Development, referred to as the „Plan’, allows for teacher development to take place through a variety of activities, not necessarily those linked to getting a formal

qualification. All Provincial Departments of Education have been given the task of becoming “lead agencies” in order to establish and develop different structures for teacher development, the Professional Learning Communities (PLC) is one such structure (DOE, 2011).

Darling Hammond and Richardson (2009) say that the Professional Learning Communities model of teacher learning in the US points to the effectiveness of sustained, job-embedded and collaborative teacher learning strategies. But these professional learning communities were restricted by limited time for collaborative planning. The point that becomes apparent is that reformers and teachers were not always aware of the significance and value of teachers working and learning together informally. The researchers in the US context say that the PLC model of teacher learning can change practice and student learning when there are processes and structures in place to allow for joint work (Darling Hammond and Richardson, 2009, p. 52).

Graven’s (2004) study which focused on communities of practice in the South African context indicated that the participants responded positively to this type of learning opportunity. Moreover, the participants expressed the importance of not being “dictated to” as well as there being “a lot of personal interaction”. This model of teacher learning was not only supporting the democratic discourse of professionalism, it also operated from the aspirational model of professional development which took into account the participants’ levels of experience. Given the fact that the case study school is not reflective of a mainstream high school in the South African education context and that strong organizational structures make it conducive for effective teaching and learning to take place, it must be noted that the participants’ *commitment* to the process of informal teacher learning initiatives is exceptional and for this reason alone it is perhaps possible to learn lessons from this study.

The question that arises is why does the Department of Education persist in involving agencies outside the school environment to establish teacher learning structures? This study indicates that there is a definite correlation between having a supportive school structure and culture where teachers identify their own needs and where teachers are responsible for the establishment of teacher driven learning communities and the positive informal teacher learning which is unfolding inside the case study school.

Clearly the establishment of PLCs by Provincial Education Departments which have been tasked as lead agencies are not based on any research undertaken into learning communities and the factors that drive and sustain them. The on-going changes to the curriculum (CAPS being the most current reform initiative) make it imperative for teachers to work with each other in order to scaffold and support one another's learning initiatives. Professional Learning Communities (DOE initiative) may fail to take off unless they are teacher driven from within a school. The findings of this case study seem to lean towards PLCs which function best when they are teacher driven agencies within the schools. This study also provides the basis for further research into the establishment and sustainability of teacher driven learning communities inside schools within the broader, mainstream South African education context.

## **6.6. Conclusion**

This chapter is a synthesis of the case study data analysis process. The use multiple data collection instruments yielded rich, detailed, textured data. The analysis process was specifically structured around each of the research questions to illustrate the findings that emerged with regard to the participants' understanding of the concept teacher learning, the kinds of knowledges they learnt, the ways in which they learnt these knowledges, with whom they learnt and the spaces in which the teacher learning process took place. It is evident that all the participants had their very own perspective on teaching learning, largely as a result of their own experiences of the process. The participants are definitely learning, enhancing, developing and refining the four cornerstone knowledges, these being: pedagogic knowledge, content knowledge, pedagogic content knowledge and contextual knowledge. The strong evidence that emerges from this case points to the fact that the participants learn these knowledges either individually or socially, with or without resources in a planned or unplanned manner, with, from and alongside colleagues. The two collaborative spaces that were described as valuable and important to their learning are the subject committee meetings and the staffroom.

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## Annexure A: Ethical Clearance Certificate



09 July 2010

Dr C A Bertram  
School of Education and Development  
Faculty of Education  
PIETERMARITZBURG CAMPUS

Dear Dr Bertram

**PROTOCOL: Teacher learning in schools: some school case studies**

**ETHICAL APPROVAL NUMBER: HSS/0465/2010 M: Faculty of Education and Development**

In response to your application dated 30 June 2010, Staff Number: **409420** the Humanities & Social Sciences Ethics Committee has considered the abovementioned application and the protocol has been given **FULL APPROVAL**.

**PLEASE NOTE: Research data should be securely stored in the school/department for a period of 5 years.**

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

Yours faithfully

**Professor Steve Collings (Chair)**  
**HUMANITIES & SOCIAL SCIENCES ETHICS COMMITTEE**

SC/sn

cc: C Thomson (Supervisor)  
cc: Ms T Khumalo

Postal Address:  
Telephone:  
Facsimile:  
Email:  
Website: [www.ukzn.ac.za](http://www.ukzn.ac.za)  
Founding Campuses: ■ Edgewood ■ Howard College ■ Medical School ■ Pietermaritzburg ■ Westville

## Annexure B: Letter to Principal



PIETERMARITZBURG CAMPUS

Principal  
27 July 2010

### **M.Ed research project on Informal Teacher learning**

Mrs Kamany Thaver is a Masters student at the Faculty of Education, and is embarking on a research project to understand the nature of informal teacher learning within the school setting. This letter explains the purpose of the study, and requests your permission for her to conduct the study at GHS.

The purpose of the project is to explore and describe the concept of teacher learning in schools. She is planning to administer a short questionnaire to members of staff, to work with five teachers at the school and to describe the ways in which these teachers learn informally in the school.

The study aims to find out from teachers how they understand the kinds of professional development and learning that happens within their school context. It also aims to describe the kind of school environments that support or hinder teacher learning. The project has received ethical clearance from the University's Ethical Clearance Committee.

I am the supervisor of Mrs Thaver and should you want any more information on this study, please contact me on 033 260 5349/ 084 4079827.

Yours sincerely

A handwritten signature in black ink, appearing to read "Carol Bertram". The signature is fluid and cursive, with a large initial 'C' and 'B'.

Dr Carol Bertram  
Senior Lecturer  
School of Education and Development  
Faculty of Education, Pietermaritzburg

## **Annexure C1: Letter to Participants**

2 August 2010

Dear Kelly

Re: Research Project: Informal Teacher learning

I am writing to inform you that my proposal for the research project has been approved and that I have received ethical clearance from the University's Ethical Clearance Committee. This means that I am officially allowed to begin with my data collection.

Thank you for so kindly agreeing to be part of this study. I believe that your experiences and your expertise in the subject area can make a valuable contribution to the research.

I would like to meet with all the participants on Wednesday 4th August after the Garden party, if this is convenient. Alternatively, we could meet during lunch on Thursday the 5th. Please let me know how this suits you.

Attached please find a letter from my supervisor outlining the details of the study.

Thank you once again for taking the time to assist me with the research.

Regards

Kamany

## Annexure C2: Informed Consent Document

### INFORMED CONSENT DOCUMENT

#### M. Ed Research Project on Informal Teacher learning

The purpose of this project is to explore and describe the concept of teacher learning in schools. The project is supervised by Carol Bertram (Tel. 033 2605349) a lecturer at the School of Education and Development, UKZN. I am a Masters student at UKZN and this project forms part of my studies.

I would like to conduct my research by asking you to participate in 3 stages of the study. You will be asked: to keep a journal, take photographs of the space and places where you learn, to be interviewed. These stages will unfold over approximately a period of two months. The individual interview will be conducted at your convenience and should last approximately 1 hour. I will record your views by tape-recording the interview. You will be provided with a transcript of the interview to peruse in order to verify the descriptions and interpretation of the data. All the data will be anonymous; this means that it will not be possible for it to be linked to your name. The information arising from the study will be strictly confidential.

You will **not** be disadvantaged if you choose not to participate or if you choose to leave/withdraw from the study at any stage.

I, ..... (Full name of participant) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand that I am free to leave/withdraw from the project at any time, if I want to.

.....

Signature of Participant

.....

Date

## **Annexure C3: Data Collection Instruments and Time Frames**

### **DATA COLLECTION INSTRUMENTS AND TIME FRAMES**

The four stages of the data collection process:

<b>Method</b>	<b>Participants</b>	<b>Time Frame</b>	<b>Kinds of Data Collected</b>	<b>R.Q. Answered</b>
1. Journals	All 5 Participants	Over 2 Months	Qualitative	1 – 3
2. Photographs	All 5 Participants	Beginning August	Qualitative	2,3
3. Photovoice (Participant)	All 5 Participants	November	Qualitative	1-3

### **OPTIONS FOR STAGE 1: JOURNAL ENTRIES**

1. Start 13 August    End 15 October
2. Start 20 August    End 22 October
3. Start 27 August    End 29 October



## **Annexure D1: Journal Entry 1**

### **JOURNAL ENTRY FOCUS QUESTIONS: WEEK 1-9**

**Week 1: 4 August 2010**

#### **Journal Entry 1**

Dear .....

Your journal is your book to use to write about the way in which you think about and experience your own development and learning. You will be given questions to answer once a week over an eight (8) week period in order to keep your journaling focused. Please be as open and as honest as you can – no one but me will read these entries, and they will be treated completely confidentially.

I would like you to begin engaging with the project by reflecting on how you came to be a teacher.

Write an autobiographical account (your own story) about how you came to be a teacher. Identify and describe critical moments of your informal learning experiences. Write about specific people, events and things that made an impact on your learning.

Please feel free to write as much as you are able to. Be sure to be quite specific as you describe your experiences.

Thanks and enjoy.

Kamany

## Annexure D2: Journal Entry 2

### Journal Entry Focus Questions: Week 2: (13 Aug)

#### Journal Entry 2

Dear .....

For this entry I would like you to focus on the following:

- What do you understand by the concept “teacher learning”?
- Where do you think you learn most effectively?
- What kinds of **places** (your study, the staffroom, your classroom)/ **spaces** (your tea- time group, on your own, your department)/ **people** (colleagues, subject advisor, subject head) help you to learn professionally?

Please feel free to write as much as you are able to. Be sure to be quite specific as you describe your experiences.

Thanks and enjoy.

Kamany

## Annexure D3: Journal Entry 3

20 August 2010

### Journal Entry Focus Questions: Week 3: (20 Aug)

#### Journal Entry 3

Dear .....

This week take time to reflect on your learning. If possible, describe each of the following:

- Describe an incident where you learnt new content knowledge. Why did you have to learn new content? How did you learn it? From whom did you learn it?
- Describe an incident where you learnt a new teaching or assessment strategy. How did you learn this? From whom? In what context?
- Describe an incident where you learnt a new classroom management strategy. How did you learn this? From whom? In what context?

Please feel free to write as much as you are able to. Be sure to be quite specific as you describe your experiences.

Thanks and enjoy.

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### Annexure D3.1: Sharon's Journal Entry 3

#### 1. Incident - New Content

Why?

How?

Whom?

Firstly, in the <sup>b. of curriculum</sup> new curriculum, there are quite a few new topic eg. lasers, doppler effect, batteries etc. that have been brought in. Even at tertiary level, we did not study these sections.

Why? I had to learn the theory, practical and application of these sections so that I would be able to teach it to the learners. So, I had to learn it for 2 reasons viz.

(i) because it was new and ~~was~~

(ii) to be able to teach it.

How? I used a few reference books and studied it like a student. Made summaries and notes. Then did the calculations and noted possible errors that learners may make.

Whom? Some concepts that needed clarity, so I consulted with my colleagues so that I could confirm/eliminate any misconceptions.



## 2. Teaching - Assessment Strategy

How?

Whom?

Context?

The new teaching strategy that I learnt this year was to download the 3 types of spectra for grade 12. In the last 2 years, this topic has bugged me because it is very visual and involves many colours and pigments. Photocopied notes and diagrams are futile as it is in black/white. In 2008, I spent hours using chalk to draw colour spectra. In 2009, I got wiser and made colour transparencies which was good for me but still took the learners hours to draw. In 2010, I googled it, found the right website, visual impact, correct proportions, colourful. Learners who have internet access, noted the www and those who didn't, simply copied it from my computer to their flashdrives.

How? I am rather limited when it comes to the internet/google etc. So I did try to teach myself. I surfed until I found the suitable site/data. Then I sought help as to how to store it, so that I can easily access it.

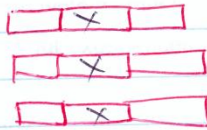
Whom? It pays to have young, techno boffins in my circle of friends who have the patience to show me new things, step by step. Tanya is an angel - she understands my limitations - I guess because her mom maybe like me.

→ Space this happened

**Context?** For me, this strategy did not only enhance the teaching of spectra but "I" also learnt. I learnt how to download and am using it continuously now, not only for my teaching but also for recipes.

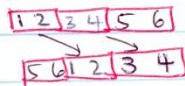
**③. Classroom management strategy**  
**How? Whom? Context?**

I realized that some of the learners in my class, were slipping through my fingers. Teaching in a lab. is not ideal. The learners who are in the middle tables, don't get monitored. Because I can't physically get to them - they get overlooked.



**How?** I voiced my thoughts out loud and Tanya, who was Mr. Grey's learner told me how he made each row move forward every week.

**Whom?** I guess I learnt this from Mr. Grey via Tanya. However, I modified this strategy a little. Besides moving forward, they also had to move 2 spaces to the right.





This is a detailed entry Sharon. It is interesting for me to note how you persisted in your learning as well as how you modified your learning experiences to suite the uniqueness of your situation. Well done!!

### Context?

Tell me about this.

I realized that there is always a solution to a problem. Sometimes a solution does not appear as a solution, but more as a hindrance. But if you are open to suggestions, and with a little modification, a reasonable solution is always within reach.

## **Annexure D4: Journal Entry 4**

01 September 2010

Journal Entry Focus Questions: Week 4 ending: (03 September)

### Journal Entry 4

Dear .....

This week I want you to focus and reflect on your own development as a teacher thus far.

1. What is the main area that you feel that you need to develop or change as a teacher?
2. Do you have any ideas of how that development may take place? (For example, will you do something like meet with colleagues, are you waiting for some kind of workshop to attend or are you looking for support from your subject adviser?).

Please feel free to write as much as you are able to. Be sure to be quite specific as you describe your experiences.

Thanks and enjoy.

Kamany



## Annexure D4.1: Soreta's Journal Entry 4

### Journal entry 4

#### 1. Main area of development

I need to develop in my knowledge on computer theory. I also need to think of how to teach the theory component in an effective way.

#### 2. How develop?

I e-mailed Sandra Jacobs - one of the authors of Study Opportunities (we use this text book in class). I asked her how can I improve my theory knowledge. She suggested I buy the book Discovering Computers 2010. I did buy the book and I am reading it.

Linda one of my CAT colleagues belong to the CAT committee. She received an e-mail from the subject advisor in Durban that recommended we buy a magazine called byte size. I have bought the magazine and it is only published yearly. I told my CAT learners about the magazine and it could be purchased at Exclusive books. The subject advisor of Durban also send Linda an e-mail about Ednas Software that helps the learners with animated lessons on the theory. The technician has installed the software for me.

I have created some multiple choice and column questions in Hot potatoes. Hotpotatoes is a software that marks the learners work on the computer.

I have also tried to create more experiential theory assignments. Example grade 10 CAT learners learn about the scanner in theory. I then drew up an assignment asking them to create one scrapbook

page. They have to scan the objects. After they scanned the objects into word they must send me an e-mail with the scanned document as an attachment.

I feel I have got things in place to help me enhance the theory, but now I must decide how and when to implement it all into my lessons.

I have asked my subject advisor Dr Griessel for advice on how we should approach this theory component. He could not help me.

## Annexure D5: Journal Entry 5

10 September 2010

Journal Entry Focus Questions: Week 5 ending: (10 September)

### Journal Entry 5

Dear .....

This week I want you to focus and reflect on what you **need** to enhance your development as you advance in this journey of learning.

1. To what extent would you say that you are part of a supportive group of colleagues that support your learning and development?
2. If yes, what is the nature of this group? Who are these colleagues? What supports your learning? If not, do you think that a group would support your professional development? Why or why not?

Please feel free to write as much as you are able to. Be sure to be quite specific as you describe your experiences.

Thanks and enjoy.

Kamany

## **Annexure D6: Journal Entry 6**

17 September 2010

### **Journal Entry Focus Questions: Week 6 ending: (17 September)**

#### **Journal Entry 6**

This week take time to reflect on your learning. If possible, describe each of the following and say what is different about this week's learning from Week 3 in your journal entry?

- Describe an incident where you learnt new content knowledge. Why did you have to learn new content? How did you learn it? From whom did you learn it?
- Describe an incident where you learnt a new teaching or assessment strategy. How did you learn this? From whom? In what context?
- Describe an incident where you learnt a new classroom management strategy. How did you learn this? From whom? In what context?

Please feel free to write as much as you are able to. Be sure to be quite specific as you describe your experiences.

Thanks and enjoy.

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## **Annexure D7: Journal Entry 7**

### **Journal Entry Focus Questions:**

**Week 7 ending: ( 23 September)**

### **Journal Entry 7 (Experienced Teacher)**

Dear .....

This week I want you to reflect on the following:

1. How would you describe a good English teacher?
2. Describe how you have learnt to be proficient in your subject in your career thus far.
2. Describe how you developed your skills, values, attitude and knowledge to become proficient in your subject thus far.

Please feel free to write as much as you are able to. Be sure to be quite specific as you describe your experiences.

Thanks and enjoy.

Kamany.



## Annexure D8: Journal Entry 8

Journal Entry Focus Questions: Week 8 ending: ( 08 October)

Journal Entry: 08

Dear .....

This week I want you to reflect on spaces that that shape how you learn.

1. How do you perceive schools as a place to learn?
2. Explain how you experience this school as an environment in which to develop as a teacher. Give me details and examples of why you say this.
3. Do you think that the school leadership is supportive of teacher learning?  
Why do you say this?

Please feel free to write as much as you are able to. Be sure to be quite specific as you describe your experiences.

Thanks and enjoy.

Kamany

## Annexure D9: Journal Entry 9

Journal Entry Focus Questions: Week 9 ending: ( 15 October)

Journal Entry: 09

Dear .....

This week I want you to reflect on your professional development.

1. Is there a clear programme to address professional development needs? Tell me about the professional development policy at this school.
2. Which form of professional development do you prefer – the formal, workshop approach or the informal, learning on the job approach? Explain your preference and the reasons for your choice in detail.
3. What have you learnt about your own processes of learning as a teacher as a result of this study?

Please feel free to write as much as you are able to. Be sure to be quite specific as you describe your experiences.

Thanks and enjoy.

Kamany

## **Annexure E: Photovoice Letter to Participants**

20 September 2010

Dear \_\_\_\_\_

### **RE: PHOTO VOICE**

I will be using Photo Voice as a data collection instrument to determine and understand visually, the spaces where your learning takes place. You will be given a disposable camera for this stage of the research.

Please take approximately 15 photos of the spaces where you believe that you learn and develop your professional practice as a teacher. These spaces may or may not include other people. We will develop these photographs and at a later stage ask you to talk about why you have chosen these particular spaces. It is your ideas that are important here, not photographic expertise!

Have fun!!

Kamany



## **Annexure E1: Excerpt from Sharon's Interview Transcript**

Are teachers life-long learners? A case study of how novice and experienced teachers learn informally at a suburban high school.

### **Interview Transcript: Experienced Teacher**

KT: Tell me do you enjoy teaching?

SD: I love teaching. I know I grumble and squeal and everything but I do love teaching, it comes with the job.

KT: What do you understand by the term teacher learning?

SD: Well, the word learning is the most important thing and sometimes when you are told to go and learn it seems that you must take a book and learn. For me, learning as a teacher, is not that – putting your nose in a book. I learn outside the classroom, the kids, from TV. I use so many things that I just make a mental note – saying when I'm teaching this, maybe I should just consider this. Even when I am watching a cartoon programme, that show experiments that go "booooo", I also actually learn from that. So teacher learning is not only subject related, it's something to improve you as a teacher. Some teachers feel that they know their content, yet their approach to their classroom is not right. They may know it all but they can't get it across and the children put up a block and block out the teacher's voice. What is the point if you are giving all this wonderful content and there is nobody to hear it? You need to be able to transmit your message across in such a manner that at least ninety percent of what you are saying is absorbed by the child.

KT: I would like you to talk me through the photographs.

SD: Picture 1, this is in my laboratory. We are fortunate in this school most of my free lessons goes into preparation. I don't do marking at school because it is something that I can do at home. As you can see all my research books and whatever I need is at school so I don't have to carry lots home. My actual content learning and preparation is in school. It's a practical subject and sometimes I have to take out equipment and so I try to do my lesson preparation in school. You can see that I am trying to read something and prepare my lesson. I have my computer and all my books available to me.

KT: What specifically are you learning in this context?

SD: I think content knowledge, possibly a new section. I always read through the entire section, I put down how many lessons or how many different aspects of the content there is, so I try and structure my lessons so that I don't do too much or too little at any stage. Although the teaching of science involves calculations – some are more complex than others. If you don't convey well and try to start off at a level 3 calculation before you have done a level 1, you can actually lead the children astray. So selection of our problems is most important. If a teacher teaching maths and science does not select problems appropriately, the children are at a huge disadvantage if you don't teach it in the correct order and I think that is why the Physical Sciences results are so bad. You need to work with the easier problems in order to give them the confidence.

KT: Do you work with anyone else when you decide how the content is going to be taught.

SD: I like to work myself first, but when we have our subject committee meetings, we always discuss what we are going to do. Sometimes it doesn't always work with the other teachers. That's an individual thing.

KT: So this is your methodology?

SD: Yes.

KT: How did you get to going through these steps?

SD: Previously, I said that these children are the intelligent children, they have been screened to do Physical Sciences and so I would actually ignore the easier stuff and go into the more difficult stuff and I used to tell them to do the easier ones as homework etc. – you won't see this in the exam. No I realize that this was not the right approach because every problem leads itself to discussion. A simple thing like the word "rest" for example, has a different meaning to different people. In science it means "zero" and if a child does not understand that basic concept the whole section is thrown away for them. This strategy of mine is working well at this school because I came from a primary school. I could not believe how little the children know and how much we take for granted. I did this too and it was actually disastrous.

KT: Was it their results that got you to move towards a strategy like this?

SD: Yes. I realized that you cannot assume anything. Every section must be started from the beginning, like a story. If the children know what it, then all you have done is reinforce so there is no wasted time.

KT: So you try to make it more visual although it's quite an abstract subject.

SD: Yes, my drawings are pathetic but at least I get the message across, the girls sometimes laugh at my stick figures, for example the other day one of the girls came to me and said, we know we laughed at your trolley, saying it looked like the Flintstones car, but we remembered those problems so well.

KT: That's lovely, can we move on to your next photograph?

SD: Photograph No. 3, me sitting in my car and doing some reading.

KT: Tell me about this space, this car space where you learn.

SD: It's here that I do my reading, I can't do any marking. Often I have like half an hour to a 45 minute wait for my son while he is playing sport. He likes me to watch him practice. It can be quite painful – it's either too hot or too cold. He needs to see me. That's all he needs to see that his mum is watching, she's there to fetch and she's there to support. So it fills that need and it also gives me a time to catch up on my reading. So there is never a day that I come to school and say that I don't know what I'm teaching. I always know what I am teaching and I am always prepared because of this time that I have. I can sit there and listen to the radio, and I do when I'm tired. When my morning starts with the 11s and 12s then I use this time to enhance my content knowledge.

KT: What else would you read in this space?

SD: To prepare content for the immediate future. Often because I have that time on hand I go back to the previous section and I check to see if I have covered the section enough for them to move onto to the new section. Checking to see how much depth I have to go into before I move on.

It's a matter of preparation. For me this car space is rather important to me because once I get home, there's not much time for me to do much. I become the mum, the maid, etc., and I can only start thinking about school once the children are settled

and gone to bed. That's like at about 9.00 pm and I'm also exhausted to take a book at that time.

KT: I was fascinated with that picture and I can see the value of that space.

SD: There is more about the car...