

# Collaboration in the Rural Schools of the Eden/Karoo District and the Use of Knowledge Management Tools

**Zwelibanzi Samson Webber**



Thesis presented in partial fulfillment of the requirements for the degree  
**Master of Philosophy**  
**(Information and Knowledge Management)**

**STELLENBOSCH UNIVERSITY**

**SUPERVISOR: Prof J. Kinghorn**

March 2008

© University of Stellenbosch 2008

## DECLARATION

I, the undersigned, hereby declare that the work contained in this thesis is my own original work and that I have not previously in its entirety or in part submitted it at any university for a degree.

Signature: ----- Date-----

# Summary

Rural multi-grade schools are faced with many challenges when it comes to teaching and learning. Educators at these schools are required to teach more than one grade at a time with several learning areas. This research suggests that this problem can partly be resolved by engaging educators in a kind of learning network where they will assist each other when it comes to curriculum development and planning. The researcher understands the conditions and the problems associated with these schools. Hence an online collaboration process was put to the test.

It is argued in the literature review that the nature of the curriculum requires that the educators should collaborate at a certain level. This has led the researcher to believe that there is a need to provide an overview of collaborative software available in the market. To this effect a decision was taken to test the suitability of Share Point (SP) as collaboration software as well as the attitude of educators towards collaboration.

Emerging from the research is a visible absence and silence on collaboration in schools. Although educators embrace the process of online collaboration there are some problems that need to be taken care of first. Some of these relate to the availability of computers, both at home and at work and the fact that some educators are not computer literate enough to face the challenges of online collaboration. Other shortcomings to the success of the research are also highlighted.

The research concluded by recommending the use of SP in schools to alleviate the plight of rural school educators. The use of SP should also be accompanied by an extensive training programme to ensure the optimum utilisation of the system. On the whole the researcher is also of the opinion that online collaboration can work provided that it is monitored very thoroughly.

# Opsomming

Landelike multi-graadskole staar vele uitdagings in die gesig wanneer dit kom by onderrig en leer. Van onderwysers by hierdie skole word verwag om meer as een graad op 'n slag te onderrig in verskeie leerareas. Hierdie navorsing stel voor dat dié probleem gedeeltelik opgelos kan word deur onderwysers in 'n tipe leernetwerk te betrek, waar hulle mekaar sal bystaan wanneer dit kom by kurrikulumontwikkeling en beplanning. Die navorser verstaan die omstandighede en die probleme waarmee hierdie skole gekonfronteer word. Daarom is 'n aanlyn-samewerkende proses uitgetoets.

In die literatuuroorsig word geargumenteer dat die aard van die kurrikulum vereis dat onderwysers moet saamwerk op 'n sekere vlak. Dit het gelei daartoe dat die navorser glo dat daar 'n behoefte is om 'n oorsig van samewerkende-sagteware, wat in die mark beskikbaar is, te gee. Om hierdie rede is besluit om die toepaslikheid van Share Point (SP) as samewerkende-sagteware, sowel as die ingesteldheid van onderwysers ten opsigte van samewerking, te toets.

Voortspruitend uit die navorsing is 'n sigbare afwesigheid en stilte oor samewerking in skole. Alhoewel onderwysers die proses van aanlynsamewerking geesdriftig onderskryf, moet daar eers aandag gegee word aan 'n paar probleme. Sommige van hierdie probleme hou verband met die beskikbaarheid van rekenaars, beide tuis en by die werk, en die feit dat sommige onderwysers nie rekenaargeletterd genoeg is om die uitdagings van aanlynsamewerking te hanteer nie. Ander tekortkominge tot die sukses van die navorsing word ook uitgelig.

Die navorser sluit af deur aan te beveel dat SP in skole gebruik word om die omstandighede van die landelike skole se opvoeders te verlig. Die gebruik van SP behoort vergesel te word met 'n uitgebreide opleidingsprogram om die optimale benutting van die sisteem te verseker. In die geheel is die navorser ook van opinie dat aanlynsamewerking kan werk, mits dit baie deeglik gemonitor word.

# ACKNOWLEDGEMENTS

First and foremost, it is with joy and happiness that I thank the Lord Almighty for giving me health and strength to venture into this unforgettable learning experience that has nourished my mind.

There are also many individuals who have been a source of inspiration during this study period and rendered their support in various courageous ways. They are:

- Professor Kinghorn, your guidance, advice and support has made it possible for me to think of what to do and how to do it. I salute your patience.
- Mr. Mzimkulu Samson Honey Dyasi, a friend and a mentor who has been a pillar of support throughout my education.
- My wife, Kholeka who did not only help me emotionally, but was able to sacrifice family savings for my studies.
- My children Ncuthukazi and Hlomla for knowing that I must have time to spend on my studies every day.
- I also wish to thank Mrs. Joyce Liggitt, Mrs. Gertrude Maki, Mrs. Verona Cassim and Mr. Ben Erasmus for being willing to read and correct the grammar of this research.
- The contribution made by teachers at the various schools and colleagues at work is also recognised.
- Lastly I also wish to dedicate this thesis to my parents, particularly my father from whom I have derived inspiration on how to struggle and succeed.

# Table of Contents

## Chapter One: The Research Focus

1.1. Introduction	1-2
1.2. Stating the Research Problem	2-3
1.3. Research Questions	3-4
1.3.1. Sub Questions	3
1.4. The Research Focus	3-4
1.5. Clarification of Terms	4
1.6. The Research Methodology	4-7
1.6.1. The Research Design	4
1.6.2. Population	4-5
1.6.3. Sampling	5
1.6.4. Pilot Study	5
1.6.4.1. Literature Review	5
1.6.5. Data Collection	6
1.6.6. Data Analysis and Interpretation	6
1.6.7. Basic Steps of the Research Process	6-7
1.7. Project Plan	7-8
1.7.1. Chapter 1: Research Focus	7
1.7.2. Chapter 2: Curriculum Planning and Development	8
1.7.3 Chapter 3: An Overview of Collaborative Tools	8
1.7.4 Chapter 4: Research Methodology	8
1.7.5. Chapter 5: Analysis and Findings.	8
1.7.6. Chapter 6: Recommendations and Conclusion	9
1.8. Conclusion	9

## Chapter Two: Curriculum Development and Planning

2.1. Introduction	10
2.2. Defining “Curriculum”	10-12
2.3. The Hidden Curriculum	12-13
2.4. Curriculum Development and Planning before the Implementation of C2005	13-16
2.4.1. The Syllabus	14-15
2.4.2. The Scheme of Work	15
2.4.3. Lesson planning	15-16
2.5. Curriculum Development and Planning as from the Implementation of C2005	16-24
2.5.1. Designing Learning Programmes	17-18
2.5.2. The Role of Educators	19
2.5.2.1. The Educator’s Role as a Designer of Learning Programmes	19-20
2.5.2.2. The Educator’s Role as a Mediator of Learning	20
2.5.2.3. The Educator’s Role as a Lifelong Learner	21
2.6. Collaboration	21-24
2.7. Conclusion	24

## Chapter 3: Overview of Collaborative Tools

3.1. Introduction: Knowledge Management Overview	25
3.2. What are knowledge Management Collaborative Tools	25
3.3. Why Knowledge management?	25-26
3.4. What are Communities of Practice (CoPs)?	27-29
3.5. Elements of Communities of Practice	29-32
3.5.1. Domain of Knowledge	29-30
3.5.2. The Community	30-31
3.5.3 The Shared Practice	31-32
3.6. The Value of Communities of Practice	32

3.7. Technology Infrastructure for Collaboration Systems	33-40
3.7.1 GroupWare Applications	33-35
3.7.2 Document Management System	35-37
3.7.2.1 Library Services and Archiving	36
3.7.2.2 Network Support	36
3.7.2.3 Full text Retrieval	36-37
3.7.2.4 Access Control and Security	37
3.7.3. Workflow Management Systems	37
3.7.4 The Internet	38-40
3.7.4.1. Virtual Communities	38-39
3.7.4.2. Portals	39-40
3.8. Communication within the Internet	40-44
3.8.1. Usenet Newsgroups (Forums)	40
3.8.2. LISTSERV	40-41
3.8.3. Chatting and Instant Messaging	41
3.8.4. Telnet and Internet Telephony	41-42
3.8.5. Virtual Private Networks	42
3.8.6. Intranets and Extranets	42-44
3.9. Knowledge Sharing Systems	44-46
3.10. Specific types of Knowledge Sharing Systems	46-49
3.10.1. Incident Reports	46
3.10.2. Alert Systems	46-47
3.10.3. Best Practices Data Bases	47
3.10.4. Lesson Learned	47-48
3.10.5. Expert Locator	48-49
3.11. The Role of Collaboration Technologies	49-50
3.12. Overview of Available collaboration Software	50-52
3.12.1. Outlook locator for McDamon	50-51
3.12.2. InforPort	51
3.12.3. CoMMbits	51
3.12.4. Notwired	51
3.12.5. WebEx WebOffice and Groove Virtual Office	51-52
3.12.6. Collaborative Tools available on the Open Source Initiative	52
1.13. Conclusion	52

# Chapter 4: Research Methodology

4. 1. Introduction	53
4.2. Qualitative Research Approach	53-54
4.3. Characteristics of Qualitative Research	54
4.3.1. Meaning from the Inside	54
4.3.2. There is Direct Contact with the Participants	54
4.3.3. Analytical Induction	55
4.4. The Role of the Researcher	55-56
4.5. The Preparation Process	56
4.5.1 The Reason for Choosing Share Point	57-58
4.5.2. What is Share Point?	57
4.5.3. Finding Share Point	57-58
4.6. Registration of Share Point Site	58-65
4.6.1. Site Theme	60-61
4.6.2. Adding Users to the Site	62-65
4.6.3. Removing users from the Site	65
4.7. Project Plan and Execution	65-70
4.7.1. The Home Page	66
4.7.2. The Reading File	67-68
4.7.3. Team Discussion	69-70
4.8. The Research Process	70-74
4.8.1. Gaining Access to the Research Sites	70
4.8.2. The Research Sites	71
4.8.3. Sampling Procedures	71
4.8.4. The participants	72-73
4.8.5. The Credibility of the Participants	73
4.8.6. The Unique Characteristics of the Participants	73
4.8.7. The Level of Participation	74
4.8.8. Data Collection Methods	74
4.9. Interviews as Informed by Literature	74-76
4.9.1 Semi-Structured Interviews	75
4.9.2. Structured Interviews	75

4.9.3. Unstructured Interviews	75-76
4.9.3.1 Open –ended Interviews	76
4.9.3.2. Unstructured Interviews with a Schedule	76
4.9.3.3. In-depth Interviews	76
4.10. Interviews during the Field Research	76-79
4.10.1. First Phase Interviews	77-78
4.10.2. Second Phase Interviews	78-79
4.10.3. Third Phase Interviews	79
4.11. Interview with the Curriculum advisor	80
4.12. Observation	80-81
4.13. Techniques for the Collection of Data through Observation	82
4.13.1. Written Descriptions	82
4.13.2. Photographs	82
4.14. Personal Experience of Events or Phenomenon under Research	82-83
4.15. Focus Group Interviews	83-84
4.16. How to Conduct a Focus Group Discussion	84
4.16.1. Determine the Purpose	84
4.16.2. Situation Analysis	84
4.16.3. Participants of the Focus Group Discussion	84-85
4.16.4. Developing the Questions	85
4.17. Focus Group Meeting	85-87
4.17.1. First Focus Group Meeting	85-86
4.17.2. Individual Visits to Sites	86
4.17.3. Second Focus Group Meetings	87
4.18. Data Analysis	87-88
4.19. Trustworthiness	88
4.20. Conclusion	88-89

## Chapter 5: Analysis and Findings

5.1. Introduction	90
5.2. Schools Profiles	90-92
5.2.1. Multi-Grade Schools	90-91

5.2.2. Public Ordinary Schools	91-92
5.3. Methods of Data Collection	92
5.4. The Research Questions	92-95
5.4.1. Question 1	94
5.4.2. Question 2	94
5.4.3. Question 3	94
5.4.4. Question 4	95
5.5. Responses to Questions	95-98
5.5.1. Question 1	95
5.5.2. Question 2	95-96
5.5.3. Question 3	96-97
5.5.4. Question 4	97-98
5.6. Focus Group Question Analysis	998-99
5.6.1. Question on logging	98
5.6.2. Question on Planning	98
5.6.3. Question on Online Collaboration	99
5.7. Findings	99-100
5.8. Research Limitations	100
5.8.1. Level of Participation	100
5.8.2. Computer Literacy Level	100
5.8.3. Internet Connection	101
5.8.4. Time Constraints	101
5.9. Implications	101-102
5.10. Conclusion	102

## Chapter 6: Recommendations and Conclusion

6.1. Introduction	103
6.2. Collaboration	103
6.3. Share Point	104
6.4. Administration of the Share Point Site	104
6.5. Computer Literacy	104-105
6.6. Personnel	105

6.7. A Collaboration Model for South Cape/Karoo Rural Schools	105-107
6.8. Conclusion	107-108
BIBLIOGRAPHY	1109-115
Annexure A: List of Abbreviations	116
Annexure B: Letter of Permission	117
Annexure C: An Example of Interviews Transcripts	118
Annexure D: List of Collaborative Software	119

# CHAPTER ONE

## The Research Focus

### 1.1 Introduction

The restructuring of the education system in South Africa has not gone without problems. Amongst the issues that the government had to deal with, was to prioritise the creation of the new legislative framework so that the whole process can be legitimised.<sup>1</sup> The process of the legislative framework culminated in the enactment of such laws as the South African Schools Act, Act no. 84 of 1996, which empowers the education ministry to create public and private schools. A new curriculum was then needed. The introduction of the new curriculum in schools requires educators to be able to design learning programmes even though they lack the necessary skills. They are required to use their thinking skills and creativity in the designing of learning programmes. This contradicts sharply with the practice of the past where an educator was literally given a syllabus of a particular subject and was then expected to teach and complete it within a given timeframe. For this reason there was no talk of knowledge creation and management in classrooms in the past. The challenges presented by this paradigm shift also mean that the educators must seek new ways of doing things. Educators are by virtue of the new curriculum compelled to work together and share knowledge with regard to planning of lesson topics, content and assessment activities within the prescribed curriculum framework.

Another Act of Parliament that came into being was the Employment of Educators Act, Act no. 76 of 1998,<sup>2</sup> through which the National Department of Education (DoE) was able to create a policy on redeployment of educators, which gives the Provincial Heads of Department powers to transfer excess educators from ‘well off schools’ to the so called ‘previously disadvantaged schools’. The redeployment process occurred at a time when

---

<sup>1</sup> National Education Policy Act, Act no. 27, 1996

<sup>2</sup> Employment of Educators Act no. 76 1998

the education department was busy with the implementation of the new curriculum. To make matters worse some educators were given the opportunity to take early pension on severance packages. As a result the system was left with young and inexperienced educators, and those with the wealth of knowledge left the system. The private sector was also quick to poach on mathematics and science teachers. The knowledge gained through the years was therefore lost. Regardless of what the legislative framework wanted to achieve, the crux of the matter here is that knowledge was lost. There was an apparent oversight on the part of planners as to what could have been done to retain knowledge. By 1997 about 12 000 educators have been given voluntary severance packages.<sup>3</sup> The Education Department and the unions were both not sure whether the process of redeploying teachers has achieved its aim. The fact that the education ministry is calling upon the educators who retired on severance packages to take up teaching positions if and when needed is testimony to the latter statement.

## 1.2. Stating the Research Problem

- Over and above the challenges stated above, educators in rural multi-grade schools are exposed to many challenges when it comes to teaching and learning. The first challenge is that one educator should teach two or more grades in one classroom at the same time. For instance there are two educators in Denneprag Primary, teaching grades one, two and three in one classroom, and the other one teaching grades four, five and six. At Waboonskraal Primary one educator teaches grades one and two in one classroom.

- The second challenge is that the same educator must prepare to teach three foundation phase learning programmes. In the case of intermediate and senior phase educators there are eight learning areas that the educators should teach. Furthermore the same teacher must attempt to provide an integrated teaching and learning solution, one in which the learners' levels of coping with the learning content are taken into account. At the end of the day one teacher could be sitting with more than six groups of learners that need differentiated learning and teaching. How does one educator deal with such a complicated situation?

---

<sup>3</sup> Mail & Guardian Online, March, 2006

○ The third challenge relates to the fact that the majority of the multi-grade schools are situated far from towns and cities and is therefore not linked to learning resources and other amenities that are normally enjoyed by learners who stay in urban areas. It is on the basis of these challenges that this research has been undertaken. It should be realised that this situation analysis is too complex to be handled single-handed. It calls for a collaborative effort, one in which the educator will be assisted to think creatively. The research looks at how the educators cope with these challenges when they were given the opportunity to network online and collaborate in the designing of learning programmes.

### 1.3 The Research Questions

This research strives towards satisfying the following questions:

How can knowledge management collaboration systems and communities of practice be used to enhance the designing of learning programmes in rural multi-grade schools?

#### 1.3.1 Sub Questions

1. Can educators in rural multi-grade schools collaborate with educators in public ordinary schools to alleviate their workload?
2. Are educators aware of and involved in online discussions and to what extent are they making use of technological innovations like e-mail, or Internet based chat rooms.
3. What type of collaborative software is suitable for collaboration by educators?
4. What is the attitude of educators towards the process of collaboration when using collaborative software, in particular Share Point?

### 1.4 The Research Focus

The researcher suggested that these questions can partly be answered by investigating the use of an online process of collaboration through which:

- The researcher experimented on the use of Share Point as a means of collaboration.

- The educators explored the sharing of information on lesson topics and discussed curriculum-related issues.
- The researcher examined how educators felt when using collaboration software like Share Point.

## 1.5 Clarification of Terms

For the purpose of this research the following terms are defined as follows:

*Multi-Grade Schools* – They are farm or rural schools in which one educator teaches more than one grade in one classroom.

*Public Ordinary Schools.* –They are schools that have more than five hundred learners and are situated in urban areas. Schools with learners from five hundred to just below a thousand are medium sized and schools that have more than a thousand learners a classified as big schools.

## 1.6 The Research Methodology

### 1.6.1 The Research Design

The research was conducted using the qualitative research methodology. White describes a qualitative research methodology as a method by which people are studied, and how they are viewed. White further states that “It is more concerned about understanding the social phenomenon from the perspective of the participants.”<sup>4</sup> Therefore the construction of reality resides with the people involved in the research situation. Further discussions on qualitative research are contained in chapter four.

### 1.6.2 Population

The population consisted of educators who were teaching grades one, two and three in multi-grade schools. The population from the public ordinary schools was composed of grade three educators only. Two curriculum advisors were also part of the population. All the necessary arrangements were made to interact with the participants.

### 1.6.3 Sampling

Initially the sample consisted of ten multi-grade schools, but due to problems experienced, only five schools with seven educators took part in the research. The sample included three public ordinary schools with six educators. There were also two curriculum advisors who form part of the sample. Details of the sampling procedure are discussed in chapter four.

#### **1.6.4 Pilot Study**

The pilot study consisted of the literature review, initial exploration of the technology to be used as well as the testing of the suitability of the interview and observation schedules. The aim of the pilot study was to give guidance on the direction of the study.<sup>5</sup> During the exploration period the researcher consulted the Information Technology section enquiring about the computer infrastructure in schools. For instance there was a need to know about the type of Internet connectivity in schools and the Windows operation system. After the Share Point website was set up it was necessary to conduct a test run. With the assistance of the two curriculum advisors (CAs), a test run was conducted. At the same time a suitable content was loaded on the system. It was also a time to learn more about Share Point, consulting every guide provided on its website. The Interview and observation schedules were constructed and checked whether they were suitable.

##### **1.6.4 .1 Literature Review**

The researcher reviewed the current literature on Knowledge Management collaboration tools and communities of practice. The literature on the curriculum and some official documents of the National Education Department of South Africa and the Western Cape Education Department were also reviewed.

---

<sup>4</sup> White, C.J. 2005. pp 81 & 85

<sup>5</sup> Strydom,H. in De Vos 1998. p188

### **1.6.5 Data Collection**

The primary method of data collection used in this research was mostly unstructured interviews. The second method used was observation. The observation method was not extensively used, but it contributed to the amount of data analysed. Then lastly the researcher felt it was proper to engage the participants of the public ordinary schools in focus group interviews because of time constraints. All the methods of data collection are explained in the methods chapter.

### **1.6.6 Data Analysis and Interpretation**

The whole set of data collected was categorised according to themes that represent the questions that were asked during the interview and observation periods.

### **1.6.7 Basic Steps of the Research Process**

*First Step:* A broad picture of curriculum development and planning was explained, especially the new curriculum in South Africa which is regarded as a curriculum that purport ideas on innovation and creativity to meet the challenges of the global village in terms of knowledge sharing and knowledge management.

*The second Step:* The researcher gave an overview of collaborative tools that are available in the market. The collaborative tools include the Internet and Extranet, e-mail and other knowledge sharing tools. The communities of practice were also discussed.

*The Third Step:* This involved the design and execution of a localised electronic experiment, where educators were required to collaborate online via Share Point.

*The Fourth Step:* Inferences were made and conclusions drawn based on the experiments.

Table 1 A flow Chart Illustrating the Research Process

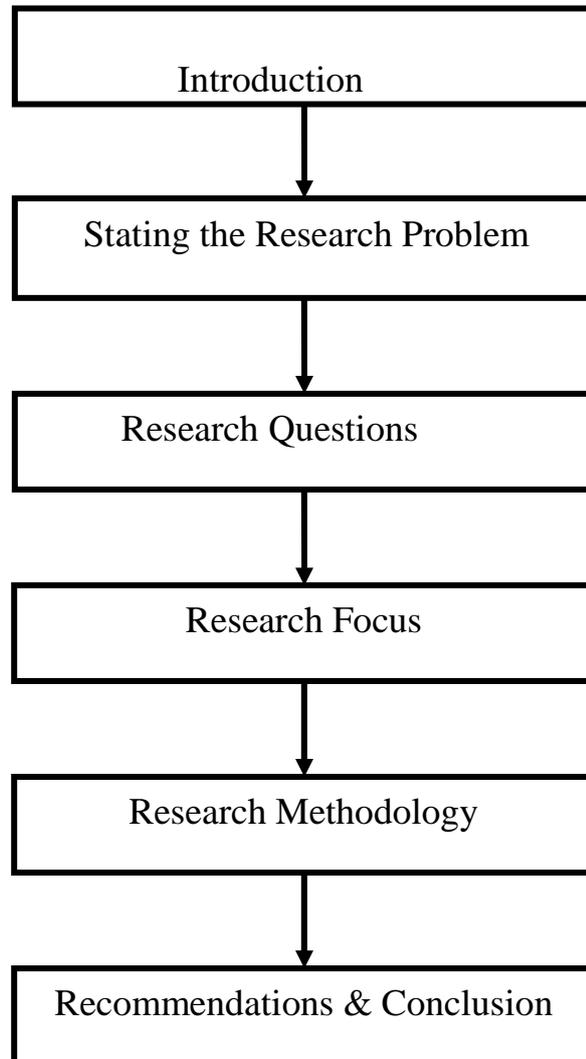


Table 1.1

## 1.7 Project Plan

### 1.7.1 Chapter 1: Research Focus

Chapter one orientates the reader on what to expect. The research focus is explicitly defined. Of importance about the first chapter is that the researcher explained the scenario in which the research took place as well as the problems that led to the research.

### **1.7.2 Chapter 2: Curriculum Planning and Development**

The study is not about the designing of learning programmes per se, but about providing an environment in which educators can collaborate in the designing of learning programmes. However, it is necessary to give a description of the nature of the curriculum that compels the educators to collaborate. This chapter therefore provides a context in which curriculum development and planning took place before the implementation of curriculum 2005, as well as the current practice which contains some knowledge management aspects that will be unveiled as the discussion progresses.

### **1.7.3 Chapter 3: Overview of Collaborative Tools**

- What are communities of practice?
- The role and functions of communities of practice.
- Communities of practice enhancing knowledge sharing, creativity and innovation. ( Examples from literature)
- What are knowledge collaborative tools/systems?
- The role of knowledge management collaborative systems in knowledge sharing and innovation.

### **1.7.4 Chapter 4: Research Methodology**

Data to be analysed has been gathered throughout the testing period by means of observation and informal discussions as well as focus group meetings.

### **1.7.5 Chapter 5. Analysis and Findings and Recommendations**

Analysis of data and findings are contained in this chapter. A detailed discussion on what transpired during the research period is put into perspective in this chapter.

### **1.7.6 Chapter 6: Recommendations and Conclusion.**

The recommendations' chapter outlines the way forward. It states what should be done in order to remedy the situation as espoused in the research.

## 1.8 Conclusion

Chapter one provides a framework for this research undertaken on how educators can collaborate when they are planning and designing learning programmes for the learners they teach at schools. The next chapter looks at the nature of the curriculum and the collaboration process. It is argued that the present South African Outcomes based education system has some elements of knowledge management in it and therefore lends itself to a new approach of planning and implementation.

# CHAPTER TWO

## Curriculum Development and Planning

### 2.1 Introduction

Chapter two is a background to the nature of curriculum development and planning in South Africa before and after the implementation of curriculum 2005 (C2005). The discussion moves from the premise that the previous curriculum did not really provide the educators with the opportunity to be creative and innovate in the classrooms, due to the fact that the main source of extracting information was the textbook. On the contrary with the advent of the new technology and the explosion of information the educator is in a better position to enrich the curriculum.

### 2.2 Defining “Curriculum”

Some centuries ago, human beings organised themselves, (most probably under the auspices of the church), to form what is today known as ‘schools’, because of a need to transfer knowledge and skills and the way to pass it on to various generations. Thus the term curriculum came into being. It was derived from the Latin word “currere” which means “a course to be run”<sup>6</sup> The implication is that there are planned activities that should be completed at a certain given time.

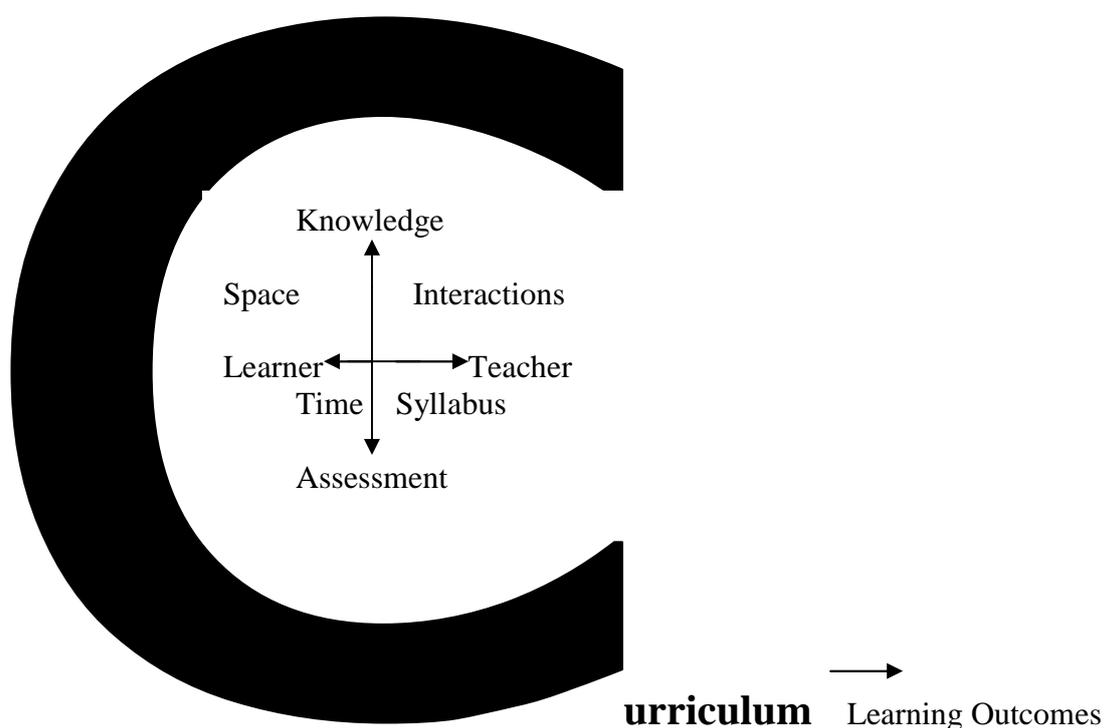
Without being engaged in any academic exercise, educators at school today will tell you that a ‘curriculum’ entails learning areas offered in schools including activities referred to, as extra curricular activities. However, the term curriculum entails much more than we think. According to Graham-Jolly, “a curriculum contains all the learning opportunities that the school provides, including the formal programme of learning, the school climate, attitudes, styles and behaviour”.<sup>7</sup> The curriculum becomes significant when it is able to broaden the sphere of learning opportunities to enrich the learners’ actual experiences, providing knowledge and life skills. It is also relevant to say that a curriculum is designed

---

<sup>6</sup> Dijkstra, S. 1997. p8

<sup>7</sup> Graham-Jolly in Coleman, Graham-Jolly & Middlewood. 2003. p4

along the lines of goal setting; therefore a plan should be devised for the attainment of the set goals. Presently, the selection of activities “to run” with is posing enormous challenges to educators. They are faced with an explosion of information to such an extent that it is impossible to select the most relevant information for teaching and learning. This makes it one of the reasons why educators should collaborate to a certain extent. Further more; Lubisi et al view on the curriculum is not different from the discussion above, as they regard the curriculum as a “Learning Environment”. The diagram below gives a clear illustration of what actually takes place in such an environment.



**Figure 2.1 An adaptation from Lubisi et al, 1998**

The big C (curriculum) connotes the overarching, organising concept. Lubisi et al. also contend that “The curriculum includes all the visible and invisible, the explicit and implicit, activities of the school”.<sup>8</sup> They regard the curriculum as the product of interaction between various components. This view is illustrated by making reference on how knowledge (K) and assessment (A) are interacting. There is a relationship between knowledge and assessment, since the two elements co-exist in the learning and teaching environment.

<sup>8</sup> Lubisi, R.C. Parker & Wedekind 1998, p91

It is also well known that teachers (T) and learners (L) interact and interpret the learning content differently resulting in a dynamic relationship that impacts on what is learned. The way in which space and time are organised, the content of the syllabi, the interaction between teachers, learners, parents and various other role players create an environment from which the learners learn.<sup>9</sup>

## 2.3 The Hidden Curriculum

One of the hallmarks of the previously dismantled education system was the misuse of the hidden curriculum through which values and norms were instilled. Differences between gender, race, religion and mother tongue education were highly promoted, resulting in a society that was deeply divided.<sup>10</sup> Taking from Bowls and Gintis (1976) Graham-Jolly<sup>11</sup> agree that a hidden curriculum is visible in a school structure, syllabi, textbooks and examinations. In the past it was used to advance the agenda of separate development. As a result collaboration in schools was not high on the agenda. It is also needless to say that the poor did not enjoy the privilege of a high status (technical) knowledge and this was used to further divide the society according to economic stratification.<sup>12</sup>

A hidden curriculum is not really a planned activity, in its obvious sense, it occurs naturally. The following examples taken from Jacob & Chalufu<sup>13</sup> illustrate the levels in which the hidden curriculum manifests itself:

1. During classroom lessons, the learners' interaction with the teaching learning situation can be positive or negative. It therefore becomes important that the nature of the content to be taught is carefully selected. Content selection in the previous curriculum was in most cases found prepared in textbooks. In the new curriculum it is the responsibility of the educator to select content by consulting various resources including newspapers, Internet based resources and library books<sup>14</sup>. This important task cannot be managed

---

<sup>9</sup> Lubisi, R.C., Parker, B. & Wedekind, V. 1998. p92

<sup>10</sup> Graham-Jolly in Coleman, R.C. 2003. p7

<sup>11</sup> Graham-Jolly in Coleman, R.C. 2003. p7

<sup>12</sup> Marsh, C.J. 1992. p5

<sup>13</sup> Jacobs, M. & Chalufu. 1996. p94

<sup>14</sup> What must be considered is that during the period up to the early 1990s there were basically no means of communication between educators as we have today. (Web-sites and e-mail) It was snail mail or expensive phone calls. Neither were libraries geared to support the curricula nor could students inter-act with

single-handed. There is more need now, than ever before, for all role players within the curriculum to work together and determine the most suitable curriculum content.

2. As pointed out earlier the school climate is part of the hidden curriculum, in which educators and learners are exposed to, and their school environment becomes part of their learning experiences. Most of these experiences relate to:

- the educators' personalities and relationships with one another.
- the learners' personalities and relationships across class barriers.
- the nature of the surrounding communities and
- extra-curricular activities<sup>15</sup>.

The hidden curriculum is therefore a powerful approach which, when used appropriately within a framework of communities of practice and other knowledge collaborative processes, can yield positive results. For instance when educators collaborate on the teaching of values and norms within a context of a particular lesson on HIV and AIDS, they can have a discussion about what kind of attitude to adopt when dealing with certain controversial issues to avoid any display of negative learning.

## 2.4 Curriculum Development and Planning Before the Implementation of C 2005

According to Carl et al. 1981 the Human Sciences Research Council (HSRC) conducted research on the status of curriculum development and planning in South Africa. Some of the shocking findings pertained to<sup>16</sup>:

---

technology. Under these circumstances a curriculum should have been a very clear document of what must be taught as essential information and to support this, prescribed books were the only source of detailed information. After 1994 the e-mail and web site technology became a global info system which made prescribed books not the only place from which to search for information. All this contributed to a perforce style of education that is considered today as outdated due to the advantage of electronic mail. In spite of these technological benefits 'modern' schools are still suffering a lack of supportive information.

<sup>15</sup> Jacobs, M. & Chalufu. 1996. p94

<sup>16</sup> Carl et al 1988. pp19-20

- How teacher participation in curriculum development varied in the then eleven education departments.
- Ignorance and a lack of information regarding curriculum theory and practice.
- Limited powers and functions of making contributions to curriculum development and planning by the principals and the teachers.
- The teacher's approach to the syllabus: "The research indicates that in general, teachers are very bound by the syllabus and do not (even in cases where they disagree with the syllabus) easily deviate from it. The problem is increased where a textbook, compiled according to the syllabus, is available. In such a case the textbook is slavishly adhered to"<sup>17</sup>. The latter statement once again demonstrates some stereotypes that educators had to contend with during the previous curriculum and this serves as evidence that creativity and innovation did not really feature prominently.

#### **2.4.1 The Syllabus**

The syllabus is undoubtedly the oldest teaching tool.<sup>18</sup> During the previous regime, education authorities drew up piles of syllabi copies to be used by teachers in the classroom. Educators had limited participation in the designing of syllabus. There was also a lack of information regarding the theory and practice on curriculum development and planning.<sup>19</sup> A syllabus contains a list of prescribed topics for a year. This was also known as a course outline. There was also a prescribed content, and a suggested method of teaching. The compilation of a syllabus also took into account school readiness, intellectual development and emotional maturity. The construction of syllabi gave the education authorities an assurance that there was a body of knowledge being continuously transmitted to learners by educators. It was regarded by many as a way to control the transfer of knowledge amongst educators. Deciding what and when to teach was left in the hands of senior officials, who were based at Head Office.<sup>20</sup>

#### **2.4.2 The Scheme of Work**

---

<sup>17</sup> Carl et al 1988. pp19-20

<sup>18</sup> Pretoria Technikon Study Guide. 1999. p85

<sup>19</sup> Carl A. et al. 1988. p19

<sup>20</sup> Duminy, P.A & Steyn, P.G.D 1985. p128

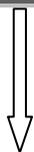
The educators used the syllabus as a basis for drawing up a scheme of work on a weekly, monthly or unit basis for the whole year. When drawing up a scheme of work, they took into account the number of lesson periods during the year for a particular subject. Topics to be taught were taken from the syllabus and just fitted on the scheme. Senior educators or the principal had to assist the new teachers to draw up the scheme of work; furthermore this task was left to individual educators to prepare what they were going to teach<sup>21</sup>.

### 2.4.3 Lesson Planning

From the syllabus and the scheme of work, the educator was required to prepare daily lessons. The preparation of a lesson took into account what was taught in the previous lesson. The scheme of work was drawn in such a way that the lessons related to each other. The planning of lessons had to take into account the instructional objectives, contents, methods and teaching aids. Although lessons were planned by educators in isolation, they were still required to select proper activities from the textbooks.<sup>22</sup> The traditional curriculum model designed by Ralph W. Tyler during the 1940s indicates the prescriptive nature of designs in the development of the lessons from a prescribed content. The model is concerned with the transfer of selective knowledge by the teacher to the child rather than the creation of knowledge by exposing the learner to various resources<sup>23</sup>. Marsh<sup>24</sup> concurs with the above statement by stating that “Tyler’s concern is to evaluate the intended instructional objectives, he ignores the unintended learning (the hidden curriculum), which invariably takes place’. Be that as it may Tyler’s model forms the basis of all planning in curriculum.

The following steps were used for the designing of learning lessons from the syllabi: Below is an illustration of the four principles of planning according to Tyler in Marsh.<sup>25</sup>

**Objectives:** What should educational objectives seek to achieve?



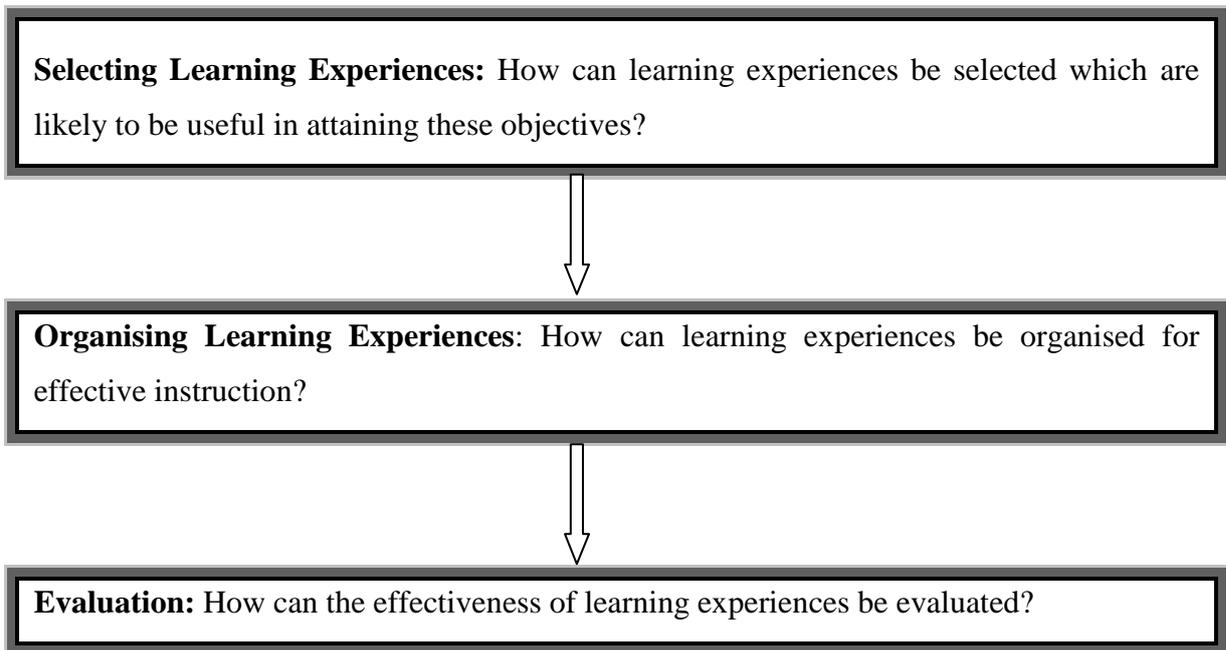
<sup>21</sup> Duminy, P.A & Steyn, P.G.D 1985. pp128-29

<sup>22</sup> Duminy, P.A & Steyn, P.G.D 1985. pp128-29

<sup>23</sup> In the South Cape /Karoo EMDC curriculum advisors are on a drive to encourage schools to improve their teaching and learning by integrating library and Internet resources into the curriculum. Curriculum support materials that include non-fiction are regarded by curriculum advisors as an important step of moving beyond the textbook in broadening the knowledge of learners.

<sup>24</sup> Marsh, C 1992. p109

<sup>25</sup> Marsh, C. 1992. p108



**Table 2.1**

## 2.5 Curriculum Development and Planning As From the Implementation of C2005

C 2005 and subsequently the Revised National Curriculum Statements (RNCS grades R – 9) and the National Curriculum Statement (NCS) advocate the use of outcomes based education (OBE). According to Jacobs and Chalufu<sup>26</sup> “OBE is a curriculum approach to teaching and learning that requires a shift from teacher input through syllabi to a focus on learner outcomes”. Outcomes endorse a more holistic approach because they facilitate the integration of the learning content. In other words different school subjects are not treated in isolation. In South Africa and various parts of the world, the concept of outcomes based learning is new. The traditional curriculum referred to earlier is content and competency based and provides the educator with prescribed knowledge and skills to be attained. The new curriculum also subscribes to this notion of prescribed knowledge and skills. The fact that skills and knowledge are attained does not necessarily mean it is outcomes based, as

<sup>26</sup> Jacobs, M & Chalufu. 1996. p102

these belong to input part of learning. On the contrary, outcomes based learning is two fold, the input part and the output part. The learning process is holistic.<sup>27</sup>

### **2.5.1 Designing Learning Programmes.**

The use of the term “learning programmes” can be interpreted differently according to various contexts. For example a learning programme can be associated with a programme of action undertaken at a certain given period of learning. Such a programme will entail a list of learning activities to be undertaken. The provisions of the National Qualifications Framework (NQF), describe a learning programme as an integral part of the curriculum for any qualifications, skills programme or short course. According to Westraad in a school context a “learning programme” includes a learning area, or subject outcomes, assessment standards for the relevant grade as well as the activities that the educators have to design in order to meet these outcomes and assessment standards.

The designing of learning programmes therefore is the process that takes into cognisance the issues stated by Westraad. Educators develop learning programmes within the context of a prescribed curriculum. Furthermore, it is the intention of this study to adopt the definition of a learning programme as espoused by Westraad. When she states that a learning programme “Refers to a series of learning and assessment activities and experiences designed to enable the learner to meet registered outcomes and assessment standards”.<sup>28</sup>

The National Department of Education (DoE) produced some guidelines aimed at assisting teachers in schools in their planning for the introduction of the National Curriculum Statements. The guidelines propose three stages in the development of a learning programme. Namely:

- Stage1 – develop a subject framework for the grade.
- Stage 2 – develop a work schedule for each grade.
- Stage 3 – develop lesson plans to cover each classroom contact session.

---

<sup>27</sup> Oliver, C. 2002. p29

<sup>28</sup> Westraad, S. 2003. p2

The process of developing a learning programme is not linear. It is reflective. It is assumed that when educators are engaged in planning they will move back and forth from each stage. There are various factors leading up to the culmination of learning programme. These are:

- *Policies and principles*, for instance White Paper 7 indicates how computers should be used in the classroom.
- *Conceptual Progression* refers to progression in terms of the learning outcomes and assessment standards per grade.
- *Content and Context*. First the content is identified from the assessment standards of each learning outcome. The skills, knowledge and values to be attained are also placed into perspective.
- *Integration* means that learning outcomes and assessment standards are grouped together to ensure that the relevant skills, knowledge, attitude and values are achieved.
- *Learning & Teaching Resources*: Educators are expected to go beyond the textbook. They are also encouraged to use resources that are commonly available in the community<sup>29</sup>. There is no list of facts to be learnt in a narrow syllabus format, there are also no specified teaching methods. It is the responsibility of each teacher to unpack the outcomes and the assessment standards to ensure that learning takes place.<sup>30</sup>

### **2.5.2 The Role of Educators.**

The role of educators in curriculum delivery is the most important one because they must ensure that learning is enhanced. Educators should be competent and effective enough to impart the knowledge, skills and attitude to their learners. According to Harley, Bertram & Mattison (1999)<sup>31</sup> there are various roles that the educators are involved in, others go beyond the curriculum. However the ones that are directly related to the curriculum include:

---

<sup>29</sup> DoE Learning Programme Guide. 2005. pp1-20

<sup>30</sup> DoE National Curriculum Statement for Grades R -9. 2005 pp16-19

- The educator's role as a designer of learning programmes.
- The educator's role as a mediator of learning
- The educator's role as a life-long learner

### **2.5.2.1 The educator's Role as Designer of Learning Programmes**

The use of the term 'design' embodies the creative application of techniques and specifications. Prat<sup>32</sup> argues that Design is an important element of art, and art is also part of design. The question is: What competencies should the educators possess before they are able to design learning programme? Harley et al<sup>33</sup> state that for educators to be able to design learning programmes they should possess and practice the following competencies:

- Interpret and design learning programmes some of which focus on ethical issues, religion, socio-economic conditions, human rights and the environment.
- Designing original learning programmes.
- Analysing ways in which barriers to learning may be overcome through the design and creation or selection of innovative learning programmes.
- Prepare lessons that take into account learners' needs as well as new approaches to learning and teaching.
- Understanding how learning materials can be used to construct learning environments that are more flexible and individualised.
- Evaluating and adapting learning programmes and resources through learner assessment and feedback from learners.

It is imperative to note that in the past the educators did not perform this function per se. Their main duties entailed the responsibility to teach and getting the learners ready for the examinations. As far as the above competencies are concerned Harley et al<sup>34</sup> observed that there is a gap between what teachers know and the actual practice. For instance educators

---

<sup>31</sup> Pretoria Technikon Study. 1999. pp179-188

<sup>32</sup> Pratt, D. 1980. p7

<sup>33</sup> Pretoria Technikon Study Guide. 1999. pp179

<sup>34</sup> Pretoria Technikon Study Guide. 1999. pp180

have a theoretical knowledge of what ought to be done, but lack the creative capacity to create and design learning programmes that will achieve the learning outcomes. This, they concluded is attributed to a lack of enabling environment for programme innovation and resource development as well as educators' attitude to change.<sup>35</sup>

### **2.5.2.2 The educator's Role as Mediator of Learning**

In order to facilitate learning effectively, educators should demonstrate:

- A sound knowledge of the subjects.
- Thorough preparation of their lessons.
- Employ appropriate learning and teaching strategies and resources to achieve desired learning outcomes. By implication, it is assumed that educators cannot really mediate if they cannot demonstrate all of the above. To be able to achieve this, educators should collaborate with each other.<sup>36</sup>

### **2.5.2.3 The Educator's Role as a Lifelong Learner**

One of the characteristics of being an effective educator is to keep abreast of trends and developments. Such a role requires that the educators should:

- Familiarise themselves with current developments in educational thinking and curriculum development.
- Have the ability to access and use information resources such as libraries, community resource centres and virtual libraries.
- Improve their qualification.
- Participate in joint discussions of school improvement and curriculum development.<sup>37</sup>

---

<sup>35</sup> Pretoria Technikon Study Guide. 1999. pp180

<sup>36</sup> Pretoria Technikon Study Guide. 1999. pp179-180

At the beginning of each term educators get together for term planning, under the leadership of the Head of Department (HOD). In most cases they do not meet again, nor do they communicate to see whether the plans were carried out successful except when, the HOD initiates the process again. For this process to be successful educators should be encouraged to communicate with each other, and share ideas.

<sup>37</sup> Pretoria Technikon Study Guide. 1999. pp180-182

## 2.6 Collaboration

In the discussion above the term “collaboration” has constantly been referred to as a way to find a solution to the educators’ problem of creating an environment in which they can co-operate when designing learning programmes. Collaboration can mean different things to many individuals. In the context of this research it is associated with how educators do their work, in particular when designing learning programmes. In essence this also implies that educators work in partnership or as a team when they plan their lessons. Collaboration is a voluntary association.<sup>38</sup> It is not something that is enforced through the policies of the education department. Collaboration requires a sense of shared responsibility. A distinction can also be drawn between co-operation and collaboration. According to Lloyd, “collaboration implies active participation and contribution, whereas co-operation does not”.<sup>39</sup> Members of a group must be able to share information and also strive toward producing information based on their thoughts.<sup>40</sup>

Collaboration in education is viewed as important in promoting teacher learning. Educators can be involved in study groups, teacher-researcher partnerships, professional learning communities, peer coaching, collaborative consultation, co-teaching, collaborative problem solving and teacher mentoring. It is assumed that the formation of these structures or forums can result in collaborative teacher learning.<sup>41</sup> Collaboration will allow the educators to share resources of importance. There will be no need to duplicate resources. Time and energy will be saved. Thus more time can be devoted on creative thinking.

The other issue that should be born in mind is that collaboration goes beyond finding information. It also entails innovation that comes from cross pollination as in Nonaka and Takeuchi’s model of Socialisation, Externalisation, Combination and Internalisation (SECI) (model of knowledge conversion) The model is constructed on the basis that individuals share and create knowledge through a process of socialisation in an organisation. The process is displayed as a spiral in its original drawing through the four quadrants. The one that appears below is an adaptation from Nonaka:

---

<sup>38</sup> Enloe, S. 2007. p1

<sup>39</sup> Lloyd, C. & Beard, B. 1995. p9

<sup>40</sup> Figallo, C & Rhine, N. 2002. p91

<sup>41</sup> Enloe, S. 2007. p1

<b>To tacit</b>	<b>To Explicit</b>
<p><b>Socialisation</b></p> <p>copying</p> <p>imitating</p> <p>Apprenticeship</p>	<p><b>Externalisation</b></p> <p>writing down</p> <p>visualising</p> <p>models</p>
<p><b>Internalisation</b></p> <p>learning by doing</p>	<p><b>Combination</b></p> <p>Joining together</p> <p>Remembering &amp;classifying</p> <p>Integrating with existing body of knowledge</p>

**Table 2.2**

*Adapted from: From Nonaka & Takeuchi*

According to Nonaka & Takeuchi<sup>42</sup>, knowledge creation fundamentally occurs as a result of an interaction between tacit and explicit knowledge which in turn allows four different modes of knowledge conversion as described above, i.e. Socialisation; Externalisation; Internalisation and Combination. From the illustration above, one can deduce that socialisation is about human interaction including cultural dynamics, whilst combination is about information processing skills. Internalisation on the other hand is learning by doing, and externalisation learning is found from visualising, writing down and creating models. All of the above modes of knowledge creation have an important role to play in terms of understanding what capacity does an organisation have when it comes to nurturing its own knowledge management processes.<sup>43</sup>

Although the process of collaboration is being promoted as part of solution to the problems identified in this research, it should be born in mind again that collaboration takes more than people coming together and share ideas and information. Precise steps

<sup>42</sup> Nonaka, I. & Takeuchi, H. 1995. p62

<sup>43</sup> Nonaka, I. & Takeuchi, H. 1995. p62

should be devised to ensure its occurrence and success. One of the ways that has been found to be effective is to use the project method as a way to ensure collaboration does take place. The project method contains four phases. These include:

- The purpose of collaboration.
- Planning, where the required steps for solving the proposed problem are identified.
- Executing, where the steps are implemented or performed.
- Monitoring, where a comparative process will be initiated against the defined goals and objectives.

In order to achieve collaboration the researcher proposes that educators should be engaged in communities of practice where they work jointly together as a team whilst

they are engaged in learning. Kaplan<sup>44</sup> further asserts that people in organisations collaborate in different forums. Some collaborate in Learning Communities, which sometimes operate under the leadership of a trainer. The second type of forum is Affinity Networks characterised by relationships built on shared interest and help create connections that result in personal and professional development. The last forum concerns project teams that are task oriented for the achievement of specific goals. Collaboration can also be achieved by using knowledge management collaboration tools where educators will be able to share knowledge. The knowledge management collaborative tools that will be discussed include GroupWare and other web based collaboration tools. These are online collaborative tools. One of the disadvantages of online collaboration concerns the culture of collaboration.<sup>45</sup> For instance are people used to conducting communication online? Does the organisation provide enough opportunities for collaboration? The level of collaboration among various schools in the South Cape is very low. There may be two or three individuals that work collaboratively, but it is difficult to say where to find such educators. The district office is also not promoting collaboration amongst educators.

---

<sup>44</sup> Kaplan, S. 2002. pp1-7

<sup>45</sup> White, M. 2003. pp43-44

## 2.7 Conclusion

In conclusion, the discussion above illustrates what is involved in curriculum development and planning, particularly with regard to designing learning programmes. The discussion indicates a lack of skills in designing learning programmes. Although there was planning and interaction amongst educators during the previous curriculum, it should be remembered that the present curriculum has been improved to meet the changing societal needs and the continuous knowledge explosion that presents itself at an alarming rate. It is generally accepted that there must be innovation of some kind that reflects the global thinking of the world we live in. Therefore in the next chapter literature on knowledge management collaborative systems and communities of practice will be reviewed.

# CHAPTER THREE

## Overview of Collaborative Tools

### 3.1 Introduction

The purpose of this chapter is to give a background to the literature on knowledge management, in particular knowledge management collaborative systems including communities of practice. The discussion explores the various types of collaborative systems available in the market and the nature of communities of practice and how these can advance knowledge sharing when educators are engaged in learning programme design.

### 3.2 What are Knowledge Management Collaborative Tools?

For the purpose of this study KM collaborative tools include what is popularly known as information communication technology tools (ICT). A whole range of ICT tools for use in the classroom have been developed. Throughout the world the Internet stands out as the most popular ICT tool that has been effectively used to enhance communication.<sup>46</sup> Few schools are currently using ICT for teaching and learning. Other collaborative tools include the Intranet, GroupWare application systems, newsgroup and mailing lists, workflow systems, chat systems, decision support systems and specific types of knowledge sharing systems,<sup>47</sup> (e.g. lesson learned data bases; best practice data bases etc) are all referred to as knowledge management collaborative tools in this study.

### 3.3 Why Knowledge Management?

It is the people that create activities that ensure the functioning of the organisation. “The purpose of knowledge management is to provide opportunities for people to act intelligently, making creative decisions and producing high quality knowledge work

---

<sup>46</sup> Sailis, E & Jones, G. 2002. p101

<sup>47</sup> Brinck, T. 1998. pp1-2

continuously”<sup>48</sup>. This assertion on knowledge management is also relevant to what this research wants to achieve. Wiig further states that knowledge management is a “systematic leveraging of information and expertise to improve organisational innovation, responsiveness to productivity and competence”.<sup>49</sup> This implies that when someone attaches meaning to a piece of information, it is knowledge in creation. Newell, Robertson and Scarborough, agree by stating that “different people may infer different things from the same information, which could lead to the creation of new and different knowledge.”<sup>50</sup> Wiig further writes “we see this in action when we form a team to create and market a new product, when we can provide expert definitive information in a crisis and during spontaneous hallway conversation”.<sup>51</sup> The essential part of his definition is one on collectivism that ensures that people share knowledge in order to innovate. Organisations should strive towards creating environments that allow people to collaborate on projects. Rosenberg, in chapter four of his book also points to the fact that “collaboration requires a means for people to contribute to the KM database as well as a way for them to access and distribute its content”.<sup>52</sup>

In a nutshell, knowledge management is viewed as a discipline that can assist the organisation in promoting the creation, sharing and leveraging of knowledge for the organisation as well as for individuals<sup>53</sup>. Knowledge management as pointed out previously, and as can be seen above, is about translation of thoughts into action, the interpretation of information into knowledge itself.<sup>54</sup> The benefits of promoting the use of KM include the improvement of individual competencies, accelerating innovation, reducing costs, strengthening organisational commitment and building a sustainable competitive advantage<sup>55</sup>. Further to this some of the benefits of KM are forming relationships and knowing whom to contact, promoting enthusiasm and commitment to the job as well as increasing problem solving capability and ability to make improvement.<sup>56</sup>

---

<sup>48</sup> Wiig, K. 1995. p58

<sup>49</sup> Wiig, K. 1995. p58

<sup>50</sup> Newell, S., Robertson & Scarborough. 2002. p3

<sup>51</sup> Wiig, K. 1995. p58

<sup>52</sup> Rosenberg, M.J. 2001. p102

<sup>53</sup> Becerra-Fernandez, I. Gonzalez, A. & Sabherwal, R. 2004. p2

<sup>54</sup> Newell, S., Robertson & Scarborough. 2002. p3

<sup>55</sup> Becerra-Fernandez, I. Gonzalez, A. & Sabherwal, R. 2004. p2

<sup>56</sup> Santo, S. 2005. p6

### 3.4 What are Communities of Practice (CoP)?

Over the past decades in the knowledge management literature there are various formations that have been highlighted as a means through which knowledge sharing can be advanced. These are referred to as communities of practice, communities of interest, knowledge communities etc. Communities of practice in particular have been acknowledged as an effective way to enhance the sharing of knowledge in organisations. Even though this study is going to elaborate more on communities of practice, it should be taken into account that there are also various other knowledge management collaborative systems that are discussed, some of which can be used within the context of communities of practice.

The term “communities of practice” was coined by Jean Lave a social anthropologist who has a very strong interest in social theory and Etienne Wenger a former teacher and independent consultant<sup>57</sup>. The basic nature of their argument is that learning is a social activity. The knowledge people have about learning, one that learning is an individual experience and is a result of teaching. Jean Lave and Etienne Wenger created a model, which they called *situated learning*. In this model they argued that learning, involves a process of engagement in a community of practice where people share ideas and knowledge. Communities of practice are characterised by the fact that some have names and others do not have. The other characteristic is that some are formal in organisations and others informal. Of fundamental importance is that communities of practice are held together by a shared practice, which is what is lacking in other communities of interest and geographical communities.

Even though Jean Lave and Etienne Wenger came up with this phrase they did not disregard the existence of knowledge sharing structures that do not fit their definition. For instance their examples of ancient people, who lived in caves, sat around the fire at night and discussed strategies for cornering prey is a case in point. In South Africa, people in the rural villages of particularly KwaZulu-Natal and the Eastern Cape have long been using the now popularised concept of *Imbizo* where common issues affecting the lives of the same community were discussed and proper solutions were found. These are just some of the highlights that show that what happens in communities of practice has long been

---

<sup>57</sup> Smith, M.K. 2003

into existence. The term of communities of practice may have been recently coined but the thought that goes within it dates back some centuries ago.

In defining a “community of practice” Wenger, McDermott & Snyder, state that “it is a group of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis”.<sup>58</sup> By implication one would reason that the plight of educators who on a daily basis are faced with challenges of a similar nature, i.e. curriculum innovation, can be resolved in the same manner. Wenger go on to provide examples of the positioning of communities of practice, these include gang members who learn to survive on the streets, parents who want to know about parenting, electronic circuit engineers who want to compare certain kinds of electronic circuits and the list goes on. People belonging to CoPs do not necessarily meet on a regular basis, but find time to meet whenever the need arises. They derive satisfaction from coming together because they are engaging each other in discussions they like. They choose to belong to a specific community; they are not forced or coerced. It is these kinds of attitudes that make the people prosper in creative thinking because they do what they like.

Not a single organisation is without a community of practice. They are found every where. Starting from home, going to school and eventually to work and of course in the sport fields, church and various other social gatherings there are communities of practice in them. Whatever shapes and sizes they take, whether they have names or not, they are seen to be communities of practice because they possess certain traits, because not everything is called a community of practice. They follow a certain practice. For instance in a family situation parents develop a system of taking care of each other by having a family gathering every year in December. This may be intentional or unintentional. Eventually when the parents pass away the children follow in their parents’ steps and continue with the same practice. They develop routines, rituals, share stories around their lives and even preserve family history in books, photo albums, and digital photos in DVDs and in video cassettes. Even though they have chosen to develop their lives around these issues, family members may agree or disagree, but at the end they remain together.

---

<sup>58</sup> Wenger, E. McDermott, R. & Snyder, W.M. 2002. p4

In association with the above Wenger writes that “communities of practice are so pervasive that they rarely come into explicit focus but for the same reason they are also familiar, CoP exist everywhere, but people may not be aware that they are actually engaged in it”<sup>59</sup>. Saint-Onge and Wallace, describe a community of practice as a “vehicle for learning”,<sup>60</sup> due to the fact that a community of practice assumes the role of knowledge creation in organisations through the learning of new strategies and approaches. People in CoPs may come from different backgrounds with different knowledge on a particular topic and because of this, they learn from each other. The education department should encourage the formation of communities of practices in schools. This will ensure that best practices evolve through the sharing of problems and the attainment of acceptable solutions.<sup>61</sup>

### 3.5 Elements of Communities of Practice

Even though communities of practice take various forms, shapes and sizes their basic structure remains the same.<sup>62</sup> There are three basic elements of fundamental importance when one talks about a community of practice and these elements also define what a community of practice is all about. These are:

- The domain of knowledge.
- community of people
- and the shared practice that they are developing to be effective.

#### 3.5.1 Domain of Knowledge

To look at the domain of any community of practice is to draw a line and say this community will concentrate on A and B issues. That in itself is an indication of identity. The domain creates a sense of belonging. Members become inspired and when they are motivated, they are likely to be drawn more fully into the construction of the community. Knowing what they want will make them present their ideas in a fruitful way and learn in the process. In this case the domain of the educators is the designing of learning

---

<sup>59</sup> Wenger, E. 1997. p7

<sup>60</sup> Saint-Onge, H. & Wallace, D. 2002. p27

<sup>61</sup> Manton, S. 2006. p51

<sup>62</sup> Wenger, E. 1997. p27

programmes. This is what brought them together into a community. They want to learn more about the designing of learning programmes. They share ideas and expertise around these issues. The common understanding they create will culminate in the production of joint products. It is also of crucial importance to note that a community of practice is not fixed to a particular set of problems even though they may have defined their boundaries according to particular issues. For instance a community of practice whose focus is the designing of learning programmes may want to deal with other educational issues.<sup>63</sup>

### **3.5.2 The Community**

It is obvious that in describing the term ‘community’ one would associate it with neighbourhood. In simple terms, to be part of a community you stay in that community. A community is associated with a tightly knit social group. On the contrary the advances made by technology have widened the geographic boundaries of communities. People who have never met facially can now meet in an online community and share ideas. In such communities, members act together, bonding and have shared values.<sup>64</sup> It is this type of community that the researcher constantly refers to. According to Wenger a community is a critical element to an effective knowledge structure. Members in a community of practice are mutually engaged in a practice. Wenger provides a clear definition of a community when he says “a community is not just a website, a database or a collection of best practice. It is a group of people who interact, learn together, build relationships and in the process develop a sense of belonging and mutual commitment”.<sup>65</sup>

The work of community members becomes visible when they are able to show a product of their joint efforts. Kanter, also points out that “operating as a community permits speed, releases human energy and brainpower, engenders loyalty and reaches across walls and beyond borders to include volunteers, partners and unseen audiences”.<sup>66</sup> The human energy referred to comes, as a result of being accepted as a member, not an employee. The status of individual members in a community is crucial for sustaining its existence. This means that the interaction between members is what makes them a community of practice. The advantage of interacting on a regular basis is that members learn to know

---

<sup>63</sup> Wenger, E. 1997. p27

<sup>64</sup> Etzioni, A. 2001. p80

<sup>65</sup> Wenger, E. 1997. p76

<sup>66</sup> Kanter, R.M. 2001. p18

each other's problems in relation to their domain and will be able to devise a suitable practice for these problems. As they learn to know each other, they also begin to understand who is good at what and therefore begin to specialise. Each one's reputation is raised to higher levels; they are also able to influence government policies in education generally and jointly because they are well versed with the domain.

### **3.5.3 The Shared Practice**

Practice is something that occurs through interactions. When members negotiate and try to attach meaning to what they want to achieve they are engaged in a process of practice. Practice is a continuous process of engagement. Wenger elaborates by saying "the term practice is used to cover a common approach and shared standards that create a basis for action".<sup>67</sup> How do members solve problems for instance, how do they communicate new ideas? It is through shared practice that members in a community are able to establish a baseline of common knowledge that exists amongst members. Even though members are under a specific domain, they may also specialise in different aspects of knowledge within the same domain. The practice does not only take into account what each member comes with to the community, but it also looks at providing members with resources on how to handle new situations and create new knowledge. The use of books, articles, knowledge basis, websites and other repositories that members have is what makes practice prosper. In this way the practice and innovation will occur, because members are not locked into what they know, they are encouraged to think creatively.<sup>68</sup>

Practice entails far more than the sharing of resources, it is also about the people continuously engaged in various activities. For an example, how are members behaving when they are together? Their thinking styles, their ethical stance also come under the spotlight. Commitment to the actual execution of end products is what makes members accumulate more experience in their respective fields. Further to this Wenger also maintains that debates about practice frameworks and methods allow the community to own its standards. In this process members act in unison allowing disagreements to prevail instead of letting petty issues drive a wedge between them. Wenger also states that "ongoing commitment puts the process of dealing with disagreements into perspective".<sup>69</sup>

---

<sup>67</sup> Wenger, E. 1997. p38

<sup>68</sup> Wenger, E. 1997. p38-4

<sup>69</sup> Wenger, E. 1997. p20

It helps to revisit an issue because people come up with new ideas and improve on the situation, thereby finding solutions to disagreements.

### 3.6 The Value of Communities of Practice

According to Wenger, when organisations create communities of practice they form an integral part of the organisation and its landscape is fundamentally transformed. “The domains of knowledge become focal points for connecting people who are working on potentially related projects”.<sup>70</sup> Such a situation adds value to the proper functioning of the organisation in that it results in faster completion of projects. CoPs are unique because they are able to deal with a variety of knowledge issues in an informal but structured way. CoPs can for instance deal with the following knowledge related issues:

- Connect local pockets of expertise and isolated professionals,
- diagnose and address problems whose root causes cross team boundaries,
- analyse the knowledge – related sources of uneven performance across units performing similar tasks and work to bring every one up to the highest standard,
- Link and co-ordinate unconnected activities and initiatives addressing a similar knowledge domain.<sup>71</sup>

### 3.7 Technology Infrastructure for Collaboration Systems

There are two types of knowledge management collaboration technologies identified by Smith<sup>72</sup>. They are distributive and collaborative applications. The distributive applications are what can be termed “virtual libraries”. It is just a repository of encoded knowledge created and managed for distribution to consumers. It is a collection of documents which members can access and use. The focus on this type of knowledge sharing is on using not on contributing. Contrary to the above description of distributive application, the primary focus of a collaborative application is about supporting people who want to create new knowledge, who want to share their experiences. In more ways than one, members in such a community of practice may be engaged through electronic conferencing or discussion

---

<sup>70</sup> Wenger, E. 1997. p20

<sup>71</sup> Wenger, E. 1997. p14

space where individual members may pose questions such as “ can any one tell me what assessment standards is suitable and what approach to use for the grade 5 lesson on endangered species?”. Alternatively individuals can contribute expertise and their knowledge on the topic.

### 3.7.1 GroupWare Applications

GroupWare is a technology whose main purpose is to facilitate the work of groups.<sup>73</sup> Although the term includes technologies like the telephone it is mostly applied to modern computer networks such as group writing and commenting, information sharing electronic meetings, scheduling, e-mail and a network to connect all the participating members. In other instances group work takes place when people interact with each other at the same time i.e. synchronously<sup>74</sup>. Examples of companies that offer such products are United States based companies such as Lotus Notes and Open Text’s Livelink. There are also Internet based conferencing tools such as Caucus and O’Reilly’s WebBoard. CompuServe’s forums and America Online (AOL’s) communities provide similar facilities in online services

There are two types of GroupWare technologies available in the markets, they are: defined as follows:

- Group members work together in a certain project at the same time, the GroupWare is referred to as “real-time” or synchronous” GroupWare, but when the same group works at different times is referred to as “asynchronous” GroupWare.
- Members of a group work together in the same place (“co-located” or “face to face”). The illustration below is more explanatory.

Same Times	Different Times
Synchronous	“Asynchronous

---

<sup>72</sup> Smith, D.E. 2000. p306

<sup>73</sup> Brinck, 1998. p1

<sup>74</sup> Smith, D.E. 2000. p138

Voting	Shared
Presentation	Computers
Videophones	e-mail
Chat	Workflow

**Table 3.1 adapted from Brinck, 2005 p2**

According to Skyrme GroupWare applications have several features that enhance knowledge sharing:

- These applications deal with multiple data text such as graphs, images, voice and video.
- They have both e-mail and bulletin board functions.
- It is easy to distinguish original postings and replies as messages are displayed as threads of conversations.
- The applications allow users to switch between different views, for example to see records written by different users.
- Conference lists can be public or private.<sup>75</sup>

Most of them are flexible because they have web interface and therefore can be easily transformed into a WWW format.

The Western Cape Education is currently using the Novel GroupWise system, but schools are not making use of the same system. Only the Management and Development Centres (EMDC) and Head Office are connected to this system. Some of the outstanding features of Novel GroupWise that can enhance the practice of sharing information include:

- Users can share an address book with each other including frequent contacts book, however one cannot share address books across domains.
- The users can view groups, organisations, or resources in the address book. For a quick look a predefined display can be used.

---

<sup>75</sup> Skyrme, D.J. 2000. pp87-88

- Users can create personal address books for group collaboration. Internet addresses can also be added to the address book.
- Users can also create and share folders with other users. If a user wants the folder to have a specific function, a new display can be created, for instance if a folder is for shared discussions you should create a setting that views items by reply thread and contain both sent and received items<sup>76</sup>.

On the contrary schools are making use of Pegasus Mail. Its features include working offline, address books and a range of advanced features.<sup>77</sup>

### **3.7.2 Document Management Systems**

A document management system (DMS) is a centralised electronic medium with a primary storage location that has multiple access points<sup>78</sup>. This system unifies a collection of relevant information in one location with the use of a common interface. The information is organised and classified according to relevant rules. The classification of information makes it easy to access the information needed and the other advantage is that the collaborative application of the document management system increases communication and in that sense allows the sharing of organisational knowledge. The functions and benefits of DMS vary and can lead to more efficiency and effectiveness. WORLDOX and Share Point as document management systems for instance offer the following functions:

#### **3.7.2.1 Library Services and Archiving**

It is generally known that some of the core functions of a library system are to acquire, catalogue, classify and retrieve the items needed. This system operates according the same standards. When a file is created it is generally required that the user fills in a profile card. The profile card includes space like the description of the file, author, date, and path location. Such entries make it easy for the users to locate an item whenever needed. Share Point has a document workspace where members can file documents for collaboration on

---

<sup>76</sup> WCED Buzzword PC Training Manual, p55

<sup>77</sup> Wallace, M and Wangate , P. 2000. p38

<sup>78</sup> Becerra-Fernandez, I. 2004. p213

projects and tasks. When participants upload documents, the system will show the name of the person who uploaded the document and even the date and time for uploading the document.

“Archiving is a means to move dated or unused files off the main storage”<sup>79</sup>

This function ensures that employees have access to the previous information even if it is not stored in current files. The document management system automatically set this function in motion. It is recommended that automatic archiving be set at ninety days.

### **3.7.2.2 Network Support**

The network support service is paramount in managing a network. The necessary tools to work with should be provided. In the case of WORLDOX the network document manager is transparent to the users. Also provided are single points of access to documents and an administrator with a straightforward methodology to integrate the documents in the network.

### **3.7.2.3 Full Text Retrieval**

The provision of information in full text retrieval is critical in the management of information access. The document profiling structure should provide a point of access especially for the members of the organisation. To make it easy for the users to access information on full text, WORLDOX provides two access points. One is via an index of particular words and the other is making use of combination of words, phrases etc.

### **3.7.2.4 Access Control and Security**

A document management system provides a multiple co-ordination of activities taking place across one or more documents in the network. When a user begins to access the document a check in system is implemented, immediately when he or she finishes a lock in system kicks in. The main purpose of this access control is to prevent problems that may arise when several members edit the document at once.

---

<sup>79</sup> Worldox. 2006

Document security on the one hand is about permission. The rights or privileges are assigned to each member to be able to access the document. Permission may vary according to responsibilities performed by an individual in an organisation.<sup>80</sup> In Share Point rights and privileges differ. Some participants are given permission to view website content only and some participants can be offered full participants' rights, ranging from changing the content and even customising the website<sup>81</sup>.

### **3.7.3 Workflow Management Systems**

Becerra-Fernandez et al, describe a workflow management system as a “set of tools that support defining, creating and managing the execution of workflow processes”.<sup>82</sup> This process provides a method on which the work is completed step by step. It is a method that has been used effectively on factory floors for centuries. With the introduction of technology the workflow management processes have also been incorporated into computerised environments. The basic purpose of workflow management systems is to provide a mechanism for the analysis and optimisation of the process that makes up a project. It also provides an audit of necessary skills and resources prior to project initiation.

### **3.7.4 The Internet**

The linkage between businesses in the past was mostly by means of a proprietary system, integrating information from their internal system to their customers and trading partners. With the advent of the Internet the playing field has changed dramatically. The Internet is described “as the public, global network of networks which is based on the Internet protocol”<sup>83</sup> The Internet technology infrastructure offers businesses and organisations an easy-to-use set of technologies and technology standards. This technology allows direct communication with all role players. Inefficient and multi-layered procedures have been scaled down. Transaction costs have also been reduced. With regard to business costs, buyers and sellers collecting information for products, negotiating terms, writing and enforcing contracts, that information is immediately available on the web. Of particular

---

<sup>80</sup> <http://www.worldox.com> . p2

<sup>81</sup> <http://www.sharepointsite.com> p1-2

<sup>82</sup> Becerra-Fernandez, I. 2004. p212

importance about Internet technology is that it provides the infrastructure for running the entire business because its technology standards can also make the information run seamlessly<sup>84</sup>. For an example managers can make use of the e-mail and other Internet communication capabilities to oversee the work of multiple teams working in different parts of the world. Some Internet business models that are considered to be compatible for use by educators collaborating on tasks are included. Virtual communities and portals are discussed below:

#### **3.7.4.1 Virtual community**

A virtual community provides an online meeting space, encouraging communication amongst people with common ideas.<sup>85</sup> Virtual communities are also referred to as online communities. An Internet or Intranet connection is a necessity for a virtual community. Educators must exploit the opportunities provided by technological advances by creating networks that will provide individuals with support, information, a sense of belonging and social identity.<sup>86</sup> Further benefits of engaging each other in virtual communities include the fact that people do not need to travel long distances to meetings. Further more; making use of online communities can save time and costs.

In virtual communities people are involved in a range of activities. They chat, argue, exchange ideas, and do economic transactions and even fall in love. There are also various types of virtual communities. Examples include collaborative workgroups, family groups, illness support groups, ethnic groups, professional groups, software support groups, special interest groups and many more. Tools that are used to build communities are email, message boards, chat and newsgroups. Some of the tools are discussed below:

#### **3.7.4.2 Portals**

The literature review on portals reveals a number of definitions. Some describe portals in terms of their objectives or in terms of what the portal offers. For example, according to Pienaar & Conradie, "A Web portal is a Website that aggregates an array of content and provides a variety of services, including search engines, directories, e-mail and chat

---

<sup>83</sup> Hauang, K.T. 1999. p161

<sup>84</sup> Laudon, K.C. & Laudon, J.P. 2004. p113

<sup>85</sup> Laudon, K.C. & Laudon, J.P. 2004. p116

<sup>86</sup> Driskell, R.B. 2002. pp380-381

rooms.”<sup>87</sup> Mick concurs with this statement and gives much detailed information on what is to be found. This includes information like:

- Reference information and general tools like dictionaries to topic related resources.
- Dictionaries of links to topics – related or otherwise to selected Websites.
- Communication channels, including conferencing, and most importantly bulletin boards.
- News ranging from a few headline stories to searchable archives.<sup>88</sup>

It should be noted that portals function as an entry point on the web along with specialised content and other services.<sup>89</sup> . It also provides a directory of information on news, sports, weather, telephone directories, maps, games shopping, e-mail and other services. There are various other kinds of portals including specialised portals to help the users advance their own interests. An example of such a portal is that of Latin American Internet, StarMedia. In other instances companies build their own portals to provide their employees with streamlined information services.

### 3.8 Communication within the Internet

One of the functions of the Internet is to provide an electronic communication system, which is capable of reducing communication costs. Electronic Mail, popularly known as e-mail is one of the most outstanding developments since Gutenberg’s development of the movable type machine in the fifteenth century. There are millions of offices through out the world connected to each other via the Internet. It is a facility that is used by researchers to share ideas, information and even documents and graphic images. It is also an important component of communication and collaboration. There is an Internet Protocol (IP) address for each computer connected to the Internet. Web browsers like Hotmail have an e-mail service that is easy to operate and it is free. A school can use its special software programme for sending and receiving e-mail. Most of the Western Cape

---

<sup>87</sup> Pienaar, H. & Conradie, F. 2001. p86

<sup>88</sup> Mick, O. 2002. p65

<sup>89</sup> Laudon, K.C. & Laudon, J.P. 2004. p116

schools are connected to Pegasus Mail programme. Pegasus Mail has normal features like receiving and replying, forwarding, attaching files and creating an address book. Communication in the Internet basically takes some of the following forms:

### **3.8.1 Usenet Newsgroups (Forums)**

Usenet Newsgroups (Forums) provide millions of people with services to share information and ideas on a defined topic<sup>90</sup>. Topic selection depends on the specialisation of the specific group. Educators for instance can choose education-related subjects for discussion. Electronic bulletin boards are the platforms for discussions and members of the group can post messages for others to read. When starting a Usenet Newsgroup it is important to have a financial plan.

### **3.8.2 LISTSERV**

In a LISTSERV group discussions are predefined in that people who want to take part in discussions subscribe to a list of their choice. E-mailing list servers are used instead

of bulletin boards for communication. Members of list servers receive messages sent by others through e-mail. They can also send messages to the LISTSERV and it will automatically be disseminated to others. To subscribe to a mailing list is in most cases free of charge. You just send an e-mail message to the subscription address and you become part of the group discussion<sup>91</sup>.

### **3.8.3 Chatting & Instant Messaging**

Chat groups are knowledge sharing entities that enable individuals to share their knowledge to the rest of the group.<sup>92</sup> Chat is a way in which two people type messages back to each other or in a group in real time. Chat groups can also be connected to the Internet and hold live interactive conversations. They are divided into channels, and each channel has its own topic. The channels are also referred to as chat rooms.<sup>93</sup> There are

---

<sup>90</sup>Maier, P. & Warren, A. 2000. p125

<sup>91</sup>Levy, P. 1999. p22

<sup>92</sup>Becerra-Fernandez, I. 2004. p39

<sup>93</sup>Levy, P. 1999. p24

also other services offered through chat systems. For example, file transfer, encrypted data transfer, and listing of basic data about users.<sup>94</sup>

The introduction of instant messaging is one of the developments that enhance chatting. Through this service it is possible for the participants to create their own chat channels. One of its features is that it alerts a person when someone is online so that communication can take place. There are various instant messaging systems available in the market. Some of these make provision for voice active interaction. Chat and instant messaging are effective collaboration tools because members can interact with one another at any given time.

### **3.8.4 Telnet and Internet Telephony**

Internet telephony is about the use of the Internet for telephone voice transmission. Internet telephony calls can be made and received with a desktop computer with speaker and microphones connected to it or with a landline telephone or cell phone. One of the advantages of internet telephony is the combination of data and voice services which are said to be able to reduce network management costs since there will be a single communication infrastructure. This system can also be used for Internet conference calls using video or websites that allow live customer service.<sup>95</sup>

### **3.8.5 Virtual Private Networks**

Creating virtual private networks as an alternative to Wide Area Networks (WANs) can reduce communication costs. Laudon & Laudon describe a virtual private network (VPN) “as secure connection between two points across the Internet, enabling private communication to travel securely over the public infrastructure”. Comparatively using the network communication lines instead of a telephone line can reduce long distance communication costs drastically.<sup>96</sup>

### **3.8.6 Intranets and Extranets**

---

<sup>94</sup> Maier, R., Hadrich, T. and Peinl, R. 2005. p274

<sup>95</sup> Huang, K.T. 1999. p161

<sup>96</sup> Laudon, K.C. & Laudon, J.P. 2004. p286

An Intranet is a private network created on networking standards and Web technology.<sup>97</sup> Brown agrees with this definition when he states that “An Intranet is an internal web server that utilises the same technology on web servers”<sup>98</sup>. Companies are introducing Intranets in order to provide information to their employees using the existing network infrastructure together with the Internet connectivity. The Intranet connection can be spread throughout the organisation computer network including mobile handled computers and wireless remote access devices. The various types of Intranets include comprehensive Intranets encompassing sites that attempt to collate and store collective knowledge of the company. The role of Intranets in knowledge management is to store information that will help employees gain knowledge about the organisational functions, and in addition, the Intranets are used for retaining that knowledge within the company when the employees decide to leave.<sup>99</sup>

One of the main functions of the Intranet is to create online repositories of information that can be updated if and when a need arises. Their basic point is that they can improve communication and wider access to information. Tabke (1996:1) writes, “Intranets extend the reach of users to bring them information they previously could not access – across all kinds of databases, and without regard to geographical boundaries”. The kinds of information that the companies store in Intranets include product catalogues, employee handbooks, telephone directories, and other benefits. The information in an Intranet can be revised. Companies that have introduced Intranets have reported a reduction in costs and increased productivity. For instance instead of printing companies’ newsletters, these are distributed via the Intranet. Intranets are known for being at the forefront of creating environments for collaboration in which members can exchange ideas, share information, and work together on common projects even if they are dispersed throughout the world. In the case of rural schools educators who are kilometres apart from each other, can be brought together by just a click of a button, when there is connectivity.

In addition to the above discussion Skyrme also provides some benefits accrued when an organisation begins to make use of an Intranet and these include:

---

<sup>97</sup> Laudon, K.C. & Laudon, J.P. 2004. p291

<sup>98</sup> Brown, B. 1997-2000. p1

<sup>99</sup> Begbie, R. & Chuddry, F. 2002. p325

- *Easy access and use.* The use of WWW browsers gives a familiar and easy way to use interface to information and application.
- *Universal access to information.* A single server can be used to keep all the organisation information on the network and can be accessed from anywhere in the network.
- *Person to person interaction.* Interaction between people in different locations is simplified through e-mail and conferencing.
- *Scalable network.* It is easy to add or remove computers from the network.
- *Access to external information.* Intranets do not confine employees to a certain kind of information, but they also provide information from the World Wide Web as well.<sup>100</sup>

The design of an Intranet should be such that it responds to the needs of the employees. This will ensure its optimal utilisation. One way to improve its usage is to include information beyond administrative tasks. There should be bulletins for company news, a shared calendar, and issues that are close to hearts of employees should also be included.<sup>101</sup>

An Extranet is basically an extension of an Intranet to authorised users outside the boundaries of the organisation<sup>102</sup>. When a company uses an Extranet it makes available to its customers a portion of its Intranet, in this case a catalogue. The difference between an Intranet and an Extranet is that an Extranet extends beyond the boundaries of a single company to multiple companies. By so doing more space for collaboration is allowed.<sup>103</sup> A company can protect its internal information by making use of firewalls. Firewalls can also be used to authenticate users to ensure that they are authorised to use the information. Extranets are also important collaborative tools especially when they are used for collaboration in supply chain management<sup>104</sup>.

---

<sup>100</sup> Skyrme, D.J. 2000. p88

<sup>101</sup> Figallo, C. & Rhine, N. 2002. pp108-109

<sup>102</sup> Laudon, K.C. & Laudon, J.P. 2004. p292

<sup>103</sup> Huang, K.T. 1999. p161

<sup>104</sup> Bernard, R. 1998. p342

In the education setting if schools can be connected to a single Intranet connection, huge amounts of Internet connection fees can be reduced. A single access point will also allow schools to work jointly on projects. Intranets are increasingly being used as tools for communicating organisational information and they are very important aspects of knowledge management.<sup>105</sup> Be that as it may, the use of online communication tools in schools is not that high because of a lack of opportunities to work on computers at home and at work. Many educators have not yet begun to use computers as tools for executing their work. It cannot therefore be expected overnight that educators will be actively involved in online conversation when such opportunities are presented. To this effect Figallo and Rhine state that “people who are most ready to use online conversation as knowledge tools are those who have already begun doing so on their own”.<sup>106</sup>

### 3.9 Knowledge Sharing Systems

Having discussed the technology infrastructure that can be used for collaboration, it is of utmost importance to look at knowledge sharing systems that can also advance the process of collaboration. Knowledge sharing systems are described by Becerra-Fernandez, et al “as systems that organise and distribute knowledge”.<sup>107</sup> These systems have been designed to assist users in sharing knowledge both tacit and explicit. The knowledge sharing systems are also referred to as knowledge repositories. In communities of practice using knowledge sharing systems can also support the sharing of knowledge.

Organisations, whether they are schools, business or government departments, are known for possessing a collection of intellectual assets, referred to as corporate memory or organisational memory. Corporate memory is made up of both tacit and explicit knowledge, which can exist in the organisation’s document system, or it may not be documented. Since corporate memory is crucial to the functioning of the organisation and its competitiveness, knowledge management is about developing applications<sup>108</sup> that will

---

<sup>105</sup> Griffiths, P. 2000. p8

<sup>106</sup> Figallo, C. & Rhine, N. 2002. p76

<sup>107</sup> Becerra-Fernandez, I. Gonzalez, A. & Sabherwal, R. 2004. p299

<sup>108</sup> When the Western Cape Education Department came into being in 1996, various policies were developed and sent to schools. It is now more than ten years since some of the documents were sent to schools. When a need arises for the use of some of those documents the schools claim to have lost them, schools ask from the district office to provide them with the documents. This is a problem for the district offices because they also do not have these documents in their possession. The failure from the education authorities to ensure that these documents are not lost and there is a system in place at every school has some financial implications because the documents must be replaced by buying a replacement copy from

assist the organisation in preserving its corporate memory. The loss of corporate memory occurs because in some instances organisations lack appropriate technologies for the organisation and exchange of documents. A lack of adequate support for communication and the proliferation of disparate sources of information are also sighted as causal factors for the loss of organisational memory. Corporate memory loss is organisational knowledge loss.<sup>109</sup>

Earlier in the discussion it was noted that after the creation of a new education department in South Africa some educators were offered severance packages as part of the redeployment process. This process was a brain drain because it contributed to organisational memory loss. This also means that the organisation's tacit knowledge in this case was lost. According to Becerra-Fernandez et al "a knowledge sharing system helps to organise and distribute an organisation's corporate memory so that it can be accessed even after the original sources of knowledge no longer remain with the organisation".<sup>110</sup> The Internet plays a facilitating role on these knowledge management applications. The web can interface with different computer platforms through a common user interface which allow knowledge sharing. Many teachers in the past and present times have created lesson plans that they presented to various classrooms, but only a few of them have shared the lessons with their colleagues. The Internet can provide the educators with a platform, which can be used to share the lesson plans.

### 3.10 Specific Types of Knowledge Sharing Systems

Specific types of knowledge sharing systems are defined according to their purpose and include Incident report databases; Alert systems; Best practices databases; Lesson-learned systems and Expertise locator systems<sup>111</sup>.

#### 3.10.1 Incident report databases

These databases are used for displaying information on incidents or malfunction of equipment. For instance incidents like those of the 2006 power outages in the Western Cape that have been a major disturbance in computer operations can also be listed in this

---

the WCED printing and production house, EDUMEDIA. It is crucial that each school develops a system of keeping the organisation knowledge in place at all times.

<sup>109</sup> Becerra-Fernandez, I. Gonzalez, A. & Sabherwal, R. 2004. p299

<sup>110</sup> Becerra-Fernandez, I. Gonzalez, A. & Sabherwal, R. 2004. p301

type of database, giving any information in this respect. Incident reports are mostly used in investigations. As far as schools are concerned, a similar type of database can be used for the benefit of the school. When educators for instance draw up learning programmes consideration should be given to inclusive education, i.e. when designing learning programmes they should be able to adapt the learning programmes for learners with special needs. Such specialised learning programmes can be drawn and posted on specialised databases.

### **3.10.2 Alert systems**

The original intention of distributing information on alert systems was mainly alerting people about negative experiences, like burglaries. However, recent developments have also focused on positive experience, like alerting registered users on the availability of topic information on their frequent searches. When educators at school come together and do a macro planning for the term, it is during this process that they become aware of the types of resources that must be used for achieving a particular learning outcome. The sharing of information can be done through an alert system in a collaborative environment.<sup>112</sup>

### **3.10.3 Best practice databases**

Best practice databases feature those successful stories and efforts that could be useful for the functioning of an organisation, but may not be derived from experience only. The difference between a best practice database and a lesson learned one is that the former captures only successful events whilst the latter captures all those experiences from which employees can learn from. The expectation is that these best practices are a representation of what can be achieved and therefore applicable in any organisation. They can also be used to benchmark organisational processes.<sup>113</sup> The South African education system does not really have a system of best practice databases, even though there is an abundance of

---

<sup>111</sup> Becerra-Fernandez, I. Gonzalez, A. & Sabherwal, R. 2004. p305

<sup>112</sup> Becerra-Fernandez, I. Gonzalez, A. & Sabherwal, R. 2004. p305-6

<sup>113</sup> Becerra-Fernandez, I. Gonzalez, A. & Sabherwal, R. 2004. p305

Some times it is argued that there is a gap between what educators do and what they know, this refers to their experience. Educators should be able to link what they do, to what they know. It should be remembered that experience is accumulated over a period of time and one way of preserving what we know is to create databases from which we can source our knowledge.

<sup>114</sup> Becerra-Fernandez, I. Gonzalez, A. & Sabherwal, R. 2004. p307

successes that have been achieved in various schools throughout the country. The nature of such a database should be such that schools that have been previously disadvantaged should learn from those schools that are on par with developments. Each learning area for instance can be advised to construct its own database on best practices.

### **3.10.4 Lessons Learned**

“Lesson learned is knowledge or understanding gained by experience”.<sup>114</sup> This may be positive or negative. A success story can also be regarded as a lesson learned. Its significance lies in the fact that it assumes impact on operations and is factual and technically correct. A lesson learned should also contribute in terms of reducing and eliminating possible failures and mishaps and reinforce positive results. According to Wiig, the best way to document lessons learned is to assemble a small team of two to four individuals (and even more) immediately after the occurrence to make an analysis and provide some descriptions of what has been learned. A structured approach should be adopted in order to guide the process. As far as this is concerned Wiig further suggests a type of worksheet to be used that should include, summary of lesson learned, description of the situation, description of lesson learned, how could the situation be handled better and members of lesson learned team.<sup>115</sup>

Ever since the introduction of the new curriculum, thousands of educators have been trained and went through a process of continuous learning. It remains to be seen whether these educators have been encouraged to reflect and review on some of the things they learned in workshops using the phenomenon of lesson learned. This should be the duty of education officials to apply some of these knowledge management measures so that they can create platforms for sharing knowledge for improvement.

### **3.10.5 Expert-Locator system**

This system helps to allocate intellectual capital. This is done by cataloguing knowledge and competencies that could be used by the organisation. The purpose of its function may differ from organisation to organisation.<sup>116</sup> In some organisations it can be used to solve technical problems or staff project teams. Other companies may try to fill vacancies by

---

<sup>115</sup> Wiig, K. 1995. p295

<sup>116</sup> Becerra-Fernandez, I. Gonzalez, A. & Sabherwal, R. 2004. p305

matching employee competencies with positions within the company. Wiig concurs with the definition and purpose of this system but refers to it as a “knowledge inventory system”.<sup>117</sup> When an organisation applies this system management it will be able to:

- Identify how it can be made available to all who can use it.
- Safeguard it to avoid that it falls into inappropriate hands.
- Maintain, refine and improve it, so that it can be passed on to new generations of expertise.
- Explore if it can be transferred to other common markets.
- Most companies make use of the Intranet for accessing this information. Accessing the same information via the web has proved to be much more effective because of the various skills that organisations can tap into.<sup>118</sup>

### **3.11 The Role of Collaboration Technologies**

Collaboration technologies are about sharing knowledge or information. In order to understand how they function with regard to the sharing of knowledge it is necessary to differentiate between two types of knowledge. Knowledge is described as explicit or tacit. When knowledge is explicit it is said to be found in books, manuals or in other written documents and therefore easily shared or articulated because it is encoded. However tacit knowledge is derived from experience and action. In addition to what tacit knowledge is; Smith contends that “tacit knowledge is subconsciously understood and applied, difficult to articulate and usually shared through highly interactive conversation, story telling and shared experience”.<sup>119</sup> Taking from Nonaka et al, Smith writes that even though knowledge must be internalised and made tacit to be truly understood and applied to practice, it is best shared, conveyed or combined among communities of practice by being made explicit. This is in essence the process of knowledge conversion from tacit to explicit in the diagram referred to in the third chapter of this thesis. It should also be born in mind that the internalisation process also takes place with regard to explicit knowledge when it is changed to tacit knowledge and reapplied into practice.

---

<sup>117</sup> Wiig, K. 1995. p295

<sup>118</sup> Becerra-Fernandez, I. Gonzalez, A. & Sabherwal, R. 2004. pp 301-308

The different nature of knowledge as displayed above requires a well-planned and co-ordinated approach. The process of sharing tacit knowledge will be more effective in a face to face environment where communication will be expressive and interactive. This can be done through demonstration, story telling and sharing of experiences face to face and video conferencing. On the other hand explicit knowledge sharing requires interpretation and normally every one has his/her own interpretation about what he/she has read, or seen, or done. In this respect communication modes such as electronic mail, computer conferences and shared electronic repositories of explicit knowledge are the way to go when sharing knowledge. Also note that the designing of data bases is relevant for explicit knowledge. The usefulness of collaboration technologies is notable when it can assist in structuring and co-ordinating the interaction between community members so that learning and sharing can be maximised.<sup>120</sup> Skyrme simplifies the above discussion by listing what he calls five overlapping roles of collaborative technologies. These are:

- A knowledge connector – they connect people to information and people to people.
- A tool for improved communication – communication knows no boundaries; people communicate with each other throughout the world. Conversations are recorded as organisational memory.
- Access to information repositories – From a single point an individual can access gigabits of comprehensive information.
- A vehicle for active knowledge exchange – conferencing facilities both synchronous and asynchronous, allows workers to share knowledge and collaborate in its ongoing development.
- An alternate to conventional meetings – meeting support systems captures additional knowledge in face to face settings. GroupWare lets participants contribute to virtual meeting at times and places of their choice.<sup>121</sup>

### 3.12 Overview of Available Collaborative Software

---

<sup>119</sup> Smith, D.E. 2000. p304

<sup>120</sup> Smith, D.E. 2000. p305

<sup>121</sup> Skyrme, D.J. 2000. p90

There are many companies that provide applications software in particular collaborative software, around the world. The software can be easily purchased through the Internet. Companies offer hosted collaborative software. This means that the software is rented on a monthly or yearly basis depending on the policies of that company. Some of the software that the researcher came across is discussed below:

### **3.12.1 Outlook Connector for MDAemon**

Alt-N Technologies is an applications software service provider that offers collaboration software through its built-in web mail. Server of domain enables the connection to its software. The company claims that there is no need to upgrade the hardware of your computer in order to accommodate installation. Available features of software include, e-mail, calendar with free scheduling, address book, distribution lists, tasks and notes spaces.

### **3.12.2 InforPort**

The InforPort collaboration software is viewed as an online enterprise portal or an Intranet because it caters for information sharing within the organisation only. Its applications include meeting calendars, scheduling, product catalogues, statements of company policies and information that the company may deem necessary can also be posted on the web. There is no extra hardware and maintenance costs involved its installation.

### **3.12.3 CoMMbits**

CoMMbits is also an applications service provider (ASP) for collaborative tools. CoMMbits does not need server software for its application. The only thing needed to run the software is a web browser. This is also hosted software. The services provided by CoMMbits include Group calendar, (e-mail), Contact manager (address book), administration tools and Developer tools – applications programming.<sup>122</sup>

### **3.12.4 NotWired**

NotWired is an ASP for mobile applications. For its functioning Internet web browsers are used. There is neither software installation nor Information Technology (IT) staff

---

<sup>122</sup> CoMMbits. 2007. p1-3

required for its functioning. The software is rented or hosted via the web. NotWired's features include group calendars and scheduling meeting space and contact management.<sup>123</sup>

### **3.12.5 WebEx WebOffice and Groove Virtual Office**

WebOffice is an Internet based collaborative software. No software downloaded for its operation. Its marketing web site claims that it is easy to set up. It has built-in e-mail features that allow team members to share documents and exchange ideas. Groove Virtual Office is an opposite of WebOffice. Groove Virtual Office requires software installation. The software packages have the ability to let a group share files, manage projects and meetings and track data from a central position<sup>124</sup>.

### **3.12.6 Collaborative Tools Available on the Open Source Initiative**

There are various other collaborative tools available on the Open Source Initiative (OSI). "The Open Source Initiative is a non profit corporation dedicated to managing and promoting the OSI products". The products are certified and licensed. They are available for free. Examples of collaborative tools available on the Open Source Initiative include:

1. *Collaborative Portal Server (CPS-Projects)*: Is collaborative software that has characteristics ranging from web content management, document management and workflow business process management. This software is available at <http://www.cps-projects.org>
2. *TWIG –WEB –Based GroupWare* Application software has features like e-mail; content management scheduling and bookmark management system. TWIG-Web stands for The Web Information Gateway. It is available at <http://directory.fsf.org/TWIG.htm>.

CPS Projects and TWIG- WEB could not be tested due to problems encountered with installation.

## **3.13 Conclusion**

There are two ways to look at this study as it unfolds. Firstly, besides the introductory part on the nature of knowledge management, this discussion has gone into extensive details about the nature of communities of practice. Providing amongst other things how CoPs

---

<sup>123</sup> Notwired. 2007. pp1-2

<sup>124</sup> Marotta, L. 2006. p1-2.

differ from other structures, learning within the context of communities and their value to the organisation as a whole. The second part of the discussion provided more information on knowledge management collaborative tools, the various types of collaborative tools including knowledge sharing systems like the best practice databases and lesson learned databases.

# CHAPTER FOUR

## Research Methodology

### 4.1 Introduction

Chapter four contains a description of the qualitative methods approaches that were used for conducting the research. The techniques for data collection that include interviews, observation and the focus group interviews are debated in this chapter. The discussion starts by explaining the nature of qualitative methods and its applicability to this research. Also highlighted is the role of the researcher, the pre-research process and the procedures used for carrying out the research, and then the techniques for data collection.

### 4.2 Qualitative Research Approach

In consultation with the research supervisor, a qualitative research approach for this research was deemed appropriate; because of its purpose. The researcher has also considered the costs that would be involved if quantitative or mixed methods were used. For instance qualitative approach did not need a huge sample as would have been the case with quantitative research. The focus on qualitative research is on the phenomenon that occurs in natural settings<sup>125</sup>. It is about understanding the social phenomena from the viewpoint of the participants. During the research period the researcher spent some time at the sites with the participants.

According to Creswell, qualitative research is an approach that considers multiple meanings of individual experiences on the issue at hand for the reason of developing a theory. This also means that reality is constructed by individuals and the researcher's participation in the daily lives of people being researched.<sup>126</sup> In this research the multiple realities that exist are provided by:

- The researcher

---

<sup>125</sup> Leedy, P.D &Ormrod, J.E. 2005 p

- The educators as participants
- And the reader or audience interpreting the research.<sup>127</sup>

Although multiple meanings are given, the research strives towards providing a single answer to the problem of not collaborating when it comes to lesson planning. The research should be able to provide a single answer to the problem of workload currently experienced in multi-grade schools.

### 4.3 Characteristics of Qualitative Research

Qualitative research is described in various ways by many authors. These descriptions relate to the way or the processes of conducting qualitative research. According to Oka and Shaw some of the characteristics of qualitative research include the fact that the meanings are generated from inside, there is direct contact with the participants, and the analytical inductive approach is employed.<sup>128</sup>

#### 4.3.1 Meanings from the Inside.

In order for the researcher to be able to ascertain the needs of rural educators various probing questions had to be asked from them. An understanding about how they do their planning for instance came under the spotlight. What are the challenges they come across when planning their work? Do they feel that online collaboration can partly solve some of their problems? These are the kinds of questions that generated meaning from the participants.

#### 4.3.2 There is Direct Contact with the participants

Whilst quantitative researchers are able to outsource their work, by hiring fieldworkers to collect data for them, using questionnaires, the same cannot be said regarding qualitative research.<sup>129</sup> The nature of qualitative research is such that the researcher is in direct contact with the people he works with for the duration of the research. There were face-to-face interviews at the research sites.

---

<sup>126</sup> Creswell, J.W. 2003. p18-19

<sup>127</sup> White, C.J. 2005. p81

<sup>128</sup> Oka, T. & Shaw, I. 2003. p2-3

<sup>129</sup> Oka, T. & Shaw, I. 2003. p3

### 4.3.3 Analytic Induction

When a researcher embarks on a research project he or she has no clue as to how the conceptual framework will look like and merely uses a general or vague hypothesis to guide the process.<sup>130</sup> Things become clear after the data has been collected. It is also crucial to note that the research questions were changed or revised because of the changing circumstances. The data are analysed by means of inductive abstraction and generalisation. An analytic inductive approach is concerned with taking into account all aspects of the case. Hence each case was dealt with individually. An inductive approach allows research findings to emerge from the frequent, dominant or significant themes. Then a relationship should be found between the research question and the emerging data. The same process was repeated in all the cases.

Creswell further provides the characteristic nature of qualitative research below:

- Qualitative research employs strategies of enquiry such as phenomenology, grounded theory, case study and narrative.
- The use of open-ended questions, emerging approaches, text or image data are some of the things that come into play during the process of data collection.<sup>131</sup>

This researcher seeks to understand the phenomenon of a lived experience, where participants share experiences on a chosen topic or phenomenon.<sup>132</sup> In this case the feeling of being brought to an online group discussion was put into perspective. The research looked at the attitude of the participants.

## 4.4 The Role of the Researcher

It is the aspiration of the researcher that the process of research should come to fruition, but what precisely must the research do to ensure the process moves in the right direction?

The functions that the researcher chose included:

- Taking the meanings provided by the participants into high regard.

---

<sup>130</sup> Poggenpoel, M in De Vos A.S. 1998

<sup>131</sup> Creswell, J.W. 2003. p18-19

<sup>132</sup> Law, M et al. 1998. p2

- The main focus, based on the single concept of testing the software.
- Providing some experiences into the research about the context or setting of the participants.
- Ensuring that the data was interpreted and also validated the accuracy of the results<sup>133</sup>.

There are various other characteristics of a qualitative researcher suggested by White. For instance he looks at the researcher as someone who should look at people and settings holistically, study the context of their past and their present situation. Researchers are also sensitive about the effect they have on people they study. This he shows by conducting his interviews informally.<sup>134</sup> It must be noted that all interviews that were conducted were informal and unstructured. Details of the interviews are provided on the next pages.

On a more specific level the role of the researcher has been to steer the research process towards the attainment of the research goals. The process in this regard has been characterised by three steps in which the researcher has been heavily involved. The process, included: the preparation process, the actual research process, and the analysis and presentation of results processes.

## 4.5 The Preparation Process

The pre-research process sets the tone as to how the research process will culminate. There were many issues that the researcher had to deal with before the actual research process took place. Amongst the things to do, was to apply for permission to conduct research in schools. The application was approved within a period of three weeks. The preparations were mainly concerned with connecting the participating schools to the Share Point site.

### 4.5.1 The Reason for Choosing to Test Share Point

Share Point was introduced and suggested to the researcher by the research supervisor. The process of choosing suitable software also took into consideration systems requirements. Hence it was of paramount importance to provide an overview of

---

<sup>133</sup> Creswell, J.W. 2003. p19

collaborative tools available in the market, and what each tool entails. Share Point is a product of Microsoft and that implies it can be installed on any computer that is running on Microsoft Windows operational software. All the schools that were part of the project were making use of Windows operational software.

#### **4.5.2 What is Share Point?**

Share Point is described as collaborative software that provides central storage and collaboration for documents, information and ideas.<sup>135</sup> Further explanations on Share Point are explained as the discussion progresses.

#### **4.5.3 Finding Share Point**

The first step towards testing Share Point was to find Share Point itself. The process involved setting up an Internet research strategy that took some days. There are various Internet based companies from where software and other technological based services can be purchased. Some companies are locally based and others are international. The first website that was targeted was Microsoft. The Microsoft products were more relevant because all schools' computer systems were running with a Microsoft Windows based operating system. Share Point was found on the website with a trial run period of three months. Unfortunately the researcher was unable to connect and run a test on that software because of technical problems. The software requirements were that Share Point software would be installed in one of the computers that were used. This meant that more space to accommodate Share Point would be required. This also meant that such a computer would be a server. It was not possible to upgrade a computer to such a capacity due to costs involved.

This process took the researcher to another level of searching for a suitable and appropriate Share Point to be tested. There is one type of Share Point, but there was Microsoft and APPTIX that were offering free trial test run for people who would like to test and may be buy the product. APPTIX is a Microsoft partner that deals with the selling of collaboration and messaging software. The products of this company were Microsoft approved. Due to that alone this software was found suitable. Also more importantly the

---

<sup>134</sup> White, C.J. 2005. p86

<sup>135</sup> APPTIX [www.SharePointsite.com](http://www.SharePointsite.com)

Share Point services were hosted. This meant that there was no need to look for a server computer, because the server was with APPTIX Hosted software<sup>136</sup> means that the client rent the software from an online service provider. The trial period for testing APPTIX Share Point was for a month. The period was short but it was optimally used. Choosing APPITIX Share Point was also more appropriate because:

- The company offered technical support even if you were on a test run period.
- They also provided an easy step-by-step guide for the construction of the Share Point site.
- There was also a provision of templates for designing the website.
- And most importantly there were no requirements for server installation as APPTIX hosts the Share Point Software.

#### 4.6 Registration of Share Point Site

The next step for the acquisition of Share Point was registering with APPTIX. For that to take place a person needed to have an e-mail address where they could send the password for logging as well as details on how to register your website. No problems were experienced for the registration of Share Point site for the schools. The Share Point site was registered as follows: <http://www.southcapeschools.sharepoint.net>. The name of the site ensured a sense of belonging amongst the participants. The researcher observed that the participants could relate to the site as their own, because when they were told about the end of the trial run period, some of them kept on saying it should be revived.

After registration, it was time to log in as shown in figure 4.1 below. The username and the passwords were generated by APPTIX and sent to the registered participants via e-mail. This process ensured confidentiality in the use of the password. Not even the administrator or researcher had access to the various participants' passwords. On receiving the password a participant had two options: Keep the password and use it as it was or change it to suit one's memory. In this respect the researcher advised the participants to opt for changing the passwords to be user friendly. Examples of passwords

---

<sup>136</sup> The advantage of hosted software is that no server is required for its installation. There is also technical support provided by some of the service providers.

generated by computers were like this one: Zm%~\*”. These characters proved to be very difficult to work with due to their unusual nature.

Problems encountered during the first login period were mostly associated with the requirements for accessing Share Point. The schools experienced minor problems. These problems were dealt with without any hassles. One of these problems related to the upgrading of the Internet Explorer web browser to the latest version or the installation of Fire Fox Mozilla. Schools that experienced major problems were just informed of Share Point and therefore could not participate.

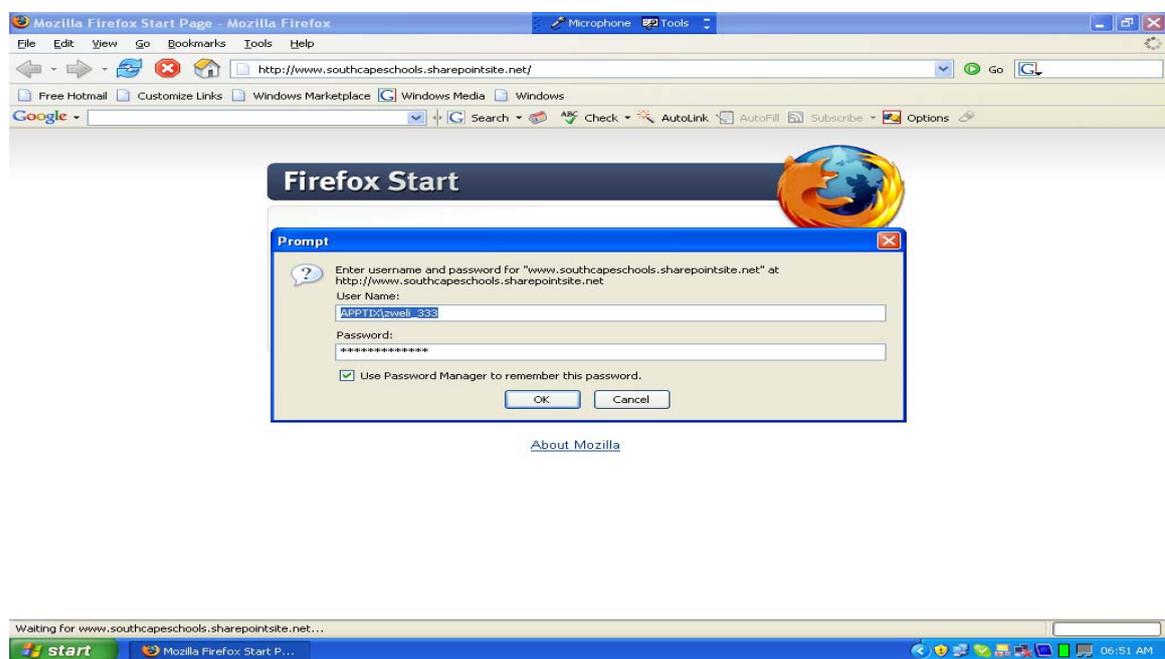


Figure 4.1

#### 4.6.1 Site Theme

There are various themes available on the Share Point site. A site theme is a topic or main idea. The purpose of the theme is to tell what products or services are available on the website. As far as this was concerned the researcher chose a theme with features that were going to be easy to configure. The researcher did not for instance choose a theme with features of teleconference, because the schools did not have facilities that related to this aspect. Basically the site included a space for sharing documents, another space for team collaboration. There was also a space for announcements as well as links to other web sites.

The picture below illustrates how the researcher went about choosing a theme for the site:

There were various themes to choose from as can be seen from the picture below. A list of site themes appears on the right hand side.

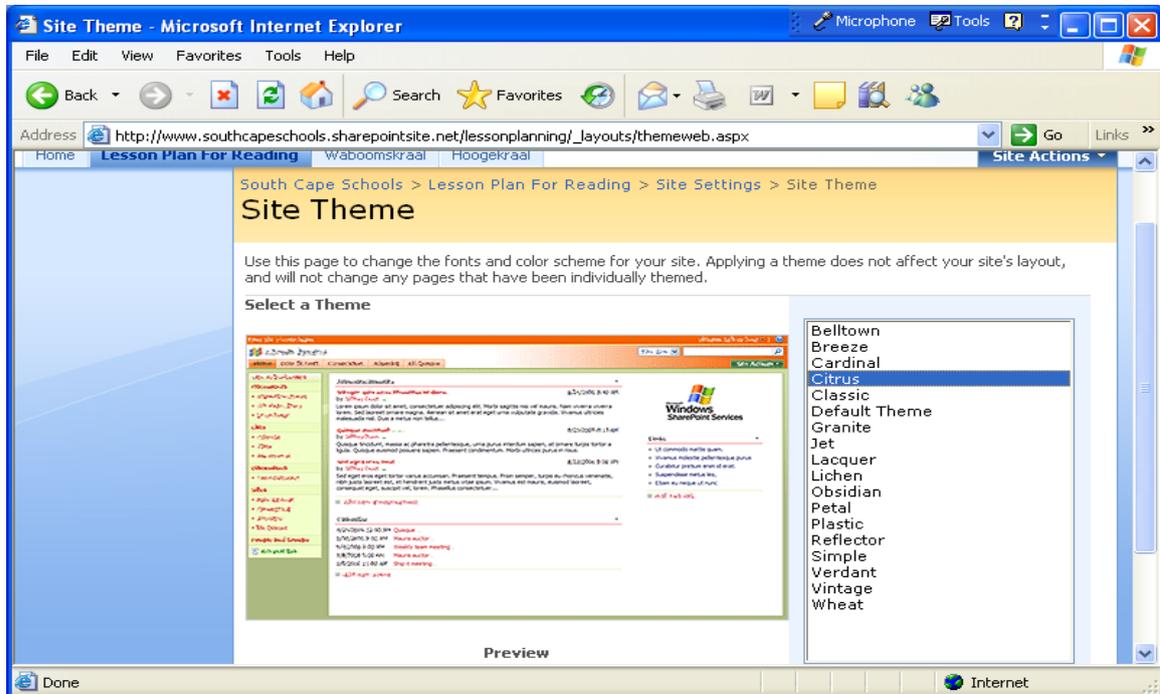
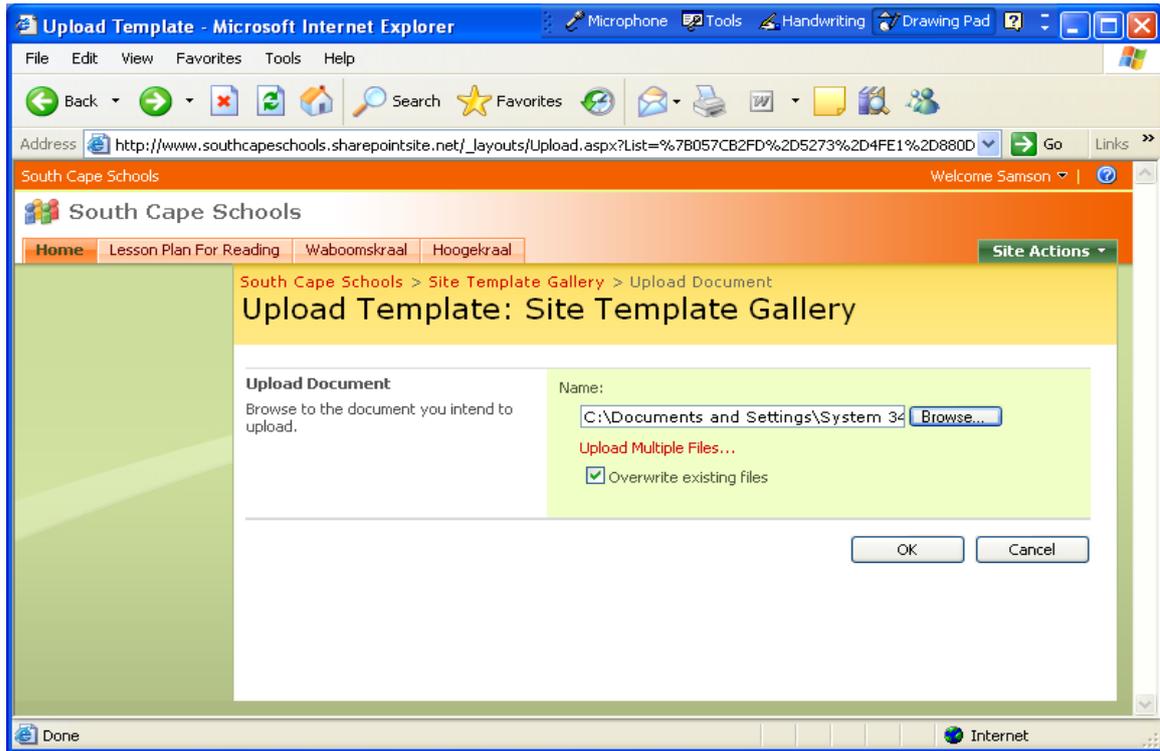


Figure 4.2

The researcher as an administrator was responsible for choosing how the site should be constructed. This was done by following the instructions, on the APPTIX Share Point guide. The instructions were as follows:

- From a list of templates, the one that was needed was chosen for implementation and downloaded. All templates from the Microsoft website were ready for download and saving on the computer.
- In order to make use of the chosen template, double click on the programme file and extract the template to “My Documents” as a location of you choice.
- The chosen template was then installed to Share Point. This process was done by logging to the Share Point site



**Figure 4.3**

Seen above is the process of uploading a site template from the templates that were saved in the file “My Documents”.

#### **4.6.2 Adding Users to the Site**

Adding users to the site was mainly the function of the researcher, but the process of adding users was also shared with the participants. Many users were added to the site because there were several colleagues who showed interest to what was being done with Share Point. These colleagues were not part of the research process and were not interviewed by the researcher.

Only two curriculum advisors were fully involved. Adding users to the Share point site is a step by step process as shown below:

From the top navigation bar Site Settings was chosen.

1. Then Site administration
2. From Site administration to manage users.

3. Users were added by clicking “Add Users”.
4. An e-mail address of the chosen user was added and if necessary an e-mail message of invitation was typed in.

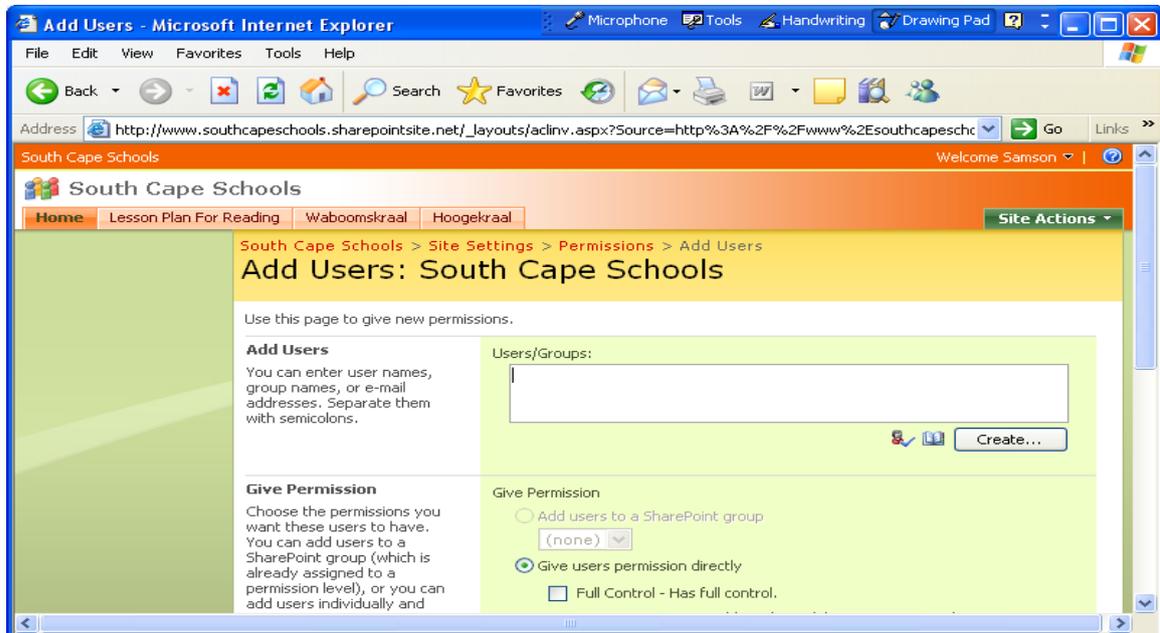
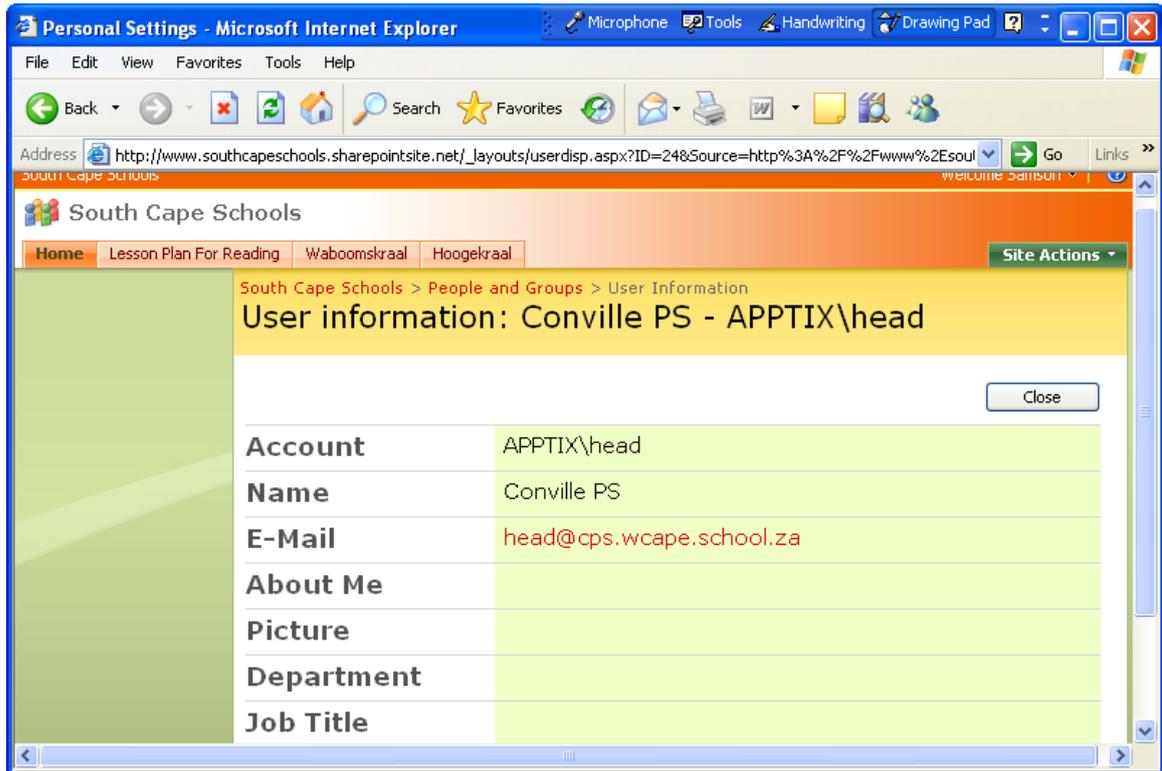


Figure 4.4

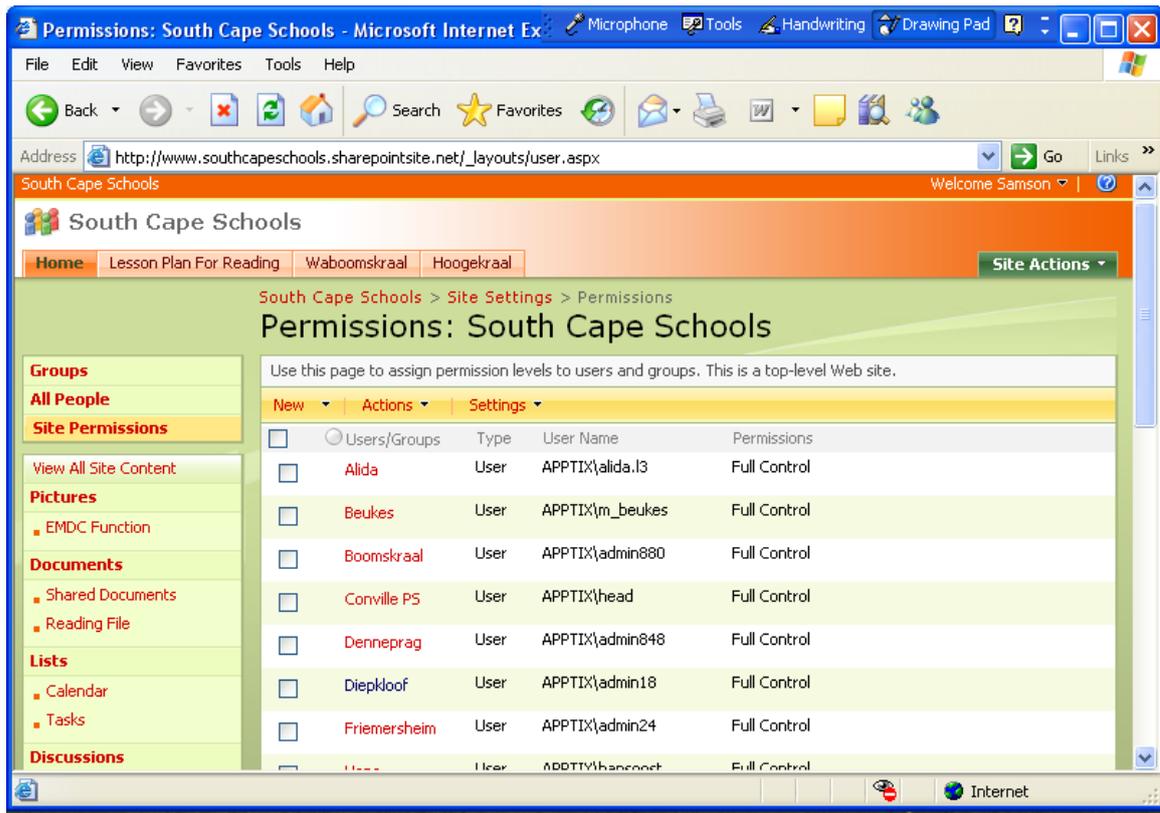
Users are added according to the manner shown in the picture in figure 4.4. By clicking, “create” the picture below appears and then an e-mail address of the user or group of participants is entered



**Figure 4 5**

The picture in figure 4.5 above indicates the details of the user that were entered. The same information is sent via the invitation e-mail sent to the participants. Also note that the password of the participant is not shown with other details. The fact that the password was unknown to the researcher ensured credibility to the study because the researcher was in no position to log in to the system using some of the participants' passwords. On the contrary a problem that was experienced by the participants was that in some of the invitations<sup>137</sup> generated via the computer there were no passwords. These problems were resolved by deleting the current details of the participants and replacing them with new ones.

<sup>137</sup> Information on the letter of invitation from the Share Point Site includes an address created for the collaboration project, a username, a password with permission rights. Further information is an explanation of what is Share Point. The researcher asked the participants to read the statement that explains Share Point.



**Figure 4.6**

When adding users or participants to the system, it also allowed you to assign permission of usage levels. In this research all participants were given full control of the programme. Full control meant that the participants had a right even to change the theme of the website. This kind of situation could have been risky if the participants were conversant with website design, but since the researcher was aware of the computer literacy levels of the participants, the risk did not bring any harm to the process. The following levels of permission were available.

- Viewer rights only – Could not take part in the programme.
- Contributor – Could add or upload documents.
- Administrator – The administrator rights to the programme were almost equal to that of a full control person, but the duties of the administrator related more to content management within the programme. The administrator could also add users.

- Full Control person was tasked with the setting up of the programme changed features like the theme. Uploaded templates and managed the workspaces.

#### **4.6.3 Removing Users from the Site**

Whilst the screen above illustrates how to add users and the types of permission rights assigned to users of the Share Point site, it is also important to look at a process of removing users from the site. Users were removed from the site because they either claimed the system did not generate passwords for them or they deleted the e-mail containing passwords by mistake. Steps in the process of removing users included:

- Choosing site settings
- Then site administration
- And then delete or remove selected user.

#### **4.7 Project Plan and Execution**

- The participants were first asked to log in.
- View the contents of the site and noted them down.( Contents of the site are discussed in the next section)
- They were asked to look for any documents of interest they typed during the past month and upload them on the site.
- Add announcements.
- Surf the Internet using the links provided on the website.
- Contribute to the reading file by uploading documents of interest.
- Join a discussion on reading on the discussion space.

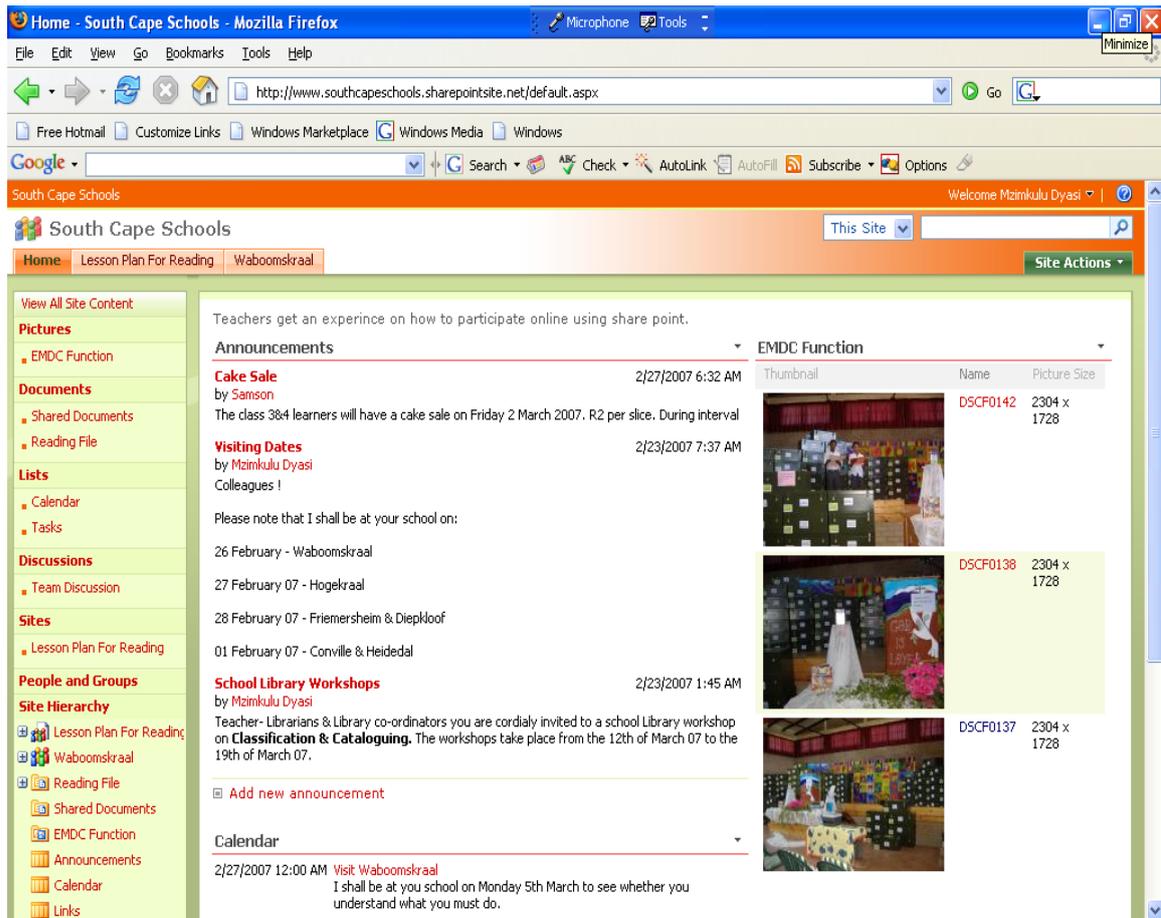


Figure 4.5

### 4.7.1 The Home Page

The home page shows what other pages are available on the Share Point site. The home page is also the first entry point from which to access other site contents. The participants were trained to understand the home page more than any other part of the website, because it is the gateway to all the other parts of the website. The name of the website is also displayed on the top left side of the website. Other menu groups are also displayed horizontally on the far left-hand side of the website. Even though there are many item menus on display, the researcher preferred to emphasise a selected few that concern the research. This also helped the participants to have a quick grasp of the process. These menu parts are also shown on the next page:

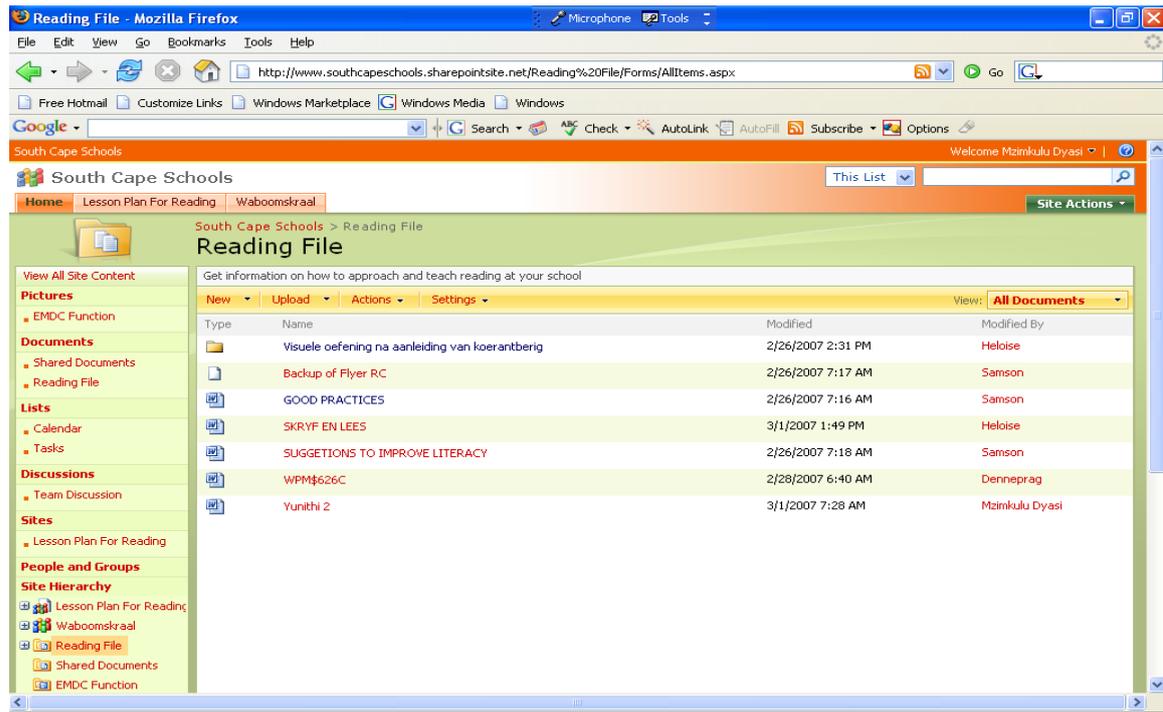


Figure 4.6

## 4.7.2 The Reading File

One of the most important features of Share Point is that it is a document management system. The Reading File is part of the section “Shared Document”. It presented the participants with a kind of “Document Library”, where they could access documents they can refer to when planning reading lessons. The participants were asked to view the documents and even download them for use in their classrooms or when planning their lessons. The participants were also asked to share their own documents by uploading them onto the existing file. This part of the menu was the favourite, the participants viewed and downloaded the documents and they also informed the researcher how they liked the documents they found. The participants also remembered some documents they received from workshops they attended in the past. Curriculum advisors who acted as content administrators to the website uploaded the documents. The participants confessed that they did not know where they filed their documents and having this programme will ensure that they get their documents when they need them.

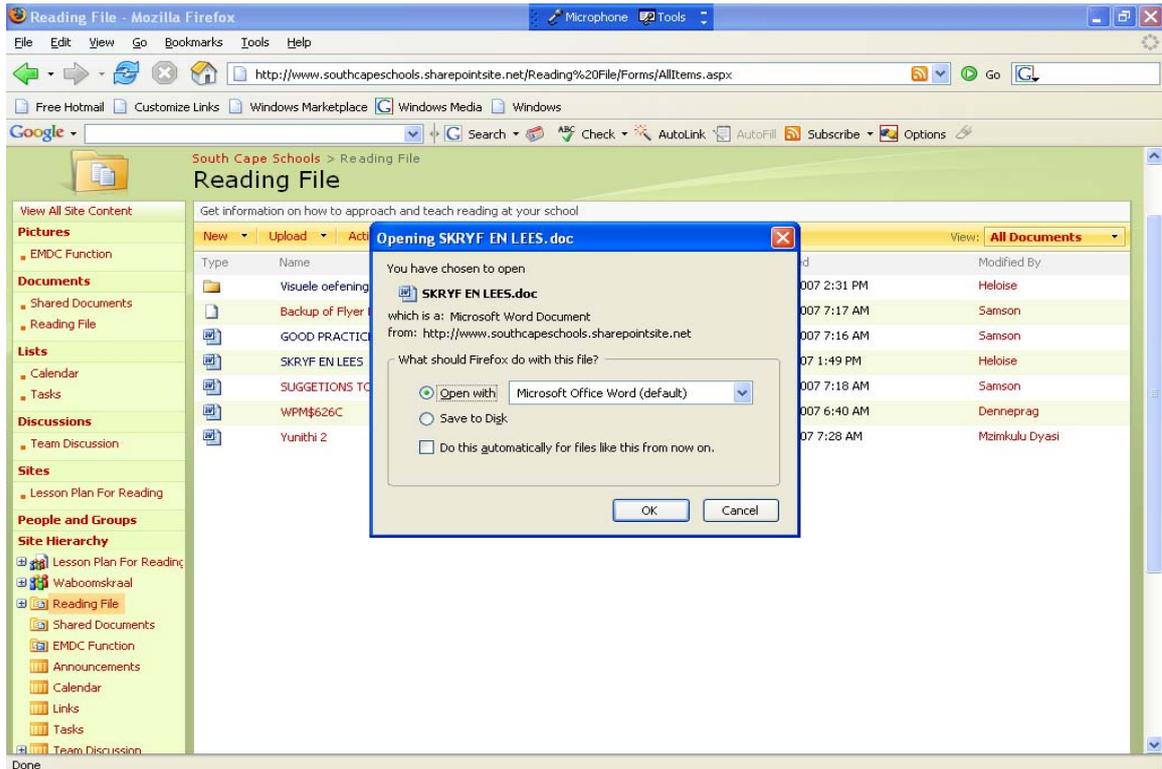


Figure 4.7

The picture above shows one of the selected documents ready to be opened. A participant had an option of opening the document from its current position or save it to a chosen position in her computer. The screen below shows an open document.

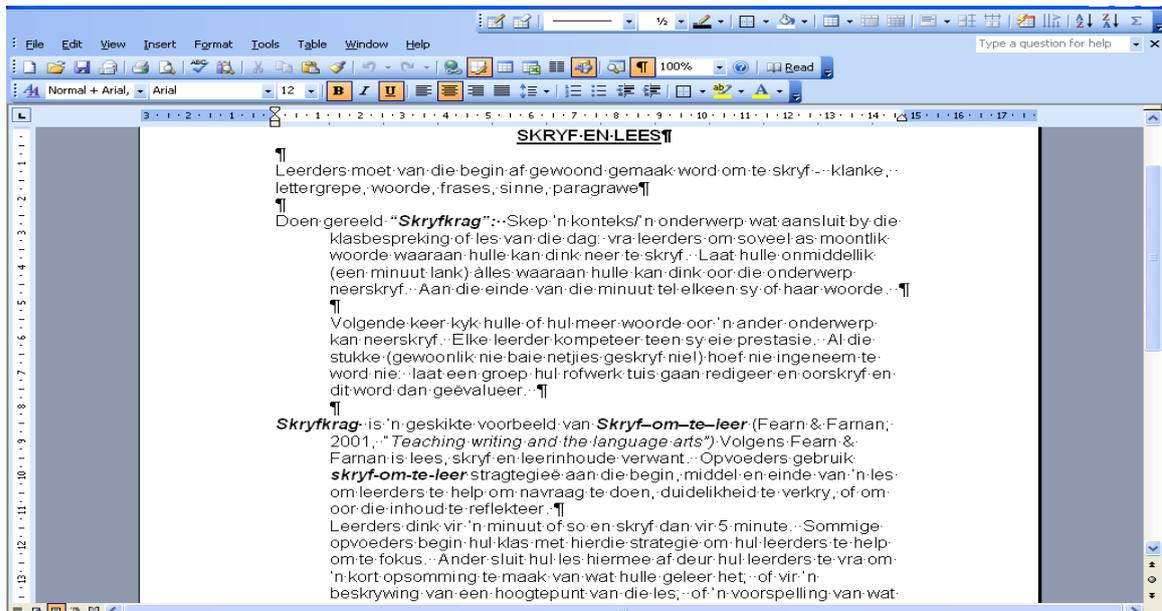


Figure 4.8

### 4.7.3 Team Discussion

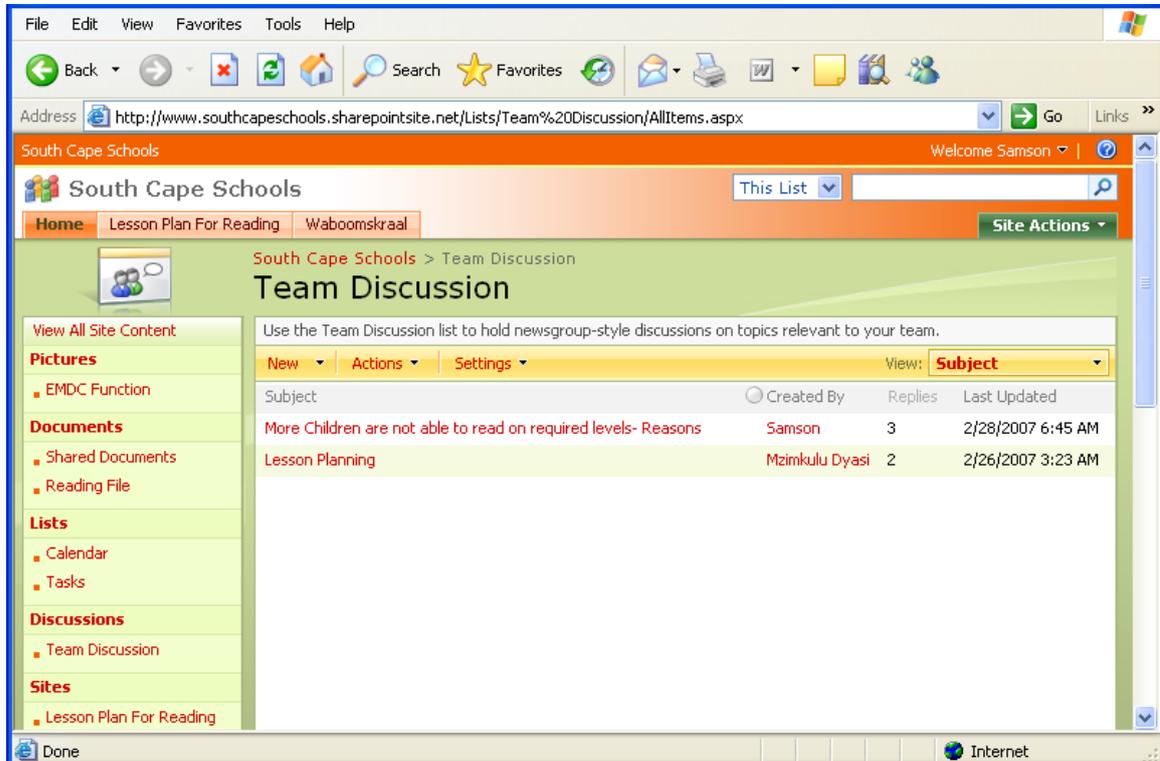


Figure 4.9

The team discussion space is a space dedicated for group discussions. The participants were informed of the purpose of the space and were also shown how to log in and work in it. It was easy to describe this space by saying; it is a chat room. To participate in the team discussion, the participants had to click on a subject provided. A discussion space then appeared and they then provided their own reply to the discussion. Alternatively they were allowed to click on new and create their own topic of discussion.

The screen below shows what transpired during the team discussion sessions. It shows a participant responding to a topic available for discussion.

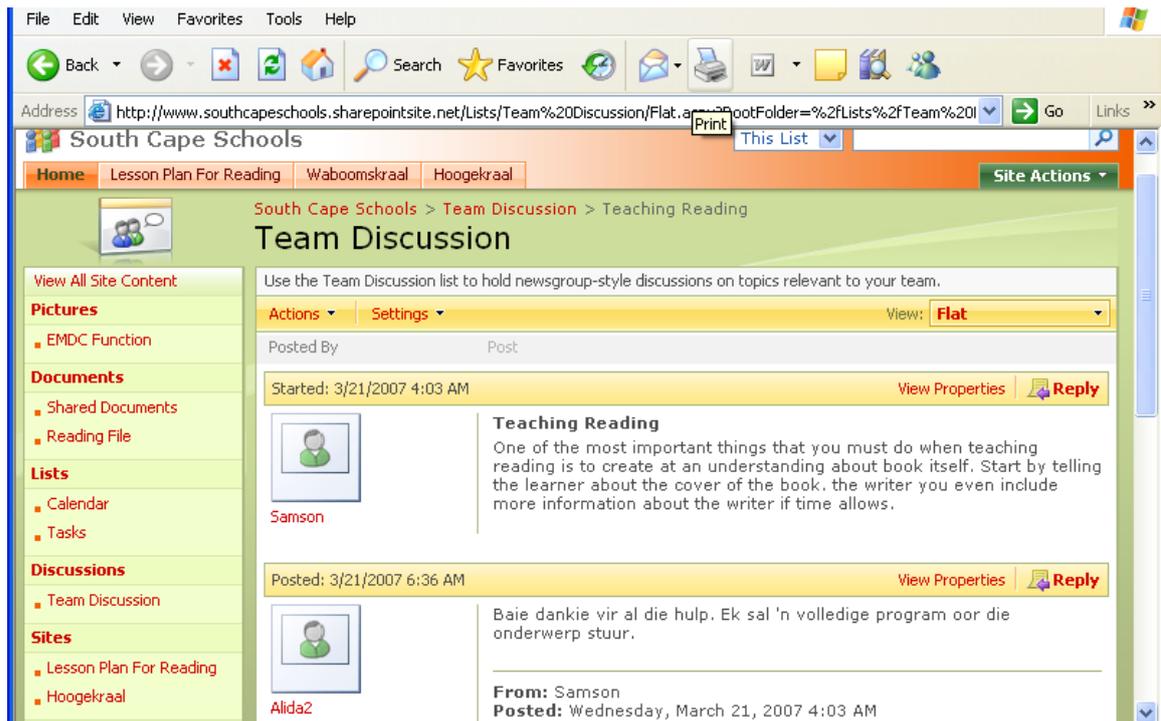


Figure 4.10

## 4.8 The Research Process

The actual research process contains the process of choosing the participants, the description of the participants and their surroundings. The process of data collection is described in this section.

### 4.8.1 Gaining Access to the Research sites

All schools in the district are under the jurisdiction of the Western Cape Education Department (WCED). According to departmental regulations persons who wish to undertake research in schools should request permission from the Education Research Directorate in Cape Town. Permission for conducting the research was granted. On receiving it, the school principals were contacted by telephone first and then a written request was also sent to them. The researcher did not really divulge the purpose of the study. The researcher felt that if he informed the schools about the purpose of the study, fewer co-operations would be attained, because educators always complain about workload. The researcher was aware that the educators were very busy and would not easily agree to be part of the programme whilst at the same time they were required do their work.

#### **4.8.2 The Research Sites**

Personnel in multi-grade schools were very few. The number of educators per school was between two and five educators. Other schools had teaching assistants<sup>138</sup>. For instance MGS 2 had four educators and one teaching assistant. Some multi-grade schools did not have teaching assistants yet. These schools are found far from towns and cities. Learners' homes that attend multi-grade schools are also dispersed throughout the areas of the various farms situated next to each other. As a consequence to this learners are transported to schools by buses on a daily basis. Immediately after school they are taken back to their homes. There are few opportunities of engagement with their learning environment, as the educators also rush home after school, because they do not stay close to the school.

#### **4.8.3 Sampling Procedure**

The sampling procedure that has been chosen is a purposive one. Leedy and Ormrod describe a purposive sampling procedure as one that can yield the most information about the topic under investigation.<sup>139</sup> The researcher sees this type of sampling as being appropriate because it is in line with the purpose of the research, which is to investigate how rural educators collaborate online. One of the criticisms of the purposive sampling procedure is that it relies more heavily on the judgement of the researcher. Due to this it can be biased. The researcher took an active approach of eliminating bias due to non-response by including a control group in the sample. There were thus three public ordinary schools added to the sample of the research. The purpose of the control group was to ensure an adequate size of the sample should non-response occur. According to Leedy a qualitative research sampling procedure allows no room for generalising the findings of the research.<sup>140</sup>

---

<sup>138</sup> The Department of Education is in the process of providing teaching assistants to all the schools in order to address the issue of workload at schools. The function of teaching assistants is not to teach but to assist the educators in their administration work.

<sup>139</sup> Leedy, P.D. & Ormrod, J.E. 2005. p145

<sup>140</sup> Leedy, P.D. & Ormrod, J.E. 2005. p145

#### **4.8.4 The Participants**

The characteristics of the population are that the educators are teaching two or more grades in a classroom at the same time. They have been trained in the practice of the new curriculum. These educators are also geographically dispersed and therefore, they have little or no opportunity to interact with educators in towns and cities on issues of curriculum development and planning except once in a while when curriculum advisors call them to a meeting. Two curriculum advisors took part in the research and the pilot study. One was the advisor for the Foundation Phase; one was the advisor whose main focus is Literacy in schools. The role of the curriculum advisor in this project was to add value to the research. Curriculum advisors are one of the most important role players in schools when it comes to communication and collaboration. One of their roles is to establish cluster groups through which the educators can network. It was therefore important to pilot this study with them and also find out how they felt about Share Point. In most cases the curriculum advisors acted as the administrators of Share Point. In essence their role was to provide documents that the educators could share.

Initially ten multi-grade schools were targeted for the research, but due to a lack of time and the distance that had to be travelled, it was not possible to involve all the schools. MGS 3 for instance was visited once. However, there was constant communication between the educator involved and the researcher. The educator had Internet access at home and could easily log in. It is also important to mention that two of the five remaining schools that did not take part in the research could not be connected to the Internet because of technical problems. The researcher visited a total of seven educators from the five multi-grade schools that were part of the research. The multi-grade schools in which the field research was conducted are the following:

1. Diepkloof Primary
2. Denneprag Primary
3. Hoogekraal Primary
4. Waboomskraal Primary.

In the public ordinary schools six educators were involved from three schools. They were all foundation phase<sup>141</sup> educators teaching grade three. It was important to limit the number of educators that took part in the research due to a lack of appropriate computers with Internet access. One computer per school was available for accessing Share Point. The other reason is that there was no time to show and teach the more than forty Foundation Phase educators of the three big schools how to use Share Point. The work that was shared online with the rural multi-grade schools was only grade three activities. The following public ordinary schools took part in the research:

1. Conville Primary
2. Heidedal Primary
3. St. Paul's Primary School

#### **4.8 5 The Credibility of the Participants**

Credibility of the participants in this instance refers to whether the group selected meets the criteria according to the objectives of this research. In the first instance, it should be remembered that the purpose of the study was to foster a culture of collaboration among rural schools' educators and also share information with educators in urban areas. All the educators that took part in the research were qualified teachers. They were also exposed to the new curriculum.

#### **4.8.6 The Unique Characteristics of the Participants**

The participants were all female educators because it is very rare to find male educators in the foundation phase. In the multi-grade schools the participants are all responsible for teaching grades one to three. In the public ordinary schools, only grade three educators were chosen for the research. This was done to control the number of participants. Planning sessions took place at least once a week. After that communication on curriculum related issues were rare. Over and above their teaching duties, the participants were responsible for extra –mural activities at school. Two participants from the multi-grade schools stayed in the community where the school is based. The rest of the educators stayed in nearby towns.

---

<sup>141</sup> A Foundation Phase level consists of the first three years of schooling from grade one two three. Under normal circumstances it would also incorporate grade 0, but in South Africa grade 0 does not form part of

#### **4.8.7 The Level of Participation**

The test run for Share Point was done twice. The first round took place during August – September 2006 and the second round was during February-March 2007. During the first round only the multi-grade educators were involved. In consultation with the research supervisor this sample was extended to include the public ordinary schools in the urban areas. The sample was extended to ensure more participation and collaboration. Comparatively speaking educators who took part in the first round were more involved and were also more aware of what should be done. The scenario prompted the researcher to think that the research would have been more meaningful if it was conducted over a longer period, but due to a lack of resources and time constraints this research could not be extended.

#### **4.8.8 Data Collection Methods**

Qualitative data collection methods are mainly about interviews and observations. These methods focus on the process, meaning and understanding of the problem at hand. Other important aspects of qualitative methods relate to how participants respond to the questions and formulate their own understanding of the situation. In addition the researcher also plays a crucial role in describing the context and setting of the research process. The qualitative researcher looks into the nature of a problem holistically and therefore needs an approach that will unveil all the underlying issues pertaining to the problem.<sup>142</sup>

#### **4.9 Interviews as Informed by Literature**

The principal means of data collection in this research was the interview. An Interview is a process in which the participant provides the researcher with information through verbal interchange or conversation. It is important that the researcher take note of the non-verbal behaviour and the context in which the interview takes place.<sup>143</sup> There are different kinds of interview approaches that the researcher may employ. They are a structured, a semi-structured and unstructured interviews.

---

the normal school yet.

<sup>142</sup> White, C.J. 2005. p86

<sup>143</sup> Laws, M. et al. 1998. pp4-5

### **4.9.1 Semi-Structured Interviews**

The semi-structured interviews are sometimes called guided interviews because the researcher prepares interview guides that consist of questions. The questions are not in a particular sequence. They are also not binding because the researcher is still at liberty to generate other questions as informed by the situation. This type of interview was viewed as the most appropriate by the researcher because he was able to exercise some flexibility depending on the situation. In some sites for instance the participants could easily understand how Share Point functions, whilst other participants needed more explanations.

### **4.9.2 Structured Interviews**

They are also referred to as standardised interviews, because the same types of questions are asked in the same order to different participants. Structured interviews are mostly used in quantitative research. The information received from structured interviews is mostly used to compare situations. All the interviews in this research were not structured. However a form of an interview schedule was used to elicit information from the participants.<sup>144</sup>

### **4.9.3 Unstructured Interviews**

The unstructured interviews are also known as informal conversational interviews.<sup>145</sup> They were mostly used during observations. The reason for that is that the participants were engaged in a practical exercise. It was fulfilling to interview and observe how they went about roaming around the Share Point site. Unstructured interviews are flexible because they allow the interviewee to ask questions as they wish. The space was also created for the participants to learn from the questions they asked. There are three types of unstructured interviews identified by Schurink (in De Vos).<sup>146</sup> These are:

---

<sup>144</sup> Oka, T. & Shaw, I. 2003. p5

<sup>145</sup> Berry, R.S.Y. 1999. p1

<sup>146</sup> Schurink in De Vos. 1998. p299-300

- Open ended Interviews.
- Unstructured Interviews with schedules
- In-depth Interviews.

#### **4.9.3.1 Open –ended Interviews**

The questions are pre-formulated and are carefully arranged and presented to all interviewees in a fairly similar sequence. The answers to questions are open ended, not the questions. The advantage of this type of interview is that the data is systematically received and that makes it easy to analyse. There is also no special skill needed from the side of the interviewer for conducting the interview.<sup>147</sup>

#### **4.9.3.2 Unstructured Interviews with a Schedule**

In this type of interview a research schedule is used as a guideline for the interviewer. The questions and themes contained in the schedule have no particular order. However the questions and themes are relevant to the topic covered. By using a schedule the researcher ensures that there is a system in place for the collection of data and this also helps the researcher not to forget the important aspects that should be covered. This type of interview is not different from what is called semi-structured interview discussed earlier.

#### **4.9 3.3 In-Depth Interviews**

The purpose of in-depth interviews is to provide the researcher with lived experiences. Taking from Frey and Fontana (1993) Schurink states that in-depth interviews involve numerous sessions with the same person and the information obtained could be categorised as “life histories”.<sup>148</sup> Of importance about in-depth interviews is that a holistic picture about the environment and the participants is created. The researcher also has the opportunity to explore interesting areas for further research.

### **4.10 Interviews during the Field Research**

---

<sup>147</sup> Schurink in De Vos. 1998. p299

<sup>148</sup> Schurink in De Vos. 1998. p300

In this research all individual interviews were conducted during the field trips. All three types of interviews were adopted according to qualitative research guidelines. The researcher did not use a formal questionnaire to be filled in by participants. However the researcher had an interview schedule that was used as a guide for conducting the interview. The schedule was not shown to the participants. It was kept for the sole use of the researcher.

The discussion below gives a background to the nature of interviews that were conducted during fieldwork to the various multi-grade schools.

#### **4.10.1 First Phase Interviews**

All the interviews that took place in phases were conducted with multi-grade educators mostly at their different schools. The first phase interviews entail much. They included telephone communication between the participants and the researcher. They were unstructured and also exploratory. The researcher used the opportunity for establishing links with the various participants. The purpose of the interviews was to find out whether schools satisfy the conditions for doing a test run with them. These interviews also occurred during the first physical visits to the sites.

After the interview a decision was then taken to show the participants how to use Share Point. Some of the questions raised related to:

- The number of educators at each school.
- The number of learners at each school.
- The number of grades taught.
- The number of computers with Internet connectivity at each school.
- The web browser and the windows operational system
- How and when are lessons planned?
- Whether they share information or lesson plans with educators at other schools.
- Whether they will agree to be part of the test run.

The questions were not asked according to a particular order, because all the questions were familiar to the researcher. The questions were rehearsed prior to the interviews. Another advantage was that by the time the researcher reached the second site all the questions were more familiar. In order to be able to undertake the research, it was necessary to know all of the above.

#### **4.10.2 Second Phase Interviews**

Interviews that occurred during this phase were meant to ascertain whether some problems occurred when the participants tried to log on. It was a crucial period because it also meant that the research ensured that the participants were really doing what they were supposed to do. A guided interview approach was adopted, also referred to as semi-structured approach. In this approach some pre-planned questions were prepared. The interview guide was not given to the participants. It was always in the hands of the researcher. Formalising the whole process was avoided because the researcher felt that, it would not have been proper to let the educators feel like their knowledge of the system was being evaluated by filling in a questionnaire.

Some questions that were raised during the interviews relate to:

- Did logging take place?
- If it did, how many times did you do it?
- Were there any problems experienced whilst working on SP?
- Were there documents uploaded on the reading file or announcements made?
- What is the feeling about sharing information online?
- Have educators used the Internet as a tool for seeking information previously?
- Was an e-mail facility used by educators previously?
- Are educators able to meet with other educators from other schools and plan together?
- Do educators attend cluster meetings?

- What is the feeling of working with other educators from other schools on planning lessons?

Some questions were asked whilst participants were busy working on Share Point. This had an effect of understanding what Share Point is about. The other questions were raised during tea breaks. In other instances participants would elaborate more on their working conditions. Although some issues have a direct effect on how they plan their lessons, these issues fell beyond the scope of the research. For instance the researcher was not in a position to provide every educator with a laptop for planning his or her work and collaborating online because this was not part of the purpose of the research.

#### **4.10. 3 Third Phase Interviews**

The third phase interviews were mostly conversational. They were unstructured. The researcher was on a mission to consolidate issues. The period was close to the end of the Share Point test period of thirty days. Some sites could not be visited within that time. Visits were carried out beyond the testing period, but not far from the end date. The focus of the questions was more on collaboration. The questions were:

- Was information shared online?
- What benefits were experienced from sharing information online?
- Is the software recommendable to other educators who did not participate in the test run?

During the last days of working with educators there was an understanding of what should be done and what should happen. Some of the participants felt strongly that collaboration should happen more often. Share Point is one of those collaboration software that can be used to facilitate collaboration between educators, especially rural schools educators.

#### **4.11. Interviews with the Curriculum Advisors**

Initially the role of the curriculum advisors in the research was to assist with the provision of content to the Share Point site. They were not part of the sample. Due to changing

circumstances the researcher decided to include them in the sample study. It should be understood that the role played by a curriculum advisor in terms of curriculum delivery is different from that of the educator. An educator is a classroom based practitioner, whereas a curriculum advisor is responsible for supporting the educator in the classroom. This implies that the educator and the curriculum advisor have a working relationship, which can be enhanced by making use of Share Point, but not to the extent of information sharing as amongst educators.

The questions asked to the curriculum advisors had more to do with how they see the role of educators in the use of Share Point when they were logged in. One curriculum advisor did not fully engage with Share Point. The other curriculum advisor was more involved. According to her not all educators participated in sharing information on the Share Point site. Asked what could be the reason? She stated that educators have not yet fully embraced the use of technology; it could be that they are afraid to venture into the unknown. She also stated that there was a visible lack of collaboration practices in schools and that has also contributed to less participation. Asked about whether she would recommend the use of Share Point. She responded positively, but stated the need for providing more training before implementing Share Point in schools.

#### 4.12 Observation

An act of observation is to see as well as observe with other senses what transpires in a situation at hand. This process can take some few minutes to accomplish or stretch over a long period of time. For research purposes the research question determines how long it will take to accomplish the process. Observation is a data collection method. In some research it is not necessary. It can also serve as a technique for verifying or nullifying the information provided by participants. There are various factors that come into play when one considers an act of observation. A decision for instance has to be taken on the level of involvement in the observation process. Researchers may choose to participate fully in research setting. By so doing they get to know the people or the environment they observe. This type of observation is known as participant observation. It is mostly used in ethnographic studies to capture the way of life of people studied in communities. <sup>149</sup>

---

<sup>149</sup> Varkevisser, C.M. Pathmanathan, I. & Brownlee, A. 2007. p2-3

Secondly researchers can choose to participate marginally in the research. In marginal participative observation there is no schedule used. It is an unstructured process. On the contrary in a structured standardised participative observation a schedule is drawn up, and the daily routines in a setting are observed. The same tool is used in different settings and the observation categories are predetermined. There is also observation where the researcher does not participate in any way. The researcher in this case has an option of watching the situation openly or concealed. Some of the advantages of doing an observation are that more detailed and context related information can be provided. In some cases information that was not given during interviews can also come to the fore.<sup>150</sup>

An unstructured, participative observation was chosen for this research. An observation schedule was used as a guide by the researcher. The issues observed were issues that emerged differently in every site. Issues related more to the personal experiences of the researcher with the use of Share Point and how the participants experienced the whole process. During the first visits it was observed that the participants were not really impressed about what was to be done, but as the time went by they began to understand and started to embrace SP. All participants were excited and enjoyed working on SP. This is evident from the fact that they remained in the project until the end.

---

<sup>150</sup> Varkevisser, C.M. Pathmanathan, I. & Brownlee, A. 2007. p3

## 4.13 Techniques for Collecting Data through Observation

Two types of techniques were used. One is written descriptions and the other is the taking of photographs.

### 4.13.1 Written descriptions

Written descriptions involved the recording of participants' actions, and how they engaged in activities. The researcher specifically looked at:

- How participants interacted when using Share Point.
- Some difficulties they experienced whilst working on Share Point.
- Their attitude towards using Share Point and their reaction towards collaboration in sharing information.

### 4.13.2 Photographs

Various photographs showing how the sites looked were taken during the visits. Pictures showing participants during focus group discussions were also taken. The pictures also depict what was done.

## 4.14 Personal Experience of Events or Phenomenon under Research

Participants were not aware of the existence of Share Point before the start of the research project. They were also not aware that they could collaborate online with one another. However, the researcher explained to them that the concept of collaboration within Share Point, especially when it comes to team discussion, is not different from other chat rooms like cell phone based chat rooms. They were aware of Mix It chat rooms, but none of them had personal experience of chat rooms that they could share.

The other personal experience relates to the integration of computers into classroom learning and teaching. Rural educators have not yet started incorporating the use of computers into teaching and learning. Most of the multi-grade schools did not have

computer laboratories yet. Out of the five multi-grade schools that took part in the research only one had a computer laboratory. Two of the public ordinary schools had computer laboratories. The laboratories were installed recently. The educators did not do planning of lessons on Word or Excel. The lesson plans that they needed to share were not available on the computer. Every lesson planned was done manually. There was however one computer per school, used for administrative purposes. This situation explains why the level of computer understanding amongst participants was low. Only two of the participants had access to computers with Internet at home. It was of paramount importance that the participants had access to computers on a daily basis, but unfortunately in some instances the educators had to wait for the opportunity when the school's only computer was not being used.

#### 4.15 Focus Group Interviews

A focus group is described as “an informal technique that can help assess user needs and feelings both before interface and long after implementation”.<sup>151</sup> It can also be described as a formal method of interviewing a group of people. The principles employed in focus group interviews do not differ from individual interviews except that multiple responses can be obtained from focus group interviews.<sup>152</sup> There are not many participants involved in focus group discussions. A minimum of six to twelve participants is recommended<sup>153</sup>. In the case of this study six educators were part of both group discussion meetings. The discussions do not drag on for a long time. They can last for at least two hours.

Even though focus groups have been in use for decades, Nielsen warns that they are a poor method for evaluating interface usability. Furthermore there is also a contention that they should not be used as a single tool of data collection as people have a tendency to centre their discussions on a single most important aspect at the expense of other crucial issues. It is advisable to combine this methodology with some key in-depth interviews. In this research that situation was taken care of by conducting field research interviews with individual participants.

To counteract any other negative surprises that may be encountered Nielsen recommends that the users should be assessed to see if they are able to use the interactive product they

---

<sup>151</sup> Nielsen, J. 1997. p1

<sup>152</sup> Law, M. et al. 1998. p5

are asked to evaluate.<sup>154</sup> In the case of this study, all participants were provided with training and further explanations on how to use the Share Point software. Furthermore participants were also visited at their places of work to ensure that they really logged into the programme.

## **4.16 How to Conduct a Focus Group Discussion**

According to McNamara there are some basic issues that need to be looked at when conducting focus group discussions. These include preparing for the session; developing questions and planning the sessions. All these are discussed briefly below

### **4.16.1 Determine the Purpose**

The purpose of the research was identified earlier as to determine the suitability and usability of Share Point with regard to sharing of information on planning of lessons. It was therefore necessary to conduct a test run with the participants using Share Point, and thereafter a discussion on how the educators should collaborate online ensued.

### **4.16.2 Situation Analysis**

The researcher was aware of the situations at the sites. Before the research was undertaken, discussions were held with other colleagues who worked at the sites. That kind of information enriched his understanding of the whole situation.

### **4.16.3 Participants of the Focus Group Discussions**

The participants were all educators from the public ordinary schools. They were female educators. They were also grade three educators with experience ranging from ten to fifteen years. The socio-economic status of the participants was similar. Only one of them had access to a computer with Internet access at home. Two of the participants were from schools that had computer laboratories. According to the two participants the laboratories were installed fairly recently, and they had not yet used the computers for planning their curriculum work.

### **4.16.4 Developing Questions**

---

<sup>153</sup> Varkevisser, C.M. Pathmanathan, I. & Brownlee, A. 2007

<sup>154</sup> Nielsen, J. 1997. p1

The focus group questions were not different from the questions that were raised during the individual fieldwork sessions held at the various sites. Two focus group meetings were held during the research period with the same group of participants. During the first meeting the group was mainly introduced to Share Point, but there were some questions to be answered and points to be clarified. It should be noted that even though there were two discussion sessions with the group, there were individual visits made to the sites. On one of the sites the research purposes had to be constantly explained to the participants who claimed to be very busy and were sick and tired of the department who always come with something new every day. It was explained to them that it was a pilot project, which seeks to establish how they network with each other at the school and beyond. It was also explained that there was no additional work to be done by them except to use the programme to facilitate how they go about doing their work.

#### **4.17 Focus Group Meetings**

Two focus group meetings were held with the same group of participants. The first meeting was held during the beginning of the test run period. The test run period was from the 24<sup>th</sup> of February to the 24<sup>th</sup> of March 2007. The second meeting was held just before the Share Point trial run period expired.

##### **4.17.1 First Focus Group Meeting**

The purpose of the meeting was to explain and show how Share Point works. The researcher also explained the purpose of his mission with regard to the use of Share Point. The aim of the research was to establish whether Share Point is suitable for use by educators for co-ordinating their planning. During the meeting exploratory informal conversation also took place, because it was important to ascertain how they work together within and beyond their schools. The setting of the meeting was informal. The participants were provided with refreshments on arrival.

The participants were first introduced to the concept of collaboration. An informal conversation ensued. Some of the questions that were posed were:

1. Are lessons planned together by foundation educators at the school?
2. How is that done?

### 3. Does planning with other schools also take place?

Following this discussion, the researcher introduced the use of Share Point as a tool for collaboration. The participants were not aware of the existence of Share Point. They were however aware of the concept of online discussion. In order to allow more open discussion the researcher did a Power Point presentation. Since the presentation was on Power Point, the participants were given the opportunity to interrupt the presentation so that they could ask questions. After this presentation the participants were shown the live Share Point. The live presentation was very slow because of the dial up connection. Participants exercised patience and were eager to know.

After the presentation, the researcher in consultation with the participants set dates for individual visits. The purpose of the individual visits was to ensure that more understanding was created on how to approach the Share Point site. This was found to be very helpful because it ensured that the participants were able to log in.

#### **4.17.2 Individual Visits**

During the individual visits the researcher found that the participants had not logged in yet. The researcher had the opportunity to see whether the computer facilities fulfil the systems requirements for using Share Point. The type of connection was also looked at. The researcher found out that the web browsers were not suitable enough. The latest Internet Explorer web browser or Mozilla Firefox was downloaded. The researcher also had the opportunity to ascertain the literacy level of the participants, and it was found to be at a disadvantageous level. After each individual visit the participants were reminded about the next focus group meeting.

### 4.17.3 Second Focus Group Meeting

On arrival the participants were served with refreshments. Reminding the participants about what Share Point entails started the process. The discussion questions were:

1. Did you try to login?
2. How does it feel to collaborate online?
3. What benefits were received by collaborating online?

### 4.18 Data Analysis

Qualitative data analysis is about describing, summarising and interpreting the data obtained.<sup>155</sup> It is a process of bringing order, structure and meaning to the mass of data collected.<sup>156</sup> Qualitative data analysis procedures are various and ongoing. Data collection and analysis are inseparable. Analysis started during data collection so that questions that were not answered or emerging questions can be addressed before the researcher pulls out of the sites.<sup>157</sup>

During the process of describing and reviewing their field notes qualitative researchers look for themes and categories. The process of note taking took into account personal notes reflecting on their thoughts and feelings about what they were observing. In the previous discussions in this research, the researcher reflected on his personal experiences on how the participants in the different sites perceive the process of collaboration.

The interpretations of data are based on times, actions and the various activities that constitute the social situations of their daily lives. Marshall and Rossman also argue that the researcher should use the research questions and related literature developed earlier for the development of categories. They further state that concepts emerging from negative instances are very useful in identifying new data collection and analysis.<sup>158</sup>

---

<sup>155</sup> Varkevisser, C.M. Pathmanathan, I. & Brownlee, A. 2007. p2

<sup>156</sup> Marshall, C. & Rossman, G.B. 1995. p111

<sup>157</sup> Putney, L.G., Green, J.L. & Dixon, C.N. 2007. p5

<sup>158</sup> Marshall, C. & Rossman, G.B. 1995. p112

## 4.19 Trustworthiness

Trustworthiness is a quality control measure that ensures validity and reliability in qualitative research.<sup>159</sup> Taking from Guba (1981) Poggenpoel states that trustworthiness entails credibility, neutrality, conformability, or consistency, dependability or applicability or transferability. Trustworthiness is further enhanced by the use of triangulation. When defined from the perspective of qualitative research, “triangulation is a critical group of strategies to enhance trustworthiness.”<sup>160</sup>

This research has been enhanced through triangulation in the following ways;

- The researcher consulted different sources of information. That means a literature review was conducted and different participants took part in the research.
- Various data collection methods were used during the research. These include individual interviews, group interviews and participant observation.
- Multiple perspectives were also considered during data analysis and interpretation.

Involving the participants in the evaluation of the research finding further enhanced trustworthiness. A summary of the findings was e-mailed and faxed to all participants. Follow up to their comments was also done. Comments were positive.

## 4.20 Conclusion

The qualitative approach used in this research is viewed as appropriate because much has been achieved in terms of eliciting the necessary information. The way the participants view Share Point is most important to the researcher because the participants are the ones who can benefit immensely from using Share Point. The interview and the observation processes were not separate from each other. The observation process for instance augmented the interview process, because what participants failed to mention was captured through observation.

Lastly in the next chapter steps in the analysis of data will be explained. A discussion on the questions that were posed will also take place.

---

<sup>159</sup> Laws, M. et al. 1998. p5

---

<sup>160</sup> Poggenpoel , M. in De Vos (ed)

# CHAPTER FIVE

## Analysis and Findings

### 5.1 Introduction

In this chapter the research findings are analysed. The chapter reflects on what was partly discussed in the previous chapters. The discussion starts by giving profiles of the schools that were part of the research. As per conditions of the permission issued by the WCED for conducting the research in schools, the names of the schools are not mentioned in the findings and recommendations chapters.

### 5.2 School Profiles<sup>161</sup>

#### 5.2.1 Multi-Grade Schools (MGS)

Name of School	No of learners per school	No of educators per school	No of grades per classroom	No of computers per school	No. Secretaries
1. MGS 1	66	2	Three grades per educator	One	0
2. MGS 2	175	5	Two grades per educator in the FP	One	1
3. MGS 3	116	4	Two grades per educator	10	1
4. MGS 4	77	3	Two grades per teacher in the FP	One	0
5. MGS 5	96	3	Two grades per educator	Two	1

**Table 5.1 Profile for Multi-grade Schools**

The profile above indicates the number of educators that were employed at the school at the time of the research. It should be remembered that one of the reasons for undertaking this research is that multi-grade educators have a heavy burden of workload. This is

---

<sup>161</sup> School information has been extracted from the Annual school survey given to the education department by schools. Profiles also include information on the level of poverty and infrastructure, like sanitation, electricity, and the building.

considered in terms of the number of grades that are taught in each classroom as well as the number of learning areas in each grade. The number of learners may be few in most of the schools but educators at these schools have constantly pointed out that too much workload had in many occasions prevented them from pursuing other interests like collaboration. This situation is even worse with some educators who are school principals, who are also required to do administration work on a daily basis. The profile shows that there was a lack of resources at the school. The fact that there was one computer with Internet access at most of the sites was not only a handicap to the study but a disadvantage to the entire rural school education system, at a time when everyone is talking about bridging the gap in the digital divide. This is also one of the issues that crippled the level of collaboration amongst the participants.

### 5.2.2 Public Ordinary Schools (POS)

Name of School	No of learners per school	No. of educators per school	No of grades per classroom	No of computers per school	No of secretaries
6. POS 1	1328	35	1	30	2
7. POS 2	1480	38	1	1	2
8 POS 3	485	13	1	25	1

**Table 5.2 Profile for public ordinary schools**

Three public ordinary schools were invited to be part of the research for the purpose of using them as a control group. POS 1 and POS 2 were big schools in terms of the number of learners and educators. The fact that these schools are big does not mean that educators do not feel the workload. During the first separate meetings that the researcher held with the participants at their different schools, they complained bitterly about being involved in all sorts of activities. Their first perception was that the researcher was there to introduce a new form of work that they must do. Explanations were provided to their satisfaction and the research process was able to proceed as planned. POS 3 is a medium sized school. It is neither big nor small. Two of the schools had computer laboratories, which were recently installed. The other school was in the process of getting the same type of laboratory.

POS 2 had nine grade three educators alone. The implication for this was that they could collaborate with each other within the school on how to approach the curriculum. And then extend this process to other foundation phase educators and ultimately to neighbouring schools. Interviews and observations to these schools were conducted during focus group meetings. There were two individual site visits with the purpose of establishing links. After that communication was conducted via short message system (SMS) or telephone communication. According to the researcher's experience, if no contacts were made beforehand, participants tended to forget what they should do. So it was important to keep in touch with the participants.

### 5.3 Method of Data Analysis

A three-step method was used in the analysis of data, as defined by Poggenpoel in De Vos<sup>162</sup>:

The first step deals with the organisation and data management. In this step the entire interview and observation transcripts were read and analysed to identify any possible deficiency.

The second step was to generate categories, themes and patterns from the data. These were placed into tables as shown in the tables below. It was also felt that before any categorisation could be made, the linking of interview questions to the research questions should be placed before any other data tables as a way of giving guidance to the whole process.

Thirdly a process of linking all the data to the research question is seen and regarded as very important in terms of achieving the objectives of the research.

### 5.4 The Research Questions

The research questions were constructed to the satisfaction of the researcher, but it was necessary to reconstruct them to be in line with the research purpose. In order to do that, there was a need to expand and unpack the questions as per project requirements. The project requirements in this case refer to the way in which the project was structured. First the participants had to perform certain acts, like uploading documents and then some of

the questions had to be based on what they were doing. The broad research questions were not suitable for this purpose and had to be simplified and refined. This whole process had been done as shown in the tables

Research Questions	Interview Questions
<p>1. Are educators aware of the nature of the new curriculum, which requires them to collaborate when planning their lessons for teaching and learning?</p>	<p>1. Are cluster meetings organised by curriculum advisors attended by educators?</p> <p>2. Are there sessions organised by educators where they meet and plan lessons</p>
<p>2. Are educators aware and involved in online discussions and to what extent are they making use of things like e-mail, or Internet based chatrooms</p>	<p>3. Is the Internet used as a tool for seeking information?</p> <p>4. Do educators participate in online discussions?</p>
<p>3. Are educators aware of the existence of Share Point as a collaborative tool?</p>	<p>5. Was there an awareness of the existence of Share Point before it was introduced?</p> <p>6. Did logging take place?</p> <p>7. How many times did logging take place?</p> <p>8. What problems were experienced?</p> <p>9. Was information shared when logged in?</p>
<p>4. What is the attitude of educators towards the process of collaboration when using the collaborative software in particular Share Point?</p>	<p>10. What is the feeling of sharing information with other educators?</p> <p>11. What benefits were received from participating in this project of testing Share Point?</p>

<sup>162</sup> Poggenpoel, M in De Vos. 1998. p342

**Table 5.3**

**5.4.1 Question 1:**

Are educators aware of the nature of the new curriculum, which requires them to collaborate when planning their lessons for teaching and learning?

Themes	Categories
Nature of the curriculum	Planning
Cluster Meetings	Cluster Meetings as Sessions: 1. For learning as a team 2. Sharing Information
Own Meetings	For sharing information on their own

**Table 5.4**

**5.4.2 Question 2:**

Are educators aware and involved in online discussions and to what extent are they making use of things like e-mail, or Internet based chartrooms?

Themes	Categories
The use of e-mail Computer literacy	Knowing how to use an e-mail as a 1. Communication tool 2. Are educators computer literate enough to be able to use computers effectively?
Online discussion	Knowledge of 1. Chat rooms 2. Tele-conferencing
The use of Internet	Knowledge of the Internet as a research and collaboration tool 1. Communication. 2. Finding information on the Internet.

**Table 5.5**

**5.4.3 Question 3:**

Are educators aware of the existence of Share Point as a collaborative tool?

Themes	Categories
Login into Share Point	1. Were you able to login? 2. How many times did you login? 3. What problems did you encounter?
Uploading documents	Did you try to share information?
Knowledge of Share Point	Were you able to work on the following?: 1. Team discussion 2. Sharing files and pictures

	<ol style="list-style-type: none"> <li>3. Linking other websites</li> <li>4. Announcements and alerts</li> </ol>
--	--

**Table 5.6**

**5.4.4 Question 4:**

What is the attitude of educators towards the process of collaboration when using the collaborative software in particular Share Point?

Themes	Categories
Attitude on collaboration	Determine their attitude on <ol style="list-style-type: none"> <li>1. Sharing information</li> <li>2. Problems that prevent them from sharing information</li> </ol>
Benefits accrued	Benefits they got when using <ol style="list-style-type: none"> <li>1. Share Point</li> <li>2. Sharing information</li> </ol>

**Table 5.7**

## 5.5 Responses to Question

### 5.5.1 Question 1-

This question relates to the nature of the curriculum and whether educators work together.

*Nature of the Curriculum:* Yes educators are aware of the nature of the new curriculum.

They reported that more resources are needed to support the curriculum.

*Cluster Meetings:* As far as attending curriculum cluster meetings all educators do attend the meetings because they are required to do so. Cluster meetings are information sharing sessions that are managed by curriculum advisors. These forums are viewed as top down information sharing meetings. Educators do not really have a say on when and how they should be arranged, but on the other hand educators have the liberty to elect a cluster leader to assist the curriculum advisor.

*Own Forums:* There are no active forums where educators can share information face to face. The reason for this is that they stay far from each other and they also do not have time to set up such a group. However one site indicated that they saw the need for that even before the research took place and were in the process of starting a forum.

### 5.5.2 Question 2

The second question relates to the use of computers for communication and collaboration.

*Internet:* Out of seven rural schools educators one educator had Internet access at home the rest did not have access to Internet. Two educators were able to use Internet and e-

mail facilities with confidence. The rest of the educators tried to the best of their knowledge to log in to Share Point and in that way they made use of the Internet for the first time.

*The level of computer skills* at the schools was also found to be low. Only three out of seven educators were computer literate. The use of the e-mail as a communication tool was also not an area that was explored in schools. E-mail facilities were mostly used for administrative purposes in most schools.

*Sharing information and online discussion:* The educators were also never involved in online discussions. None of the educators belonged to List serve groups or Internet discussion forums.

*Finding Information on the Internet:* Two educators had used the Internet to look for information. The rest of the educators had no personal experience on how to find information on the Internet.

### **5.5.3 Question 3**

This question relates to the awareness about the existence of Share Point:

*Existence of Share Point:* The educators were not aware of the existence of Share Point. The researcher took a lot of time to ensure that the educators were conversant with the contents of the team site. Each educator was given the opportunity to practically use Share Point during the short training session. The educators were introduced to the following aspects:

*Logging:* During the second visit after a week. Only two educators attempted to log in. Others did not even attempt, because they claimed they encountered problems when they logged in. Another problem was that the Internet was temporarily out of order. A situation they contend with all the time. The major problem they experienced was that all the computers were extremely slow because of the type of connection. All computers were using a dial up system. They were assisted to log in and since that day they tried to log in.

*Team discussion.* Educators experienced this part of the programme by responding to discussions. Only three educators successfully took part in the discussions.

*Uploading documents.* All participants were repeatedly shown how to upload documents. By uploading documents onto the programme this was an indication that collaboration occurred at a higher level. Out of the seven participants only three attempted to upload documents.

*Reading File:* Within Share Point a folder was created where participants would upload documents that they would like to share amongst themselves. The reading file acted as a kind of a library or an archive where they could access documents that were given during workshops and various other documents of importance concerning reading.

*The Links:* Websites listed on one page introduced the educators to various websites, which were placed on the link by the researcher as administrator of the web site.

#### **5.5.4 Question 4**

This question relates to the attitude of educators towards collaboration, including online collaboration. The educators were keen to collaborate because there were some benefits to be accrued. However there were a lot of impediments that stood in their way. They felt strongly about their workload that prevented them from participating in various other activities. The other problem they cited was that they stayed far away from each other and therefore did not have time to meet face to face in forums. They viewed online collaboration as a means that could help them, but unfortunately not all of them had access to computers with Internet at home.

On the whole the participants were very positive about Share Point. They regarded it as a powerful tool that could be used to solve some of the problems they experienced. Educators are currently responsible for their planning and the delivery of teaching and learning. Online collaboration can go a long way in addressing the problem of planning. It is also worth mentioning that educators in rural multi-grade schools felt that they were isolated and were not really part of the larger community of education. By providing them with a lifeline of this nature it will uplift their spirit and morale. The current levels of work morale at these schools are very low. Educators felt that conditions of work should be improved, by providing more resources<sup>163</sup> to schools.

---

<sup>163</sup> The National Department of Education has provided funding to an amount of 70 thousand million Rand for poor schools infrastructure in the Western Cape. The name of the project is Quality, Improvement and

## 5.6 Focus Group Question Analysis

### 5.6.1 Question on logging

It should be remembered that focus group meetings were held with the big schools only. The researcher spent most of his time visiting the multi-grade schools. Therefore time constraints did not allow enough individual interaction with the big schools. Due to this, participants were very reluctant to log in and work on Share Point, because they forgot some of the things they were shown by the researcher. Four of the six participants conceded that they last logged in when they were doing it in the company of the researcher. The problem of not logging was partly attributed to a lack of time. The researcher was fully aware of this shortcoming. Even though the big schools did not have enough time to log in, the role they played in the research was fulfilling in its own way.

### 5.6.2 Question on Planning

All foundation phase educators stayed in their classrooms until the end of the day. They did planning once a week together, under the leadership of the Head of Department (HOD). They did not initiate any gatherings by themselves. Working with other schools was also limited. The only time that they came together with other schools was during cluster meetings organised by the curriculum advisors, but even then they did not really network for working together in order to exchange some ideas. There were no inter-school planning meetings held. All educators understood that the nature of the curriculum required them to collaborate on planning at a certain level.

---

Upliftment project. Almost half of the South Cape /Karoo schools particularly Multi-grade schools are part of the project.

### **5.6.3 Question on Online Collaboration**

All participants expressed positive feelings about online collaboration. However they also cited some problems that could prevent them from participating fully in any nature of collaboration. A lack of computers with Internet connection was posing problems. They also mentioned that their involvement in extra curricular activities like sport might also pose some problems. The debate also took cognisance of the fact that some of these problems could be solved without financial considerations. The other matter that came up for discussion was that some people were not keen on sharing information, they wanted to work alone. Those who knew hoard information. A balanced view to this problem was given. Some argued that such individuals should be guided and shown the benefits of sharing information, on the contrary others felt such people should be left alone until they realise a need for working as a team.

## **5.7 Findings**

Generally the following findings emerged from the research:

1. Educators are aware of the requirements imposed by the curriculum that they should collaborate and share information with regard to the planning of lessons.
2. The educators displayed a positive attitude towards the process of collaboration. There was also a general agreement that there is a need to foster a culture of collaboration amongst educators.
3. The researcher also observed that some educators may not embrace the process of online collaboration if their computer skills levels are low. Educators should therefore be encouraged to improve their computer skills.
4. It can also be said that Share Point received an overwhelming approval from the participants. They embrace the concept of collaborating within Share Point. Educators in rural multi-grade schools for instance felt it would save them time of going to attend meetings. It would help them network more effectively. It would also assist them with planning.

5. The researcher also found that there was less or no interaction between the educators on curriculum related issues even in the same school. They did not share their lesson plans with each other. The curriculum advisor also alluded to this fact.

6. Although educators in multi-grade schools had formal teaching qualifications, they did not have a specialised training on how to deal with multi-grade classes. The researcher looked at the education curriculum of two universities in South Africa and found that they did not offer any qualification on multi-grade schools. There were however various special qualifications offered. For instance Advanced Certificates in Mathematics, Biology, Management and many more.

## 5.8 Research Limitations

### 5.8.1. Level of Participation

Even though all respondents were Foundation Phase educators, collaborating on the same topic of planning reading lessons, not all of them participated fully during the test run of the Share Point programme. Some of the reasons cited were time constraints. Educators complained bitterly about the high volume of workload that they must face on a daily basis. This was even worse with the multi-grade educators who taught more than one grade at a time including many learning areas.

### 5.8.2. Computer Literacy Levels.

The level of computer literacy amongst educators remains a challenge not only amongst rural multi-grade schools, but also in all schools. Educators are not really embracing the opportunities presented by technological innovations. The fact that two out of seven multi-grade educators and two out of seven public ordinary schools' educators were computer literate is testimony to the statement above. During the second visit some of the educators did not log in, a matter that the researcher attributed to the educators' inability to use computers proficiently. In, fact, for educators to be able to work on the programme they were shown many times how to make use of Share Point. Many of the educators also did not have access to computers with Internet connection at home. This problem also contributed negatively to the plight of collaboration, because if educators do not have computers at home they may still not be able to collaborate meaningfully.

### **5.8.3. Internet Connection**

For Share Point to function, faster and efficiently it requires a broadband Internet connection. All the schools currently make use of a dial up connection system, which is very slow. This contributed negatively to the progress of the test run. A lot of time was wasted on waiting for the pages to open. As a result some participants became bored. The cost of a broadband connection is becoming reasonably affordable and is expected to be even more affordable in future.

### **5.8.4 Time Constraints**

Problems associated with time constraints related to various factors. One of these is that the free trial period of thirty days for testing Share Point proved to be very short. Even before one invites the participants to begin to work on Share Point the administrator must see to it that a website is up and running. The website was constructed and was ready to operate within days. This was not easy for the researcher who had to learn through trial and error and then ensure that the contents of the pages were relevant and were able to evoke debate should the need arise.

The second point that was a problem relates to the work programmes of the educators. Educators are extremely busy and do not always have time to look at things at short notice. There are just too many projects conducted at our schools and all of them aimed at assisting the educators, but at the end of the day nothing is achieved because the educators are demoralised.

## **5.9 Implications**

1. All participants perceived the introduction of collaboration as a good thing. It was viewed as a process that would enhance and encourage the development of skills and knowledge of all educators. Through the use of Share Point educators had an opportunity to tap into resources that were created by others. They began to ensure that every document they created was stored in a secured database with a backup system.
2. Educators realised that the use of technology in schools especially Share Point is an empowering tool that can assist them in expanding engagement in learning and teaching.

3. Share Point is a multi-faceted programme. It also functions as an Intranet. That means a group of schools for instance can decide to work together in their own SP site. The use of unique passwords allows this.

## 5.10 Conclusion

The challenges that have been highlighted in this chapter can be tackled head on. These pertain to the availability of resources, both human and material resources. Training and development is also of utmost importance. Whilst resources and training can be provided, it is equally important that the educators commit themselves to the process of collaboration by giving time to it. The next chapter will provide some recommendations on how some of the challenges can be met.

# CHAPTER SIX

## Recommendations and Conclusion

### 6.1 Introduction

During the research period various challenges that could inhibit the process of collaboration were identified. Some of the challenges can be dealt with by improving the working conditions at the various schools, whilst other challenges require the commitment from educators to say they will act together in the interest of the child. In this chapter some recommendations on the challenges that were identified are presented.

### 6.2. Collaboration

Collaboration has an empowering effect on everyone; therefore the Education Department must play a central role in encouraging all its employees to embrace this concept. Lehr agrees by stating that “teachers who work in isolation from their peers may have little opportunity for professional growth and may often struggle to solve instructional, curricular and management problems on their own”<sup>164</sup>. Collaboration can therefore result in the optimal sharing of resources. By embracing collaboration the rural schools will also not feel marginalised. They will feel that they are part of a bigger picture. Educators as well as other personnel should also ensure that they embrace the process of collaboration through the creation of communities of practice and other similar structures where knowledge sharing can be advanced. The communities of practice and other knowledge sharing structures should ensure that providing opportunities to plan together and share ideas enhances the creative capacity of every educator. The creation of smaller communities of practice can further ensure that everyone gets a space to air his or her views.

---

<sup>164</sup> Lehr, A. E. 1999. p105

### **6. 3. Share Point**

Educators who participated in the test run of Share Point overwhelmingly agreed that it is a tool that can be of good use, provided some of the problems they encountered could be overcome. There were no real technical problems encountered when Share Point was tested. This clearly shows that it is possible to suggest the implementation of Share Point in every school. Even if there were problems encountered, there was always a kind of technical support provided online by APPITIX. Secondly it should be remembered that the level of computer literacy amongst some participants was low, but the educators could still work on Share Point in spite of this problem.

### **6. 4 Administration of Share Point**

There were many issues involved in the administration of Share Point after it has been set up. One of them was content management. There should always be some interesting and inspiring content available to attract more users to the site. The site should also be maintained regularly for more efficient and effective use. Daily log in to the site will also ensure that there is maximum participation by a higher percentage of its users. It is therefore recommended that in order to utilise Share Point effectively the Department should appoint a dedicated team to drive the process. The team should also be provided with the necessary training and technical support.

### **6. 5. Computer Literacy**

It is well known that the Western Cape Education Department is at the forefront of improving the computer literacy levels of all educators in schools. However, most of the training provided by the WCED are dubbed “hit and run” because there is sometimes no follow up. It is even worse with computer training as some of the educators do not have access to computers at home. In order to achieve acceptable results there should be some concerted efforts made to improve the computer literacy levels of all educators. The improvement of computer literacy levels should not be narrowed to providing training only. It should also include the provision of resources in schools. For instance an ideal

situation would be the one in which all foundation phase situations are provided with computers or laptops in their classrooms.

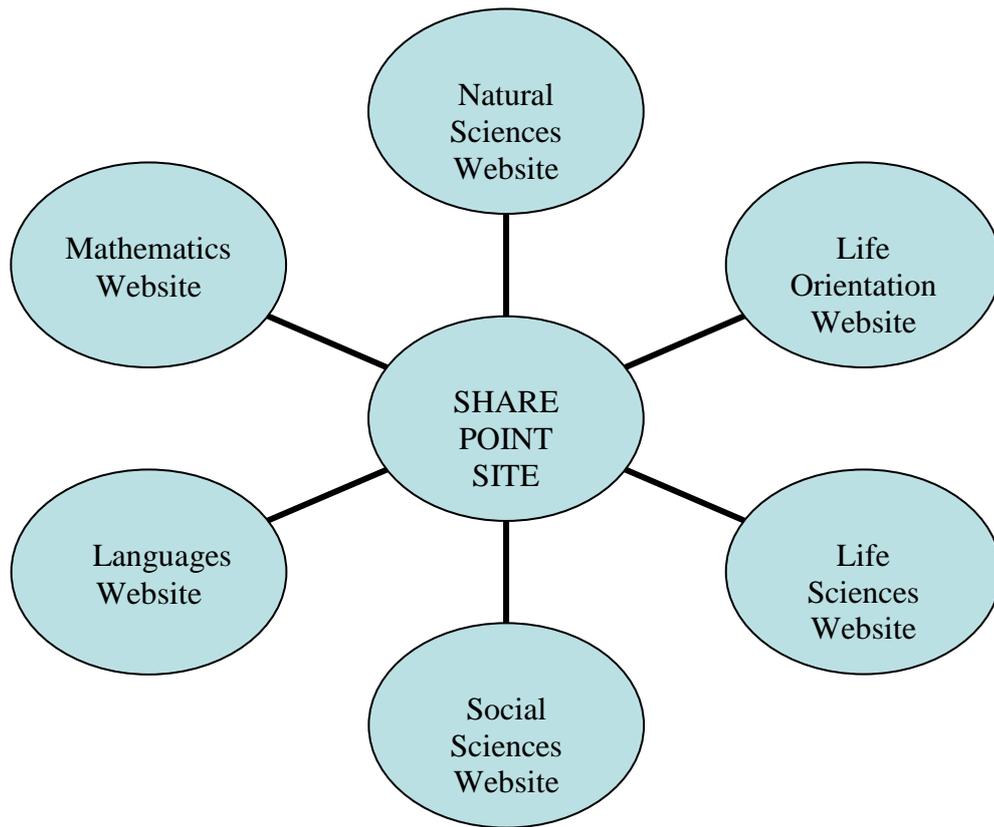
Alternatively the department should look into providing some computers with Internet access in the staff room for the sole use of educators. An effort should also be made to encourage educators to purchase computers for home use. A public-private partnership can be formed which will be able to deliver discounted computer products with Internet connection to all educators. A single service provider can then be appointed to take charge of the whole process. The education department should also consider providing every educator with a permanent e-mail address. There are some Internet Service Providers that offer free e-mail facilities.

## **6. 6 Personnel**

Most schools in the Western Cape, particularly big ones, have administration clerks. One of the determinants for the allocation of personnel in schools is the number of learners at that particular school. This criterion is a disadvantage to rural farm schools because many of these schools do not meet this criterion, but on the other hand the expectation is that the performance at these schools should be comparative to that of big schools. During the research period the researcher noted that schools that had administration clerks were more able to work on the Share Point site than those without administration clerks. It is therefore recommended that if Share Point is to be implemented successfully in rural schools an administrator should be appointed. Administrators will not only help with the implementation of the Share Point site but will help alleviate the workload of the principal and the other educators at school.

## **6.7 A Collaboration Model for Eden/Karoo Rural Schools**

According to WCED policy schools operate in circuits under the supervision of a circuit manager. In the Eden/Karoo Region there are a total of two hundred and thirty two schools in ten circuits. Educators are also clustered according to the learning areas they teach in their schools within their circuits.



**Figure 5.8**

The above collaboration model proposes that each Learning Area Cluster should have its own website within Share Point. By strengthening the existing structures, the researcher is of the opinion that educators will view Share Point as a tool to improve a structure they already know.

When Butler and Coleman speak about models of collaboration they talk about categories that fit into one or more of the following five collaboration models:

- Library Model- driven by content
- Solicitation Model – Requestors post requests via e-mail
- Team collaboration Model – Members both read and write content, common object.
- Community Model – Members find value in just reading, about ten percent participate in content administration.

- Process Support – The use of collaboration technologies in a process or workflow.<sup>165</sup>

If one looks at figure 5.8 above one would notice that it is content driven, but this does not mean that other aspects as pointed out by Butler and Coleman can be ignored.

For the purposes of this research it is suggested that a model of collaboration should evolve developmentally. For instance, the model should get at a stage where it can be viewed as solicitation, which means that members just post requests. At another level members should be allowed to collaborate as a team. In that way, an understanding of collaboration is entrenched. This will ultimately result in a sound culture of sharing. The model takes into account all the shortcomings identified in the research.<sup>166</sup>

## 6. 8 Conclusion

Various issues emerged from the research. Some of them have a direct impact on this research whilst others have a broad implication for education in rural schools or education as a whole. In this research it can be safely said that there is a lack of collaboration amongst educators, because there are no visible structures where educators belong and work. There are no book clubs nor curriculum related forums where educators can share stories relevant to what they experience in the classroom. There are simply no communities of practice.

Whilst there is an effort from the side of the Education Department to ensure that the different schools are brought together in clusters, this endeavour does not stretch far enough in terms of encouraging schools to share information and even resources. The purpose of cluster meetings is based more on discussing examination papers and memos and general learning area planning. It should be expanded to include matters of practice in that particular learning area like how to approach a certain topic. Demonstrations can also be done. Regular meetings by clusters will ensure that educators get in touch. Making use of technology could do this. There are various collaboration software available in the market, including Share Point.

---

<sup>165</sup> Butler, T. & Coleman, M. 2003. p1-7

<sup>166</sup> Butler, T. & Coleman, M. 2003. p5

Other worrying issues that emerged from the study concern the low levels of computer literacy and the lack of a specialised formal qualification for multi-grade school educators. During the previous years the education department embarked on an effort to deal with the problem of providing special training to multi-grade educators, but it was not enough. Training and support in multi-grade schools should be ongoing and should be done within the principles of collaboration.

# Bibliography

- BECERRA-FERNANDEZ I; GONZALEZ A & SABHERWAL R. 2004. *Knowledge management: challenges, solutions and technologies*. New Jersey: Pearson Prentice Hall.
- BEGBIE, R. & CHUDDRY, F. 2002. The Intranet Chaos Matrix: A conceptual framework for designing an effective knowledge management intranet. *Journal of Database Marketing*, 4: 325-338.
- BERNARD, R. 1998. *Corporate Intranet: Harnessing the power of the next-generation intranet*. Canada: John Wiley.
- BERRY, R.S.Y. *Collecting data by in-depth interviewing*. Available: <http://www.leeds.ac.uk/educ0/documents/000001172.html> [Accessed 13<sup>th</sup> April 2006].
- BRINCK, T. 1998. *Groupware*. Available: <http://www.usabilityfirst.com/groupware/intro/tx1.htm> [Accessed 29<sup>th</sup> May 2007].
- BROWN, B. 1997-2000. *Internet Management Sessions: Intranets*. Available: <http://http://durret.ba.ttu.edu/courseware/in202/session4.htm> [Accessed 23<sup>rd</sup> September 2007].
- CALLON, JD 1996. *Competitive advantage through information technology*. New York: McGraw-Hill.
- CARL A. et al. 1988. *Curriculum development in the primary school*. Cape Town: Maskew Miller Longman.
- COLEMAN, M.; GRAHAM-JOLLY, M.; & MIDDLEWOOD, D. 2003. *Managing the curriculum in South African Schools*. London: Commonwealth Secretariat Publication.
- COMMBits, 2007. *Groupware applications suite Virtual Intranet – A collection of groupware tools*. Available:

[http://www.commbits.com/html3\\_groupwaresuite.php](http://www.commbits.com/html3_groupwaresuite.php) Groupware Applications Suite [Accessed 29<sup>th</sup> May 2007]

CRESWELL, J.W. 2003. *Research Design: Qualitative, quantitative and mixed methods approach*. London: Sage.

DE VOS, A.S. (Ed). 1998. *Research at grass roots: A primer for the caring professionals*. Pretoria: Van Schaik.

Department of Education see DOE

DIAS, C. 2001. Corporate portals: A literature review of a new concept in information management. *International Journal of Information Management*, 21(14): 269-287

DIJKSTRA, S. 1997. The integration of instructional systems design models and constructivist design principles. *Instructional Science* 25 (1-13).

DoE. 2005. *Learning Programme Guide for Life Orientation*. Pretoria: Government Printers.

DoE. 2005. *National Curriculum Statement for Grades R – 9*. Pretoria: Government Printers.

DoE. 2005. Report of the Ministerial Committee on rural education. *A new vision for rural schooling*. Pretoria: Government Printers

DoE. 2004. White Paper on e-Education: *Transforming learning and teaching through information and communication technologies (ICTs)*. Pretoria: Government Printers

Driskell, R.B. 2002. *Are virtual communities true communities? Examining the environments and elements of community*. Available: <http://www.blackwell-synergy.com> [Accessed: 13<sup>th</sup> September 2007]

DUMINY, P.A. & STEYN, P.G.D. 1985. *Education 1: A course in didactics and method*. Cape Town: Maskew Miller Longman.

*Employment of Educators Act, Act no. 76 of 1998*. Pretoria: Government Printers.

- ENLOE, S. 2007. *What is teacher collaboration and how does it relate to other current school practices?* Available: <http://www.slc.servier.org/tollab.htm> [Accessed 29th May 2007].
- ETZIONI, E. 2001. *The monochrome society*. Princeton: New Forum Books
- FIGALLO, C. AND RHINE, N. *Building the knowledge management network*. New York: John Wiley.
- GRIFFITHS, P. 2000. *Managing your internet and intranet services: The information and library professional's guide to strategy*. London: Library Association Publishing.
- HUANG, K.T, LEE, Y.W. & WANG, R Y. 1999. *Quality information and knowledge*. New Jersey: Prentice Hall.
- HUNG, W.L.D. & CHEN, D.T.V. 2002. *Learning within the communities of practice: A Re-Conceptualisation of tools, rules and roles of the activity system*. Education Media International. Available: <http://www.tandf.co.uk/journals> [Accessed on 24 May 2005]
- JACOBS, M., & CHALUFU, 2004. *Teaching –Learning dynamics*. Sandown: Heinemann.
- KANTER, R.M. 2001. *Evolve: Succeeding in the digital culture of tomorrow*. Boston. Harvard Business School Press.
- KAPLAN, S. 2002. Models for group and organisational collaboration. Available: [www.icohere.com](http://www.icohere.com) [Accessed on the 29<sup>th</sup> of May 2007].
- LAUDON, K.C. & LAUDON, J.P. 2004. *Management information systems: Managing the digital firm*. New Jersey: Pearson Prentice Hall.
- LAW, M. et al 1998. *Guidelines for critical review form – Qualitative studies*. Available: <http://fhs.macmaster.ca> [Accessed 1<sup>st</sup> of February 2007].
- LEEDY, P.D. & ORMROD, J.E. 2005. *Practical research: Planning and design*. New Jersey: Prentice Hall.
- LEHR, A.E. 1999. Administrative role in collaborative teaching. NASSP Bulletin. December 1999

- LEVY, P. 1999. *Getting started with the Internet: An easy and practical guide for teachers*. London: Scholastic Professional Books.
- LLOYD, C. AND BEARD, B. 1995. *Managing classroom collaboration*. London: Cassells.
- LUBISI, R.C., PARKER, B. & WEDEKIND, V. 1998. *Understanding Outcomes-Based education*. Cape Town: South African Learning Distance Education and Oxford University Press.
- MAIL & GUARDIAN ONLINE, 1997. Officials and unions urge rethink over. 10<sup>th</sup> December 1997. Available: [www.mg.co.za](http://www.mg.co.za) [Accessed 6<sup>th</sup> March, 2006]
- MAIL & GUARDIAN ONLINE, 2005. Ready or not, here comes NCS. 5<sup>th</sup> December 2005. Available: [www.mg.co.za](http://www.mg.co.za) [Accessed 6<sup>th</sup> March, 2006].
- MAIER, P. HADRICH, T. AND PEINL, R. 2005. *Enterprise knowledge infrastructures*. New York: Springer.
- MAIER, P. AND WARREN, A. 2000 *Integrating technology in learning and teaching: A practical guide for educators*. Sterling Kogan Page.
- MANTON, S. 2006. *Integrated intellectual asset management: A guide to exploiting and protecting your organization's intellectual assets*. Hampshire: Gower.
- MAROTTA, L. 2006. Utilizing the full advantages of groupware applications to boost team collaboration. Available: <http://www.web-conferencing-zone.com> [Accessed 29<sup>th</sup> May 2007].
- MARSH, C. 1992. *Key concepts for curriculum understanding*. London: Farmer Press.
- MARSHALL, C.M. & Rossman, G.B. 1995. *Designing qualitative research*. London: Sage.
- MICK, O. 2002. *Corporate portals dot com*: O'Leary online. *Online*, 26(2): 65
- Microsoft Share Point 2007. Available: <http://www.appitx.com> [Accessed on 24<sup>th</sup> February 2007]
- National Education Policy Act, Act no. 27 of 1996*. Pretoria: Government Printers.
- NEWELL, S. ROBERTSON AND SCARBOROUGH 2002. *Managing knowledge work*. New York: Palgrave.

- NIELSEN, J. 1997. *The use and misuse of focus groups*. Available: <http://useit.com/papers/focusgroups.html> [accessed 9th February 2007]
- NONAKA, I. AND TAKEUCHI, H. 1995. *The knowledge-creating company: how Japanese companies create the dynamics of innovation*.
- NotWired. 2007. Available: <http://www.notwired.com/app/main/we?> [Accessed 29<sup>th</sup> May 2007]
- OKA, T. & SHAW, I. 2003. *Qualitative research in social work*. Available: <http://pweb.sophia.ac.jp/~t~oka/papers/2000/qrsw/qrsw>. [Accessed on the 9<sup>th</sup> February 2007].
- OLIVER, C. 2002. *Let's educate, train and learn outcomes-based*. Ifafi: OBET.
- PIENAAR, H. & CONRADIE, F. 2001. Design and development of a portal for academics at the University of Pretoria. *Mousaion*, 19(2): 86-89.
- PRATT, D. 1980. *Curriculum Design and development*. London: Harcourt Brace Jovanovich.
- PRETORIA TECHNIKON 1999. *Study guide for educational management V: Management & Change*. Pretoria: Technikon Pretoria.
- PROVINCIAL ADMINISTRATION: WESTERN CAPE. Directorate Organisation Development. 2000. *Report on the Redesign of Western Cape Education Department*. Government Printers.
- PUTNEY, L.G., GREEN, J.L. & DIXON, C.N. 2007. *Research methods-Qualitative and ethnographic*. Available: <http://education.stateuniversity.com/pages/2361/Research-Method>
- ROSENBERG, M.J. 2001. *E-Learning: Building Successful online learning in your organisation*. USA: McGraw-Hill.
- SAILIS, E. & JONES, G. *Knowledge management in education: Enhancing learning & education*. London: Kogan Page.
- SAINT-ONGE, H. & WALLACE, D. 2002. *Leveraging communities of practice for strategic advantage*. New York: Butterworth.

- SANTO, S.A. 2005. Knowledge management: An imperative for schools of education. *TechTrends*, 46(6). November/December 2005.
- Skills Development Act, Act no.97 of 1998*. Pretoria: Government Printers.
- SKYRME, D.J. 2000. *Knowledge networking: Creating the collaborative enterprise*. Oxford: Butterworth.
- SMITH, D.E. 2000. *Knowledge, Groupware and the Internet*. Boston: Butterworth.
- SMITH, M.K. 2003. *Communities of practice, the encyclopedia of informal education*. Available: [www.infed.org/biblio/communities\\_of\\_practice.htm](http://www.infed.org/biblio/communities_of_practice.htm). [Accessed 26 April 2006].
- SOUTH AFRICA. DEPARTMENT OF EDUCATION see DoE.
- South African Schools Act, Act no. 84 of 1996*. Pretoria: Government Printers.
- SUMNER, J (ED). 2003. Finding the value in virtual collaboration. Available: <http://www.melcrum.com>
- Telkom one stop business solutions*. Available: <http://www.telkom.co.za> [Accessed 14<sup>th</sup> March 2006].
- VARKEVISSER, C.M., PATHMANATHAN, I & BROWNLEE, A. 2007. *Designing and conducting health systems research projects*. Available: [http://www.idrc.ca/subscribe/ev-56632-201-1-DO\\_TOPIC.html](http://www.idrc.ca/subscribe/ev-56632-201-1-DO_TOPIC.html) [Accessed 10<sup>th</sup> February 2007]
- WALLACE, M. AND WANGATE, P. 2000. *OSBORNE guide to e-mail*. London: Osborne Publishing.
- WCED Buzzword PC Training Manual 2004*. Cape Town: WCED.
- WCED Learning Programme Guidelines for Life Orientation*. 2005. Cape Town: WCED.
- WEICK, K.E. 1995. *Sensemaking in organisations*. London: Sage.
- WENGER, E., MCDERMOTT, R., SNYDER, W.M. 2002. *Cultivating communities of practice: A guide for managing knowledge*. Boston: Harvard Business School Press.
- WENGER, E. 1997. *Communities of practice: Learning, Meaning and Identity*. New York. Cambridge University Press.

WESTRAAD, S. 2003. *Designing outcomes –based learning programmes*. Randburg: Knoweres.

WHITE, C.J. 2005. *Research. : A practical guide*. Pretoria: Intuthuko Investment.

WHITE, M. 2003. Bringing people together. *EContent*. August/September 2003. P43.

WIIG, K. 1995. *Knowledge management methods: Practical approaches to managing knowledge*. Arlington: Schema Press.

WORLDOX. 2006. *The case for document management*. Available: <http://www.worldox.com/atwork/whydms/html> [Accessed 13<sup>th</sup> April 2006].

## Annexure A

List of Abbreviations
-----------------------

Applications Software Provider	ASP
Communities of Practice	CoPs
Document Management System	DMS

Education Management and Development Centre	EMDC
Foundation Phase	FP
Head of Department	HOD
Horizontal Enterprise Portal	HEP
Human Sciences Research Council	HSRC
Information Communication Technology	ICT
Internet Protocol	IP
Knowledge Management	KM
National Curriculum Statement	NCS
National Department of Education	DoE
National Qualification Framework	NQF
Outcomes Based Education	OBE
Revised National Curriculum Statement	RNCS
Share Point	SP
Short Message System	SMS
Socialisation, Externalisation, Combination and Internalisation	SECI
Uniform Resource Locator	URL
Vertical Enterprise Portal	VEP
Virtual Private Networks	VPN
Western Cape Education Department	WCED
Wide Area Network	WAN
World Wide Web	WWW

## Annexure B

<b>Permission to Conduct Research in WCED Schools</b>
---

Mr Zwelibanzi Webber  
6 Begonia Close

GROENEWEIDE PARK  
6529

Dear Mr Z. Webber

**RESEARCH PROPOSAL: DESIGNING SCHOOL LEARNING PROGRAMMES WITHIN THE  
CONTEXT OF KNOWLEDGE MANAGEMENT COLLABORATIVE TOOLS WITH SPECIFIC  
REFERENCE TO THE SOUTH CAPE/KAROO REGION.**

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

1. Principals, educators and learners are under no obligation to assist you in your investigation.
2. Principals, educators, learners and schools should not be identifiable in any way from the results of the investigation.
3. You make all the arrangements concerning your investigation.
4. Educators' programmes are not to be interrupted.
5. The Study is to be conducted from **5<sup>th</sup> February 2007 to 26<sup>th</sup> April 2007.**
6. No research can be conducted during the fourth term as schools are preparing and finalizing syllabi for examinations (October to December 2006).
7. Should you wish to extend the period of your survey, please contact Dr R. Cornelissen at the contact numbers above quoting the reference number.
8. A photocopy of this letter is submitted to the Principal where the intended research is to be conducted.
9. Your research will be limited to the list of schools as attached to this letter.
10. A brief summary of the content, findings and recommendations is provided to the Director: Education Research.
11. The Department receives a copy of the completed report/dissertation/thesis addressed to:  
**The Director: Education Research  
Western Cape Education Department  
Private Bag X9114  
CAPE TOWN  
8000**

We wish you success in your research.

Kind regards.

Signed: Ronald S. Cornelissen  
for: **HEAD: EDUCATION**  
**DATE: 24<sup>th</sup> November 2006**

## Annexure C

<h3>An Example of an Interview Transcript with an Individual Educator</h3>
--

*Question:* How many times did logging on take place?

*Answer:* Two times.

*Question:* Have you ever used an e-mail before?

*Answer:* Yes

*Question:* Have you ever participated in an online discussion before?

*Answer:* No.

*Question:* How do you feel about sharing information online?

*Answer:* I feel it can really help with lesson planning. We can exchange ideas and also different strategies that can let us grow professionally. It is also a good way of communication.

*Question:* Are you able to meet with other educators from other schools and plan together?

*Answer:* It is not possible to do that because after school I must go home with a lift. I also do not have access to a computer at home that I can use for this purpose.

*Question:* Do you attend cluster meetings?

*Answer:* Yes I do, and if we must attend cluster meetings we must close the school, so that we can be there in time.

*Question:* Do you work with other educators from other schools?

No we do not meet with them except in cluster.

*Question:* Did you try to upload documents on the site?

*Answer:* No

*Question:* Would you recommend the use of SP to other educators?

*Answer:* Yes

### An Example of an Interview Transcript with a Curriculum Advisor

*Question:* How many times did you try to log on?

*Answer:* I think I logged on three to four times.

*Question:* Do you think that the educators were able to share information and work together?

*Answer:* Educators are not yet there?

*Question:* What do you mean?

I, mean there is still a lot to be done before we can truly say they can share information. They are scared to try something they don't know.

*Question:* Besides sharing information online, do you think educators work together when they do their planning?

*Answer:* No educators do not do that they say "I'm not going to give out something that I worked so hard for to any one else".

*Question:* Did you get any benefit from sharing information?

*Answer:* I did not get any benefit because the educators did not share any information. Or may be I did not participate fully because of time.

Did you upload some documents?

*Answer:* Yes I did.

*Question:* Would you recommend SP for use by educators.

*Answer:* Yes I would, but I also think that there is still a lot to be done. And I see the role of Khanya Project for the promotion of ICT in schools as crucial in this respect.

## Annexure D

### Overview of Collaborative Tools

Company:

Lotus

Product:

Notes/Same time

Web address:

[www.lotus.com](http://www.lotus.com)

Features:

Calendaring, application sharing, e-mail, chat.

Company: Placeware  
Product: Conference centre 2000  
Web address: [www.placeware.com](http://www.placeware.com)  
Features: Hosted web conferencing, application sharing whiteboard

Company: CFM  
Product: TeamFlow  
Web address: [www.teamflow.com](http://www.teamflow.com)  
Features: Project management, document management and organisational charting

Company: Centra  
Product: Centra eMeeting/Centra Conference  
Web address: [www.centra.com](http://www.centra.com)  
Features: Web conferencing, application sharing whiteboard, voice over IP broadcasting.

Company: Caucus Systems  
Product: Caucus Visual teams  
Web address: [www.caucus.com](http://www.caucus.com)  
Features: Project management, threaded discussion boards<sup>167</sup>

---

<sup>167</sup> Lamont, I 2007. An adaptation from the website <http://www.networkworld.com/best2000/best-collab/best-collab.htm> At the time of the research the web sites were visited and found to be operational.