THE PROCESS OF LESSON STUDY AS A STRATEGY FOR THE DEVELOPMENT OF TEACHING IN PRIMARY SCHOOLS: A CASE STUDY IN THE WESTERN CAPE PROVINCE, SOUTH AFRICA

by

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DECLARATION

By submitting this dissertation electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the owner of the copyright thereof (unless to the extent explicitly otherwise stated) and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

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ABSTRACT

The purpose of this qualitative research study was to determine the value that a group of teachers in South Africa would place on the *process* of lesson study as a model for their own learning and instructional improvement. A qualitative case study approach through an action research design was the methodology employed for this research.

Participants in this 18-month study experienced three complete cycles and a fourth partially completed cycle of lesson study. The setting in South Africa offers a unique perspective to research on lesson study. Lesson study has been the primary method of professional teacher development in Japan for more than 50 years. It is also realizing some success in school districts across the USA. The recent educational reforms in South Africa have something in common with each of these countries. Like Japan, South Africa has adopted a national curriculum. The common link with the USA is that both countries have recently experienced educational reform at the national government level.

The findings from this research include a discussion of the elements contained in lesson study that may be beneficial to incorporate into continuing professional teacher development programs, an analysis of the sustainability of lesson study, and an exploration of the connection between the model of lesson study and the design of action research.

OPSOMMING

Die doel van hierdie kwalitatiewe navorsingstudie was om die waarde wat ʼn groep onderwysers in Suid-Afrika op die *proses* van lesstudie as ʼn model vir hulle eie leer- en onderrigverbetering sou plaas, te bepaal. ʼn Kwalitatiewe gevallestudie-benadering met behulp van ʼn aksienavorsingontwerp was die metodologie wat tydens hierdie navorsing aangewend is.

Deelnemers aan hierdie studie wat oor 18 maande gestrek het, het drie volledige siklusse en ʼn vierde gedeeltelike siklus van lesstudie onderneem. Die Suid-Afrikaanse konteks bied ʼn unieke perspektief op navorsing oor lesstudie. Lesstudie was vir meer as 50 jaar die primêre metode van professionele onderwyserontwikkeling in Japan. Dit behaal ook ʼn mate van sukses in skooldistrikte oor die VSA heen. Die onlangse onderwyshervormings in Suid-Afrika het iets gemeen met elk van hierdie lande. Soos Japan, het Suid-Afrika ʼn nasionale kurrikulum in gebruik geneem. Die skakel met die VSA is dat albei lande onlangs onderwyshervorming op nasionale regeringsvlak ondergaan het.

Die bevindinge van hierdie navorsing sluit ʼn bespreking van die elemente vervat in lesstudie in wat inkorporering in programme vir voortgesette professionele onderwyserontwikkeling tot voordeel kan strek, ʼn ontleding van die volhoubaarheid van lesstudie, en ʼn verkenning van die verband tussen die lesstudie-model en die ontwerp van aksienavorsing.

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LIST OF ACRONYMS

ANC	African National Congress
BEA	Bantu Education Act
CPTD	Continuing Professional Teacher Development
DET	Department of Education and Training
DoE	Department of Education
ERS	Educational Renewal Strategy
ETQA	Education Training and Quality Assurance
FET	Further Education and Training
GET	General Education and Training
HEDCOM	Heads of Education Departments Committee
HET	Higher Education and Training
HOA	House of Assembly
HOD	House of Delegates
HOR	House of Representatives
IQMS	Integrated Quality Management System
NCS	National Curriculum Statement
NQF	National Qualification Framework
NSB	National Standards Body
NSE	Norms and Standards for Educators
OBE	Outcomes Based Education
RNCS	Revised National Curriculum Statement
RSA	Republic of South Africa
SAQA	South African Qualifications Authority
SASA	South African Schools Act
SGB	Standard Generating Body

CHAPTER 1

INTRODUCTION

1.1 MOTIVATION FOR THE RESEARCH

Teachers are under greater pressure than ever to perform in the classroom. Reform movements with high-stakes accountability for learners' performance provide some of the impetus for this pressure. Much has been accomplished in the areas of curriculum alignment, standards of achievement, and assessment of learners' progress. With this highly publicized progress in educational reform, there is an expectation that learners' performance will meet the newly-established standards. However, as noted by Stigler and Hiebert (1999:169), "when students' achievement scores are below expectations, and when stories of students' failures fill the media, teachers are often blamed for the problems."

Teachers are increasingly expected to take on more responsibility for learners' achievement without being given the tools to do so. Not only are they blamed for the learners' lack of achievement, but they are also ignored as real participants in the solution to this problem. Continuing professional teacher development (CPTD) itself is not being ignored, teachers have just been left out of the planning for that training. In this regard Carl (2005:223-227; 2007:200) argues that South African teachers have largely been excluded from this process and that their voices have not been fully acknowledged. (For the purposes of this study the term CPTD was used rather than other related terms. Further discussion about the terminology can be found in Chapter 2, Section 2.1.2.) School districts regularly offer, even mandate, CPTD sessions to support and encourage the development of quality teaching. These sessions typically rely on outside experts to conduct the training seminars (Little, 2003:919).

It is time for educational reform to pick up the missing pieces in CPTD and include the practice of teaching itself. Improvement in standards is not enough to ensure the desired effect of teaching on the learners. According to Stigler and Hiebert (1999:2), "teaching is the next frontier in the continuing struggle to improve schools. Standards set the course, and assessments provide the benchmarks, but it is teaching that must be improved to push

us along the path to success." Researchers agree that although much has been done to reform many aspects of education, little attention has been given to reform in the area of CPTD (Bruner, 1996; Stigler & Hiebert, 1999).

Administrators need to offer teachers the support necessary to meet the current challenges. The classroom is where the real change needs to take place. Slavin (1996:4) argues that the "current reforms ignore a basic truth. Student achievement cannot change unless teachers use markedly more effective instructional methods." Teachers need to be seen and valued as active creators and reformers of their own profession. These arguments substantiate the need for the development of contextualized teaching practices such as lesson study.

Part of the motivation to conduct this research began with my own dissatisfaction with the type of CPTD that I had experienced during my teaching career. My search for an answer to this problem led me to the model of lesson study. My personal interest in the country and the recent reforms in the educational system led me to conduct my research in South Africa.

My interest was confined to the value that the participants would place on the process of lesson study as a model for their own learning and instructional improvement.

1.2 BACKGROUND TO THE PROBLEM

As a veteran of the teaching profession I have attended numerous CPTD workshops and conferences. In so doing, I have come away from most of those experiences uninspired to change anything substantial about my own instructional practices. Although many of the workshops I attended were interesting and informative, they fell short of being truly motivating. There have been only a handful of strategies that I have used in the classroom as a result of the many hours I have spent in attending those CPTD sessions. This caused me to continue my own practice of teaching in isolation. The question I had a passionate desire to answer as I began my research was: "Is there a CPTD approach that is successful in bringing a teacher out of isolation to work collaboratively with colleagues in an effort to truly improve instruction in the classroom?" My review of the literature, in search of the answer to that question led me to focus on lesson study, which has shown some success in both Japan (Lewis, Perry, & Hurd, 2004; Stigler & Hiebert,

1999; Yoshida, 1999) and the United States of America (USA) (Chokshi & Fernandez, 2004; Fernandez & Chokshi, 2002).

Lesson study is a systematic, cyclical approach to the planning, teaching, observing, revising, and re-teaching of lessons. It allows teams of teachers to collaboratively set goals for their learners and design instruction based on achieving those specific goals. Lesson study is a model that places the context of improvement of instruction within the classroom lesson (Stigler & Hiebert, 1999). Wang-Iverson and Yoshida (2005:23) define lesson study as, "a form of long-term teacher-led professional learning in which teachers systematically and collaboratively conduct research on teaching and learning in classrooms in order to enrich students' learning experiences and improve their own teaching." As a model for improving instruction, lesson study is beginning to receive attention internationally. It has been the primary method of CPTD in Japan for more than fifty years (Yoshida, 1999). It is also beginning to be utilized in many school districts across the USA (Chokshi & Fernandez, 2004:520). The recent educational reforms in South Africa have something in common with each of these countries.

1.2.1 Lesson study within the South African context

As a result of changes in national education curricula and/or policy, methods such as lesson study are receiving attention as a strategy for instructional improvement in both Japan and the USA. Herein lies the similarity to the South African context. Like Japan, South Africa has adopted a national curriculum. As a result, the use of lesson study as an instructional tool may be applicable across district boundaries. The common link between education in South Africa and the USA is that both countries have recently undergone educational reform at the national government level. The United States Congress has adopted the "No Child Left Behind Act" (2001), which requires that all learners be proficient in specified areas of learning by the tenth grade. The Department of Education in South Africa has made similar demands. School districts across the United States are realizing that reform at the national level does not necessarily lead to reform in the classroom (Berman, Desimone, Porter & Garet, 2000; Joyce & Showers, 1982; Schmoker, 2004; Stigler & Hiebert, 1999).

With the implementation of outcomes-based education and the accompanying National Curriculum Statements (NCS) (DoE, 1997b; 2002)), education in South Africa has

undergone radical reform. According to the Baseline Study presented at the Teacher Development HEDCOM Sub-Committee Workshop in Johannesburg on 2 August, 2005, the reforms at national level have not yet become classroom practice. One of the conclusions included in the Grade 6 Systemic Evaluation (DoE, 2005) addresses the implications for CPTD and support. From this evaluation, one can deduce that there is a gap between reforms adopted at national level and actual reforms in the classroom.

1.2.2 Connection between lesson study cycle and government standards

The new structure in the education system of South Africa lends itself well to research in lesson study as a strategy for instructional improvement. Educational documents issued by the Department of Education offer the framework for the initiation of a lesson study cycle. Elements of the NCS (DoE, 1997b; 2002) and the Norms and Standards for Educators (NSE) (DoE, 2000a) can be relevant in each of the four steps of the lesson study cycle, as shown in Figure 1.1 (see a detailed description of these steps in Chapter 2, Section 2.2.2).

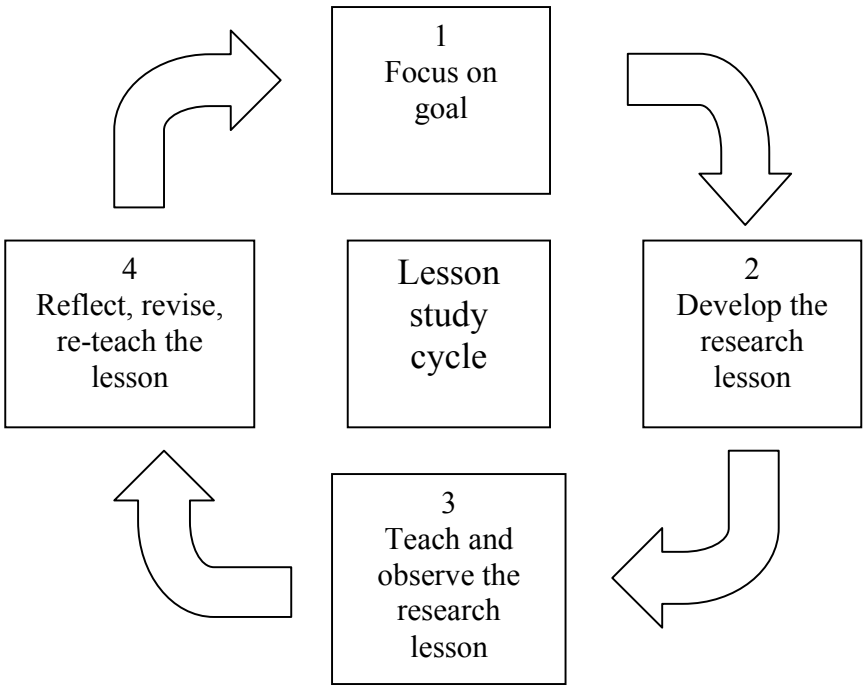


Figure 1.1 Steps in the lesson study cycle

Step One: Focus on the goal

The following policy statement could be used as the overarching goal in the first step of the lesson study cycle:

> The curriculum aims to develop the full potential of each learner as a citizen of a democratic South Africa. It seeks to create a lifelong learner who is confident and independent, literate, numerate and multi-skilled, compassionate, with a respect for the environment and the ability to participate in society as a critical and active citizen. (DoE, 2002:8)

Any of the Critical or Developmental Outcomes for learners could also be applicable as goals for step one of the cycle. For example, the *overarching goal* that is the focus of the first step might read, "Students have a sense of respect for the environment of the community in which they live." This statement uses the idea of "respect for the environment" outlined in the Policy Section of the NCS as well as the Critical Outcome that requires learners to "use science and technology effectively and critically showing responsibility towards the environment and the health of others." The goal also addresses the Developmental Outcome wherein learners are required to "participate as responsible citizens in the life of local, national and global communities." (DoE, 2000b; 2005)

Step Two: Develop the research lesson

The Learning Outcomes and Assessment Standards contained within the Learning Areas of the NCS (DoE, 1997b) could provide the necessary material for the research lesson. For example, if teachers in a lesson study group were going to use the above goal in step one of the cycle they might choose Consumer Studies as the subject to imbed the lesson in. Further Education and Training phase teachers could focus the lesson on Learning Outcome 3: Responsible Use of Resources. They could then use the Assessment Standard for Food and Nutrition to guide the content of the lesson itself. (DoE, 2003:20,21)

Step Three: Teach and observe the research lesson

The policy statement contained in the NCS points out that, "teachers have a particularly important role to play" in the successful implementation of the new curriculum. (DoE, 2002:9) Although the roles of teachers outlined in the NSE (DoE, 2000a) provide the

rationale for participation in each step of the lesson study cycle, several are particularly applicable during this third step:

- Teachers involved in the observation of the research lesson are provided with an excellent opportunity to fulfill the role of *learning mediator* as they focus primarily on the learners' approach to learning. This allows teachers to document the learners' struggles and successes thereby being able to, "construct learning environments that are appropriately contextualised and inspirational" (DoE, 2000a:13)
- Educators will be fulfilling their roles as *leaders, administrators, and managers* as they support colleagues who are part of the lesson study group.
- Teachers will be engaged in the characteristics described in the *community, citizenship, and pastoral role* by "demonstrating an ability to develop a supportive and empowering environment for the learner and responding to the educational and other needs of learners and fellow educators" (DoE, 2000a:14).

Participants in lesson study therefore take an active role in the improvement of instruction.

Step Four: Reflect, revise and re-teach

Several of the roles of teachers, as stated in the NSE also have particular relevance to the fourth step of the lesson study cycle:

- Educators act as *interpreters and designers of learning programs* as they analyze and interpret the data collected during step three. This analysis could provide the teacher with the ability to accurately "select, sequence and pace the learning in a manner sensitive to the differing needs of the subject/learning area and learners" (DoE, 2000a:13).
- The teacher is encouraged to become a *scholar, researcher and lifelong learner* in a collaborative environment. This step specifically requires that teachers "pursue reflective study and research in their learning area" (DoE, 2000a:13).
- Teachers fulfill their roles as *assessors* because they will better "understand how to interpret and use assessment results to feed into processes for the improvement of learning programmes" (DoE, 2000a:14). This will most likely be the formative assessment included in the design of the research lesson. Teachers will use the results of the data collected as they revise and re-teach the lesson.

Teachers involved in the research, fulfilled the role of *learning area/subject/discipline/phase specialist* as they progressed through each of the four steps of the lesson study cycle. By working collaboratively with colleagues and by keeping the learner as the focus for instructional improvement, participants found themselves "grounded in the knowledge skills, values, principles, methods, and procedures relevant to the discipline, subject, learning area, phase of study, or professional or occupational practice" (DoE, 2000a:14).

According to the principles of the NCS, "outcomes-based education considers the *process of learning* as important as the content" (DoE, 2002:10). This expectation is relevant for teachers as well as learners. Lesson study is a strategy that may be used to analyze and utilize the *teacher's learning process* in an effort to improve instruction.

As outlined above, lesson study provides the framework for teachers to integrate all of the elements of OBE. Since South Africa has adopted a national curriculum, any success with lesson study could be applicable across school districts. This is one of the reasons that lesson study has achieved so much success in Japan (Lewis, Perry, & Hurd, 2004; Stigler & Hiebert, 1999; Yoshida, 1999).

1.2.3 Teacher isolation

The traditional culture of teacher isolation in both the United States (Burney, 2004; Stigler & Hiebert, 1999) and in South Africa (Jackson & Rothman, 2005; Montgomery, Mostert, & Jackson, 2005; Randraje, van der Merwe, & Urbani, 2005; Steyn, 2004; Steyn & Schulze, 2005) does little to encourage improvement in instructional practice. Lesson study can be a viable strategy to move teachers from isolation to meaningful collaboration in an effort to improve classroom instruction. It can bridge the gap between reform at the national level and reform at the level of the classroom. Stigler and Hiebert (1999) claim that lesson study addresses the educational reforms in the USA much more effectively than the traditional methods of CPTD. It allows teachers to become the creators of reform in their profession.

1.3 PROBLEM STATEMENT

The study attempted to answer the following central or overarching question, which constituted the main focus of the research:

What value will a group of South African teachers place on the *process* of lesson study as a model for their own learning and instructional improvement?

The focus also included these sub-questions:

- Will the teachers involved in the research group experience the lesson study cycle as a viable strategy for reducing isolation?
- Does lesson study facilitate meaningful collaboration that allows them to improve classroom instruction?

1.4 GOALS OF THE STUDY

The goal of the research was to determine the value teachers would place on the *process* of lesson study. If the data collected supported the notion that lesson study was a valuable strategy for instructional improvement, then the following questions were applicable:

1. What do the participants see as the most rewarding elements of the cycle?
2. How do the participants measure improvement in instruction?
3. What do participants see as reasons for their improvement?
4. What effect did collaboration have on the improvement of instruction?
5. Is lesson study a model they would like to implement in their own schools and, perhaps, throughout their district?
6. What obstacles would need to be overcome?

If the collected data did not support the notion that lesson study was perceived as a valuable strategy for instructional improvement, then these questions were applicable:

1. What obstacles were there that could not be overcome?
2. Where there any perceived benefits?

As the study progressed, the notion of sustainability was also addressed. Three components suggested by Perry and Lewis (2003) were used to address the sustainability and integrity of the lesson study process as the research progressed from one cycle to the next. A detailed discussion of these components can be found in Chapter 5, Section 5.1.3.2.

1.5 RESEARCH DESIGN AND METHODOLOGY

1.5.1 Research goal

The goal of this research was to determine the value that participants placed on the *process* of lesson study as they experienced it. A qualitative case study approach was used. Gall, Gall and Borg (2005:307) argue that qualitative research case studies "reflect the nature of reality as experienced by those who have been there. Reading about cases that are either similar to or different from your own experience in education can deepen your understanding of the educational phenomena that you experience in your work." According to Holloway (1997:1), "researchers use qualitative approaches to explore the behavior, perspectives and experiences of the people they study."

1.5.2 Research orientation

The research orientation for this study was grounded in critical theory. According to Bassey (1999:39), "critical inquiry is aimed at informing educational judgments and decisions in order to improve educational action." Participants in the study were asked to deviate from the status quo of isolation and become collaborative researchers in an effort to improve classroom instruction.

Action research was selected as the design for the study. Action research requires the participants to become actively involved in the research process through inquiry and self-reflection (Bassey, 1998; Bell, 1999; DeVos, Strydom, Fouche & Delport, 2005; Dick, 1997; Frost, 2002; Hopkins, 2002). DeVos, et al (2005:410) claim that, "the modern human being in the West or Westernized communities is often characterized by a sense of isolation and purposelessness." They advocate mobilization as a strategy to overcome isolation.

Employing a qualitative case study approach through an action research design allowed for a thick description of each step in the lesson study cycle to emerge. Teachers involved as participants in this research were asked to reflect on the process of lesson study as they experienced each step in the cycle. The four steps of the lesson study cycle align well with the stages in some of the models of action research. There are several models to choose from when considering an action research design. According to

Costello (2003:7), "many authors offer diagrammatic representations of action research." Mertler (2009:13) contends that,

> numerous authors and researchers have proposed models for the action research process. Because this process is somewhat dynamic, various models look a bit different from one another but possess numerous common elements. Action research models begin with a central problem or topic. They involve some observation or monitoring of current practice, followed by the collection and synthesis of information and data. Finally, some sort of action is taken, which then serves as the basis for the next stage of action research.

Action research designs can be as simple as the three-stage, "look, think, act" model suggested by Stringer (2007:9) or as elaborate as the eight-stage model suggested by Bassey (1998:94-95). Two models of action research that connect well with the model of lesson study being employed in this research are presented by Lewin (1946) and Riel (2008). The following table demonstrates the connection between these two models of action research and a cycle of lesson study:

Table 1.1: Connection between lesson study and action research

Action Research Model Kurt Lewin *(2 spirals)*	Action Research Model Margaret Reil *(2 spirals)*	Lesson Study Cycle *(1 complete cycle including optional teaching of revised lesson)*
1.Plan	1. Study and plan	1.Focus on the goal
2. Act	2. Take action	2. Develop research lesson
3.Observe	3. Collect and analyze evidence	3.Teach/observe research lesson
4.Reflect *(2nd spiral)* 1.Revised plan 2.Act 3.Observe 4.Reflect	4. Reflect *(2nd spiral)* 1. Study and plan 2. Take action 3. Collect and analyze evidence 4. Reflect	4.Reflect *Optional piece of Step 4:* Revisit goal Revise research lesson Teach/observe revised lesson Reflect

One complete four-stage spiral in both of the action research models in Table 1.1 clearly connect to the required four steps in a cycle of lesson study. If the optional piece in step

four of the lesson study cycle is included, a second spiral of action research would be employed.

1.5.3 Data generation

This research was conducted with a group of teachers in a primary school in the Western Cape Province in South Africa. All six participants in the study were teachers of mathematics in the Intermediate Phase (grades 4-6). Two of the six teachers were also administrators in their school. Data were generated during each step in the lesson study cycle by employing the following research techniques:

One-to-one interviews

There were three sets of one-to-one interviews conducted throughout the duration of the study. The first, semi-structured interview took place after the completion of the first lesson study cycle. Questions were open-ended but specifically targeted the research questions outlined in the goals of the study. Participants were asked to provide examples, where applicable, in answer to the interview questions.

The second, semi-structured interview took place after the completion of the second lesson study cycle. Questions in this interview built on the information gathered in the first interview. Participants were asked to reflect on the research questions as well as their perceptions of any changes that occurred during the second cycle.

The third set of interviews took place during the fourth cycle of lesson study. One interview was conducted with the proposed teacher of the research lesson for that cycle. The other interviews were conducted as follow-up with the six original participants who were involved in the first three cycles of lesson study.

All interviews were conducted and video-recorded by the researcher. They were subsequently transcribed verbatim and downloaded onto DVDs.

Surveys

Since the objective of this study was to determine how participants experienced the process of lesson study, it was important that they record their thoughts regularly. Surveys were administered before, during and after the lesson study cycles.

The first survey, the Background Survey, was conducted prior to the first lesson study cycle. Questions in this survey addressed participants' current perception of his/her experience of isolation and the role that peer collaboration has played in instructional improvement.

A second survey, Reflections on Step 2 of the Cycle, was administered after the research lesson had been planned but before it had been taught. Participants were asked to reflect on the amount of time spent on the lesson study, benefits of the process, and obstacles to the process. Participants were also encouraged to use examples in their reflection.

A third survey was administered after completion of the third lesson study cycle. A survey format was chosen, rather than interviews, in the interest of time.

Time logs

A group time log was kept for all team planning sessions. The participants were also asked to record personal time spent on lesson study.

Research-lesson documents

The research documents included copies of the initial research lesson and the revised research lesson, the observation protocols, post-lesson discussion forms, and time logs. These documents provide evidence to either support or negate the value of lesson study as a process for instructional improvement.

Field notes

As far as possible, the researcher acted as an observer during the study. Extensive field notes were taken to fit criteria offered by De Vos, et al (2005:281). They contend that, "field notes should ideally contain a comprehensive account of the respondents themselves, the events taking place, the actual discussions and communication and the observer's attitudes, perceptions and feelings."

Video-recordings

Primarily for the benefit of the English-speaking researcher, all lesson study group meetings were video-recorded. This enabled the researcher to have any Afrikaans spoken

during these meetings interpreted later so as not to interrupt the flow of the meeting in progress. Delivery of the research lessons was also video-recorded. The reason for recording the meetings was to add to the completeness and validity of the data. The video-recordings of the meetings and research lessons were not transcribed. They were not coded or used as part of the analyzed data.

By using these techniques to generate data, triangulation has been achieved. According to Holloway (1997), there are three types of triangulation: between-method, within-method, and investigator. The format used for this study aligns itself most closely to the "within-method" type.

1.6 KEY DEFINITIONS AND TERMINOLOGY

The following key terms are explained and/or defined in order to provide a common understanding of the use of such terms in the remainder of this dissertation.

1. Action research spiral: An action research spiral is a series of planned stages in an action research model. A complete spiral of action research includes stages for planning, acting, observing and reflecting. Action research typically includes multiple spirals (Mertler, 2009:13-17).

2. Apartheid: The system of government, based on separation and inequality, in South Africa from 1948 until the early 1990's.

3. Assessment standards: Criteria, included in the NCS, that collectively provide evidence of what a learner should know and be able to demonstrate at a specific grade. They embody the knowledge, skills and values required to achieve the Learning Outcomes. Assessment Standards within each Learning Outcome collectively show how conceptual progression occurs from grade to grade (Carl, 2009:84-85; DoE, 2002:14).

4. Learning areas: A field of knowledge, skills and values which has unique features as well as connections with other fields of knowledge and Learning Areas. The Learning Areas included in the RNCS for grades R-9 are: Languages, Mathematics, Natural Sciences, Technology, Social Sciences, Arts and Culture, Life Orientation, and Economic and Management Sciences (DoE, 2002:4; Carl, 2009:89-90).

5. Learning outcome: A statement of an intended result of learning and teaching. It describes knowledge, skills and values that learners should have acquired by the end of the band of education they are currently enrolled in. Learning Outcomes are packaged into subjects (Carl, 2009: 88; DoE, 2002:14).

6. Lesson study: Lesson study is a form of long-term professional development in which groups of teachers collaboratively conduct research within the context of the classroom. It involves a systematic approach to the planning, teaching, observing, revising, and re-teaching of lessons. It is a way for teachers at the same grade level or across grade levels to work in teams to set specific goals that translate directly to improvements in classroom instruction (Stepanek, Appel, Leong, Mangan & Mitchell, 2007:xiv; Wang-Iverson & Yoshida, 2005:85).

7. Lesson study cycle: A lesson study cycle is the complete series of steps in the lesson study process. A complete cycle of lesson study involves a group of teachers planning a research lesson around a prescribed goal, teaching the lesson to a group of learners in a classroom, collecting observation data of the lesson, reflecting upon the data generated, and developing a record of their activity (Stepanek et al., 2007:195; Wang-Iverson & Yoshida, 2005:152).

1.7 OUTLINE OF CHAPTERS

The outline of the chapters in the dissertation is as follows:

Chapter 1 provides an introduction to the research study. It includes the motivation for the research and the background to the problem. It discusses the alignment of the cycles of lesson study with South Africa's policies and standards for education. It also suggests a connection between the lesson study cycles and two different models of action research. This chapter lists the goals of the study and introduces the research design and methodology.

Chapter 2 provides a review of the literature related to the culture of teaching. It discusses teacher isolation, collaboration and CPTD. The focus of the literature review is a detailed description of lesson study. The steps of the lesson study cycle are highlighted

and described. The perceived benefits and limitations of lesson study as an instructional tool are also discussed.

Chapter 3 provides a brief overview of the reform that has taken place in education in South Africa. The intention of this chapter is to inform the international reader about the cultural background of learners and teachers as the country transitioned from a system of segregation to one of integration. This chapter also discusses the historical context of CPTD and the participants in relation to this study.

Chapter 4 outlines the research design and methodology. The research design is described providing a rationale for a qualitative case study based on an action research approach. The selection of participants and the generation of data are discussed. The evolution of the study from a multiple case with a cross-case analysis into a single case progressing through multiple cycles of lesson study is also addressed.

Chapter 5 begins with a discussion of the questions guiding this research and the factors contributing to sustainability. Analysis of each cycle follows with a discussion of the coding of the data, the role of the researcher, the connection of the generated data to the research questions, and the connection of the data to the components of sustainability.

Chapter 6 discusses the findings and conclusion reached as a result of the data analysis. It presents the results of the research in connection with the research questions and the components of sustainability. It discusses the limitations of the study and the contributions of this research. This chapter concludes with recommendations for future lesson study groups and further research.

1.8 CONCLUSION

In light of the motivation and problem statement, this research thus strives to answer the set research questions employing a qualitative case study approach through an action research design. It also addresses the issue of the sustainability of lesson study through multiple cycles. The study concludes with a discussion of the findings as well as the connections between the cycles of lesson study and the spirals in action research.

In Chapter 2 a review of the literature will be given.

CHAPTER 2

REVIEW OF THE LITERATURE

2.1 INTRODUCTION

There is a clear body of knowledge and literature relating to the field of lesson study. It is necessary to provide a theoretical underpinning for this study, and this chapter tries to address this requirement. The following questions guided the literature review:

Is there a successful strategy whereby teachers work collaboratively at the local level to systematically improve instruction in the classroom?

If such a strategy exists:

a) How is it currently being used?
b) What are the obstacles to implementing such a strategy?
c) What are the qualities that make it successful?

From the literature it is clear that extensive research has been done and much has been written on lesson study internationally; however, nothing has been written within the context of South Africa.

2.1.1 The teaching culture is one of isolation

The teaching culture in many countries has traditionally been one of isolation. Once teachers make it into the classroom, the tendency is to close the door and leave it that way. According to Burney (2004:527), it may be that, "since teaching was a job that was thought to require little specialized knowledge, there was no reason for teachers to work together to build on one another's strengths or help one another with weaknesses. Successful practices were not acknowledged, studied, replicated, or disseminated. Unfortunately, these conditions persist today."

Teachers tend to replicate the culture they observed as a learner in the classroom. Many of the strategies that their teachers used will be the same strategies that they, in turn, will use on their own learners. The cultural norm for decades has been that teachers practice

in isolation (Lam, Yim & Lam, 2002:182; Wallace, 1998:82). Many are comfortable with the autonomy and freedom that this ensures. In this culture of isolation, it is unnecessary to rationalize most of the decisions made during classroom instruction. Stigler and Hiebert (1999:110) believe that this culture of isolation may be due to the belief in the USA where, "teachers are assumed to be competent once they have completed their teacher-training programs." According to Alfonso and Goldsberry (1982:91),

> teaching is still largely a solo act, observed, appreciated, and evaluated primarily by students. There is little contact among colleagues, classroom doors are seldom opened to each other, and teachers who are members of the same staff in the same school, even in the same grade or discipline, maintain a collusive and almost a deliberate ignorance of the work of their peers.

The cause of teacher isolation may also be the fear of criticism by colleagues or supervisors. Teachers who are unsure of their skills are reluctant to be compared with other teachers (Burney, 2004; Porter & Brophy, 1988; Wallace, 1998). Lam et al. (2002:182) have noted that, "classrooms are usually very isolated places and there is a subtle resistance from teachers against having another adult in their classroom."

2.1.2 Continuing professional teacher development

For the purposes of this study the term *continuing professional teacher development* (CPTD) was used rather than related terms such as *teacher training, professional development, staff development, or in-service training.* According to Frick (2007:6), "Continuing professional development (CPD) is seen as the broadest possible concept that incorporates both the education and learning that professionals engage in during their transition from novices to experts and beyond." Within CPD as a broad concept, this research narrows the focus to the teacher. The latest documents from the Department of Education in the setting where this research was conducted (South Africa) use the term *continuing professional teacher development* in reference to development programs offered to in-service teachers. Therefore, *continuing professional teacher development* (CPTD) will be the terminology employed in this research.

CPTD has not been very successful in changing the culture from one of isolation to that of meaningful collaboration among teachers (Lam et al., 2002:183). For decades, teachers have been given the message that they are not professionals. Instead of being encouraged to come together as peers and colleagues to share knowledge and experience, they have been ushered into training sessions presented by so-called experts in education who spend little time in the classroom. Although there may be valuable material presented to teachers in these sessions, little of it makes the transition from the presentation room to the teacher's classroom (Stigler & Hiebert, 1999). In reference to the standards-based reform movement in the USA, resulting in the "No Child Left Behind Act" (2001), Berman, Desimone, Porter, and Garet (2000:28) contend that, "much of the professional development that is offered to teachers simply does not meet the challenges of the reform."

Although many training seminars and conferences offer ideas and strategies to encourage teachers to work together, little of what is presented actually becomes part of the teacher's practice (Joyce & Showers, 1982; Lam, et al, 2002). Burney (2004:528) contends that "teachers are merely told to change this, fiddle with that, or attend more professional development sessions, which have no connection to their work and do not address the profession's deep issues of isolation and fragmentation." Many CPTD sessions are presented based on the assumption that the teacher will take the strategies presented and be able to immediately implement them into classroom instruction. Joyce and Showers (1982:5) contend that teachers

> cannot simply walk from the training session into the classroom with the skill completely ready for use….successful transfer requires a period of practice of the skill in context until it is tuned to the same level of fluidity as elements of the previously existing repertoire.

Berman et al. (2000:29) found that CPTD sessions presented in "traditional formats are criticized for not giving teachers the time, the activities, and the content necessary for increasing their knowledge and for fostering meaningful change in their classroom practice." Schmoker (2004:427) claims that very little of what is presented in CPTD programs actually becomes classroom practice.

This process of presenting information with the expectation that it will be incorporated into classroom instruction is rarely monitored for its effectiveness. There is usually some kind of feedback survey that teacher participants fill out at the closing of the training session. The form may inquire about the teachers' perceived valuation of the translation of the information presented into classroom practice, but seldom is a teacher asked to offer feedback after implementing the proposed instructional strategies. Unless there is a plan to follow through, administrators never know if the material presented during CPTD sessions is ever incorporated into classroom practice.

According to Stigler and Hiebert (1999:126), "What teachers are told by researchers to do makes little sense in the context of an actual classroom. Researchers … do not have access to the same information that teachers have as they confront real students in the context of real lessons with real learning goals."

For CPTD to be effective, there needs to be support beyond the allotted training sessions. Teachers need to have the time to analyze the suggested improvement strategies as well as the opportunity to solicit feedback from colleagues. Peer coaching can be one way of bridging the gap between the CPTD session and classroom instruction. It can be an effective and enjoyable way to encourage teachers out of the tradition of isolation (Joyce & Showers, 1982).

2.1.3 Collaboration

Many school districts are beginning to see the value in teacher-led training (Little et al., 2003:185). CPTD sessions that traditionally were led by an out-of-building professional are being replaced by less formal sessions being led by in-building classroom teachers. Teachers are becoming recognized as the experts in their profession. Teaching and learning can be improved when teachers meet collaboratively to examine their profession (Achinstein, 2002; Grossman, Wineburg, & Woolworth, 2001; Gutierrez, 1996; King & Newmann, 1999; Little, 1990, 1999, 2003; Louis & Kruse, 1995; McLaughlin & Talbert, 2001; Westheimer, 1998; Witziers, Sleegers, & Imants, 1999). Burney (2004:528) states that

> people learn by watching one another, seeing various ways of solving a single problem, sharing their different takes on a concept or struggle, and developing a common language with which to talk about their goals, their

> work, and their ways of monitoring their progress or diagnosing their difficulties. When teachers publicly display what they are thinking, they learn from one another, but they also learn through articulating their ideas, justifying their views, and making valid arguments.

Collaboration is being promoted in a variety of forms. Some collaborative teams are mandated from an administrative level while others are less formal and spontaneous. Little (2003:2) states that the "purpose of these collaborative efforts is to foster teacher learning, support for a professional community, and the pursuit of school reform."

2.1.4 Model for collaboration

Even with collaboration being more and more encouraged as a worthy pedagogical strategy, has it really been useful as a tool to change the culture of isolation? Lam, et al (2002:182) contend that, "in spite of the strong evidence that peer coaching or sharing is a promising way for teacher development, teachers generally do not welcome it."

Some research suggests that even though collaboration builds a feeling of community among the teachers involved, it does little to change actual teaching practice. Teachers need to approach collaboration by means of a systematic model to focus their group efforts toward individual instruction. Little (1985:34) argues that, "among the potentially most useful yet most demanding interactions among teachers are those that focus on actual classroom performance." Burney (2004:528) believes that "the point is to replace isolation with challenging and supportive relationships organized entirely around instruction."

A successful model of collaboration should include specific elements. A theoretical framework, peer discussion, observation, and critical analysis are all criteria that should be included in an effective model (Joyce & Showers, 1982). Schmoker (2004:429) lists the following benefits of teachers using such a model to teach each other:

1. higher-quality solutions to instructional problems
2. increased confidence among faculty
3. increased ability to support one another's strengths and to accommodate weaknesses
4. more systematic assistance to beginning teachers, and

5. the ability to examine an expanded pool of ideas, methods, and materials

All members of a team can benefit by using a collaborative model. Alfonso and Goldsberry (1982:92) stated that, "by developing collaborative networks among teachers and providing structured opportunities for peer review, schools can enrich the organizational climate while providing classroom teachers with a potentially powerful vehicle for instructional improvement." Schmoker (2004:429) argues that even the best educational programs "must be interpreted and implemented in a context where teachers can collectively invent, adapt, and refine lessons and units in which 'best practices' are embedded." One such a structured model is lesson study, a collaborative tool that is embedded in the culture of Japanese schools.

2.2 LESSON STUDY

Lesson study is a model for classroom instruction that has been used in Japan for the past 50 years. It has been credited in Japan for much of the success in teaching mathematics and science (Lewis, Perry, & Hurd, 2004; Yoshida, 1999). According to Stigler and Hiebert (1999:126), "Japan has succeeded in developing a system that not only develops teachers but also develops knowledge about teaching that is relevant to classrooms and sharable among the members of the teaching profession."

Lesson study was introduced to the USA through *The Teaching Gap*, a book that publicized Yoshida's study done in Japan (Stigler & Hiebert, 1999; Yoshida, 1999). While conducting the study that their book is based on, Stigler and Hiebert (1999:104) discovered that great insight may be gained by viewing teachers across cultures. One of the conclusions they reached through this cross-culture analysis was that, "different ways of teaching can be designed and implemented, and that these substantive changes might have large effects on students' learning." They further claim that the lesson study method addresses the educational reforms in the USA much better than the USA lessons do.

Lesson study has recently become part of the CPTD process in several school districts across the USA (Fernandez & Chokshi, 2002). Chokshi and Fernandez (2004:520) claim that while

> recently there has been a rapid proliferation of lesson study groups in the United States, deep knowledge about lesson study is rare… it is likely that some of these groups have an incomplete understanding of this Japanese practice. Some may focus on structural aspects of the process of lesson study or may mimic its superficial features, while ignoring the underlying rationale for them.

2.2.1 What is lesson study?

Lesson study is a systematic approach to the planning, teaching, observing, revising, and re-teaching of lessons. It is a way for teachers at the same grade level or across grade levels to work in teams to set specific goals that translate directly to improvement in instruction. Lesson study works on the premise that the classroom lesson is the context that should be used to improve teaching (Stigler & Hiebert, 1999). Burney (2004:530) defines lesson study as a process by which "practitioners engage as researchers and scholars in their own classrooms by developing and testing lessons and studying their impact on students. This practice provides a high-fidelity context in which teachers can build their content knowledge and pedagogical skill."

One of the defining characteristics of lesson study is that it provides gradual change over time. This is uncharacteristic of the type of change usually seen in reform movements. The very idea of reform tends to connote broad, sweeping, dramatic differences from the norm. Stigler and Hiebert (1999:109) describe lesson study as a system that "includes clear learning goals for students, a shared curriculum, the support of administrators, and the hard work of teachers striving to make gradual improvements in their practice."

The main component of lesson study is the research lesson. Watanabe (2002:36) explains that "an individual teacher or group of teachers plans a research lesson by studying the lesson's topic, ascertaining where the topic fits into the curriculum, evaluating the strengths and weaknesses of typical approaches, and trying new ways to address weaknesses in the traditional approaches." Although the most common type of lesson study groups is school-based, they can also occur at the regional and even national levels (Stigler & Hiebert, 1999; Watanabe, 2002).

2.2.2 Steps in the lesson study cycle

There are differing views about how many actual steps there are in the lesson study process. Stigler and Hiebert (1999) include eight steps ranging from deciding what the learning goal should be to the dissemination of the results to an audience beyond the research team. Yoshida (1999) divides the process into five steps beginning with the initial group meeting and ending with group reflection and the filing of the accumulated records. Fernandez and Chokshi (2002) claim that there are six steps ranging from the first group meeting where the overall goal is decided to the last step where the teachers reflect on the process and write a report. Lewis (2002) proposes a four-step process, beginning with the choosing of a goal and ending with the re-teaching of the research lesson. A synthesis of the steps proposed by Lewis, Stigler and Hiebert, and Yoshida is presented by Weeks and Stepanek (2001:5).

I chose to use four steps for the process of lesson study in this research. The four steps I chose are compared, in Table 2.1, with the eight "synthesized" steps suggested by Weeks and Stepanek (2001:5), the five steps proposed by Stepanek et al. (2007:3), and the four steps outlined by Lewis (2002:3).

Table 2.1: Steps in the process of lesson study

Steps	Weeks/Stepanek	Stepanek	Lewis	This study
1	Focusing the lesson	Setting goals	Goal-setting and planning	Focus on the goal
2	Planning the lesson	Planning the lesson	Research lesson	Develop the research lesson
3	Teaching the lesson	Teach, observe and debrief	Lesson discussion	Teach/observe research lesson
4	Reflect and evaluate	Revising and re-teaching	Consolidation of learning (if desired, re-teach)	Reflect, revise, and re-teach (if desired)
5	Revise lesson	Reflect and share results		
6	Teach revised lesson			
7	Reflect and evaluate			
8	Sharing results			

The steps I chose are aligned most closely with Weeks and Stepanek's synthesis. Because the re-teaching of the research lesson is optional (Lewis, 2002:3), I chose to

include that as part of the fourth step. The step that may be construed as missing from my cycle is "sharing results". Since the results from this research are only being shared as part of the findings in this study, I have left that step out of the process.

A detailed description of each of the four steps of the process of lesson study used for this research follows.

2.2.2.1 Step One: Focus on the goal

Teachers begin the lesson study process by deciding on the goals they want to set for their learners. This should be an overarching goal that several study lessons will be designed around (Fernandez & Chokshi, 2002; Lewis, 2002). In Japan, these goals are determined by the apparent gaps between the reality of the children who are in the classroom every day and the ideal of what the team of teachers would like them to be. The goals can be academic or social, general or specific. The goal is chosen after a good deal of observation and discussion.

Lewis, Perry, and Murata (2006:4) outline the first step in the lesson study cycle as follows: "Study curriculum and formulate goals: consider long-term goals for student learning and development; study curriculum and standards, identify topic of interest." Stigler and Hiebert (1999:112) have observed that, "usually the problem teachers choose is one they have identified from their own practice, something that has posed particular challenges for their own students." The goals that the teams focus on may also be a result of suggestions made by local administrators or district supervisors.

2.2.2.2 Step Two: Develop the research lesson

The second step in the process is to design a lesson that meets the goals specified during the first step. Most of the time teachers will use a previously taught lesson that did not produce the desired learning outcomes. The initial focus of this step is to detail what the learning goals for the research lesson will be within the context of the overarching goal (Stigler & Hiebert, 1999).

The team of teachers will then decide how the lesson will be presented to the learners. The lesson plan includes the teaching strategies to be used as well as their relation to the goal. The plan should also provide background information on the particular learners in

the class where the research lesson will be presented. According to Stigler and Hiebert (1999:113), "The goal is not only to produce an effective lesson but also to understand why and how the lesson works to promote understanding among students."

Lewis et al. (2006:4) advise that the instruction plan for the research lesson includes, "long-term goals, anticipated student thinking, data collection plan, model of learning trajectory, and the rationale for chosen approach." The lesson plan will include examples of possible learners' questions and responses, with appropriate teacher responses to them. Finally, the lesson plan will include some kind of an instrument for evaluation or assessment.

2.2.2.3 Step Three: Teach and observe the research lesson

The third step is for one of the teachers on the team to teach the research lesson while the other teachers observe. This can be a challenging and fearful step in the process. It is risky for teachers to invite peers and colleagues into the classroom to critique their instruction methods. However, as declared by Burney (2004:529), teachers "can develop their expertise only if they are willing to experiment, make mistakes, and analyze those mistakes – with everyone else and in front of everyone else. There is no other way for new knowledge to infuse the system and create stronger instructional practice."

According to Fernandez and Chokshi (2002:132), "The key to observing a study lesson in the classroom is to consider this activity as a data-gathering opportunity that can help answer questions of interest for the teachers who planned the lesson and for (the) lesson study group as a whole." Stigler and Hiebert (1999:114) observed that, "the focus is on the lesson, not the teacher who taught the lesson; the lesson, after all, is a group product, and all members of the group feel responsible for the outcome of their plan."

During the presentation, observers may engage the learners in questions to assess understanding, however Fernandez and Chokshi (2002:132) caution observing teachers to "refrain from interfering with the natural process of the lesson; otherwise, the information gathered would not validly reflect what would have happened had a lesson been taught by a single teacher." Watanabe (2002:38) advises that,

> because the focus of a research lesson is student's learning, observers should move around the classroom to observe students' work. They must

> be able to hear what the students are talking about and see what the students are writing in their notebooks.

He goes on to caution the observing teachers against interrupting the natural flow of the lesson. The observer's primary responsibility is to gather data about the research lesson.

If good data collection tools are created as part of the lesson plan, observing teachers will find it easy to focus on the goals of the lesson. Individual observers can be assigned different aspects of the lesson to gather data about. Watanabe (2002:39) assures observing teachers that "the more specific and detailed the data are, the more productive the discussion will be for all the participants." Videotaping the research lesson can also be an option, although because of its limited focus, it probably cannot successfully replace the teacher observers.

2.2.2.4 Step Four: Reflect, revise, and re-teach the lesson

The fourth step in lesson study is to give feedback using the data gathered during the observation of the research lesson. The goal of this step is to evaluate how well the research lesson met the goals it was designed to meet. This session usually begins with feedback from the teacher who taught the lesson. This teacher can relay her own thoughts about what did and did not work in the lesson. Other teachers can then give feedback based on the data they collected. It is important during this session to keep feedback focused on the lesson. Fernandez and Chokshi (2002:133) suggest that,

> when the observers begin to share their feedback, they should first thank the teacher who taught the lesson and comment on some of the positive aspects of the lesson. The observing teachers should support all of their statements with concrete evidence from their observations.

The fourth step in the model is critical. Lesson study is not simply a program to showcase teaching. It is a systematic strategy to analyze a lesson. According to Watanabe (2002:37),

> A teacher or lesson study group shares research findings in the form of a research lesson so that the participants can analyze the research data during the post-lesson discussion. A research lesson, therefore, must always include a post-lesson discussion in which all participants can reflect critically on the lesson.

Based on the feedback from all of the researchers involved in teaching and observing the study lesson, revisions should then be made to the original lesson plan. This revision may take a variety of forms. Stigler and Hiebert (1999:114) note that teachers "might change the materials, the activities, the problems posed, the questions asked, or all these things. They often will base their changes on specific misunderstandings evidenced by students as the lesson progressed."

The lesson may then be re-taught by a different teacher on the team to a different group of learners. Teachers on the team would again observe and offer feedback. When the research lesson is re-taught in Japanese schools, members outside of the original research team may be present. All members of the faculty are invited to attend the teaching of the revised lesson. Those present for the second presentation of the research lesson then become part of the revision process (Stigler & Hiebert, 1999).

Lewis, et al (2006:4) characterize this step as a "formal lesson colloquium in which observers: share data from the lesson [then] use the data to illuminate student learning, disciplinary content, lesson and unit design, and broader issues in teaching-learning." This cycle can be repeated as many times as is necessary or feasible to accomplish the initial goals of the lesson. Once the goal of the research lesson has been successfully achieved, a process that can last a full year, information is then shared with the larger educational community.

2.2.3 Perceived benefits of lesson study

In several of the studies done using lesson study as a model for improving classroom instruction, there appeared to be benefits. Teachers who broke away from the traditional culture of isolation to become involved in lesson study teams were rewarded in a variety of ways. Stewart and Brendefur (2005:682) report that "rich conversations about what had gone well and what had not turned out as planned were common." In studies where teachers carried the process all the way through to the final step of re-teaching the research lesson, improvement in instruction was realized. These teachers felt the experience to be very rewarding (Chokshi & Fernandez, 2004; Stewart & Brendefur, 2005).

One benefit of the lesson study approach is that it can be an agent of change in a culture of isolation. Stigler and Hiebert (1999:123) view it as a process that "balances the self-critiquing of individual teachers with the idea that improved teaching is a joint process, not the province or responsibility of any individual".

Perhaps part of the reason for its success in breaking the barrier of isolation is that the teachers involved in lesson study developed a different perception about being observed. Rather than feeling like their performance was being evaluated, teachers viewed the observation as an evaluation of a lesson that had been designed by the team (Chokshi & Fernandez, 2004). Stigler and Hiebert (1999:125) have observed that, "when one teacher teaches the lesson and the others observe, problems that emerge are generally attributed to the lesson as designed by the group, not to the teacher who implemented the lesson. It thus becomes possible for teachers to be critical without offending their colleague." When teachers are comfortable observing each other and less fearful of being critiqued, they become confident and are more willing to strive for excellence in teaching (Burney, 2004:529; Stigler & Hiebert, 1999:124).

Another benefit realized by some of the teachers involved in lesson study was an increase in content knowledge. Lesson study can be particularly useful if the teams of teachers share a discipline. Chokshi and Fernandez (2004:521) found that, "the activity of planning a lesson together created many opportunities for teachers to learn basic content from their colleagues." Teachers sharing a discipline have also discovered that participation in lesson study has influenced their teaching by encouraging them to approach their subject with more depth (Stewart & Brendefur, 2005:687).

It seems that even teachers who participated in mixed content or grade-level teams benefited from the process itself. Even though the research lessons may have been generated in a discipline not taught by the teacher, the critical analysis of designing, implementing, observing, and evaluating the lesson offered the teacher personal insight (Burney, 2004). Stigler and Hiebert (1999:123) note that "by working in groups to improve instruction, teachers are able to develop a shared language for describing and analyzing classroom teaching, and to teach each other about teaching." Lesson study provides a format for teachers to offer and accept peer review. Whether teachers involved in lesson study share a discipline or come from mixed disciplines, the

opportunity to reflect on collaborative feedback enhances their ability to see themselves as professionals (Porter & Brophy,1988:75; Stigler & Hiebert, 1999:126).

Lesson study also seems to provide an approach that can be continuously effective in meeting the needs of learners. One of the main goals of lesson study is to focus on the thinking and understanding of the learner (Wang-Iverson & Yoshida, 2005:11). Indeed, if the goal of improving teaching is to facilitate an improvement in learning, lesson study can be a means to that end. Chokshi and Fernandez (2004:521) believe that "one could argue that the student artifacts that can be collected through lesson study provide a more nuanced picture than just the snapshot of student understanding that standard assessment measures offer."

Lewis et al. (2006:5) show how lesson study results in instructional improvement:

> Lesson study strengthens three pathways to instructional improvement: 1) Teachers' knowledge, 2) teachers' commitment and community, and 3) learning resources.
>
> *Examples of the three pathways*:
>
> 1) Teachers' knowledge
>
> - Knowledge of subject matter
> - Knowledge of instruction
> - Capacity to observe learners
> - Connection of daily practice to long-term goals
>
> 2) Teachers' commitment and community
>
> - Motivation to improve
> - Connection to colleagues who can provide help
> - Sense of accountability to valued practice community
>
> 3) Learning resources
>
> - Lesson plans that reveal and promote student thinking
> - Tools that support collegial learning during lesson study

Lesson study does provide a bridge for the gap between knowledge acquired by teachers about teaching and the actual implementation of that knowledge in the classroom. Stigler and Hiebert (1999:122) believe that "by attending to teaching as it occurs, lesson study respects teaching's complex and systemic nature, and so generates knowledge that is

immediately useable." It is within this context that the teacher becomes the researcher as well as the practitioner.

2.2.4 Perceived limitations of lesson study

Even though there are obvious benefits to implementing lesson study, there are also barriers. One of the most common obstacles is the availability of time for collaboration. If lesson study is to be successful, the time needed to organize it must be given to teachers (Chokshi & Fernandez, 2004; Little, Gearhart, Curry & Kafka, 2003). Stigler and Hiebert (1999:160) note that, "for teacher groups to make measurable progress in their efforts to improve lessons, they need two hours per week of uninterrupted study."

Time is not only a barrier for collaboration but can also be a problem when going through with all of the steps in the lesson study process. Although to achieve the greatest success, teachers would want to teach the research lesson a second time, after its revision, many do not have that type of flexibility in the curricular timeline (Stewart & Brendefur, 2005). If the Japanese lesson study model is strictly adhered to, the time barrier can seem insurmountable. Teachers would need to be involved on many levels: grade-level groups, subject-matter groups, special committees, and district-wide groups (Stigler & Hiebert, 1999). In general, the issue of availability of time seems to be one of the biggest obstacles to the successful implementation of lesson study.

There is also some reluctance among teachers to open themselves up to critical peer analysis (Stewart & Brendefur, 2005). Part of the reason for this, according to Chokshi and Fernandez (2004:521), may be that "since observations in the U.S. classrooms have traditionally been conducted in the context of performance evaluation, it is not surprising that American teachers report feeling anxiety about publicly teaching lessons for their peers."

Another barrier to the success of lesson study can result from how the implementation of the program is perceived. If it is a program that is externally imposed, it may be approached with resistance (Wallace, 1998). A decade ago, when there were few experts in the field of lesson study, Stigler and Hiebert (1999:137) suggested that, "in the absence of experienced teacher leaders, principals must take an active role in introducing lesson study." This may not be perceived as a barrier any longer, since it has become common

practice in the USA for administrators to implement lesson study in their schools (Stepanek et al., 2007:27).

Perhaps one of the biggest barriers to dedicating resources to the implementation of lesson study is the absence of results that can be scored empirically. In a culture where quick, positive results are expected for almost any type of educational reform, lesson study fails to meet this standard. Chokshi and Fernandez (2004:521, 525) explain that "there is not yet any formal evidence that directly links teachers' participation in lesson study to improved outcomes on standardized tests." However, they are quick to clarify this point by stating that "one might argue that it is premature to talk about student performance or other outcome measures associated with lesson study in the U.S., since the process is still being explored and adapted. Teachers must first come to understand lesson study and do it well, before it can be treated as a testable intervention." Lewis et al. (2006:8) contend that "it seems reasonable to ask that an innovation be highly developed and transportable before subjecting it to summative trials."

The lesson study format has been combined with other instructional tools in schools across the USA. One such study led by Stewart and Brendefur (2005) combined lesson study with the criteria for authentic achievement posed by Newmann (1996). The study involved training teachers in the lesson study cycle while using rubrics based on the three features of authentic achievement that Newmann (1996:22) defines as "construction of knowledge, disciplined inquiry, and value of learning beyond school."

Combining the format of lesson study with the features of authentic achievement gave teachers a rigorous tool to improve instruction. Stewart and Brendefur (2005:682) found that by fusing these two models, "teachers would come together and work collaboratively on that which interested and engaged them most, namely their day-to-day instruction." Although combining lesson study with other instructional strategies may produce desirable results in some cases, if lesson study design is altered in an effort to subject it to empirical proof of its effectiveness, it is probably doomed to failure. Lewis et al. (2006:8) note that "a single randomized control trial showing that lesson study doesn't work might foreclose lesson study's future in the United States, sending it to the graveyard that holds so many once-promising educational innovations, many of which were never fully understood or implemented."

2.3 SUMMARY AND CONCLUSIONS

Given the many challenges that teachers face in the classroom today, it is the responsibility of educational leaders to offer training and support that directly affects the achievement of learners. It is not enough to reform standards, align the curriculum, and rewrite assessment tools. If only these steps are taken there will be no effective change in classroom instruction. Teachers need to become active researchers and participants in educational reform. They empower themselves to do just that by becoming involved in a collaborative team that focuses on the improvement of classroom instruction.

Although the traditional culture for teaching is one of isolation, lesson study does offer a viable alternative. Teachers are willing to make changes in the way they approach teaching if the suggested changes make sense to them (Porter & Brophy, 1988). It is the responsibility of administrators to create an environment in schools that is conducive to improvement. Burney (2004:527) contends that,

> teachers have a right to investments in their professional development as well as a responsibility to reflect on their work, build their knowledge, share it with others, and pay attention to what others are learning. School systems have an obligation to provide the conditions that will foster this learning, because it is the only way we will continuously improve instruction instead of spinning our wheels.

Researchers agree that there needs to be a continuous cycle of evaluation and success for a teaching strategy to become implemented as part of ongoing classroom instruction (Csikszentmihalyi, 1990; Fullan, 2001). Schmoker (2004:427) contends that, "the key is for teams of professionals to achieve and celebrate a continuous succession of small, quick victories in vital areas." Teaching is a cultural activity that takes time to change. Gallimore (1996:232) notes that cultural activities were "constructed over time through collaborative human effort to achieve a stable daily routine. Changes in cultural activity are made slowly, gradually, and are built on existing routines." Lesson study is a model that can be used to facilitate the desired change within the teaching culture.

As discussed in Chapter 1, Section 1.2, lesson study is the primary method of CPTD in Japan and is also being utilized in many school districts across the USA. To my knowledge, and that of my promoter and co-promoter, lesson study had not been initiated

in South Africa prior to this research. This study introduced the process of lesson study to a group of teachers in a primary school in the Western Cape Province. Chapter 3 offers the historical background for educational reform in South Africa and places the group of participants in this study within that context.

CHAPTER 3

EDUCATIONAL REFORM IN SOUTH AFRICA

3.1 INTRODUCTION

Educational reform in South Africa since the end of apartheid in 1994 has been extensive and teachers have constantly been exposed to curriculum changes. The newly elected government, led by the African National Congress (ANC), made educational equality one of its priorities. The newly appointed Minister of Education, Minister Bengu, stated that governmental policy for education was a "matter of national importance second to none." (DoE, 1995:2) According to Harber (2001:8), "Educational reform had to be fundamental and wide ranging if South Africa was to become a modern, democratic state participating in the global political economy of the twenty-first century. The result was that in the final five years of the twentieth century, South Africa became something of a laboratory or crucible for educational innovation." Thousands of children, who previously were denied the right to a high-quality education, found themselves within a new education dispensation and system, which had as its goal the provision of a quality education for all.

The purpose of this chapter is to offer a brief background to the educational reform in post-apartheid South Africa, 1994 to 2008. It is, by no means, meant to be a comprehensive account of the complicated transformation that officially began in the mid-1990s. The information included in this chapter is centered on the changes that learners and teachers experienced within the classroom. It is also intended to inform readers who have limited knowledge about the educational reforms that have been experienced in South Africa. It will further help to place the research for this study in its socio-cultural context.

In Chapter 1, Section 1.2.1, I made the claim that South Africa bears a similarity to Japan in that it also has a centralized education system with a national department of education to oversee and implement a common curriculum. Although that has been the case in Japan for well over 50 years, it is a recent phenomenon in South Africa to have a national

curriculum for all its people (before 1994 it was a fragmented system with 19 education departments for the different racial groups). Bringing those 19 separate departments together under one umbrella was a monumental task. Some of the former departments had the educational background and resources to undergo this reform more readily than others. A more detailed discussion of this can be found in Section 3.2.

The two groups of participants that were initially involved in my study fell under different departments of education during the apartheid years. One of the groups remained involved in the research through multiple cycles of lesson study. This group, Case A, came from an educational background with access to considerably more resources than many of the others. The other group, Case B, withdrew early in the first cycle. They came from a background of very limited access to resources under the system of apartheid. A discussion about the historical context of these two groups is included in this chapter. Further discussion about the involvement of the two groups in my study can be found in Chapter 4.

I also made the claim in Chapter 1 that South Africa was similar to the USA in that both countries had recently undergone educational reforms at the national level. This top-down approach can alienate educators at the ground level. My own personal experience with rewriting a local, district curriculum to align with state standards linked to national standards revealed how disconnected national policy can seem from the reality of the classroom. I work in a relatively progressive district in the USA, with access to abundant resources - so the transition was less painful for us than for some of the neighboring districts. There is a similar connection to the groups initially involved in this study. While both schools were given the same curriculum standards to use as a guide for classroom instruction, their individual backgrounds and resources may have influenced the ease with which they were able to make that transition.

This chapter (Chapter 3) will discuss the educational development and transformation in the South African context. The first part of the chapter discusses the educational disparity between the different racial groups in South Africa under the system of apartheid (Section 3.2). This section will give a brief description of the government organization, budget, and curriculum along with the impact they had on the culture of teaching and learning under the apartheid regime. Many of the teachers employed during

that time are still in service today. Most of the new teachers were learners during the apartheid years (Fiske & Ladd, 2004). I previously acknowledged (in Chapter 2, Section 2.1.1) the common belief that teachers tend to replicate the culture they observed as learners in the classroom. It is, therefore, imperative that the reader of this study has at least a minimal understanding of the teaching culture during the years of apartheid.

Section 3.3 begins with a discussion of the changes in government policy toward education during the post-apartheid reform. It looks at the new government organization, budget, racial climate, and the adoption of the new curriculum. It discusses the lasting effect of apartheid on the current culture of teaching and learning and briefly addresses the question of equity under the new system.

Section 3.4 places this research specifically within the South African context. Included is a discussion of the historical context of CPTD relative to this study. The historical context of the participants who became involved in this research will also be discussed. I specifically address the backgrounds of the two groups that began the study with me and explore how these backgrounds may have influenced the one group to remain in the study longer than expected, while the other group felt compelled to withdraw.

In the concluding section I discuss the possible implication of these events to this particular research - what I believe the socio-cultural implications to be going into this study.

3.2 EDUCATION DURING APARTHEID

South Africa adopted a form of government from 1948 until the early 1990s commonly known as 'apartheid'. It was a system based on racial separation and inequality. According to Harber (2001:7), the "role of education was to help to perpetuate and reproduce a racist system and to encourage obedience and conformity to that system." Fiske and Ladd (2004:3) state that,

> during its more than four decades in power, the National Party relied heavily on the state education system to promote and sustain the value of apartheid and to keep the black population in check. Under apartheid all aspects of education – governance, funding, professional training, and

curriculum – were defined and operated along racial lines in an egregiously unequal manner.

The system was not only racist but also strictly authoritarian with a specified hierarchy. Within any school, regardless of racial make-up, there was a system of seniority that placed the principal at the top and the learners at the bottom. Amongst the learners themselves there was also a hierarchy that placed prefects at the top (Christie, 1991:46). This authoritarian, hierarchical system was organized and delineated by the national government.

3.2.1 Government organization

Government control of education during the era of apartheid followed the same principles as the physical and racial organization of the people of South Africa. During the final years of apartheid there were 19 different departments governing education. The House of Assembly (HOA) governed education in the white schools in each of the four provinces; Indian education was governed by the House of Delegates (HOD); education in colored schools was governed by the House of Representatives (HOR). Education for black learners living in urban townships was governed by the Department of Education and Training (DET). Four independent African homelands were governed by other departments of education, and the remaining six self-governing territories each had their own education departments (Fiske & Ladd, 2004; Harber, 2001). This resulted in a fragmented system that later became one of the central unifying themes of the new government. Funding for each of these separate departments under the policy of apartheid was un-equal.

3.2.2 Budget

During the years of apartheid, schools throughout South Africa were provided with resources based on race. In 1988, when 21.9% of the government's budget was allocated to education, school funding was set at a ratio of 10-1 in favor of white schools. However, at the same time, some of the white schools began to accept greater numbers of black learners from the emerging black middle class. In 1991, the government adjusted their funding policy for the white schools by having them choose which new "model" they would like to be categorized in. Each of the four models – A to D – differed in the

amount of government funding they were eligible for and the proportion of black learners they were allowed to enroll.

Model A schools became privatized and were allowed to admit an unspecified number of black learners. Model B schools remained under government control and were allowed to admit up to 50 percent black learners. Model C schools, also allowed to have 50 percent of their population as black learners, received part of their funding from the government but were also allowed to impose school fees and accept private donations. These schools elected governing bodies made up of faculty, parents, and – in some schools – learners. Their role will be detailed later in this chapter. The last option available, created later than the other choices, was the Model D school. This option allowed for the unlimited enrollment of black learners (Pampallis, 2003:145).

Of the four choices, the one that survived the reforms of 1994, and thereby making it relevant to this study, is the Model C school. The group of participants who remained involved throughout the research consisted of faculty members from what is commonly referred to as a 'former Model C' school. The other group of participants that began the study with me, but later withdrew, included faculty members from a township school. Funding options for township schools were not dramatically revised until after the change in government in 1994. However, Fiske and Ladd (2004:44) point out that even "as late as 1994, after the National government had significantly increased spending on black students the amount spent per pupil in white schools was more than two and a half times that spent on behalf of black students in the urban townships." The impact of this funding discrepancy on the teaching culture within the two schools involved in this study will be discussed further in Section 3.2.4 of this chapter.

Allocating unequal government funding was not the only way that learners in black schools were subjected to a lower quality education than those in white schools. The curriculum was also used to promote racial inequality.

3.2.3 Curriculum

According to Harber (2002:41), the curriculum during apartheid was "based on racist ideology of Christian National Education, which was constructed to discourage critical thought, enquiry and discussion and to encourage domination and submission." The

curriculum assigned different values to the different racial groups and genders. Learners were taught their place in the social order where the historical role of the white Afrikaner was glorified while the role of the Africans tended to be vilified. The curriculum taught in the schools during the years of apartheid helped to fuel racial fears and the resulting conflict (Chisholm, 2001:2.3).

Fiske and Ladd (2004:64) contend that the curriculum during the years of apartheid "perpetuated division by race, class, and gender; denied common citizenship and a national identity; was unresponsive to changing labor market needs; and was irrelevant to current needs. Moreover, teaching practices were racist, dogmatic, and outmoded." A postgraduate initial teacher education student from the University of Natal observed,

> The school that I attended epitomized the national authoritarian institutions. Firstly, the curriculum was devised by the government and the school carried this out. This curriculum was rigid and the learners would have no say in what they learnt … The teacher was the center of the process and the learners were just passive … All knowledge that was learnt was for the purpose of exams which were the only form of assessment … (in Harber, 2001:41).

Authoritarian control, racism, and inequality in the allocation of educational resources certainly had an impact on the reality of life in the classroom for teachers and for learners.

3.2.4 Culture of teaching and learning

June 16, 1976 became a pivotal point in the culture of learning in South Africa. The demonstration, and subsequent violence, that occurred in Soweto as a result of the Bantu Education Act (BEA) became a unifying factor among learners around the country. The BEA, introduced in 1953 by the minister of native affairs, Hendrik Verwoerd, asserted government control of previously church-run schools. Under this act, African teachers were forbidden to criticize the government or school authorities. According to Fiske and Ladd (2004:42), "The education Africans received was poor in quality and designed to keep them out of the modern sector of the economy – thus ensuring a steady supply of cheap labor, particularly for the agricultural, mining, and domestic service sectors."

Sparks (1990:224, 225) characterizes the school environment for the typical black learner during the last decades of apartheid:

> Our young black boy or girl will be going to a school in a dilapidated building with filthy and inadequate toilet facilities, broken windows, too few desks, not enough books, and a hundred or more to a class. The teachers, likely as not, will have no more than an elementary-school education and will be tired and uninspired by the hopeless task. The school may have police and soldiers on the premises to keep an eye on the students and spot 'agitators.' They may even be in classrooms during classes, in their uniforms and with their guns, and in their strutting arrogance strip the headmaster and staff of any dignity or authority. There will be informers in the school, too, black kids desperate for food, security, and the little prestige that money can buy.

Teachers and learners dissatisfied with the quality of education imposed upon them by a minority government boycotted classes and refused to attend school. Specifically, the government's insistence that Afrikaans be the compulsory language of instruction for African students was the major factor behind the demonstration in Soweto in 1976. The violent results of that march fueled a culture of instability in schools that lasted for more than a decade. This issue is discussed in the Educational Renewal Strategy (ERS) report commissioned by the Department of Education in 1991:

> A sound learning and scholastic environment remains indispensable if education is to be of significant benefit to learners. Unfortunately, establishing such a culture of learning in the developing sectors of our society has of late been severely hampered by disturbances and disruptions in the schools in these communities. Weekly attendance figures for 1991 from the Department of Education and Training show dramatic variations and indicate that poor school performance can be directly associated with disruptions in schools. Even more disturbing, however, is the initiating role many Black teachers have played in organizing school and class boycotts especially in 1990 – thereby disrupting schooling even further and severely damaging the professional status of the teacher. (DoE, 1992:7)

Some of the teachers who were part of that environment of upheaval are still in classrooms today. Many of the learners who sat in those classrooms are now teachers in those same schools. The group of teachers that withdrew from my study (Case B) came from this social background. Two of the members from the group were teachers in a township classroom during the apartheid years. A discussion on the withdrawal of Case B can be found in Chapter 4, Section 4.5.2. Teachers from the group who chose to remain in the study (Case A) were each the product of the more historically privileged social class.

The 1980s was a tumultuous decade in the political climate in South Africa. This period, commonly referred to as 'the Struggle', culminated in the release of Nelson Mandela from prison and, consequently a release from the tyranny of the apartheid system of government. Reforms were initiated to redress the accumulated inequalities inherited from that system, and education was one of the areas where the newly elected government directed their attention.

3.3 POST-APARTHEID REFORM

Even before the democratic elections of 1994, a new constitution was adopted on an interim basis. This document guaranteed the right of education to all South Africans regardless of racial background. The constitution ratified in 1996, holds that every citizen of South Africa has an unqualified right to a basic education. During this interim period, the new Ministry of Education took the first steps toward educational reform by producing a document commonly referred to as the 'White Paper' (DoE, 1995).

3.3.1 White Paper on Education and Training

The White Paper on Education and Training (DoE, 1995) describes the first steps in policy reform by the Ministry of Education. This document was published by the national Department of Education in 1995. The White Paper outlines the reformed national policy in relation to educational issues such as the division of functions between national and provincial departments of education; fundamental rights; the organization, governance, and funding of schools; and the approach to a free and compulsory system of education that would be available to all citizens.

The theme or spirit guiding the development of the White Paper was presented in the opening remarks by the Minister of Education, Professor Bengu. When speaking for the ministry, he stated that,

> Our message is that education and training must change. It cannot be business as usual in our schools, colleges, technikons and universities. The national project of reconstruction and development compels everyone in education and training to accept the challenge of creating a system which cultivates and liberates the talents of our people without exception … Such a system must be founded on equity and non-discrimination, it must respect diversity, it must honor learning and strive for excellence, it must be owned and cared for by the communities and stakeholders it serves, and it must use all the resources available to it in the most effective manner possible (DoE, 1995: Part 1, p. 23).

It is clear from this statement that the intention of the newly-elected government was to focus on the reform of education in an effort to supply quality education.

3.3.2 Government organization and decentralization

Even before the elections of 1994, control over education began to decentralize. The HOA created 'Model C' schools where a majority of the control went to the staff and parents. Harber (2001:17) contends that since this power shift occurred only within the all-white schools, it is widely agreed that "this decentralization of power was negative in intention and was aimed at giving all-white schools some measure of independence to protect their resources and admissions policies from future majority government control."

After the elections of 1994, the responsibility for the former 19 education departments were divided between the national Ministry of Education and the nine new provincial governments. The national ministry assumed the responsibility for developing overall policy, setting norms and standards, allocating financial resources, and higher education. Provincial departments assumed the responsibility of planning and managing education and training in everything except higher education. Even though the roles for each of these departments are specified by the constitution and the 1996 Education Act, Harber (2001:12) points out that "there is considerable ambiguity and lack of clarity about the

roles of the two levels of government. There are therefore regular disagreements and also regular criticisms of some provinces' ability to deliver national education policy."

The South African Schools Act of 1996 (SASA) mirrors the power shift instituted by the HOA prior to 1994 when it created the Model C schools. However, the new policy would apply to all schools in the country, not only to the historically all-white schools. This new governance structure was an attempt to transform the authoritarian, hierarchical education system of the past into a more democratic structure where all stakeholders would be represented in decision making at the local level. This act stipulates that all public schools need to have a governing body made up of parents, teachers, non-teaching staff, and (in secondary schools) learners. On the governing body, parents must be in the majority. The governing body makes decisions about everything from a code of conduct for learners to budget allocations and the hiring of staff members.

In 1997, the DoE published a document detailing the role and responsibilities of the new governing bodies. In *Understanding the SA Schools Act,* the DoE states that

> … the democratization of education includes the idea that stakeholders such as parents, teachers, learners and other people (such as members of the community near your school) must participate in the activities of the school. The governing body makes decisions on behalf of the school and sees to it that the school is administered properly. Through representation on the governing body all the stakeholders can share in the decisions of that body. The members of the governing body are also accountable to these stakeholders. In other words, they must report back to them on what they have done to serve the best interests of the learners at the school (DoE, 1997a:6).

The use of governing bodies is part of the transformation away from an authoritarian, hierarchical administration in public schools during apartheid to a more democratic, shared administration in the post-apartheid system. The DoE attempted to clear up any ambiguity between the roles of the governing body and the principal by specifically outlining their respective responsibilities. It stated that (DoE, 1997a:12) under the authority of the provincial Head of the Department of Education, the principal acts as the "professional manager". The governing body's duty, on the other hand is to "govern". The governing body and the principals are encouraged to assist and support each other.

Although theoretically the balance of power has shifted in education, the reality at the ground level has not changed significantly. Teachers and, in many cases, principals still find themselves at the low end of a hierarchical system. All the principals that I have spoken with during the period 2005-2008, from varied historical backgrounds, indicated the enormous pressure they feel to measure up to the standards imposed by the new government. Many feel that they have not been supplied with the adequate resources to meet those demands. Although the new government made changes in funding policy, schools in socio-economically depressed areas still experience a huge disparity in available monetary resources. In a recent study, October (2009) investigated how principals experienced their new roles and responsibilities as curriculum leaders and managers in a changing educational system. She comes to the conclusion (October, 2009:81) that principals experienced these changes and challenges as very complex and that even today, there are still uncertainties regarding effective management and leadership responsibilities.

3.3.3 Budget

As early as 1992, a new plan for financing education was recommended in the Educational Renewal Strategy (ERS). In an analysis of the existing education system, several dominant features arose that required financial support. The report lists these as:

(a) the pass, repeat, and drop-out rates of learners;
(b) learner:educator ratios;
(c) the qualification distribution of educators together with the concomitant remuneration levels;
(d) the provision levels for building spaces in education;
(e) parent or community responsibility for education; and closely related to this,
(f) the possible period and method of the phasing in of compulsory education, financed mainly by the State, and sundry other matters (DoE, 1992:105).

In 1996, the newly elected government made a decision to end unequal spending on education by the year 2000 (Harber, 2001). Between 1995 and 1998 the government allotment for education increased by 35% (Chisholm & Petersen, 1999). Harber

(2001:14) notes that even though 28% of the national budget, an amount higher than any other single item, is earmarked for education it "has not kept up with the needs of an expanding system and the need to achieve greater equity. The historical legacy of apartheid has left a situation of major educational inequalities between different racial groups."

In 1997, the government conducted the Schools Register of Needs Survey. A huge disparity between schools was discovered. Where some schools lacked even basic resources such as running water and electricity, others were equipped with such 'luxury' items as science labs and libraries. By 2000, the Norms and Standards Funding Policy was created to address the issue of inequities in the distribution of public resources to education. While this policy was applicable to non-personnel spending, it was intended to provide funds based on poverty-related criteria. Thus, poorer schools would receive more money per pupil than wealthier schools.

To make up for any discrepancy in funding, the SASA allows the school governing bodies to levy their own school fees. Most of the schools do have an annual fee. These fees, in primary schools, range anywhere from under 25 Rands per learner in poor provinces like the Eastern Cape to over 2000 Rands per learner in wealthier provinces like the Western Cape (Fiske & Ladd, 2004:132,133). Fees for secondary schools are generally higher. This policy has been fairly successful in encouraging parents of middle-class families to keep their children enrolled in public schools. Because they were given the choice about where to send their children to school, many parents have pulled their children out of traditional neighborhood schools and enrolled them in the more advantaged former Model C schools. Although this policy has circumvented the mass-migration of middle-class learners to private schools, Fiske and Ladd (2004:131) point out that,

> the fees have affected the way in which students sort themselves among schools, with class beginning to replace race as the primary determinant of who is able to gain access to the formerly white schools. Furthermore, fees have failed to increase resources at schools serving historically disadvantaged students; instead, they have reinforced the advantages enjoyed by the formerly white schools.

In this study participants from Case A are employed in a school where the governing body has set the learner fees significantly higher than that of the school where participants from Case B are employed. This has allowed the teachers in Case A to have privileges, such as smaller class sizes and access to resources, that are not available to the teachers in Case B. Even though school populations became racially desegregated by law in the early 1990's, the current socio-economic segregation, partially due to the discrepancy in local school fees, still tends to divide school populations along racial lines.

3.3.4 Racism

In the years immediately following the end of apartheid in South Africa, schools became desegregated. Enrollment was no longer allowed on the basis of racial background. Black learners were allowed to enroll in what had previously been schools designated for white learners only. A frustration for learners and teachers alike in this process of desegregation was that there had been no education about how this desegregation ought to have taken place. Harber (2001:26) states that the main problem was not necessarily an "overt resistance to desegregation but a failure to address change and promote integration." Learners from different racial backgrounds were thrown together without any training in positive integration. The result for African learners was anything from being ignored to becoming involved in violent conflict. Harber (2001:27) contends that, "many teachers and principals felt ill equipped to deal with racism because it is a difficult and sensitive issue for which they had had no training or under apartheid had actually been trained in racism."

Desegregation in South African schools can be analyzed, according to Harber (2001:27), by using three approaches to race relations. First is assimilation where learners are merely put together and the "burden is placed on those coming into the school to adopt the values and lifestyle of the existing or dominant group." Second is a multicultural approach that "recognizes and even celebrates cultural difference and includes examples of diversity in the curriculum, such as a comparison between Hindu, Christian and Zulu festivals." A third approach, anti-racism, admits that racism does exist and "actively challenges it through school rules and the curriculum."

Carrim (1998:311) believes that during the first four years of desegregation, 1990-1994, the majority of schools in South Africa were using the assimilation approach. This

continuous exposure of racial groups to each other "pushed teachers to a more multicultural approach as they were at least forced to recognize the different backgrounds and experiences of the others." A study done by Zafar (1998) in KwaZulu Natal, found that assimilation was the predominant strategy for integration. There was little evidence that anti-racist strategies were being practiced at all. In 1998, a South African Human Rights Commission Report summarized the situation by stating that

> in fact little progress has been made to ensure an end to racial discrimination and prejudice in schools. Our Commission has had to deal with a large number of complaints: discrimination in disciplinary measures, racial violence and cultural prejudice. Schools continue to be characterized by racial separation and discrimination. Efforts at racial integration have not achieved the desired results because learners approach school with the prejudices imbued in their home environments and the schools have no mechanisms to challenge and stimulate the unlearning of ingrained prejudices, as well as transform the minds of learners. Educators exhibit little or no commitment to constructing a learning environment free from discrimination and prejudice. Too many prefer to deny the existence of racism or presume a superficial tolerance. Some prefer to have their schools as laboratories for cultural assimilation where black learners are by and large tolerated rather than affirmed as of right. Four years after the miracle of 1994, school playgrounds are battlegrounds between black and white schoolgoers (Vally & Dalamba, 1999: Preface).

This report offered several recommendations and concluded that anti-racist training should be included for all learners whether they were in desegregated schools or not.

Although a policy of race-blind enrollment was established, this tended to be a one-way process where some African learners moved to formerly white schools. However, according to Harber (2001:26), African schools are "as mono-racial as ever." Fiske and Ladd (2004:99) make the distinction that the "goal was deracialization, not necessarily equal access to schools by students of all races."

Because local school governing bodies have been granted control over admission policies and enrollment fees, segregation still occurs. What has emerged is a separation by class

rather than by race. According to Fiske and Ladd (2004:99), "since apartheid ensured that class and race would be highly correlated, any admissions policy that favors students with middle-class values indirectly discriminates against most black students from the townships and homelands." The ability of schools to charge fees for enrollment has allowed the racial segregation experienced during the years of apartheid to remain essentially intact (Kallaway, Kruss, Fataar & Don, 1997:11).

The current reality is that although there is a racial mix of learners in the former Model C schools, Case A being an example of that, the racial demographic of learners in township schools, Case B being an example, remains virtually unchanged. Even though Minister Bengu's vision for education in the new South Africa was to promote equity and non-discrimination, that still remains to be achieved. In an effort to realize another aspect of the minister's vision, that of respecting diversity, honoring learning and striving for excellence, a new curriculum was developed at the national level.

3.3.5 Curriculum and Outcomes-Based Education (OBE)

One of the major transitions in the education system has been the reform of the curriculum. One of the initial steps in this reform was the removal of racially offensive content from school books. The major transition, however, appeared with the introduction of 'Curriculum 2005'. This nationally devised program moved the delivery of education away from the traditional content-based style to the new Outcomes-Based Education (OBE). The interest in this kind of curriculum was initiated prior to 1994 when members of trade unions, employers, government, and educationalists met to discuss improvements in education. These discussions led to the development of a National Qualification Framework (NQF), outlined in the 1995 White Paper on Education and Training. The economic rationale for the development of the NQF is stated as follows:

> Successful modern economies and societies require the elimination of artificial hierarchies in social organization, in the organization and management of work, and in the way in which learning is organized and certified. They require citizens with a strong foundation of general education, the desire and ability to continue to learn, to adapt to and develop new knowledge, skills and technologies, to move flexibly

> between occupations, to take responsibility for personal performance, to set and achieve high standards and to work co-operatively (DoE, 1995:15).

The NQF contains three 'bands' of education. The first band is General Education and Training (GET). Within this band there are four divisions: It begins with Pre-school or Grade R. Next is the Foundation Phase, which comprises Grades 1-3. After that is the Intermediate Phase, which comprises Grades 4–6. Participants in this study were teachers from that phase. Last is the Senior Phase, which comprises Grades 7–9. The second band is Further Education and Training (FET), which comprises Grades 10–12. The third band is Higher Education and Training (HET), which comprises education beyond Grade 12 in technical schools, colleges, and universities.

In 1995 the South African Qualifications Authority (SAQA), made up of representatives from government, business, education, labor and special interest groups was appointed to oversee the NQF. The SAQA then established other bodies to carry out specific responsibilities in this regard. The National Standards Body (NSB) was established to set national standards for each designated area of knowledge at each level of education under its authority. The Standard Generating Body (SGB) was responsible for setting standards in particular fields and at particular levels. The SAQA then established the Education Training and Quality Assurance (ETQA) institute, whose responsibility it is to see that training matches the standards set.

OBE was chosen as the vehicle to achieve these standards. In an OBE approach, the process of learning becomes as important as the content. In OBE, eight learning areas, or subjects, were established. There were 66 specific outcomes related to those learning areas. Assessment criteria were then designed for each of the specific outcomes. These criteria are a break from traditional examination based on memorization. Teachers would be required to use a variety of assessment methods aimed at continuous monitoring of a learner's progress. For each specific outcome, several assessment criteria are assigned with an accompanying range statement for the criteria (Carl, 2009; DoE, 2000a; 2000b; 2002).

The following table demonstrates the differences between the old and new curriculum as outlined by the DoE:

Table 3.1 Differences between 'old' and 'new' approaches to curriculum

Old	**New**
Passive learners	Active learners
Exam-driven	Learners are assessed on an on-going basis
Rote-learning	Critical thinking, reasoning, reflection and action
Syllabus is content-based and broken down into subjects	An integration of knowledge; learning relevant and connected to real-life situations
Textbook/worksheet-bound and teacher centred	Learner-centred; teacher is facilitator; teacher constantly uses groupwork and teamwork to consolidate the new approach
Sees syllabus as rigid and non-negotiable	Learning programmes seen as guides that allow teachers to be innovative and creative in designing programmes
Teachers responsible for learning; motivation dependent on the personality of the teacher	Learners take responsibility for their learning; pupils motivated by constant feedback and affirmation of their worth
Emphasis on what the teacher hopes to achieve	Emphasis on outcomes – what the learner becomes and understands
Content placed into rigid time-frames	Flexible time-frames allow learners to work at their own pace
Curriculum development process not open to public comment	Comment and input from the wider community is encouraged

(DoE, 1997a:6,7).

This reform in the way instruction was to be delivered and assessed constituted a significant change in the fundamental culture of teaching. It meant a paradigm shift from teacher-centered instruction to learner-centered facilitation. Many teachers did not possess or have access to adequate educational background, training, or support to make the transition a smooth one (see DoE, 2000b for further details in this regard).

OBE went into effect, beginning with Grades 1 and 7, in 1998. The announcement of the new assessment policy did not happen until nearly the end of the school year, so was really not in place until the second year of OBE implementation. The new curriculum certainly had mixed reviews ranging from a dismal view such as Jansen's (1998) ten reasons why OBE will fail to more positive views such as those discovered by Russel (1998) where teachers thought learners were experiencing benefits from the change.

In 2000, a review committee was established by the Minister of Education. The committee, appointed in February, was asked to provide recommendations on the structure, level of understanding on the part of teachers, and implementation of

Curriculum 2005 (C2005). Their report, published in May 2000, offers this insight into the process of implementation of C2005:

> In spite of considerable effort and hard work on the part of new national and provincial departments of education, and often against insuperable odds, the combination of changes occurring at an extraordinary pace exerted severe pressure on the system. Implementation was not always carefully thought through, properly piloted or resourced and enormous stresses and strains were consequently placed on already over-burdened principals and teachers in widely-divergent educational contexts. While better resourced schools coped but complained of excessive paperwork, inadequately resourced schools were in addition hampered by poor infrastructure, large classes, and an absence of the technologies of teaching, including educational resources such as textbooks, exercise books, pens and pencils (DoE, 2000b:4).

The review committee suggested a revision of the curriculum and implementation within a manageable time frame. They outlined specific recommendations to accomplish this task (DoE, 2000b:21-24).

The committee found that much of the difficulty in implementing C2005 came from structure and design flaws. The three that it focused on were "complex language and confusing terminology, 'overcrowding' of the curriculum, and sequence, pace, and progression" (DoE, 2000b: Executive Summary, p. 2). They proposed a revision to the structure and design by replacing the eight design features of C2005 with the four key design features: Critical Outcomes, Learning Area Statements, Learning Outcomes, and Assessment Standards (DoE, 2000b: Executive Summary, pg. 4). The Review Committee further recommended reducing the number of learning areas in the GET band from eight to six and allocating more time for math and languages. It also advised using "clear and accessible terminology" (DoE, 2000b: Executive Summary, p. 5).

The implementation issues were divided into three areas that required attention: First, teacher orientation, training and support needed to be coordinated and streamlined from pre-service through in-service training. Second, the creation and management of learning support materials needed to be better coordinated. This included the production of

textbooks based on guidelines provided by the NCS. The third area of implementation that required attention was national, provincial, and district-level support. The report advocates an alignment between these three structures. It also states that, "curriculum planning, delivery, and support is the core business of the DoE" and that, "officials dealing with the curriculum at national and provincial levels should be housed within a single directorate" (DoE, 2000b: Executive Summary, p. 6).

With regard to the pace and scope of implementation, the committee recommended a more manageable time frame. It made clear that, "implementation cannot continue at the same pace as before" (DoE, 2000b: Executive Summary, p. 6). The committee advised phasing out C2005 and phasing in a revised curriculum. It proposed that the revision be completed by June 2001 for Grades 0–9 and that teachers could then, "orient their teaching accordingly, paying particular attention to the Learning Outcomes and Assessment Standards for each grade" (DoE, 2000b: Executive Summary, p. 6). The committee added the cautionary note that enough time should be allowed in the implementation of the revised curriculum in order to coordinate resources, training, support materials, and the consolidation of national and provincial structures.

The DoE did revise the curriculum, including a developmental guide for teachers (DoE, 2003). Provincial education departments developed their own guides to facilitate the use of the revised curriculum. In the Western Cape, where this study was conducted, the provincial department summarized the ideas presented in the national guide (WCED, 2003) and then trained its teachers to use it as a guide for developing their own programs and lessons.

3.3.6 Equity

One of the most contentious issues in the field of education is that of equity. Defining what it means in any educational setting is difficult at best. Within the South African setting it is a monumental task. When the ANC gained power in 1994 the intent of legislation was to erase racial divisions. Although that may, at some level, promote equality, the question raised became one of equity.

As early as 1991 the issue of equity was raised when the ERS pointed out the disparities in educational settings. The report suggests three 'backlogs' in education that would

need to be addressed. The first is socio-economic. Even though, as the report points out, it is not necessarily the responsibility of education to correct an economic and housing backlog, that issue does "contribute to the lack of a satisfactory culture of learning." (DoE, 1992: 10) The second backlog falls into the category of physical structures. Although millions of Rands had already been devoted to the elimination of this backlog, the report contends that, "in order to make real progress in this field, the ongoing provision of funds by the State over a number of years will be required." (DoE, 1992:11) The third category of backlogs addresses the quality of education and includes parental participation, discipline, literacy, quality of teachers, availability of textbooks and library books, and the improvement of educational opportunities. Specifically with respect to the quality of teachers, the report argues that "although significant progress has been made with the upgrading of the qualifications of Black teachers over the past five years, a consistent and accelerated effort is of the greatest importance in this respect. The necessity of an extensive and intensive in-service education programme for these teachers cannot be over-emphasized" (DoE, 1992:11).

Fiske and Ladd (2004:5) refer to three standards that can be used to analyze racial equity: equal treatment, equal educational opportunity, and educational adequacy. Equal treatment approaches each school or learner on a level playing field. Race has no influence on policy or funding. Because non-white schools were so severely disadvantaged, Fiske and Ladd (2004:7) contend, "equal treatment, important though it may be for symbolic reasons in South Africa, would not move the country very far in terms of the other two standards".

Equal educational opportunity assures that each learner will be given the same chance to succeed. This differs from equal treatment in that provisions in policy and funding would need to be considered to counteract the negative impact of the system during the years of apartheid. In reality that would mean supplying additional resources to the non-white schools. Fiske and Ladd (2004:8) state, "the test for equal educational opportunity is not a matter of whether the system produces equal educational *outcomes* for students of all races, but whether it eliminates differences in the educational opportunities for students of different races, where opportunities are defined by the quality of the schooling received."

Educational adequacy addresses the issue of the outcomes of education. Fiske and Ladd (2004:9) define this within the South African context as "the education level needed for someone to participate fully in both the political and economic life of the country." It is likely to be too early to determine the level of educational adequacy that has been reached through the reforms that have taken place.

Although educational equality has been mandated by law, equity in education - particularly with regard to the standards of opportunity and adequacy - has not yet been achieved in South Africa. It will likely take many years to achieve the kind of balance necessary to expect equal outcomes for all learners.

3.3.7 Culture of teaching and learning

The instability that began during the apartheid era helped to create the culture that still exists in some of the schools today. Many schools were plagued with chronic absenteeism, both by the learners and the teachers. Drop-out rates are high and violence continues to be an issue. Again there is a vast disparity in the qualification of teachers and administrators throughout the country. Many of the current teachers were learners in the classrooms of the 1970's and 1980's. The culture of disruption and violence is the only one they have known. Therefore, in those areas most affected, teacher/principal morale and commitment was low (see DoE, 2000b).

Many of the schools in the black townships are faced with the same problems that existed during the apartheid years. Nkabinde (1997:29) points out that township schools still "lack the facilities and equipment such as teaching materials, libraries, electricity, computers, laboratories, and scientific apparatus." The learner-teacher ratio is still much higher in township schools ranging from 50-1 to as high as 70-1 (Nkabinde, 1997:29). Not only have the teachers in these schools not received quality pre-training education, but they are also faced with inadequate resources in classrooms with far too many learners. In a study conducted about burnout among educators in South Africa, Jackson and Rothmann (2005:106) observed that, "young educators are usually excited and optimistic about helping learners when they join the profession; however, when confronted with the challenges facing the teaching profession in South Africa, they become disillusioned."

Not only have the recent political reforms had a stressing impact on the teaching profession, but there are also current negative factors influencing teacher burnout in South Africa. Montgomery, Mostert and Jackson (2005:266) found that some of these factors include

> an increasing workload, too many pupils in a class, an unsatisfactory classroom climate, various and competing tasks to complete, low decision-making powers, little support from colleagues, low salaries and also specific factors in the work situation, such as a lack of classroom discipline, routine, tension within the school, a lack of acknowledgement and support for what is being accomplished and a lack of material aids to accomplish tasks efficiently.

The culture of teaching in South Africa continues to be one of isolation (Ensor, 2001:308). Robinson (2001:103) contends that

> South African schools have traditionally operated very much in isolation from one another and teachers have not always been offered opportunities to discuss issues which they might be facing in their classrooms and their schools. Even within schools, teachers tend to adopt an approach to teaching which is privatized rather than collaborative, thus minimizing the possibilities for sharing understanding and insights ... The culture that has been encouraged and developed in many schools has been one where teachers would rather work on their own behind closed doors than be open about their concerns and difficulties.

In a teaching environment where professional morale is low, and where there is a general lack of collegial support, thereby contributing to academic isolation (Nkabinde, 1997:39), lesson study may be perceived as a valuable process for empowerment. If, however, the idea to become involved in lesson study was imposed on the team members from 'above', it is less likely that they will find much value in the process. Reeves (2000:39) believes that black schools are "run in an authoritarian, top-down way and teachers are at the bottom of the pile. As a result, many teachers lose confidence in the importance and validity of their own ideas." To truly experience the lesson study process, teachers need to be able to view themselves as professionals as well as experts in their field – the classroom. Because of the cultural legacy of apartheid and the current disparity in the

teaching culture in South Africa as a result of socio-economic factors, teachers in township schools may be limited in their ability to do that.

3.4 HISTORICAL CONTEXT RELATIVE TO THIS STUDY

3.4.1 Historical context of CPTD relative to this study

Soon after the implementation of OBE in 1998, the DoE released the Norms and Standards for Educators (DoE, 2000a). This document dated February 4, 2000 outlines in detail the roles and responsibilities of educators in South Africa. It does not, however, discuss specific Continuing Professional Teacher Development (CPTD) strategies that should be employed in an effort to give educators the skills necessary to fill those roles.

During the same month that the document containing the Norms and Standards for Educators was released (February 2000), a review committee was appointed to provide recommendations on the implementation of Curriculum 2005 (C2005). Their report, A South African Curriculum for the Twenty-First Century, was released on May 31, 2000 (DoE, 2000b). Part of this report focused on the teacher-development strategies utilized to train educators for implementation of C2005. Their analysis read as follows:

> Available evidence suggests that the preparation of teachers for the implementation of C2005 is not part of a national strategy for teacher development. The concurrent powers between the national and provincial legislatures and the split of teacher education between three national directorates have resulted in a lack of coherence and the absence of an integrated teacher development strategy. This situation has impacted negatively on the implementation of C2005 (DoE, 2000b:54,55).

The Review Committee (DoE, 2000b) believed that part of the problem with the CPTD workshops was that they were conducted in short, three to five day sessions held after school or on weekends, and they were taught by trainers who had been out of the classroom for too long. The report points out that teachers cannot be expected to change a lifetime of practice after involvement in a three-day workshop. These sessions have ended up being more of an orientation to the theory of OBE rather than training in relation to practice. Many teachers left the workshops not knowing how to relate the information to instruction in the classroom. A further criticism by the committee was

that, after initial training, teachers received no follow-up support. The finding was that there was a limited transfer of learning from the training session to classroom practice.

The conclusion by the review committee is consistent with other researchers in South Africa in that there is a gap between the DoE's vision of the educator and the reality of the teacher's classroom experience. Avalos (2000:460) contends that

> educational reforms generally precede attention to teachers. Often reforms are decided, new curricula and textbooks are written, and teachers are merely informed of their contents and procedures through participation in a few in-service days. This has happened with recent curriculum reforms in South Africa.

Harber (2001) believes that the gap between policy and practice can be addressed through CPTD. He offers the following advice and cautionary note:

> One answer is through a more focused and comprehensive effort at the professional in-service development of existing educators and the production of committed and competent teachers from initial training courses. However, this is likely to be a long and slow process, as providing the in-service education of serving teachers on the scale and intensity required would be a very expensive undertaking (Harber 2001:86).

As stated earlier in this chapter (Section 3.3.5), the DoE did include guidelines in the revised curriculum to help teachers develop their own programs and lessons. It was left up to the provinces to decide how to implement the new guidelines. The Western Cape Education Department summarized the national guidelines and trained the teachers within the province on their use. The intent was to show teachers how to work collaboratively within their phase and within the grade-level they were teaching to develop learning programs and lesson plans.

In 2007, the Department of Education developed a National Policy Framework for Teacher Education and Development in South Africa. As a result of that policy, a CPTD system was proposed. This system, if implemented, will require teachers to accumulate professional development points through three-year cycles. In anticipation of the

implementation of a CPTD system, a task team was formed to conduct a pilot study investigating the current CPTD practices in three of the provinces in South Africa. The final report of that study (DoE, 2008) was submitted in December 2008.

This comprehensive report listed 212 different kinds of CPTD activities that the teachers in the study had been involved in from July 2007 to July 2008 (DoE, 2008:74-78). The report indicated that 91% of the respondents had participated in some kind of PD activity during the specified year (DoE, 2008:26). Of the respondents who had not participated in any CPTD activities, 46% were teachers from township locations. This number was much greater than those of the rural and suburban locations (DoE, 2008:28). Most of the teachers who were involved in CPTD took advantage of activities centered round the NCS. The report finds it "noteworthy that very few of the activities indicated were in any way related to strategies for curriculum delivery in the classroom" (DoE, 2008:29).

When interviewed by the task force, district officials indicated that the implementation of a points system connected to CPTD may be a positive step towards increasing teacher competency. According to the report,

> Most of the district interviewees were firmly of the belief that the new PD point system can and should be fully aligned to the existing IQMS system in schools. In their view, IQMS fits in well with the new system and should become part of the broader CPTD system. They suggested that IQMS should be used to identify professional development gaps in the teaching profession and CPTD can be used to fill these gaps. Through IQMS and the PD points system, teachers can construct their individual professional development portfolios to outline areas of need and ways to address them. This will in turn build their confidence as professionals (DoE, 2008:43).

These officials also highlighted several challenges they anticipated with the adoption of this new system. The recommendations for implementation of the points system provided by the task force as a result of the pilot study included the following aspects:

- Implementation of the CPTD should NOT be rushed
- Support should be provided at the school level

- The CPTD system needs to identify high-quality professional development programs that would impact on teachers' classroom practice and learner performance
- A strong base of service providers appropriate to the needs of the locality should be estabished (DoE, 2008:43,44).

The process of bridging the gap between national policy and classroom, as stated above, can be long and slow. Beijaard, Meijer and Verloop (2004:122) believe that, "teacher development never stops and can be best seen as a process of lifelong learning."

The experience in South Africa is not unlike the experience in other cultures. As discussed in Chapter 2, Section 2.1.2 of this study, little of what is presented in CPTD programs becomes part of teaching practice (Burney, 2004; Joyce & Showers, 1982; Lam et al., 2002; Stigler & Hiebert, 1999). This phenomenon for South Africa could be due, in part, to the homogenous implementation of CPTD programs to a very heterogeneous population of teachers. Johnson, Monk and Hodges (2000:183) theorize that teachers are aligned to one of four stages of development within an education system. These stages in ascending order of proficiency are: unskilled, mechanical, routine, and professional.

According to Johnson et al. (2000:183), teachers in the unskilled stage have weak content knowledge, are isolated and unmotivated, and rely heavily on direct instruction, requiring the learners to memorize and recite. This is largely due to an inadequate supply of materials for the learners. In the mechanical stage, teachers have a little more exposure to collegial interaction and CPTD. Their instruction is driven by the curriculum and the textbook.

Each of the four stages requires a different kind of training for its teachers. Teachers in the first two stages, unskilled and mechanical, tend to approach their profession as workers rather than professionals (De Clerq, 2008:9). Recommendations for CPTD programs for teachers in these first two stages of development include content training, supplying teachers' guides, and providing external support. These programs generally offer changes for the teachers rather than encouraging changes by the teachers themselves (Johnson et al., 2000:184).

Teachers in the last two stages of development, routine and professional, tend to be more reflective about their own practices. These educators are more committed to their own pedagogical improvement (De Clerq, 2008:9). It is teachers in these last two stages who are candidates for CPTD programs that allow them to act as professionals and become researchers in their own field. Johnson et al. (2000:184) argue that "notions of the teacher as a reflective practitioner, which underpin ideas on action research, are appropriate to teachers at the third and fourth stages."

This disparity between stages of development can present a challenge when designing effective CPTD programs. In South Africa, the responsibility for delivering CPTD rests with the Provincial Department of Education. It would be ineffective at best to use a one-size-fits-all approach to CPTD. The program initiated to train teachers for implementation of OBE was the Cascade model. This model, which consists of training sessions, cluster and group meetings, and workshops, was ineffective. According to Ramparsad (2001:290), "the Cascade training model resulted in information being diluted as it was transmitted from the national to the school level. This resulted in confusion, lack of adequate information and selective interpretation of information." Part of the reason for this confusion may be that the information presented through a single model cannot effectively inform the pedagogy of teachers at all four stages of development.

Whereas teachers in the first two stages of development may benefit from in-service programs targeted at basic content and pedagogical knowledge, more highly developed teachers require a different type of CPTD. De Clerq (2008:10) contends that

> as teachers become, and act as, autonomous professionals, different kinds of in-service activities are needed, which take a school-based approach in the work setting. Such professional development involves on-site workshops, coaching by mentors and/or facilitators who model good practices, and encourage teachers to reflect on their own practices with colleagues working in similar contexts. The aim is to instill in teachers the reflexive competences to examine what they achieve, what professional development they need to improve their pedagogical delivery, and learn new practices.

It is this local context that has particular relevance to this study. The question guiding this research – *Is there a CPTD model or program that is successful in bringing a teacher out of isolation to work collaboratively with colleagues in an effort to truly improve instruction in the classroom?* – is relevant and timely to the experience of teachers in South Africa.

Lesson study may be seen as a strategy that teachers will value to help close the gap between policy and practice. It has been successful in Japan for more than 50 years (Lewis et a.l, 2004; Yoshida, 1999) and is beginning to realize success in the USA (Chokshi & Fernandez, 2004). If teachers in South Africa do not feel that the training they have received is useful, they may value the process of lesson study as a strategy to collaborate with peers in an effort to improve classroom instruction. If teachers in South Africa are expected, as stated by Carl (2002:262), to "play a special role particularly in regard to the planning of lessons and lesson units," lesson study can be a useful strategy for accomplishing this task. It can help teachers move from their apartheid role of being, "teachers [who] were expected to follow rules and implement prescriptive curricula established from above [where] their job was to obey orders and not to be creative" (Harber, 2001:81), to their post-apartheid role of being, "mediators of learning, interpreters and designers of Learning Programmes and materials, leaders, administrators and managers, scholars, researchers and lifelong learners, community members, citizens and pastors, assessors and learning area/phase specialists" (DoE, 2000a:13,14).

3.4.2 Historical contexts of participants relative to this study

The participants initially involved in this study were the product of opposite ends of the education system during the years of apartheid. One group, Case A, chose to remain in the study longer than originally anticipated. The other group, Case B. chose to withdraw from the study much sooner than anticipated. Although this will be discussed in more detail in Chapter 4, it is important to consider here the historical background of each case.

Case A is comprised of a group of teachers in a former Model C school. They were better equipped with adequate resources to transition through the reforms of the 1990's. Their personal educational background also reflects that. The teachers in this group fit within the last two stages of development described in the previous section. Their experience and background has encouraged them to develop themselves as professionals

in their field. They are currently teaching in a school that levies significantly higher fees than other schools in the area. This allows them continual access to resources, such as computers and textbooks, as well as the ability to have a favorable learner to teacher ratio. The learner population also comes from a political and educational background that was more stable during the years of apartheid. All of these factors may have contributed to this group of participants choosing to remain in the study longer than the time requested.

Case B is comprised of teachers in a township school. They, therefore, inherited the disadvantages from the policies of the apartheid system. That legacy, both in terms of resources and personal background in education, did not accommodate an easy transition through this period of educational reform. The teachers in this group fall within the first two stages of development described in the previous section. These teachers currently find themselves teaching in a school with little access to adequate learner fees because of the socio-economic status of their population base. Therefore, they continue to struggle to obtain adequate resources for instruction, while at the same time experiencing a higher learner-to-teacher ratio than schools who can charge higher fees. The population of teachers and learners in this school come from a political and educational background that was chaotic and violent during the apartheid years. These factors may have contributed to the choice made by this group to withdraw from the study early.

3.5 CONCLUSION

Educational reform through the transition from a fragmented apartheid system, characterized by inequities, segregation, authoritarianism and discrimination, towards a consolidated and integrated democratic system has had many challenges. Because education policy was deemed so important by the new government, it was developed and implemented very quickly. Within four years of the first democratic elections in 1994, classroom teachers were confronted by monumental changes in all areas of their profession. Some schools were better equipped to make the transition smoothly than others. Many teachers were not well prepared to deal with these changes (DoE, 2000b) and were suddenly confronted with a new system (OBE) which required collaboration and critical, reflective involvement with the curriculum. According to October (2009:118), the drastic paradigm shift that not only teachers but all role players had to make, demanded constant attention and development so that they could keep abreast of

new developments and changes. From a past characterized by deep division and separation, teachers now had to collaborate and work together.

This study thus sought to determine the value that teachers in a rural school district in the Western Cape Province would place on the process of lesson study as a strategy to bring them out of isolation and work collaboratively in an effort to improve instruction in the classroom. This study should not be seen as an effort to heal the past, but rather as an effort to determine the viability of the process of lesson study as an option for teachers to come together in an effort to improve their craft.

This brief historical context for the study explored the unique challenges faced by the participants involved in this particular research project. The next chapter will discuss in detail the selection of the participants, their involvement in the study, and the design and methodology of the research employed.

CHAPTER 4

RESEARCH DESIGN AND METHODOLOGY

4.1 INTRODUCTION

The purpose of this chapter is to provide an overview of the research design and methodology used in this study. The theoretical framework for the research methods as well as the developmental process that took place will be discussed. A qualitative case study was employed as the approach for this study (De Vos et al., 2005:272). Although the initial intent was to generate data by following three different cases through two cycles of lesson study, the research evolved into following one case through four lesson study cycles over the course of two academic years.

Section 4.2 provides the rationale for the choice of action research as the design in the execution of the case study used for this research. The need for a design that allows for the dynamic nature of lesson study as well as the changing role of the researcher is discussed. It further explains how this study fits within the critical or emancipatory paradigm of an action research design.

Section 4.3 explains how data was construed in a rigorous and transferable manner. The section addresses trustworthiness, transferability, and data generation. It includes a detailed discussion on the role of the researcher by specifically addressing the elements of agenda, stance and position. It also looks at the three different kinds of action research: technical, practical, and emancipatory (Carr & Kemmis, 1986), and places my role as facilitator within the emancipatory type.

Section 4.4 places the action research design within the broader context of my study. It follows the plan, act, observe, and reflect spiral (Lewin, 1946) from the time at which I began the process in January 2006, until its completion in September 2008. It discusses how my research followed the five steps involved in employing an action research design (McNiff, Lomax & Whitehead, 1996) as well as an overview of my changing role.

Methods used for observation and data generation are outlined and connected to the reflection stage in the action research spiral.

Section 4.5 follows the action research design from the initial planning of the study through each cycle of lesson study. It assigns an action research spiral to each of the lesson study cycles. It shows specifically how each stage in the spiral was addressed through each separate lesson study cycle. This section discusses in detail how the design evolved from the intent of having three separate case groups proceeding through two cycles of lesson study to a single case proceeding through four cycles of lesson study. It also focuses on the data generated through each cycle and my changing role in relation to the participants. Reflection at the end of each spiral centers on sustainability and addressing any obstacles from one cycle of lesson study to the next.

Section 4.6 reiterates my rationale for choosing an action research design. It again provides the evidence that all phases of my study fit within the criteria for action research.

4.2 ACTION RESEARCH DESIGN

The purpose of this study was to discover the value that teachers would place on the process - rather than the outcome – of lesson study. The study sought to determine whether lesson study is a viable strategy for bringing teachers out of isolation to work collaboratively with colleagues in an effort to improve instruction in the classroom. A research design that allowed enough flexibility to accommodate the cyclical nature of that process was therefore imperative to the success of the study. The design also had to allow for my changing role in relation to the participants. Action research is a dynamic research approach and, hence, best suited for the nature of this study.

Although there are many definitions of action research, Grundy and Kemmis (1981:3) offer this adaptation of a collective definition:

> Educational action research is a term used to describe a family of activities in curriculum development, professional development, school improvement programs, and systems planning and policy development. These activities have in common the identification of strategies of planned action which are implemented and then systematically submitted to observation, reflection

> and change. Participants in the action being considered are integrally involved in all of these activities.

All of the attributes described in this definition are characterized in my study. I was directly involved with bringing participants out of isolation to design, observe, reflect upon, and revise study lessons in an effort to improve classroom instruction and thereby moving learners closer to a prescribed goal. This study therefore fits the criteria for educational action research. It specifically aligns itself with the critical or emancipatory interest underlying this study.

Kemmis (2001:91,92) argues that there are three different interests guiding action research: technical, practical, and emancipatory (also described as critical). He describes the emancipatory interest as

> an interest in emancipating people from determination by habit, custom, illusion and coercion which sometimes frame and constrain social and educational practice, and which sometimes produce effects contrary to those expected or desired by participants and other parties interested in or affected by particular social or educational practices.

The educational practice providing the motivation for this study is the phenomenon of teacher isolation. This type of action research encourages us to look at ourselves and our work environment or setting and be critical of both. According to Lincoln (2001:125), "Critical action research has exemplified a commitment to social analysis which draws upon larger social forces impinging on smaller contexts, including injustices fostered by powerful, but largely invisible, social and historical infrastructures."

I sought to discover CPTD methods proven to reduce isolation, and encourage the type of collaboration that truly affects improvements in instruction. Against this background, the literature on lesson study seemed to offer a possible method for reducing teacher isolation. I had no prior experience in lesson study, and I wanted to go through the process with a group of participants who were inexperienced in lesson study as well. The participants in this study, myself included, can be approached in terms of the smaller context of the classroom. The education system that we find ourselves working in can be viewed as the larger social force impinging on our practices. One of the injustices at

issue here may be that teachers are not viewed as professionals in their own field (discussed in Chapter 3, Section 3.3.7). Lesson study offers the opportunity for teachers to break free from that historic mold by bringing them out of isolation and encouraging them to be researchers and experts in their own field. According to McNiff (1988:xviii), "Action research presents an opportunity for teachers to become uniquely involved in their own practice, to professionalise themselves, and to give reasoned justification for what they are doing." The goal of this study was to discover the value teachers would place on the process of lesson study by bringing them out of isolation thus allowing them to work collaboratively as the experts in their field – the classroom.

Continual reflection and revision throughout the research process generated the data necessary to determine the value they placed in that process. To make any claims about the perceived value participants would place on the lesson study process, or to promote any kind of transferability through the results of this study, it was important to address the rigor framework through each stage of the research. The triangulation of the data and the role of the researcher are particularly critical.

4.3 RIGOR

4.3.1 Trustworthiness

Mertler (2009:114,115) claims that, "when dealing with the validity of qualitative data, researchers are essentially concerned with the trustworthiness of the data." DeVos et al. (2005:346) suggest that credibility is the, "alternative to internal validity, in which the goal is to demonstrate that the inquiry was conducted in such a manner as to ensure that the subject was accurately identified and described." Addressing credibility in a study helps to establish its trustworthiness. Guba (1981) suggested several strategies that can be employed to ensure credibility. All of the strategies suggested were employed in this research project.

The first strategy encourages the researcher to prolong participation at the study site (Guba, 1981). My research was conducted over a period of 18 months, beginning in February 2007 and concluding in August 2008. Participants experienced four cycles of lesson study through the course of two school years.

The second strategy is to be a persistent observer (Guba, 1981). Although my role as the researcher changed through each cycle of lesson study, my role as observer was consistent throughout the research. I regularly recorded observations in my journal and constantly referred to them when reflecting at the end of each action research spiral.

A third strategy for ensuring credibility is to do peer debriefing (Guba, 1981). Throughout this study I regularly interacted with my promoters. Our discussions offered valuable insight that helped me to reflect on my observations within the context of the South African setting. Their critical evaluation of my observations and their insightful feedback provided the necessary catalyst for reflection at the end of each cycle of lesson study.

The fourth strategy suggested by Guba (1981) is to practice triangulation when generating data. A variety of data sources were employed in this study. They are discussed in detail in Chapter 1, Section 1.5.3.

The final strategy for ensuring credibility suggested by Guba (1981) is to collect raw data items. To ensure rigor in the particular strategy, I video-recorded all discussion sessions and interviews and downloaded them onto DVDs. I transcribed the interviews verbatim and saved them electronically as well as in hard copy. All lesson study documents have been preserved in the same way.

By paying close attention to each of the strategies suggested by Guba (1981), I believe that this study holds itself to the highest standards of rigor. McNiff (1988:131) points out that "a common challenge to action research is that it is subjective and therefore unreliable, that is, the solutions that it claims to generate cannot be universally tested and are therefore invalid." McNiff, Lomax, and Whitehead (1996:107) refute that notion by characterizing action research as,

> a culture of independent thinkers, each willing to submit their claim to knowledge to the critique of others, to ensure that the claim is robust and legitimate … Action research demands intellectual independence, and also honesty and responsibility; and its methods ensure this by insisting that claims to knowledge are validated by the most rigorous standards.

By addressing the credibility of this study through the strategies outlined above, I believe that the findings can be considered trustworthy.

4.3.2 Transferability

In an action research design, transferability is generally contained within the context of the study (Greenwood & Levin, 2007:66; Mills, 2007:86). Although the results of this study do not claim to be generalizable, they may be viewed as transferable. Herr and Anderson (2005:6) contend that the knowledge generated by an action research study is transferable if "the knowledge is transferred to someone in a receiving context that is similar to the sending context that produced the study. Qualitative and case study researchers refer to this as external validity, or transferability, of the findings."

To ensure transferability, Guba (1981) suggests that the researcher collect and develop descriptive data of the context in which the research was conducted. Chapters 4 and 5 provide a thick description of the setting and process for this research. Readers should be able to compare the setting for this research with their own settings thereby deciding how the findings may be transferred to their contexts.

DeVos et al. (2005:346) believe that, "the burden of demonstrating the applicability of one set of findings to another context rests more with the investigator who would make the transfer than with the original investigator." Although I do not claim to determine the precise context for transferability of this study, I believe that by providing a detailed description of the context through every spiral of this action research study, transferability will be more easily facilitated.

4.3.3 Data generation

Grundy and Kemmis (1981:19) suggest that

> the function of data in action research is to provide a basis for reflection. Data represents action in a way that enables it to be reconstructed rather than only recollected…it is a means of documenting observations and thus mediating between the moments of action and reflection in the action research cycle.

Data was generated during each phase of this study through the use of various techniques suggested by experts in the field of action research (Grundy & Kemmis, 1981; Mouton, 2001).

Data generated by the participants included surveys, time logs, research lesson documents (descriptions of study lesson, observation focus forms, post-lesson discussion forms), and semi-structured interviews that I personally administered and transcribed verbatim.

To strengthen my claim to quality assurance and to provide a sound basis for personal reflection, I recorded regular, dated entries in a research journal. Mouton (2001:107) advises the researcher that, "by keeping a record of the main decisions and events during the fieldwork process, you construct a historical record of the whole process to which you can return later if necessary." I found my own field notes to be of tremendous value as I reflected and consequently reconstructed the story of this experience.

To add to the completeness of the data, all meetings with participants – including the delivery of the research lessons – were video recorded. According to Grundy and Kemmis (1981:19), "Tape-recordings and photographs are powerful stimuli to recall and further questioning." All video-recordings were downloaded onto DVDs for reference if necessary. Photographs were also taken during different phases of the study and downloaded onto DVDs for future reference.

The use of these varied techniques for generating data resulted in triangulation. This study holds itself to rigorous standards through meticulous generation of multiple types of data during each phase of the research. These data provided the basis for reflection at the end of each spiral of action research within this study. They also provided the documentation necessary to reconstruct the experiences of the participants through every phase of this research.

4.3.4 Role of the researcher

The role of the researcher in an action research design needs to be established within the context of the particular study. Because of the collaborative nature of action research, the researcher initially assumes a more interactive role than has been the case in more

traditional research designs within the social sciences. According to Stringer (1999:25), "The role of the researcher is not that of an expert who *does* research but that of a resource person. He or she becomes a facilitator or consultant who acts as a catalyst to assist stakeholders in defining their problems clearly and to support them as they work toward effective solutions to the issues that concern them."

The following sections discuss the elements that the facilitator of an action research project should address (Stringer, 1999) and the differing roles of the researcher in technical, practical, and emancipatory action research (Carr & Kemmis, 1986).

4.3.4.1 Elements necessary for action research facilitator to address

Since my expertise in terms of lesson study was limited at the outset of the study, even though I had an understanding of the process, it would have been difficult to assume the role of expert in the field. As previously stated, that is not a requirement for the facilitator in an action research study. Stringer (1999:53) believes there are three elements that the facilitator of an action research study needs to address: agenda, stance, and position:

1. Agenda

It is important for participants in the study to understand the purpose of the researcher. It was necessary, therefore, for me to initially be very candid about my role in this study. Stringer (1999:53) states that by illuminating that role early "the people involved can begin to understand what the researcher is concerned with and the part he or she plays." When I first met with possible participants, I introduced the idea of lesson study; explained my role as the researcher - that of facilitator to the process of lesson study; their roles as participants in the study; and a tentative timeline for the proposed research. This was the general focus suggested by Stringer for this element.

2. Stance

Stringer (1999:53) suggests that "a researcher's presentation of self should be as neutral and non-threatening as possible. Body language, speech, dress, and behavior should be purposeful, inquiring, and unpretentious." My stance throughout this study has been that of a teacher working with other teachers to discover whether the process of lesson study is perceived as a valuable strategy to bring teachers out of isolation and work

collaboratively to improve classroom instruction. I embodied each of the qualities suggested by Stringer as I met with my participants. I was very conscientious of their time and so always arrived for discussions sessions early enough to have the video equipment set up before they assembled. Although I guided the steps of the lesson study process, I did not assume the stance of an expert in their classrooms. I did pose questions to the group in an effort to stimulate their own discussion about the goal selection and the description of the study lesson. I adapted my own manner of dress to that of the participants and maintained a comfortable collegiality through all of our meetings. I was genuinely pleased to see them and I believe they returned that sentiment.

3. Position

Stringer (1999:55) cautions researchers that as they, "commence preparatory work, they should artfully position themselves so that they do not threaten the social space of the people with whom they will be working." It is also important that the researcher be equally aligned with all the participants. Each group member needs to feel comfortable enough with the researcher to be able to communicate freely. This can be facilitated by conducting meetings in a neutral environment, chosen by the team of participants, and by fostering an informal relationship outside the direct research setting.

The participants in the study chose the environment where they wanted to conduct meetings. Our meetings were held in the room where the participants regularly met for planning sessions. That was already a comfortable place for them and they invited me to join them. Although I did spend more time with the principal and deputy principal than I did with other team members, this did not seem to have an adverse effect on our communication. The principal and deputy principal were both participants in the research and had a comfortable collegial relationship with the other participants in the group. I never got the sense that there was an authoritative–subordinate type of relationship within the group. I did have the opportunity to meet with the participants and other faculty members on several occasions during "break" time in the staff room. I was also invited to attend their annual fund-raising event held on a Saturday. My daughter and I both attended and had a great time. We took photos, which we later shared with the participants. When it was time for me to return to the USA in August 2007, the participants were gracious enough to meet with me and express how much they had enjoyed their involvement with me in this research. They also presented me with a

basket of South African "goodies" to take home with me. It was truly a pleasure to work with them.

I believe that my involvement as researcher was consistent with the three elements suggested by Stringer. The role that the researcher plays also helps to define a specific type of action research. According to Carr and Kemmis (1986:201), "Different kinds of facilitator roles establish different kinds of action research." They refer to these different kinds of roles as technical, practical, and emancipatory.

4.3.4.2 Role of researcher in technical, practical, and emancipatory action research

1. Technical

In the technical kind of action research, the educational issue at the center of the study is raised by the outsider. A group of practitioners is used to generate known outcomes. The focus here is external in that the issue is introduced by the outsider and the results are used to strengthen the external body of knowledge rather than the internal practice of the practitioners.

Although, as the facilitator, I introduced the process of lesson study to the participants, the central educational issue was already a part of routine practice. That issue, teaching in isolation, was addressed through the process of lesson study. There was no known or anticipated outcome for the practitioners in the group. As the outsider, I acted as facilitator to the process, to discern the value that practitioners would accord to lesson study as a tool to experience meaningful collaboration in an effort to make improvements in instruction. Although the results of this study may contribute to the wider body of knowledge, the focus during the research was definitely on the internal practice of the practitioners. For those reasons, I do not believe that this study falls into the category of technical action research.

2. Practical

Practical action research differs from technical action research in that the outsider forms a collaborative relationship with the practitioners. Working together, the outsider acts as a consultant within the group. Although self-reflection is characteristic of this kind of action research, it is not systematically developed. According to Carr and Kemmis (1986:203), "The facilitator's role is Socratic: to provide a sounding-board against which

practitioners may try out ideas and learn more about the reasons for their own action as well as learning more about the process of self-reflection."

There are connections between this kind of action research and my study. I did establish a collaborative relationship with the practitioners at the onset of the study and maintained that partnership throughout the research. During the first cycle of lesson study I played an active role as the facilitator to the lesson study process. During the second cycle my role was more that of consultant. During the third cycle, my role was much less interactive, largely that of observer. There were brief periods when I acted as consultant. During the fourth cycle there was no interaction between the participants and myself. Because of my changing role in relation to the group of practitioners, and because of the systematic development of personal self-reflection in lesson study, I do not feel like my research falls in the practical realm either.

3. Emancipatory

Emancipatory action research is a process that is highly group oriented. Any individual issue or problem belongs to the collaborative body of practitioners. The role of facilitator is commonly filled by one of the members in the practitioner group. It can, however, initially be filled by an outsider as long as the responsibility for the process is given over to the group of practitioners. To truly be considered emancipatory action research, the practitioners themselves need to become a self-critical and self-reflective group. Carr and Kemmis (1986:205) add the caution that, "any continuing dominance of a 'moderator' will be destructive of the collaborative responsibility of the group for its own self-reflection."

The process of lesson study embodies the criteria set here for systematic self-reflection, individually and by the group. It also includes the idea of individual issues belonging to the collaborative body. This is most evident in the collaborative goal selection in the first phase of the lesson study cycle. In my role as researcher, I began the study as an interactive facilitator and concluded the study by turning the responsibility for the process over to the group entirely. Because of my decreasing interactive role within the group of practitioners, and because of the nature of lesson study, I feel that my study is closely aligned to emancipatory action research. The specific characterization of my role

through each spiral of this action research design is documented through the remainder of this chapter.

4.4 ACTION RESEARCH DESIGN WITHIN BROAD CONTEXT

The action research design consists of a series of cycles referred to as spirals.[1] Although there are many variations of the initial action research model introduced by Lewin in 1946, the spirals all tend to follow the original basic format of: plan, act, observe, and reflect. The basic action research spiral is depicted in Figure 4.1. This section of Chapter 4 will look at my study as a whole within the context of the four stages in the basic spiral of action research.

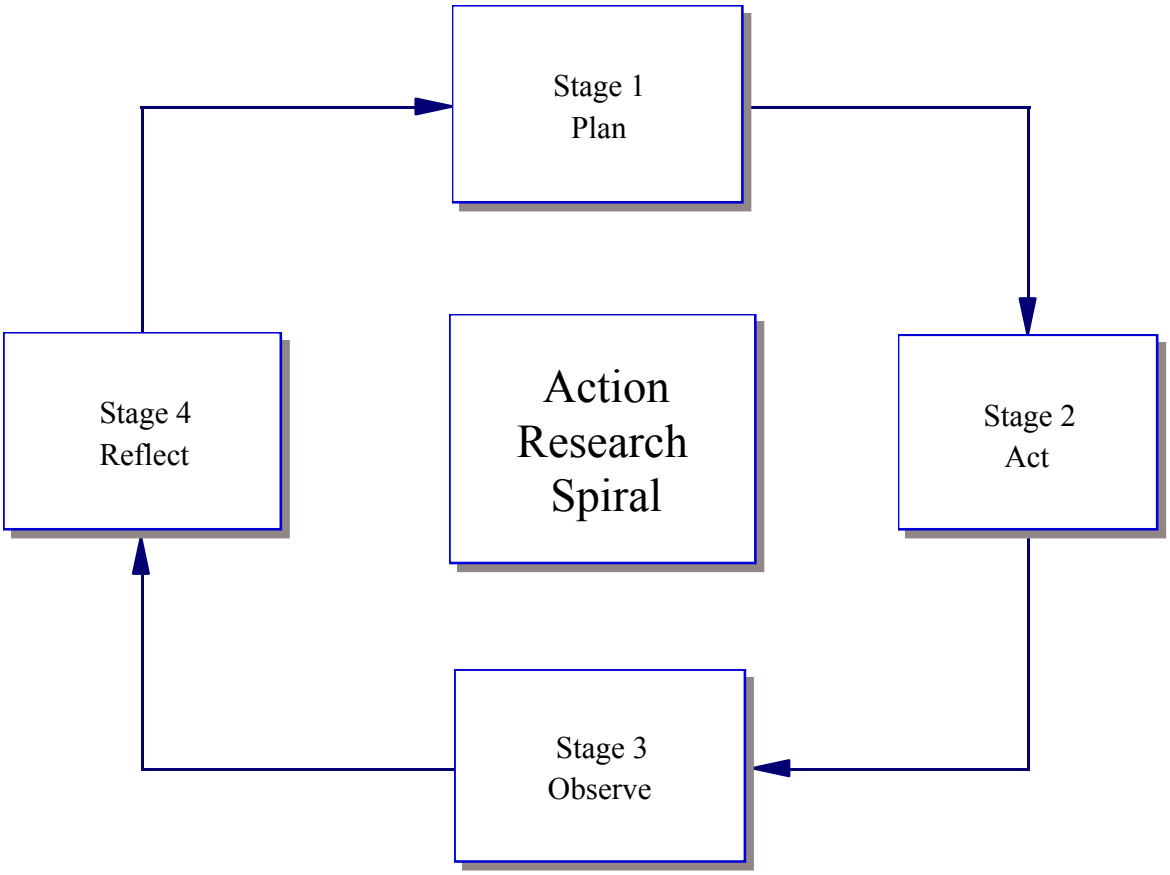


Figure 4.1 Action Research Spiral (adapted from Costello, 2003:7)

4.4.1 Stage One: Plan

One of the defining characteristics of an action plan is that it must be forward-looking, flexible and allow for unpredictability. Kemmis and McTaggart (1988:11) believe that

[1] Throughout this document, 'spiral' will be the term used in connection with action research. The term 'cycle' will be used in connection with lesson study (see Chapter 1, Section 1.6).

the prescription for action must be described in two senses: "First it must take account of risks involved in social change and recognize real constraints, material and political, in the situation." I realized at the outset that one of the main constraints that I had to deal with was that of language. By choosing the setting of a rural district within the heart of the Western Cape, I knew that the likelihood of finding participants that could effectively communicate in English would be limited. I knew also that the language issue would be a possible deterrent to my desire to include a variety of racial demographics within my research. Although not the only factor, it certainly was one of the reasons that I was not able to include a "colored" school in my study. Another constraint I was aware of was that of time – mine, and that of the participants. To accommodate that variable, I allowed a lot of flexibility in my own time and was always prepared and efficient in the use of the participants' time. A third constraint that I recognized and addressed was the support of building- and district-level administration. That support was secured before participants were selected for involvement in the study.

The second sense talked about by Kemmis and McTaggart (1988:12) is that, "critically informed action should be chosen because it allows practitioners to act more effectively over a greater range of circumstances, more wisely, and more prudently. It should help practitioners to go beyond present constraints and to empower them to act more appropriately in the situation and more effectively as an educator." In an effort to critically inform the action, one can look at the model of lesson study as already containing that quality. It has been the adopted format for CPTD in Japan for the past 50 years and is meeting success in several school districts across the USA as well.

To further inform the action for this study, I developed all data-generation documents by combining forms used by lesson study experts and the adopted National Curriculum Statement (DoE, 2002) used by educators in South Africa. A detailed discussion of the development of those documents can be found in Section 4.5.1.2 of this chapter. The impetus behind developing the documents in this way is embedded in this second sense. I wanted the participants to feel empowered by their knowledge of the existing curriculum, thereby possibly making it easier for them to move beyond the constraints presented by their lack of experience with lesson study. To add to the security of critically informing the proposed action, I chose participants who were all teachers in the Intermediate Phase. Each teacher within the study group either sends his/her learners on

to or receives them from one of the other teachers in the group. As suggested previously, this alone, may encourage the practitioners to act more wisely and prudently.

After positioning my study within the prescriptions suggested by Kemmis and McTaggart above, I proceeded by following the five steps for planning an action research design outlined by McNiff et al. (1996:52-57). These steps are: finding a research focus, background reading, ethics, resourcing, and working with others. The overall plan for this study will be discussed in terms of these five steps.

4.4.1.1 Five steps for planning an action research design

1. Finding a research focus:

When deciding upon a focus for my research, the initial concern for me was discovering a CPTD tool that really did succeed in bringing teachers out of isolation to work collaboratively in an effort to improve classroom instruction.

When conducting action research, one guiding question suggested by McNiff et al. (1996:52) is, "How can I (or we) improve _____?" This study attempts to answer the question, "How can I (we) improve our teaching practice?" Specifically it asks, "What value will teachers place on the process of lesson study as a model for their own learning and instructional improvement?" Within this broad focus two sub-questions were included: "Will the teachers involved in the research groups experience the lesson study cycle as a viable strategy for reducing isolation?" and, "Does lesson study facilitate meaningful collaboration in an effort to make improvements in classroom instruction?"

2. Background reading:

My initial search for the kinds of CPTD programs that have facilitated effective instructional improvement in the classroom ultimately led me to lesson study. As I began to read material about its success in Japan (Lewis et al., 2004; Stigler & Hiebert, 1999; Yoshida, 1999) and in some school districts around the USA (Fernandez & Chokshi, 2002), I decided that it would be the focus of my research. Thereafter, I immersed myself in the available literature through books, articles, and dissertations. In April 2006, I also spoke with Professor R. Stewart of Boise State University in the USA. He had just finished his own research on lesson study, along with one of his colleagues (Stewart & Brendefur, 2005). I also attended a conference in May 2006, where several educators

from around the USA presented their own experiences with the process of lesson study in their school districts. During that conference, held at DePaul University in Chicago, Illinois, participants were also allowed to act as observers during a research lesson. Part of my plan for this research was to keep as much bias out of the study as possible. I did that in two ways: Firstly, I chose not to personally experience lesson study prior to the commencement of the research. I felt that I would be able to conduct a more rigorous process without being influenced by prior experience. The second way to limit bias was to conduct the research by using a group of participants who have had no exposure to lesson study. That goal was achieved by choosing South Africa as the context for this study. No reported research could be found that had introduced lesson study in a scholarly way in South Africa.

3. Ethics:

Ethical procedures were employed during every step of the planning and implementation of this research. Permission was obtained from the director of curriculum for the school district where I wanted to conduct the study. I was given the names of several principals to contact. I did meet with four of the principals and three of them agreed to present the idea to their teachers in an effort to recruit volunteers for the study. When I met with each of the teams from the three schools, we had a brief introduction to the nature of the study. Participants were reminded that involvement was voluntary, that all information gained from the study would be kept confidential, and that they each had the right to withdraw from the study at any time without fearing any negative consequences. Each participant was given a consent form to read and sign that outlined all of the pertinent details. Participants were also informed that they would have the right to preview the analysis and findings of the research before it would be made public and that they could receive copies of any of the video recordings of their team discussions and research lessons. Pseudonyms were assigned to each participant to protect their anonymity. All of these items were addressed in an effort to maintain good faith. Stellenbosch University maintains the intellectual property rights to the findings from this study.

4. Resourcing:

When planning for this research project, it was important to assess and address the resources necessary for its successful completion. One of the first things to consider was funding for the project. Since I was interested in conducting the research 10,000 miles

away from home, a significant monetary investment was required. Part of that was the actual capital that would be necessary for travel and living expenses while abroad. The other part of that was the loss of income I would experience while taking the time to write the proposal and conduct the research. Upon being accepted as an affiliate student pending the acceptance of my proposal and admittance into the doctoral program, I submitted application for and was subsequently granted sabbatical leave from my teaching position in the USA. That allowed me the time and a minimal salary to be able to work solely on my study while living in South Africa. Once admitted into the doctoral program, my promoter was also able to secure a bursary from the university to help defray the costs of conducting the research. The participants in the study participated at their own expense, so there was no cost involved with regard to remuneration for their involvement.

A second type of resource that needed to be addressed was the technical support required to conduct such a study. That, to a certain extent, was also related to the issue of funding. Before leaving the USA, I purchased a laptop and a video camera with capabilities to interact electronically in order to produce DVDs of all the discussion sessions during the study. I also obtained access to the computer lab on campus which allowed me to view the DVDs made from the video- recorded interviews on my laptop while transcribing them verbatim onto another computer. I was then able to print that into hard copy.

A third resource taken into consideration during the planning of this research was that of time. I allowed myself 15 months in South Africa to finish my proposal and generate the necessary data by conducting research through two cycles of lesson study. My initial plan was to have my proposal completed and accepted by the end of October, 2006. I was successful in meeting that deadline. My proposal for research was approved on October 26, 2006 by the Departmental Research Committee of the Department of Curriculum Studies in the Faculty of Education. During the following six weeks, I went through the process of selecting the participants for the study. The first lesson study cycle commenced in February 2007, and ended six weeks later in March. The second cycle, also six weeks in length, began the following month in April and concluded in June 2007. Because I had allowed plenty of time to conduct the research, and because of the flexibility allowed for within an action research design, I took advantage of the fact that the participants desired to continue with the process of lesson study. Therefore, a

third cycle was conducted before I left South Africa in August 2007. What this allowed was the development of multiple action research spirals in this study. Beyond the time necessary for the initial stay and research in South Africa, I dedicated time around my work schedule in the USA to analyze the data and continue with the writing that I had begun in South Africa. I also obtained a short leave of absence from my teaching position so that I could return to South Africa for four months from June through September 2008 to finish any research with the participants and work with my promoters to format the chapters of my dissertation in such a way that I could then return home in October and finish the writing from the USA.

5. *Working with others*:

The process of working with others began once the initial contact had been made with my promoter. As I worked with him to develop a proposal, other experts in the field were also consulted, one of whom agreed to be a co-promoter in this study. All through this process we have worked well together as a team. They have provided the expertise that I lacked in the South African context, as well as in the theoretical background and writing process. We met together regularly while I was in South Africa and we continued to communicate on a regular basis through email when I returned home to the USA.

Certainly, a critical element of this particular step in planning was the selection of - and communication with - the participants for the research. McNiff et al. (1996:30) remind researchers of the following: "[you are] dependent on participants, so never abuse their good will … you cannot afford to not let your participants know that they are valued." I kept this in mind throughout the scope of the research. When initial contact was made in an effort to secure participants, I set up an appointment early in November 2006 at the convenience of the director of curriculum for the district where I wanted to conduct the research. I was early for the appointment and came prepared to offer a concise description of the study I wished to conduct and the necessary criteria for participation. I also brought a copy of my proposal should he want to have that at his disposal. He referred me to the manager for the English speaking schools in the district, and I met with her a few days later. She, together with the Intermediate Phase director for the district, gave me the names of five principals whom I could approach.

Four of the five principals agreed to meet with me. Of those four, one believed that his teachers would have a very difficult time communicating in English so declined participating. Each of the other three granted me access to their staff. They gathered a team of possible participants and I met with each team late in November 2006 prior to the close of the school year. During that meeting, which lasted about an hour, I presented the basis of the study, what their involvement would be, and a proposed timeline. I also left reading materials with each of them and consent forms that outlined their rights and responsibilities as participants. I thanked them for allowing me to meet with them and asked them to think about their decision over the next few weeks.

Each team agreed that they would be willing to participate in a training workshop on a Saturday at the beginning of the new school year. That training was scheduled for the first Saturday in February 2007. I arranged for lunch to be served and had all the materials organized and ready so that the presentation would be informative and meaningful. There was a timed agenda for the session and I was meticulous about staying on or ahead of schedule. We even ended the meeting a few minutes early. At the close of that training session, I asked each of the participants to fill out a form evaluating the time they had spent in the training and the forms that I did receive back indicated, unanimously, that the session had been very beneficial. My promoter also attended this session to familiarize himself with the process and the specific context in which the study was to be undertaken.

Once the cycles began, I was always early for our scheduled meetings and was very conscientious about the time being sacrificed by the participants. Camaraderie developed between the team of participants who remained in the study and me. When it was time for me to leave to go home, I was pleasantly surprised by a farewell celebration. The research seemed very much "ours."

4.4.2 Stage Two: Act

The second stage in the action research cycle is to put the planning into practice. This action stage, according to Kemmis and McTaggart (1988:10), is "deliberate and controlled ... It recognizes practice as ideas-in-action – and uses action as a platform for the further development of later action." Because of the dynamic nature of action research, this particular stage can be somewhat unpredictable. Flexibility is an integral

element throughout the spiral but particularly in this stage. Greenwood and Levin (1998:94) argue that action research differs in this regard from conventional research in that

> the research process and the results are adjusted to each other at every point to ensure the continued relevance of the research process to the needs and interests of the local partners and to keep the broader research questions being addressed fully in view. As the research process continues and the research partners gain understanding, the goals of the process are constantly being redefined, refined, and altered completely.

One of the ways I accommodated the dynamic process of this stage was through my role as researcher. During the first cycle of lesson study I assumed a very interactive researcher/participant role. I acted as facilitator to the lesson study process. Within that role, I guided the team through the goal selection, modeled the use of the planning tools for designing and observing the research lesson, prepared and conducted the post-lesson discussion, and offered suggestions for using the themes emerging from that discussion for the revision of the research lesson.

Another aspect of my role as facilitator was to ensure rigor through the continual generation of various types of data. All data generated were designed to address the questions guiding the research, thus keeping them "fully in view" as previously recommended. At the end of the second, or planning, phase of this lesson study cycle, participants were asked to answer several survey questions based on their experience thus far in the process. Lesson study documents, the description of the study lesson, observation focus forms, post-lesson discussion form, and individual time logs were also completed and used in the data analysis. One-to-one post-cycle semi-structured interviews based on the research questions were also conducted. All discussion sessions were video-recorded and the interviews were transcribed verbatim. I also recorded field notes and observations in a research journal.

My role as participant during this cycle allowed me to interact closely with the members of the team in the planning of and preparing for the research lesson. During the planning phase, all conversations were conducted in English and I was very much engaged in each element of the description of the study lesson. A week before the scheduled delivery of

the research lesson, I accompanied the teacher, and the group of learners set to receive the lesson, to the library. We had decided, as a group, that since the learners were going to be out of their normal classroom setting for the research lesson, we might be able to minimize the effect that would have on their behavior if the setting wasn't entirely out of context to them. With that purpose in mind, Jakes arranged to use the library as his classroom. I attended the class so that the learners could meet me and be introduced to the video camera. The only time during this first cycle where I stepped back from the role of participant and more into that of observer was during the teaching of the research lesson. Since it was delivered in Afrikaans it would have been difficult for me to have my own "focus" for observation that is necessary for an active participant in the third phase of the lesson study cycle.

As the participants moved from the first lesson study cycle to the second, my role as researcher became less interactive. Although my planning had previously specified that I would play a less active role thereby encouraging the other participants to experience the process of lesson study with less direction from an "outsider," what I had not previously planned to do was allow the team to communicate in Afrikaans. However, because every participant indicated that one of the obstacles during the first cycle was the language barrier, my promoter and I agreed that I would still be able to study the value they would place on the process of lesson study while also allowing them to converse in Afrikaans. In fact, we decided that it may even remove or at least minimize that particular limitation. Since the design of action research allows for the process to be refined and altered, this became part of the natural development of the study. During this second cycle of lesson study my role became more that of observer/consultant. The team used the same planning tools and lesson study documents as they had used in the first cycle. However, they conducted discussions and wrote on the forms in Afrikaans. At regular intervals during the discussion sessions, they would stop and briefly summarize in English what they had accomplished. I would offer suggestions if necessary. I acted only as observer for both the research and revised lessons. The team members filled all the roles during the post-lesson discussions that I had filled during the first cycle. They conducted both sessions in Afrikaans and summarized in English for me. My input for both sessions was minimal. Again, all sessions were video recorded. I also conducted one-to-one post-cycle interviews and transcribed them verbatim.

The original plan for the scope of this research was to guide three groups of teachers through two cycles of lesson study. When two of the three consenting groups withdrew, it became necessary to rethink that initial intent. At the end of the second cycle, I asked each of the participants in the remaining group if they would be willing to remain in the study through three more cycles. Four out of the six agreed to participate fully in a third cycle, the other two volunteered to fill roles as observers during the research lesson and as knowledgeable other and facilitator for the post-lesson discussion. All six participants expressed the desire to participate in a fourth cycle completely independent from me, and a fifth cycle where I would act as observer. Because of the expressed desire to continue without me during the fourth cycle, I thought it imperative to make all the lesson study tools as user-friendly as possible. Since one of the major obstacles to the process had been the language barrier, I had all the lesson study tools and forms translated into Afrikaans. I also reviewed the integrity of the process through the first two cycles and outlined some recommendations for the group. We met together for two review/planning sessions prior to the commencement of the third cycle.

My role during the third cycle was that of observer. There was minimal interaction between the participants and me during the discussion sessions. Rather than summarizing in English at regular intervals, the group only stopped once or twice to ask for input. At the end of this cycle, the participants answered questions on a survey rather than in one-to-one interviews. There were two reasons for this format: The first was in the interest of time. We had needed to postpone the teaching of the research lesson by one week, and I was scheduled to fly back to the USA shortly thereafter, making it difficult to conduct post-cycle interviews. The second reason was that I wanted all the documents used in the third cycle to also be used for the fourth. Since I was not planning to be in South Africa during the fourth cycle, it would have been difficult for me to conduct interviews.

4.4.3 Stage Three: Observe

Observation during action research is supported by documentation during the action stage. Although the documentation should be well planned, it also needs to remain flexible. This stage serves two purposes: that of guiding the development of the current action research spiral, and the basis for reflection at the end of the cycle setting the direction for the next spiral in the action research process (Kemmis & McTaggart, 1988;

McTaggart, 1991). The documents used in my study, providing the impetus for this stage, were varied and numerous.

During each cycle of lesson study, participants completed the description of the study lesson, the observation focus forms, and the post-lesson discussion form. By reviewing those documents, I was able to observe how closely the participants had aligned their experience with the integrity of the lesson study model. Each participant also individually logged the amount of time spent on lesson study. All discussion sessions and research lessons were video recorded and downloaded onto DVDs. I kept regular notes of my own impressions and observations in my research journal. During the first cycle, a survey was administered at the end of the planning step in the lesson study process. During the first, second, and fourth cycles of lesson study, post-cycle interviews were administered, video-recorded, and transcribed verbatim. At the end of the third cycle, participants completed a survey about their experiences during that cycle. Generating these various types of data allowed not only for triangulation and a thick description of the participants' experience but also fit criteria for this stage in action research. Kemmis and McTaggart (1988:13) suggest that "observation must be planned, so that there will be a documentary basis for subsequent reflection, but it must not be too narrow. It must be responsive, open-eyed and open-minded … Like the action itself, observation plans must be flexible and open to record the unexpected."

4.4.4 Stage Four: Reflect

In the overall scope of this study, the purpose for this reflection stage serves to answer the questions guiding the research and to offer suggestions for future research in this area. The documents used to generate data, as discussed in the observation stage, were analyzed to determine the value that participants placed on the process of lesson study as a strategy for bringing them out of isolation to work collaboratively in an effort to improve instruction in the classroom. This was a dynamic process from one cycle of lesson study to the next. That spiral will be discussed in the next section.

What also emerged as a result of reflection was the issue of the sustainability of lesson study. As the study proceeded, changes to the action plan were continually made in reaction to the perceived obstacles to sustainability. By addressing these concerns as the study progressed, it allowed me to reflect at the end on the relationship between the value

that participants placed on the process of lesson study and the obstacles to its sustainability. I believe this fulfills the requirement for this stage of action research. Kemmis and McTaggart (1988:13) contend that, "reflection seeks to make sense of processes, problems, issues, and constraints made manifest in strategic action." By reflecting consistently on observations, and changing the course of action based on the reflection of those observations, I have met the specified criteria for this stage. Through careful consideration of and meticulous attention to each stage of this process, I believe that this study certainly fits the criteria for an action research design.

4.5 ACTION RESEARCH DESIGN WITHIN A NARROW FOCUS

This section will analyze each phase of the research project in relation to the basic format of action research. It will treat the preparation prior to the beginning of the research as the first spiral in the process. It will then continue to discuss how each cycle of lesson study was viewed as a single spiral within the cyclical design of action research.

4.5.1 Prior to cycle one of lesson study

4.5.1.1 Stage One: Plan

The first action research spiral in my study consisted of the work involved in preparation for the first cycle of lesson study. The narrowing of the research focus and a review of the literature formed the basis for the research proposal. Upon the proposal being approved, permission to conduct the research was granted by the appropriate authorities. Networking with the school district where I intended to conduct the research had begun the previous year in July 2005, when I had become involved as a volunteer in one of the local primary schools. During that experience, I was introduced to the curriculum director for the district. He invited me to attend a CPTD workshop. I found that workshop to be similar in style to many that I had attended in the USA. I visited with this same curriculum director to seek permission to conduct research in his school district. Once permission was granted, I met with principals at specific schools to select groups of teachers for the case study.

My initial contacts were with the principals from two former Model C schools (one primarily Afrikaans speaking and the other English), a colored Afrikaans-speaking school within the same community, and a black Xhosa-speaking school in the adjacent township. The only one out of those four who did not agree to participate in the study was the

principal of the colored school. He did not believe that there would be enough teachers comfortable with English to make a study team. The other three principals agreed to allow me to run the study in their schools. Although somewhat disappointed that my study would not represent the three differing cultural groups in the community, there are many colored learners attending the former Model C schools, so I felt that demographic would still be represented.

4.5.1.2 Stage Two: Act

I was granted access to potential participants in three primary schools. I met with each group of teachers separately. I gave them a brief overview of lesson study, a proposed timeline for the research, an outline of what would be expected of participants, and a consent form outlining their rights and responsibilities (Appendix A). Each of the three schools responded that they would like to be participants in the study, which was to begin with the new school year in January 2007. Consequently, I contacted a representative from each team to invite as many team members as possible to attend a four-hour training session on the first Saturday in February.

During the next month, while the teachers were out of school for their summer break, I developed all the research documents and tools that the participants would use to generate data. Grundy and Kemmis (1981:8) suggest that "the 'action' moment of the action research process shows practitioner at work: thoughtfully and constructively." To that end, and in an effort to contextualize this study within the participants' classrooms, I worked to construct documents that would link the lesson study model directly to the curriculum adopted in South Africa. I relied on lesson study experts to provide the basis for those documents (Chokshi, Ertle, Fernandez, & Yoshida, 2001; Ertle, Chokshi, & Fernandez, 2001; Lewis, 2002; Wang-Iverson & Yoshida, 2005). The lesson study documents developed for use by the participants is this study were the following:

- Tool for planning and describing study lesson (Appendix B)
- Description of study lesson plan – template (Appendix C)
- Group goal selection
- Research lesson observation form (Appendix D)
- Observation guidelines/checklist
- Discussion session form (Appendix E)
- Post-lesson discussion session guidelines/checklist

- Time log

Upon completion of these documents, I then used the NCS (DoE, 2002) for mathematics as a curricular guide to create an example of a description of a study lesson (Appendix F). Since two out of the three groups of participants were comprised solely of mathematics teachers in the Intermediate Phase, I developed a study lesson based on the fifth-grade learning outcome of Space and Geometry. The reason I chose this particular outcome and grade was that they corresponded well with an example of a research lesson taught by AkihikoTakahashi, a leading expert in lesson study in the USA. I had decided to use the recording of that particular lesson (Lewis, 2003) as part of the upcoming training session. My intent throughout this whole stage of the cycle was to create a package that would secure the integrity of the lesson study process if used correctly. I also wanted to introduce lesson study by means of an example that the participants were all familiar with, this being the learning area in mathematics that most of them had already been teaching for several years. I hoped that by doing this, participants could see how their curriculum could easily fit into the lesson study model. That way, the research itself could concentrate on the value that teachers would place on the process of lesson study and not become blurred by also bringing in a curriculum they were unfamiliar with.

The initial training session was conducted on Saturday, February 3, 2007. We began at 09:00 and were finished half an hour ahead of schedule at 13:00. Two out of the three schools had representation at the training session. Three out of six the participants from the Afrikaans-speaking Model C school (Case A), and four out of five participants from the township school (Case B) attended. There was no representation from the English-speaking Model C school. Participants at the session were led through the steps of the lesson study cycle with special emphasis on the first two steps in the process. Each participant was given a notebook containing the tools and data-generating documents necessary to guide them through the process. Participants began with the goal selection in step one of the lesson study cycle. A timeline was discussed for scheduling the research, and each school signed up for the weekly meetings.

4.5.1.3 Stage Three: Observe

At the end of the training session, I asked each of the participants to fill out an evaluation form. I did receive the forms back from the participants in Case A. Feedback was very positive. All the participants that responded indicated that the outlined goals had been

met. Participants were also asked at this meeting to complete a survey containing background information (Appendix G). All six of the participants from school A responded (Appendix G1), three out of the five from school B responded (Appendix G2).

I recorded my observations about this whole process from the beginning of writing the proposal through the initial training session in my research journal. By recording my thoughts and observations regularly, I believe, as advocated by Grundy and Kemmis (1981:8), that I have provided a "sound basis for critical self-reflection."

4.5.1.4 Stage Four: Reflect

When reflecting on this first spiral, I found myself concentrating in two areas. First, was there anything that I left out of any of the stages that could undermine the study? I believe that, because I was meticulous during the planning stage, and thorough in the development of the lesson study documents, I had laid the foundation for an interesting and rigorous study of the value that teachers would perceive in their involvement with the process of lesson study. The evaluations at the end of the training session (Appendix H) indicated a positive attitude by those who attended. By using a curriculum they were already familiar with, it helped them to make the connection with the process of lesson study. The other side of this reflection was forward looking. Only two of the three groups who had agreed to participate did, indeed, attend the training session. According to Kemmis and McTaggart (1988:13), "reflection is usually aided by discussion among participants. Through discourse, group reflection leads to the reconstruction of the meaning of the social situation and provides the basis of the revised plan." After the training session I discussed with my promoter and one of the participants their thoughts on including the group who had not sent any delegates to the training. Both of them agreed that it would be very difficult and not at all advisable to include them in the study unless they attended an initial training session. In response to that, I took a letter to the representative from that school indicating that if they still wanted to be included in the study that we would need to reschedule a training session within that week. I did not receive a response of any kind so revised my research to include two cases rather than three. I was optimistic that both of the other schools would remain as participants through two cycles of lesson study. My promoter and I agreed that there would be sufficient data generated using two groups to begin the research. We decided that, if the

resulting data proved not to be rich enough, we could enlist another school after the first cycle.

4.5.2 Lesson study cycle one

4.5.2.1 Stage One: Plan

At the training session, the participating teams scheduled planning meetings for the first lesson study cycle. School A has a unique situation where planning time is already a part of their weekly schedule. On Monday mornings, for the first hour of the day, parents volunteer in the classrooms allowing teachers to meet together to do collaborative planning. School A agreed to use that time for lesson study research. School B agreed to meet on Wednesdays after school because that is the scheduled time for the math department to meet.

The proposed timeline for completion of the first cycle allowed for three to five hours for the selection of the goal and the planning of the research lesson (phases 1 and 2 of the lesson study cycle), one class period for delivery and observation of the research lesson (phase 3 of the lesson study cycle), one to two hours for post-lesson discussion and revision of lesson (phase 4 of the lesson study cycle), one class period for delivery and observation of the revised lesson, and one to two hours for the post-lesson discussion (optional step in phase 4 of the lesson study cycle). The total amount of time proposed for the completion of the first cycle was between nine and sixteen hours of discussion with two class periods of teaching and observation.

A second feature of this planning stage was to clarify my role as researcher. Because I had the background knowledge in the process of lesson study, and the selected participants had none, it was necessary for me to assume an interactive role with them in this first cycle. Assuming an active, rather than objective, role as the researcher is not only allowed but also fundamental in an action research design. Greenwood and Levin (1998:19) credit Lewin with having "created a new role for researchers and redefined criteria for judging the quality of an inquiry process. Lewin shifted the researcher's role from being a distant observer to involvement in concrete problem solving." Therefore, I assumed the role of active participant in and facilitator for the lesson study process. Although I lacked personal experience in lesson study, I did have background knowledge in the process. I did not, however, consider myself an expert in lesson study. According

to McNiff (1988:125), it is not necessary for the researcher to be an expert when becoming involved in an action research approach to a study. In fact lack of personal experience may produce a more meaningful result. McNiff (1988:126) maintains that "we are humble, in that we approach our research with a sense of tension, that we do not know and need to find out; but as we proceed we develop confidence in our practice both as teachers and researchers."

4.5.2.2 Stage Two: Act

As an active participant during this first cycle of lesson study, I engaged with team members in Case A and Case B during the planning of the research lesson. My role during this stage of the spiral fits into McNiff's (1988:4) description of action research as being "collaborative, in that it involves other people as part of shared inquiry. It is research WITH, rather than research ON." In my role as active participant, I facilitated the process of bringing the group of teachers away from planning lessons in isolation, to collaboratively designing a research lesson with the intent of improving their own instruction thereby moving their learners closer to the established goal. Although the teachers made the decisions about the structure and content of the lesson itself, I guided them through the process of each phase in the lesson study cycle. This was possible because the participants had agreed to converse in English during all discussion sessions.

Planning meetings began at School A on Monday, February 5, 2007, and continued weekly through the first cycle. The first planning session with school B was cancelled because of a funeral of one of the previous staff members. Consequently, my first meeting with that team was on February 14. Only two out of the five members were at the scheduled meeting. Although it was disappointing that so few members were there, this study is about the value teachers will place on the process. Attendance at planning meetings may be an indicator of the value that teachers see in lesson study. The participants present did have the lesson study goal finished so that is where we began our first meeting together. Since two of the teachers on the team teach fifth-grade mathematics, we decided to plan the research lesson around that grade level. Using the Tool for Planning and Describing Study Lessons (Appendix B) as a guide, we planned through sections I and II of the Study Lesson Plan. Because there were only two members of the planning team present, I played an active role in the discussion by pointing out places in the NCS that corresponded to the specific parts of the description.

We also discussed who should teach the research lesson. The two participants agreed that by the meeting next week they would have made that decision. They also agreed to bring lesson planning materials so that we could continue with the lesson description.

On February 21, at our next scheduled meeting, none of the participants were present initially. I contacted one of the team members by telephone after waiting for 20 minutes. The teachers were all involved in an after-school activity with students. The same two members for the first planning session left the activity to meet with me. We spent only 20 minutes together working on the Description of the Study Lesson Plan. This was the last time I met with School B. On March 9, I received a letter of apology from the math educators of the school stating that, "we discontinue with the lesson study course in future due to stressful duties of the school." I did discuss this with the principal of the school, and he expressed a desire for all of us to meet together so that we could find a way to continue with the research. That never did happen.

Because of the dynamic nature of action research and because my study was about the value teachers would place on the process of lesson study, I did not view this decision as a failure of the study itself. I did encourage the team to remain in the study but respected their desire to withdraw. What this decision necessitated, however, was a potential redefining of the nature of my study. My proposal expressed the intention to facilitate three groups of participants through two cycles of lesson study thereby allowing for individual case analysis as well as a cross-case analysis. By the fourth week into the first cycle, only one group of participants remained in the study.

The participants remaining in the study were teachers at a former Model C school. (Model C schools are described in Chapter 3, Section 3.2.2.) As discussed in Chapter 3, Section 3.2.4, this group of participants was the product of a historically privileged social class. This school, like most schools in South Africa (Chapter 3, Section 3.3.3), is allowed to levy an annual fee for attendance. The annual fee charged for attendance at the school in this study, R3,300, is significantly higher than the average fee in this province, which is approximately R2000. The results that the annual fee levied at the school in this research has on the demographic of the school are shown in the following tables:

Table 4.1: Ethnicity of teachers and learners in participating school

	Teachers		**Learners**	
Ethnicity	Number	%	Number	%
White	22	97	375	61
Black	0	0	9	1.5
Colored	1	3	224	36.5
Indian	0	0	6	1
Total	**23**	**100**	**614**	**100**

The ethnic demographic in the participating school are consistent with the current reality for many of the former Model C schools in South Africa (Chapter 3, Section 3.3.4).

Table 4.2: Learner-teacher ratio (average per grade level)

Grade	**Ratio Learner:Teacher**
R	25:1
1	26:1
2	26:1
3	35:1
4	38:1
5	40:1
6	36:1
7	34:1

Because this school is able to levy relatively high annual school fees, they are allowed to keep their learner-to-teacher ratio relatively low when compared to other schools in the area, where the ratio is generally higher due to lower fees.

After the participants from the township school withdrew from the study, I continued to work through the planning phase with the remaining group. As we proceeded, the group was starting to feel rushed to get to the teaching of the research lesson to allow time to teach the revised lesson by the end of their first term in the school year. Because the teaching of the revised lesson is an optional piece in the fourth phase of lesson study, I

advised the team that we slow down and follow the process meticulously, even if that meant teaching only the research lesson during this first cycle. As a group, we decided that this would be the best approach because they knew that my role was going to be less active during the second cycle. All the members agreed that it was more important to understand the process than to reach the goal of teaching both the research and revised lessons. Together, we designed the study lesson (Appendix I), focus questions for observation, and venue for the research lesson. We decided it would make movement among learners easier if the lesson were taught in the library rather than the regular classroom. On the day of the research lesson, I acted as something of an external observer because the lesson was delivered in Afrikaans. During the post-lesson discussion, I assumed the roles of facilitator/moderator, recorder, and knowledgeable other as far as the lesson study process was concerned. There was no content area specialist invited as a knowledgeable other during this cycle.

4.5.2.3 Stage Three: Observe

To facilitate this stage of the spiral, I video recorded all discussion sessions and the teaching of the research lesson. Again, I recorded my own thoughts and observations in my research journal whenever we met together as a group. Participants answered survey questions (Appendix J) at the end of the planning phase, or second step, of the lesson study cycle and I conducted one-to-one interviews (Appendix K) at the conclusion of the cycle. The questions in the survey and the interviews corresponded directly to the questions guiding the research, thus creating a basis for reflection and possible revision of the next lesson study cycle.

4.5.2.4 Stage Four: Reflect

Reflection during this first cycle fell into two categories: active reflection with participants during the post-lesson discussion and my own reflections as the researcher about what value that participants placed on the process and what it meant in terms of beginning the second cycle.

As the moderator for the post-lesson discussion, I identified the themes resulting from the observations during the research lesson. As those themes were discussed and agreed upon, they were subsequently used as areas of focus when developing the research lesson during the second cycle of lesson study. As I reflected on my role as researcher, I relied

on data generation through the lesson study documents, survey questions, post-cycle interviews, and my own journal entries. As a result of analyzing all the data, I felt it necessary to change the course of action for the second cycle.

It is difficult to say why only one out of the three schools stayed in the study. Perhaps the most important factor in the initial success of involvement in lesson study is the support of administration. Stepanek et al. (2007:26) contend that "the building principal is perhaps the key person who can make a difference in the success or failure of lesson study." Although the principals of both the schools that dropped out were willing to have their teachers participate, neither became involved in the process beyond granting permission and access to the faculty. School A, however, had active support by administration. Not only was the principal enthusiastic about the idea of allowing the research to be conducted in his school, but he and his deputy principal attended the training session and became members of the lesson study team for their school. It remains difficult to determine why only one out of the three schools stayed in the study.

Another factor may be the participants' motivation for and expectations of involvement in the study. The background survey administered during the training session shed some light on this issue. Only one of the participants in Case B gave any motivating reason for involvement and even that was to be able to cope with instruction rather than to improve (find detailed discussion in Chapter 5, Section 5.1.4). I did get the impression that the participants for case B were not asked if they wanted to volunteer to be in the study, but were rather volunteered by their principal. In the initial contact that I had with the principal, he indicated that he was under a considerable amount of stress to have the learners improve their test scores in the learning area of mathematics. My initial contact with the group of participants felt a little tense. There was little interactive discussion and very few questions about what would be required. The only two people in Case B who attended the planning sessions during the first cycle had not answered the question on the background survey about motivation for involvement in the study. Their expectations were also quite different from each other's, so with little or no intrinsic motivation to be part of the process initially, and the fact that they were not looking at a common expectation for involvement, it is understandable that they may have viewed lesson study as a time-consuming process that could not help them achieve their objectives. This conclusion is consistent with the idea presented in Chapter 3, Section

3.4, that this group of teachers fit within the first two stages of development. They were, perhaps, looking for instruction about how to increase their basic content or pedagogical knowledge rather than the type of reflective work required in lesson study.

When School B dropped out of the study, my intention was to solicit participation from another school after the completion of the first cycle with School A. I did approach the principal of a colored school who said he would discuss it with his staff. They declined for two reasons: the time commitment and the language barrier.

Although this could have been quite discouraging, the results after the first cycle with the remaining group were very encouraging. All six members were very positive about their experience with the process of lesson study. Their response was so enthusiastic that I was optimistic about the possibility that they would be interested in staying involved beyond a second cycle of lesson study. That would allow me the option of changing the design from a multiple-case study with a cross-case analysis to a single case study progressing through several spirals in an action research design. That being the case, it would allow me to generate data applicable to sustainability.

At the conclusion of this first cycle I also focused my attention on addressing any obstacles that participants articulated and that my own observations highlighted. Greenwood and Levin (1998:118) state that "communication between insiders and outsiders can produce learning and open up a process of reflection for the involved parties. These discussions and reflections are the engine for an upward learning spiral." All of the participants indicated that it would be easier for them to conduct the discussion sessions in Afrikaans. Since I had already decided to be less active in my role during the second cycle, my promoter and I decided that, as long as the team was willing to pause regularly to summarize and ask for input, conducting sessions in Afrikaans would likely help the participants be more comfortable with the process. Since my primary research goal was to bring teachers out of isolation and facilitate them through a collaborative process to improve instruction, I wanted to be sure that they were not feeling isolated by an inability to collaborate freely using their first language. Several of the participants had expressed the desire to schedule a different meeting time, so we changed that also. Another idea that arose as a result of the post-lesson discussion was to try to keep students in the regular classroom setting for the teaching of the research lesson. Some of

the behaviors that were the focus for observation may not have been characteristic of the norm because class was held away from the regular setting.

4.5.3 Lesson study cycle two

4.5.3.1 Stage One: Plan

The planning stage for the second cycle of lesson study was focused on three elements: selection of another case, my role as researcher, and the addressing of obstacles to the lesson study process identified in the first cycle.

At the end of the first cycle, I did approach a principal about his school becoming involved in the study but his teachers indicated that time and language would be too great a barrier. Since the response from the one school left in the study had been so positive at the end of the first cycle, my hope was that they would want to continue with lesson study beyond the second cycle, thereby allowing multiple action research spirals. At this point in the study, I was also becoming increasingly interested in the connection between the cycles of lesson study and the spirals of action research. I believed that by conducting more than two cycles of lesson study, it would provide more data to investigate that connection. Therefore, I stopped pursuing an additional case to include in the study.

During this second lesson study cycle, I took a step back in my role as researcher. Diminishing involvement of the researcher through subsequent spirals of action research is supported as part of the design. Greenwood and Levin (1998:119) explain that

> at the beginning of a research process, the outsider makes decisions and teaches and trains local participants on topics that both consider important. At the same time, the outsider is responsible for encouraging insiders to control the developmental process … For the participants to become active players in a change process, they must exercise power.

With that in mind, my role during this second cycle was more that of consultant than active facilitator. We planned for the team to follow the process of lesson study on their own as much as they felt comfortable with and to ask for input from me during regular intervals in the discussion sessions.

The final element addressed in this planning stage was to address each of the obstacles identified at the conclusion of the first cycle. I felt that it was important to do that for two reasons. The first is that if I were seeking to understand the value teachers would place on the process of lesson study, it was important that the integrity of the process be maintained. The lesson study tools that I had developed were designed to secure the integrity of the process, but only if used correctly. Therefore, at the beginning of the second cycle I reviewed the use of those tools with the team of participants.

The other reason I felt that it was important to address the identified obstacles is the issue of sustainability. One way to determine the value of any process is the likelihood of sustaining it. Since I was already considering the possibility of this research progressing beyond two cycles of lesson study, I decided it would be beneficial to address any perceived obstacles at the beginning of any subsequent cycle. Five of the six obstacles identified at the end of the first cycle were addressed prior to the commencement of the second cycle. Discussion of those obstacles can be found in Chapter 5.

4.5.3.2 Stage Two: Act

One of the revisions for this cycle was to conduct planning sessions after school rather than on Monday mornings. Once I had discussed the use of the planning tools in that first discussion, the participants progressed through the second phase of the lesson study cycle by communicating in Afrikaans.

The planning team did not need to go through the first phase because they had decided to use the same goal as that developed in the first cycle. I attended and video-recorded all group sessions. At regular intervals, approximately every 15 minutes, I either interrupted the group or they paused on their own to allow my input into the process. Two of the participants were absent from the first discussion session. Since one of the revisions for this cycle was to hold fewer but longer planning sessions, that made it more important for each participant to be in attendance at each session. Because of this, I made a copy on DVD of the video recording of that session and took it back to the school so that the absent participants could have the opportunity to view it before the next scheduled meeting. I believe they did not take advantage of that opportunity. During this cycle I encouraged the team to include the two elements of lesson study that had been excluded from the first cycle.

I did ask the team to consider inviting a knowledgeable other and to include the teaching of a revised lesson. Since they were concentrating on the part of the goal that focused on reading with understanding, they decided to invite the school librarian to observe the research lesson (Appendix L) and offer her observations during the post-lesson discussion. Because she did not attend any of the planning meetings, I met with her individually to explain what the group was working on and what her role would be.

Since the teacher of the lesson had decided to deliver instruction in the library, I met ahead of time with his class in that setting so they would be familiar with the video camera and with me. Again, I acted as observer throughout the lesson. I spoke briefly with two team members, Normi and Nandi, about their roles as moderator and recorder during the post-lesson discussion. I had very little input during the post-lesson discussion as all conversation was conducted in Afrikaans. Once the group had decided on the themes that had emerged, they shared those with me. When the discussion was over, we met together for a few minutes where I gave the group some suggestions about how to revise the lesson based on the themes that had emerged from their observations.

It was decided that Nandi would teach the revised lesson (Appendix M) in her classroom rather than the library. Because the team was not able to meet together between the research lesson and the revised lesson, I met alone with Nandi to work the revisions that the group had selected into the plan for the study lesson. Together we chose specific focus questions for observation. Only three of the participants were able to observe the revised lesson and attend the post-lesson discussion. Normi again acted as moderator, with Jakes as recorder.

4.5.3.3 Stage Three: Observe

This stage of the spiral was again facilitated largely through video recording, post-cycle one-to-one interviews (Appendix N), and my own observations recorded in my journal. Because most of the discussion was conducted in Afrikaans, I also had parts of the data translated into English for clarification. Since a new element in this cycle was the inclusion of a knowledgeable other, I thought it was important to know exactly what she had contributed to the post-lesson discussion. I therefore had her comments translated into English. I also had the descriptions of the research lesson (Appendix L) and the

revised lesson (Appendix M) translated in an effort to determine how closely the tools had been followed in the development of these documents.

4.5.3.4 Stage Four: Reflect

Reflection during this second cycle of lesson study was evident during each step of the process through my journal entries. As something of an outside observer, I tended to reflect more on the observations as I was recording them. One of the frustrations I felt through this whole cycle was the inability to understand what participants were saying during discussions. That prompted the need to translate some of the documents so that I could determine how well the tools had been used. What I discovered was that some of the steps in the description of the study lesson had not received the proper attention. When it was decided that we would run a third cycle, I compared all three study lessons that had been taught, to the tool to develop the lesson and systematically analyzed where there was consistency and inconsistency. If the focus of this research is to discover the value participants would place on the process of lesson study as a strategy to reduce isolation and work collaboratively to improve instruction, then I wanted to be sure we were staying as close to the process as possible. During this second cycle, participants did not implement any new teaching strategies as part of classroom practice. They all indicated they were continuing to work on the strategies implemented during the first cycle. By showing the group inconsistencies in the lesson plans between the first and second cycles, I hoped the group would be able to see what was beginning to happen. Lesson study is not a quick-fix process and really cannot be rushed. It is a way to bring all the elements of learning together from the setting of a goal at the top to the way that students learn at the ground level. It is important to link those two things together by developing a thorough description of the study lesson.

I also found it difficult to take a step back in my role as researcher. Perhaps that is because my role during the first cycle had been so active. It was more difficult to know just how much input constituted a less active role.

Two of the elements that I wanted group reflection on were the inclusion of a knowledgeable other and the teaching of a revised lesson as part of this cycle. I included questions about those elements in the post-cycle interviews. Although they are both

optional elements of lesson study, they were part of the participant's experience during this cycle.

Because participants remained positive about their experience throughout this cycle, I also decided to include a question about involvement in additional cycles of lesson study. Since all the participants indicated, in answer to that question, that they would like to continue, the decision was made to proceed through a third cycle. I reviewed the obstacles identified at the end of the first cycle and the success with which they had been addressed during the second cycle. I also identified an additional obstacle. All of these were addressed prior to the commencement of the third cycle. These obstacles are detailed in Chapter 5.

4.5.4 Lesson study Cycle Three

4.5.4.1 Stage One: Plan

Planning for the third cycle was approached with sustainability as a focus. Since the participants had expressed a willingness to continue with lesson study, including conducting a fourth cycle completely on their own, the planning for this cycle was particularly forward-looking. As a result of my analysis of the three study lesson descriptions developed in the previous two cycles, I decided it would be best to review the use of the planning tools so that the team would use them when proceeding through each phase of the next lesson study cycle. There was also a desire expressed to bring some new members into the team.

Since I knew the participants were more comfortable with using Afrikaans as their language of communication, and since I wanted the team to have as few obstacles as possible, I planned to have all the lesson study tools and documents translated into Afrikaans. Because my role during this cycle would be even less active than the second cycle, and I was also looking ahead to the fourth cycle where I would have absolutely no interaction with the group, I determined that documents in Afrikaans could only serve to make the process more accessible to the participants.

4.5.4.2 Stage Two: Act

Prior to the beginning of the third cycle, I met with the planning team for two pre-cycle discussion sessions. In an effort to determine the extent to which the planning tool had

been used as a guide to develop the study lessons for the second cycle, thus maintaining the integrity of the lesson study process, I had the description for the research and revised lessons from the second cycle translated into English. As I reviewed the three descriptions of the study lessons (one from the first cycle and two from the second), I realized that the planning tool may not have been followed as strictly during the second cycle as the team filled out the description for the research lesson and the revised lesson. I felt that, because the focus of my study was on the perception that the participants had of the *process* of lesson study, it was important that they as close to the process as possible. One of the reasons that I felt this concern came as a result of the interviews at the end of the second cycle. When I had asked the participants if their own classroom instruction had improved as a result of the second cycle, none of them indicated specifically that it had but they all indicated that they were still using a strategy that came out of their involvement in the first cycle. My concern at this point was that if they did not adhere strictly to the process, they may not see the results in classroom instruction that they were hoping for. Since I was studying the value they would place on the process, I needed to be sure they were following it so that any negative experiences would not be related to factors external to the process.

Therefore, I looked at the planning tool in conjunction with the example that I had written initially, the description for the research lesson in the first cycle, and the descriptions for the research and revised lessons in the second cycle. I outlined areas where the participants needed to be more conscientious about using the tool to guide them as they developed the description of the study lesson. Since I was also planning on acting as just an observer during this third cycle, I needed to be sure that they had all the tools needed to maintain the integrity of the process. I also wanted them to feel comfortable enough with conducting this cycle (with very little input from me) that they would then be able to consequently conduct a fourth cycle on their own once I had gone back to the USA. We held the first of the two pre-cycle discussion sessions on June 21, 2007. Four of the original team members had agreed to participate in the planning of the study lesson. Three of the members were at this meeting. A new member from the foundation phase (grades 1-3) had also agreed to be part of the planning team. She was also at this discussion session. The meeting was held after school and lasted one hour. At the end of the meeting I agreed to have all the research documents translated into Afrikaans so that there would be no language barrier to the process. At this point in the study, schools in

South Africa were at the end of the second term and anticipating a two-week break. We scheduled our next meeting for July 23, 2007.

In anticipation of the July meeting, I had all the documents translated into Afrikaans (Appendices O1, O2, O3, and O4). My promoter was a great help and spent much of his own time assisting me in accomplishing this task. I also developed a list of points to remember (Appendix P) as the participants prepared to conduct the third and fourth cycles on their own. On July 23, we met after school for 45 minutes and went over the planning notebooks with all the documents in Afrikaans. We went through the points to remember and talked about any questions the team may have. They seemed eager and comfortable with beginning the third cycle on their own or at least with my role being that of an observer. At this meeting, only two of the original four members who had agreed to participate were in attendance. The new member, who had been present at our first meeting, was also in attendance. We agreed that the first planning meeting for the third cycle would be held four days later and that four of the members from the original team plus the new member from the foundation phase would be in attendance. The two members from the original team who had opted not to participate in the planning of the research lesson were going to be included as observers of the research lesson and then act in the roles of knowledgeable other and facilitator for the post-lesson discussion session. The intent was to invite them to the last planning meeting before the teaching of the research lesson. Jakes had agreed to be the teacher of the research lesson so he indicated that he would have a substantial part of the description of the study lesson filled out before the initial planning session for the third cycle.

The third cycle that team members participated in began on July 27, 2007, with three of the four original participants in attendance. The new member from the foundation phase decided not to join the planning group because of time constraints. No other teachers in the foundation phase expressed a desire to be part of the group. We agreed to go ahead with the four original participants acting as the planning team. The intent was still to invite the other two members to the discussion session prior to the teaching of the research lesson.

4.5.4.3 Stage Three: Observe

My role during this third cycle was much more objective than in the other two cycles. I video-recorded all of the discussions and had little interaction with the participants. I also recorded my observations in my journal.

The first meeting began with Jakes sharing what he had accomplished toward the description of the study lesson. He had completed the description up to the writing of the actual lesson plan. Most of the discussion session was centered on Jakes's explanation of the study lesson created thus far. Within ten minutes of the beginning of the meeting Jakes indicated to me that they were done and could finish up at the next meeting. He quickly filled me in on what the discussion had been and asked if I had any feedback to offer the group. Since they had not yet started to outline the actual lesson plan, I suggested that the three members present take some time to specifically write down the parts of the lesson they wanted to use as a focus for observation so that the ideas were the combined effort of the group. The discussion proceeded for another 30 minutes. I did not see the group refer either to the points to remember or to the planning tool. None of the members recorded their time in the time logs.

The second planning meeting began without any input from me. Jakes passed out the updated version of the description and explained what had occurred at the first meeting to Glenelg since he had not been in attendance. The group discussed the work that the learners would be doing, what the anticipated questions from them would be, and possible responses by the teacher to those questions. Mark was the only participant who had his lesson study notebook with him. At no time did anyone refer to the planning tool or the points to remember. I did not see any of the participants record their time in the logs; however, they did submit completed logs at the end of the cycle.

Rather than conduct one-to one interviews at the conclusion of the third cycle, I asked the participants to complete post-cycle surveys (Appendix Q). I collected these from them just before leaving to return to the USA. I did have an agreement with each of them to communicate through email if I wanted to probe any further for additional information.

4.5.4.4 Stage Four: Reflect

My thoughts at this point in the series of cycles was that participants wanted to choose teaching strategies similar to what they already knew, in this case giving instructions once – the strategy that they focused on in the first cycle. The actual integrity of following the exact process based on the planning tool seemed to be of lesser importance. It seemed that the consistent use of the planning tool needed to be closely monitored if participants were going to stay true to the process.

The third cycle was conducted over a period of less than three weeks, ending on August 13, 2007. It took less than half the time of the previous two cycles. There are several possible explanations for this: One is that the participants were able to not only communicate verbally in Afrikaans but all the documents that they were using were also written in Afrikaans. Another reason is that all of the participants were quite familiar with the progression of a lesson study cycle, this being their third experience in one. A third reason it may have progressed more quickly is that I was less involved as the researcher. I did not interrupt during the planning to ask questions or to seek regular clarification. Therefore, the participants did not need to summarize and translate their conversations into English to share with me. A final explanation might be that the teacher of this research lesson did much of the actual lesson planning or description of the study lesson independent of the group. There was also no revised lesson taught as part of this cycle.

4.5.5 Lesson study Cycle Four

4.5.5.1 Stage One: Plan

Planning for the fourth cycle of lesson study actually began prior to the third cycle. The participants had agreed to all be involved in running a fourth cycle independent from me. They were planning to use all the same tools and documents they had used for data generation during the third cycle. They were expecting to proceed through that cycle before the end of the 2007 school year. We planned to stay in contact through email. I returned to the USA in August 2007.

I had established one of the group members, Jakes, as my contact person. Although I did not intend to guide the process of the cycle itself, I wanted to be kept informed about the

timeline. I also wanted to be able to edit the post-cycle survey questions used at the conclusion of the third cycle thereby making them more applicable to this fourth cycle.

4.5.5.2 Stage Two: Act

Although I did attempt to retain communication through email in September 2007, I did not receive a response from Jakes. I was able, however, to connect with Glenelg on October 1. He indicated that they were planning to continue with a fourth cycle during the final term of the school year. I contacted Glenelg again toward the end of October to see how things were progressing. I told him at that time that if they needed to wait until the beginning of the new school year in January 2008 to run the cycle, that would be fine.

I did hear from Jakes in early November. He indicated that they had run out of time to conduct the fourth cycle before the end of the 2007 school year, but were planning to proceed with it during the first term in 2008. Jakes also shared the personal opinion that "the primary goal of the project is doing all the planning in groups." He went on to mention that during the third cycle they "actually did some of the planning individually, but it was just to save time. So actually we did it wrong but will correct it during the following cycle." In my message back to him, I told him that waiting for the new year was a good idea at that point and that his observation about doing the work as a team was also good.

When the new school year began in January 2008, I emailed Glenelg to see what plans they had made for the fourth cycle. After receiving no response, I emailed again early in February. I told him that I needed to start making plans for my return trip and needed to know how much time I would be required to spend in South Africa. Originally the plan was for the group to run a fourth cycle independently from me and then to run a fifth cycle when I returned. My intended role was to be that of observer during the fifth cycle. Toward the end of February 2008, Glenelg replied by saying that they were planning to run the fourth cycle in March and then continue with a fifth cycle upon my return.

I then went through the process of requesting unpaid leave from my teaching position in the USA for the month of September 2008. That allowed me to return to South Africa for four months from June through September. I hoped to run a fifth cycle with the

participants and have all my chapters formatted so that I could complete the writing process from home.

I did not hear anything from Glenelg or Jakes for two months. Toward the end of April 2008, I emailed Glenelg to ask how the fourth cycle was progressing. He replied about a week later that Jakes had been working with the Foundation Phase teachers on the fourth cycle and they were scheduled to teach the research lesson on May 13. I had not heard anything from Jakes about the process so far.

By the time I arrived back in South Africa in the middle of June 2008, the lesson had not yet been taught. By this time, it was getting close to the end of the second term and the school holiday was scheduled for the first two weeks of July. That meant that, by the time the fourth cycle could possibly be completed, I would no longer have the time to observe a fifth cycle.

I spoke with Jakes at the beginning of August and he said that there were eight participants, other than himself, in the fourth cycle. All of them were from the Foundation Phase and there was no involvement in this cycle by any of the previous participants. He said that he would get the new lesson study group to teach the research lesson and have the post-lesson discussion as soon as possible so that I could include those data in the study. On August 15, 2008, I received an email from Jakes stating that "after a serious discussion about the fourth cycle, the Foundation Phase decided that there was no time continuing with the process." I met with my promoters and we decided that the best course of action was to conduct one-to-one interviews with each of the new participants in the fourth cycle and with the participants from the previous cycles to determine the value they had placed in the process of lesson study as a way to collaboratively improve instruction.

4.5.5.3 Stage Three: Observe

My role during this fourth cycle was that of data collector. I had turned the responsibility for sustaining the process of lesson study over to the practitioners. Greenwood and Levin (1998:119) contend that

> the initially asymmetrical situation between insiders and outsiders can be balanced only by the transfer of skills and knowledge from the

> professional researcher to the participants and the transfer of information and skills from the local participants to the outside researcher. In the end, though, the process must be taken over by the participants.

The lesson study data generated during this cycle was limited for two reasons: First, the participants did not complete the cycle and second, the only recording of data at all during this cycle was done by one participant, the scheduled teacher of the research lesson. Maria did give me a copy of the description of the study lesson, her time log, and her journal notes. All the documents submitted by Maria were translated from Afrikaans into English (Appendix R).

I recorded my own observations by retaining copies of all email exchanges between the participants and myself, and I continued to make regular journal entries during that time. In August 2008, I also engaged in a one-to-one interview (Appendix S) with the participant scheduled to teach the research lesson for this cycle and with each of the participants who had been involved in previous cycles (Appendix T).

4.5.5.4 Stage Four: Reflect

As previously stated, reflection at the end of each of these lesson study cycles had centered around the balance between the value participants placed in the process of lesson study and the obstacles to its sustainability. This stage of the action research spiral during this final lesson study cycle was particularly meaningful and interesting to me. I had personally reflected between each cycle about what I thought might be the result when I withdrew my direct involvement from the process. Between each cycle, I had rigorously identified and addressed, where possible, any obstacles to sustainability. Therefore, it was interesting to observe and reflect on the issue of sustainability as this fourth cycle progressed. At the end of the third cycle all of the participants declared that they valued the process enough to want to continue with it, yet none of those participants were involved in the fourth cycle once it began. Their reflections during the interviews and my own reflections through my observations illuminated the key issues surrounding the sustainability of the lesson study process.

4.6 CONCLUSION

I believe that by connecting the overall scope of my study and each lesson study cycle to the spirals within an action research design, I have shown how action research was the appropriate methodology to employ in this study. During each phase rigor was maintained through triangulation of data and attention to my own role as researcher. The dynamic nature of the lesson study process, and my changing role as researcher were best suited to the action research design.

The data generated through each cycle of lesson study provided rich documentation pertaining to the value that participants place on the process. As the study progressed, each cycle was analyzed in reference not only to the research questions guiding the study but also in reference to the sustainability of lesson study within the school setting of the participants. Chapter 5 offers a detailed description of the coding and categorizing of the data generated as well as the analysis of the value that participants placed on the process of lesson study as a strategy to reduce isolation and work collaboratively to effectively improve classroom instruction. It also discusses the perceived obstacles to sustainability and how they were addressed from one cycle of lesson study to the next.

CHAPTER 5

DATA ANALYSIS

5.1 INTRODUCTION

5.1.1 Outline of the chapter

The goal of this research project was to determine the value that participants would place on the process of lesson study as a model for collaborative improvement of instruction (see Chapter 1, Section 1.4). Each cycle of lesson study was analyzed using the broad questions guiding the research discussed in Chapter 1, Section 1.3, and the specific questions posed in Section 1.4 of the same chapter.

Further analysis from one cycle to the next sought to determine the likelihood of sustainability and maintenance of the integrity of the lesson study process. A discussion on the way that the research questions were approached at the beginning of each cycle of lesson study can be found in Section 5.1.2. Factors contributing to sustainability of educational reform in general, and with regard to lesson study specifically, are discussed in Section 5.1.3. The introduction concludes in Section 5.1.4 with information describing the participants.

Sections 5.2 through 5.5 in Chapter 5 follow the same basic format: The role of the researcher and data generation tools are briefly discussed at the beginning of each section. What follows is a detailed description of the coding of the generated data, the relationship of the data to the research questions, and finally, an analysis of sustainability in relation to the criteria suggested in Section 5.1.3.

An analysis for the first cycle of lesson study can be found in Section 5.2. The second cycle is analyzed in Section 5.3, the third in Section 5.4, and the fourth in Section 5.5. Each of these sections follows the format described above. After the fourth and final cycle of lesson study, participants were interviewed to determine the value they continued to place on the process. The analysis of these interviews can be found in Section 5.6.

5.1.2 Questions guiding the research

The broad focus of this research was to determine the value that participants would place on the process of lesson study as a model for their own learning and instructional improvement. Within that broad focus, this study sought to determine the extent to which teachers would experience lesson study as a viable strategy to reduce isolation and facilitate meaningful collaboration in an effort to make improvements in classroom instruction.

To begin the analysis of each cycle, the first question to be answered was:

> *Does the generated data support the notion that participants experienced the process of lesson study as a valuable strategy for instructional improvement?*

If so, then the following questions needed to be addressed:

1. What do the participants see as the most rewarding elements of the cycle?
2. How do participants measure the improvements in instruction?
3. What do participants see as reasons for their improvement?
4. What effects did collaboration have on the improvement of instruction?
5. Is lesson study a model they would like to implement in their own school and, perhaps, throughout their district?
6. What obstacles would need to be overcome?

If the data generated did not support the notion that lesson study is a valuable strategy for instructional improvement, then the following questions were applicable:

1. What obstacles were there that could not be overcome?
2. Where there any perceived benefits?

Once the value the participants placed on the process of lesson study was determined, the corresponding questions served as a guide for the coding and categorizing of the generated data and the subsequent analysis. What also emerged as I observed and reflected upon the progression of the first cycle was the desire to address the sustainability of lesson study. That process began with my own questions about what factors make sustainability more likely in educational reform. I was also interested in recommendations made by the experts (Perry & Lewis, 2003) in sustainability for lesson study itself.

5.1.3 Sustainability and integrity

Following the analysis of each lesson study cycle based on the applicable research questions, sustainability and integrity within the cycle were also discussed. One of the questions frequently asked in educational research is that of sustainability for strategies such as lesson study. What are some of the factors influencing the continuation of organizational changes in education systems? Sustainability of educational reform has been defined in a number of ways. Broadly speaking, researchers agree that reform is sustainable if the policies or practices implemented during the existence of the reform program or intervention continue to be supported by stakeholders after implementation (Berman & McLaughlin, 1977; Hargreaves & Fink, 2000).

Some researchers take that a step further by arguing that for a new practice to be proven sustainable, it must be integrated into routine activities and also be able to survive organizational changes (Huberman & Miles, 1984; Yin, 1978). Florian (2000:4) specifically defines sustained educational reform as, "The perception by those involved in the education system of continued implementation and practice of a change that occurred initially as a consequence of a reform program. The practice would need to be continued after the reform program has formally ended in order for sustained change to be attributed to it."

Researchers have discussed and agreed upon many factors that contribute to sustained change in education (Berman & McLaughlin, 1977; Datnow & Stringfield, 2000; Fullan, 1999; Hargreaves & Fink, 2000; Huberman & Miles, 1984; Stringfield, 1998; Yonezawa & Stringfield, 2000). The four factors that I found to be relevant to this study are: methods or practices that teachers experience as being effective in accomplishing school goals; school principals who effectively promote support and manage change; teacher involvement in decision making from the onset of a new program; and the alignment of the reform design with the local organizational context and the integration of reform structures into the daily lives of the community. Each of these factors will be discussed in the next section.

5.1.3.1 Factors that contribute to sustained change in education

Factor 1: Methods or practices that teachers experience as being effective in accomplishing school goals.

The participants in this study collaboratively chose the goal they wanted for their learners. The planning, teaching, observing and discussion of the research lesson was consistently related to that goal.

Factor 2: School principals who effectively promote support and manage change.
The principal of the school participating in this research has proven himself to be an active supporter of change. When OBE was first implemented, the mandate was to start slowly, one grade level at a time. Because he wanted his faculty to remain a cohesive group and to be a support to each other through the radical reform required with the implementation of OBE, he asked all of his teachers to attend the training sessions. This principal was enthusiastic enough about the idea of lesson study, that he was one of the first volunteers to participate in the research. He has encouraged his team members through each step of the process and committed himself and faculty members to participate in multiple cycles of lesson study.

Factor 3: Teacher involvement in decision making from the onset of a new program.
Participants in this study were selected on a voluntary basis. It has also been each individual's decision to continue from one cycle to the next. Any new members added to the team also joined voluntarily.

Factor 4: The alignment of the reform design with the local organizational context and the integration of reform structures into the daily lives of the community.
To facilitate this factor, I designed the example of the *Description of the Study Lesson* (Appendix F) used in the training session to align directly with a specific learning outcome from the adopted NCS for Mathematics in the Intermediate Phase grade levels. The rationale behind this was to show participants how the process of lesson study can easily be integrated into their current practice.

Acknowledging these factors early on in the study may possibly have laid the foundation for sustainability. However, there are other elements to take into consideration before any viable prediction can be made about the participants' willingness to continue with the process of lesson study at the conclusion of this research. An important element for sustainability of any new program is the extent to which the participants incorporate it as a part of their instructional routine. After investigating the sustainability of educational

programs over a period of more that ten years, Florian (2000:23) concluded that 'human capacities that were integrated into routine activities were more likely to be sustained. Observations of positive results from those routinized practices and the training of new staff members supported the ongoing integration of new activities." A final element discussed in this section is the specific criteria for the sustainability of lesson study.

5.1.3.2 Components necessary for the sustainability of lesson study

Even if all the contributing factors to sustained change are present in this study and participants incorporate changes as part of their routine, they would also need to continue to see positive results for the practice to continue. For this to happen, Perry and Lewis (2003:17) suggest three components that may be essential for lesson study to continually contribute to instructional improvement, thereby providing the positive results required for sustainability.

The first of these components is a lesson study cycle that is balanced, coherent, and responsive to specific needs. The elements necessary for a balanced cycle are a well-defined goal, a lesson that is well designed to reveal learners' thinking, data that is thorough and collected from various viewpoints, and discussion that is successful in drawing out the implications and limitations of the data. A coherent cycle is one in which the research lesson is related to the standards and available resources or textbook. A lesson study cycle is considered to be responsive to the local needs if it is connected to teacher's needs and school or district initiatives.

A second component essential for the sustainability of lesson study is access to content and pedagogical knowledge. Outside specialists, whether in lesson study or the content area, must be involved, otherwise lesson study participants "simply spend their time polishing ineffective instruction." (Perry & Lewis, 2003:17)

The third component necessary for sustainability is that the participants possess the personal and collegial qualities that support learning. The lesson study team should possess personal and group qualities that include the desire to improve, an openness to new ideas, the capacity to work together, and a sense of efficacy.

Analysis for the sustainability of lesson study with this group of participants was based on these components. Following each cycle, these three components were addressed according to the data generated during the cycle.

Along with the question of sustainability comes the issue of integrity. The temptation can be to reduce the process of lesson study to the collaborative writing of lesson plans. Lewis (2002:90) reminds us that, "it is the experience of collaborative goal setting, planning, observation, and lesson discussion that contributes to professional growth…lesson study pioneers must identify which features are essential through careful continuous evaluation of their work." In order for lesson study to have a lasting effect on instructional improvement, the integrity of the process needs to be consistently monitored from one cycle to the next. By discussing each of the components for sustainability at the end of each cycle, the integrity of lesson study will thus be addressed.

5.1.4 Participants' background

At the initial training session, held in February 2007, participants from the two schools in the study were asked to fill out a survey containing background information (Appendix G). All six of the participants from school A responded, three out of the five from school B responded. The demographics for the participants who responded can be found in Table 5.1.

Between the two schools, most of the demographics are quite similar in terms of age and experience. Ethnicity is the obvious difference with all the participants in Case A being white, while all those in Case B are black.

Table 5.1: Demographics of participants

Description	Case study A (n=6)	Case study B (n=3)
Gender		
Female	3	2
Male	3	1
Ethnicity		
Black		3
Coloured		
Indian		
White	6	
Other		
Age		
20-29	1	
30-39	1	1
40-49	1	1
50+	3	1
Years' teaching		
0-5	1	
6-15	2	1
16-25		1
26+	3	1

The background survey not only asked for demographic information, but also asked participants to discuss educational experience and involvement in formal collaboration (Appendices G1 and G2). Formal qualifications for teaching are more advanced for participants in Case A than in Case B. The range of qualification for Case A is from a teacher who has a three-year diploma up through a teacher who has two bachelor's degrees. Qualifications for the three respondents in Case B range from a matric (high school diploma) to a bachelor's degree with an additional diploma. Participants in both cases indicated they had been involved in formal collaboration, with the focus on OBE training and Learning Area discussions and workshops, averaging just over two hours per week.

As part of the survey, participants also answered questions about their experience with collaboration and their motivation for taking part in this research. Participants in both cases unanimously agreed that collaboration prior to their involvement in this research had helped them to improve their instruction. Each participant was also able to cite examples when improvement as a result of the collaboration had occurred. When asked to discuss their motivation for participating in this research, however, there was a difference in the responses for the two cases. All the participants in Case A responded to the question with comments ranging from "a new learning experience" to "to acquire knowledge about learners and their learning activities in order to develop more efficient learning strategies." Only one out of the three participants who filled out the survey in Case B answered this question. The motivation for his participation was to "cope" with the new curriculum of OBE.

When asked about their expectations regarding involvement in this project, the two cases again responded differently. The overall expectation among the participants in Case A was to become more effective teachers. In Case B, however, each respondent had differing expectations for involvement in the study, ranging from lesson planning and new methods for teaching math to being able to effectively follow the RNCS guidelines for evaluating learners.

The teachers in Case A fit within the last two stages of development discussed in Chapter 3, Section 3.4.1. It is teachers in these last two stages, routine and professional, who are good candidates for reflective CPTD programs such as lesson study (De Clerq, 2008). The teachers in Case B were more closely aligned with the first two stages of development, unskilled and mechanical. Teachers in these first two stages of development rely on CPTD programs that offer more in the way of content training and external support (Johnson et al., 2000:184). The teachers in Case B chose to withdraw from the study early in the first cycle. A detailed discussion of their decision to withdraw can be found in Chapter 4, Section 4.5.2. The remainder of this research project was devoted to the data generated with the teachers in Case A.

Each of the cycles of lesson study will now be discussed.

5.2 CYCLE ONE

5.2.1 Context

The first lesson study cycle that the team members participated in began on February 5, 2007. Initially, two groups of participants were involved in this cycle. One of the groups dropped out of the study early in March 2007. (A detailed discussion of the group's decision to withdraw can be found in Chapter 4, Section 4.5.2.) The other group of participants remained involved as the cycle continued through six weeks, ending on March 19, 2007. The remainder of this chapter is devoted to the data generated by the group of participants who chose to remain in this study.

5.2.2 Role of the researcher

The role of the researcher in an action research design may fall anywhere on a continuum from that of observer to that of full participant (Glesne, 2006; Mertler, 2009). According to Mertler (2009:80), your participation as the researcher "may fall at any point on this continuum; often, you will find yourself at different points along the continuum during different stages in the data collection process of the study." My role as researcher during this first cycle was primarily that of full participant. I was an active member of the planning team during the development of the research lesson, the planning for the observation of the lesson, and the discussion following the lesson.

Team members had agreed ahead of time to conduct the discussion sessions in English so that I could take an active part in these meetings. Most of the description of the study lesson was constructed by the participants themselves. I acted primarily as facilitator during the lesson study process. I guided the group through the use of the planning tools, the writing of questions related to the goal, and the selection of appropriate criteria to focus on during the observation of the research lesson. During the teaching and observation of the research lesson, my only role was to observe and record my own observations about the participation of other team members. The reason for taking a step back to the role of observer was that the research lesson was delivered to the learners in Afrikaans. Therefore, I was only able to observe the other team members as they were recording their observations about the research lesson. During the post-lesson discussion, my role as facilitator was extended to include those of record keeper and final commentator. During subsequent cycles, other team members assumed these roles.

5.2.3 Data generation

The data generated during the first lesson study cycle supports the notion that the participants perceived lesson study to be a valuable strategy for instructional improvement. This deduction was important to make early because it determined which set of research questions would guide the analysis. The documents providing the rationale for this conclusion and the basis for my analysis are the Reflections on Step 2 Survey (Appendix J), the interviews at the end of the cycle (Appendix K), and my own journal entries and field notes.

At the conclusion of the second step in the lesson study cycle, I asked the participants to complete a survey asking them to reflect on their experience thus far. Mertler (2009:37) contends that in action research,

> It is not only important to reflect at the end of a given cycle; effective teachers reflect on and critically examine their practice continuously during the process of teaching. When a teacher plans an innovative lesson, he might reflect on his planning of that lesson immediately after developing, but prior to delivering, the lesson.

The survey administered to participants at the end of the second step in the cycle indicates that the participants were positive about the process even before the research lesson had been taught and observed. When asked about their thoughts on the most rewarding elements of the first two steps of the process, each participant provided positive feedback.

One element of the process of lesson study is to determine an overarching goal and then work toward that goal. Part of the goal created by the research participants was to "develop learners who listen properly to the task. Learners who read with attention and understanding" (Appendix I). Three of the six participants commented about the positive direction the goal gave them. When asked what the most rewarding element thus far in the process was, Nandi responded with:

> *To develop learners who listen and read with attention and understanding.*

Mark concluded that this was the most rewarding element because it caused him to look at

> *understanding the learners, understanding the questions, and reading abilities.*

A second element in the process of lesson study is the collaborative planning of the research lesson based on the overarching goal. Two of the participants reflected on that part of the process. When asked what he felt was the most rewarding element in the cycle, Glenelg responded that it had been a,

> *wonderful experience discussing lesson planning with colleagues.*

When Normi was asked the same question, she responded that she found value in,

> *working together with colleagues on a common goal.*

Following the teaching of the research lesson and the post-lesson discussion I conducted one-to-one interviews with each of the participants. The eighth question in the interview asks the participants if they would like to continue using the lesson study process. The response was unanimously positive. Even though each participant did mention the time constraints as an obstacle, they were still enthusiastic about continuing the process through at least one more cycle.

The participants' positive responses to the questions in the survey and the interview led me to the conclusion that they perceived the process of lesson study as a valuable strategy for instructional improvement. That notion guided the coding of the data.

5.2.4 Coding of the data

Because of the positive feedback during and at the end of the first cycle, I approached the data analysis process by answering the questions applicable to the notion that lesson study is a valuable strategy for instructional improvement. I personally transcribed, verbatim, all documents used to construe data. Research documents included the survey administered after the first step of the cycle, the description of the study lesson, the observation form, the post-lesson discussion form, time logs, the interviews at the end of the cycle, and my own field notes. All sessions were video-recorded and downloaded onto DVDs for use if clarification was necessary.

I employed a system of open coding (Henning, Van Rensburg & Smit 2004:104) to begin the analysis of the data. According to Henning et al. (2004:104), the first step in this process is for the researcher to, "read through the entire text in order to get a global impression of the content. Already some themes will be observed, but the coding process does not yet begin." With that in mind, during the initial reading of the transcribed data, I began writing down themes based on words and phrases related to the process of lesson study. Those themes were then expanded into detailed codes specific to elements of instruction and the lesson study process. A number was assigned to each code. During the third reading, the corresponding numbers were written on the hard copies of the data. Other codes were then added to ensure that all useable data were included in the analysis. Attention was also given during this reading to insure that codes were not duplicated or repeated.

My rationale for coding by hand was that the data generated were manageable enough for the use of coding software not to be required. I had also been an active participant in the research so remained very connected to the process throughout. Many of the words and phrases used by participants in the research may have been misconstrued if a software program had been used. The reason for that is that, because English is the second language of the participants, some of the terms used in response to the interview questions did not, at first, accurately depict the intent of the answer. On several occasions, clarification was sought for such responses. All data generated were transcribed verbatim and was also used that way in the analysis.

After completing the third reading of the data, all codes were subsequently assigned categories. Five of these categories were based on elements of instruction and the lesson study process. One category addressed the obstacles to the process. These six categories place the codes in useable "labels of meaning." Henning et al. (2004:105) contend that, "the better a researcher knows the data, the more competent she will be in labeling units of meaning." Since I created the data generating tools and documents, assumed the role of an active participant during the process of developing the research lesson, observed the research lesson, acted as moderator and recorder for the post-lesson discussion, personally conducted the interviews at the end of the cycle, and then transcribed all of the corresponding documents, I believe that the competency required to choose appropriate labels of meaning or categories in which to place each of the codes is assured.

The codes and categories were then related to each of the research questions guiding this study. Since all of the documents used for generating research data were designed to correspond directly to the research questions, the relation of the six categories to the six research questions was easily facilitated. Because participants gave a positive response to the value of lesson study as a strategy for instructional improvement, the six research questions based on that value were deemed to be applicable.

5.2.5 Questions guiding the research and analysis

Analysis of the first lesson study cycle addressed each of the research questions individually. Since the participants overwhelmingly agreed that lesson study is a valuable strategy for instructional improvement, only the first six research questions were applicable.

5.2.5.1 What do the participants see as the most rewarding elements of the cycle?

One of the elements that participants found rewarding was that of observing the research lesson and the impact that it had on instruction. Instructional value was discussed both in terms of being observed and in becoming the observer. Although Normi was not the teacher of the research lesson, she commented on the effect that observation would have had on her instruction:

> *If I am giving a lesson and I know there are colleagues watching, observing a specific thing, then I will be…more focused on my goal.*

Three of the participants commented on the value they discovered in being free to observe the learners' reactions to instructions. They pointed out that they are usually too busy teaching to have the time to focus on reactions from the learners. Observing the research lesson gave them the opportunity to do that. It allowed them to look at individual learners and see who was being attentive and who was not. It also allowed them to see what the learners were focusing on when they were not following instructions.

A bi-product of this third step in the lesson study cycle that participants found interesting was the effect that the observers had on the learners. The teacher of the research lesson discussed the behavior of the learners in his class as a result of having five other adults observing in the classroom during the lesson. Jakes commented that

if it's possible to have five observers each period, it would be nice. Because of the good behavior and discipline in class, they listened more carefully to instructions.

Not only was the learners' behavior affected by having observers in the classroom, but their work was also impacted. Jakes taught the research lesson to both of his sixth-grade mathematics classes. The lesson study team observed the 6B class, while the 6A class was taught without any observation. Jakes noticed a difference in the work that the learners submitted at the end of each lesson. Out of the 33 learners in class 6B, 30 were able to solve the math problem correctly. In class 6A, only five of the 33 learners were able to get the right answer to the same problem.

Observing the research lesson was not the only element of lesson study that participants commented favorably about. Many teachers in South Africa, including the participants in this study, have felt overwhelmed by the amount of material they are required to cover as outlined in the NCS. Jakes summed up their collective frustration by saying,

I think our biggest problem in South African teaching at this time is we as teachers think about this whole curriculum you have to do here and we basically – honestly, they work as fast as possible and that's wrong.

A second element of lesson study, that of choosing an overarching goal to plan lessons around, was seen as a valuable tool to alleviate some of this sense of frustration. During the second step or planning phase of the lesson study cycle the participants kept the goal they had developed in mind as they worked through the Description of the Study Lesson (Appendix I). They were specific about the type of questions the teacher would ask during the lesson so they could determine if they were meeting the goal of having learners listen to instructions the first time. After completing this second step of the cycle, Jakes responded that

it helped to focus on goal setting and the process of the lesson.

At the end of the cycle, participants commented on the benefits of having a common goal to work toward as they taught their own classes. They indicated that it helped to slow down and look specifically at the goal they wanted to achieve for their school. That way they could concentrate on a few things rather than being overwhelmed by everything.

The participants commented on the value of the overarching goal they had chosen at the beginning of this first cycle. They made specific reference to the part of the goal that envisions having learners listen to instructions the first time round. They talked about the impact it had made on their own instruction. Participants felt that less time was being spent on discipline because the learners were developing the skill of listening properly to instructions the first time round. Glenelg shared that, by setting the goal and asking the right questions, it was allowing him the opportunity to

> *just stand and observe them…and that is what we try to achieve.*

In answer to the first research question, based on the data just presented, the participants found two elements of the first cycle of lesson study to be of value: One of the most rewarding elements they discovered was the positive effect that observation had on their instruction and on the learner's behavior and performance. They also found value in the element of relating their instruction to a common goal.

5.2.5.2 How do participants measure improvement in instruction?

One of the reasons that the participants were positive about the process of lesson study is that they saw an improvement in their own instruction. They felt that by giving clear instructions only one time, the learners were moving closer to the goal of being good listeners. Even though there was only one of the participants who actually taught the research lesson to his sixth-grade math class, others commented about using this strategy in teaching their own classes. When asked about transferring this new instructional strategy developed for the research lesson to other subjects and grade levels, three of the participants commented on the success they had experienced. Lola stated that, as a result of observing the research lesson, she made sure that she had the attention of her fourth- and fifth-grade learners before giving instructions the first and only time. Glenelg used the strategy of explaining instructions once for his seventh-grade learners in maths and social science. He confidently declared,

> *Listen, it works in my classes. Although I am only a period in the week there, but it works. It can work in any class situation.*

Jakes, the teacher of the research lesson, also used this strategy of giving instructions once in his seventh-grade geography class.

Another way that participants measured improvement in instruction took place during the observation phase of the lesson study cycle. The observation focus included recording learner responses to instructions by the teacher. During the planning phase of the cycle, participants outlined specific questions that the teacher of the lesson would pose to the learners. The questions were aimed toward getting the learners to analyze different ways to solve the problem. They predicted that by posing the questions in the prescribed sequence, more learners would be able to understand how to solve the problem (Appendix I, Process of the study lesson). After observing learner responses to the teacher's line of questioning, Nandi validated the group's prediction when she summarized that

> *more students raised hands after explaining the first pattern.*

In the post-lesson discussion, the team settled on one idea that became clear as a strategy for learner involvement and listening. During the research lesson, Jakes had pairs of learners go up to the board and show how they got their answers to the second question. The first pair that came up had the answer right. In the past, Jakes would have acknowledged that they had the correct answer and the discussion would have ended there. Instead the lesson plan stated that he would call up different pairs with different answers. So after the first pair got up, he refrained from indicating if they were right or wrong, he just asked if there were any other answers. Other pairs got up even though it seemed obvious that the first pair had given the right answer. What this showed the observers is that once learners have figured out an answer on their own, they believe that answer to be right even if they are shown a different answer that seems more accurate than theirs. This ownership was expressed as a valuable new insight about their learners. If Jakes had not asked those other learners to stand up and offer their wrong answers and then discussed them together with the class, they may still have held on to the belief that they were right and then, perhaps, not been able to finish the other questions correctly.

All participants in the study transferred teaching strategies discussed for the research lesson to their own classrooms. In some cases, the strategies were employed in learning areas outside mathematics, and in grade-level classes other than the sixth grade. This is one of the ways that participants measured improvement in their own instruction. The participants' experience with lesson study as a CPTD program differs from the experience of many teachers in South Africa as discussed in Chapter 3, Section 3.4.1.

The teachers in this study were able to transfer the information they gained together, through their experience with the process of lesson study, into instructional improvement in their own classrooms. Participants also measured improvement by observing and noting learners' responses to the new instructional strategies of giving clear instructions a single time and asking specific, well-thought-out questions.

5.2.5.3 What do participants see as reasons for their improvement?

The single most important factor perceived to be the impetus for improvement was collaboration. Team members had already participated in positive collaborative experiences prior to their participation in lesson study. The survey administered before the initial training session (Appendix G) discussed previous collaborative experience. Participants responded by listing planning sessions, such as Learning Area meetings, held within the school setting, as well as district-level sessions such as cluster meetings and OBE training.

The average amount of time that participants had spent in previous collaborations ranged from one to three hours each week. In response to how collaboration prior to their experience in this research had contributed to their improvement in instruction, participants responded in a positive manner. The examples they provided were centered around collaboration as a useful tool for lesson planning, scheduling, and the use of instructional materials. The participants' complete comments can be found in Appendix G1.

During the interviews held at the end of the first cycle of lesson study, participants discussed their perceptions of the relationship between collaborative planning and improvement of instruction. Specifically, they were asked how previous collaboration differed from their experiences with the process of lesson study. They indicated that it was the actual planning and writing down of the progression of the research lesson that was different from previous collaborative experiences. They stated that in collaborations outside lesson study, they focused more on lesson outcomes and pupil behaviors, but spent little time on teaching skills. Jakes responded to this question by stating,

> *Lesson study is direct talking about something which can help everyone in class.*

When the participants were asked at the end of the lesson study cycle to reflect on whether collaboration in lesson study helped them to improve their instruction, each responded that it did. All members of the planning team discussed how it had helped them in their own classrooms. Glenelg became more conscientious about the specific questions he wanted to ask his students. Jakes found value in hearing from his colleagues about what did and did not work for them in their own classrooms. Nandi started leaving the math work on the board throughout the lesson so that the learners could continue to see the work that had been done so far during class. She felt that keeping the example on the board increased the learners' understanding of the material being presented. Mark shared several instructional strategies he had begun to implement in his own class as a result of collaboration during this cycle. He had become more focused on the way he gave instructions and the kinds of questions he asked. He had also started to ask himself,

> *What are you going to do with the reaction when the children put up their hand and say I don't understand. We don't do that so formally in the normal academic planning. So some of our eyes really opened in the lesson study because now we listen.*

Although participants viewed collaboration as a catalyst for improvement to instruction previous to their involvement in this research, it was the specific type of collaboration experienced in lesson study that transferred to instructional improvement.

Participants commented on factors other than collaboration that led to instructional improvement. They made specific reference to three elements contained within the Description of the Study Lesson Plan (Appendix I). The first element commented on was that of setting a goal and then planning instruction with the purpose of moving learners toward that goal. Specific instructional strategies included giving instructions one time, rather than repetitively, thereby, "developing learners who listen properly to the task", and thoughtfully composing specific questions asked in a sequence designed to give learners "enough confidence to try to solve the problem on their own".

A second element contained in the Description of the Study Lesson Plan that participants found valuable was the connection between the content of the research lesson and the rest of the curriculum. The planning team had the opportunity to discuss the use of number lines (Learning Outcome 1) through all grades in the Intermediate Phase. Even though

the research lesson for the first cycle was prepared for presentation to a sixth-grade class, the participants discussed the connection of this Learning Outcome to the fourth, fifth, and seventh grades.

A third element in the process of developing the research lesson that participants saw as a reason for their improvement is the idea that the teacher should plan, in advance, a response to the learners' questions or reaction to instruction. This helped them to focus on the learner and to anticipate possible misconceptions so they would be better prepared to respond to them. Mark shared that

> *with this lesson study we heard about how did you ask the question, what are you going to do with the reaction when the children put up their hand and say they don't understand? We don't do that in the normal academic planning.*

Another instructional improvement that was noted, but not necessarily an element of lesson study, is the strategy of leaving examples of math problems on the board until the end of the lesson, rather than erasing each problem as it is completed. This strategy was used by several of the participants after discussion during the second phase of the cycle.

5.2.5.4 What effects did collaboration have on the improvement of instruction?

As discussed previously, collaboration is something that all the participants have background in. Collaborative experiences prior to participation in this research had been positive. Each participant felt that the time spent in planning with colleagues was worthwhile.

Since the participants responded, in answer to research question three, that collaboration was the biggest single factor in improvement of instruction, this fourth research question almost seems redundant. However, it will be approached by looking at the specific teaching strategies that were employed as a result of the collaborative planning experienced during each phase of the first cycle of lesson study.

Four teaching strategies emerged as a result of collaboration among the participants during the second phase in the lesson study cycle. The first strategy that all participants took into their classrooms during the planning phase was that of giving instructions only

once. The part of the goal they were working on was to develop good listeners. They felt that, by not repeating instructions, they were teaching their learners the expectation of listening the first time. Normi described using this strategy in her classroom:

> *I focused on giving instruction once and tried to keep to it ... Our goal was that story of not to repeat a question or a task repeatedly and I tried that. I tried not to repeat a question or to say that again and again and again. I think it helped because I was focused on that.*

Mark discovered that it also helped to write the instructions on the board. That way the learners could read them and he did not have to keep repeating.

A second strategy that team members began using in their lesson planning was to be very specific about what type of questions to ask learners during delivery of the lesson. While collaboratively developing the research lesson, team members began writing down the exact questions that they were planning on asking the learners so that they knew exactly what they were observing in relation to the goal of having learners listen to instructions. Some of the participants described how they took this strategy into their own classrooms. Mark felt that he had improved as a teacher by addressing how he asks questions to his learners. Glenelg reflected on how he has changed the way he approaches questioning his learners:

> *If I ask this specific question, do they correspond to that question? Do they understand the question and so on? Previously, I've had many years of experience. I thought I was a good teacher. And this helped me to say, listen, you're asking too many questions and you don't give enough time for the children to think about the question. That was one of my problems and I realized that through this process. I'm giving less questions, but I make sure that they have enough time to understand the question and then to go on with their answer of the question.*

A third instructional strategy discovered during the planning phase, that of relating instruction to a specified goal, was seen as a valuable tool to guide lesson planning. The teachers felt comfortable employing what they had collaboratively modeled during the development of the research lesson independently in their individual classrooms. Two of the team members talked about how they began to structure the planning of their lessons

around a specific goal for their learners and then making sure that activities were related to the goal. They felt that by structuring their planning around a goal, they were able to do less with more emphasis on what they wanted to achieve.

A fourth instructional strategy discovered as a result of this collaborative planning was the incorporation of learners' responses when developing a lesson. During the planning phase of the cycle, participants discussed and noted possible learner reactions to the specific questions and instructions that would be given by the teacher during the research lesson (Appendix I, second column in the process of the study lesson). Participants then decided on possible teacher's responses to the learners (third column). Keeping the goal of having learners listen to instructions in mind, participants then noted what specifically the focus would be during observation of the research lesson (fourth column).

During the third phase of the lesson study cycle, participants were able to observe the effects of the new strategies on the learners involved in the research lesson. According to Grundy and Kemmis (1981:8), in an action research design, "observation has the function of documenting the effects of action – it is prospective in that it will always be guided by the intent to provide a basis for critical self-reflection." Although the third phase by its very nature is non-collaborative, it relies on the collaboration from the first and second phases to give it purpose and it also supplies the data for the collaborative discussion in the fourth phase. During the observation phase of the lesson study cycle, each of the participants who were not teaching the research lesson acted as observers. This allowed them two types of opportunity. The first was to focus on the strategies they had discussed and initiated in their own classrooms prior to the teaching of the research lesson. Each participant was assigned an observation focus that included how learners responded to particular instructions and questions posed by the teacher.

The second type of opportunity that participants discovered during this phase of lesson study was the ability to notice unanticipated strategies and behaviors, both of the teacher of the research lesson and the learners in the classroom. These examples were noted during the observation of the research lesson and became part of the data providing the basis for discussion after the lesson was taught.

Specific observations were recorded on each participant's Research Lesson Observation Form (Appendix D) as the lesson was being observed. Immediately following the research lesson, participants summarized their noted observations. They shared these summaries during the post-lesson discussion held later on the same day as the teaching of the research lesson.

During the post-lesson discussion I acted as moderator/facilitator and recorder. My rationale for assuming these roles was two-fold. First, I wanted all participants to feel free to exchange their observations about the research lesson without having to play the more objective role of moderator. The other reason was that since, to my knowledge and that of my promoters', lesson study had never been introduced in the research area, there were no other people familiar enough with the process to be able to fill those roles.

The post-lesson discussion allowed the participants to collaborate on the value they discovered during the observation of the research lesson. They were able to validate the instructional strategies that they had already begun using prior to the teaching of the research lesson. The discussion about the observations of each team member led to an understanding of how each learner in the class responded to the new instructional techniques being employed in the research lesson. Participants found that learners did seem to listen better to instructions the first time round when they understood that they were only going to hear them once. It was noted how a learner responded when the teacher did not deviate from the planned response of not repeating instructions or answering a question that he had just answered. After sharing their observations, the team agreed that, because the teacher had already planned to respond by not repeating the answer to the question, the learners changed the normal pattern of their behavior by listening to the instructions or answers the first time.

The line of questioning created in the lesson plan was also validated when one of the participants observed that twice as many students were able to solve the second problem as compared with the response to the first problem. The team discussed how this questioning strategy worked in the research lesson and how they could extend it to their own classrooms.

The observation focus for the research lesson was centered on the learners' responses to the instructions given by the teacher. However, it was also noted that the teacher did deviate from his planned response at one point during the lesson. Jakes had to repeat his instructions to work with a partner. He had stated in the lesson plan that he was not going to do that. However, his decision was consistent with the observer's comments regarding learners' reaction to that instruction. Many of the learners began working on their own while others either looked around the room or fiddled with something on the table. Participants had anticipated this type of response from the learners.

There were, however, two themes that emerged during the post-lesson discussion that came as somewhat of a surprise during the observation of the research lesson. The first theme was that learners tried to solve problems on their own rather than discuss the solution with their partners. Although each observer assigned to focus on learners' reactions to instructions noted that some of the learners were not following the instructions to work with a partner, it was Glenelg who discovered the unanticipated insight that

> *maybe learners do not know how to start a conversation.*

A second unanticipated theme that emerged in this discussion session was the idea that learners wanted to have ownership of their answers even if they were wrong. Participants were surprised by the revelation that when learners find their own way to solve a problem, they want to cling to that solution even if it is incorrect. The participants discovered that by having pairs of learners rather than individuals explain their answers, they were less timid about presenting a solution and discussing it even if they weren't sure that it was correct. This allowed the class to have a better discussion of the possible solutions, thereby making pairs of learners more comfortable with letting go of an inaccurate answer. The lesson had been planned to allow for several responses to each problem before the teacher indicated which answer was correct. When individual learners shared, only those who were sure they had the right answer volunteered to show the rest of the class. The learners who did not volunteer and had the wrong answers did not change them. However, when pairs of learners who had worked on the problem together were asked to share, they responded more readily, whether or not they were sure of the solution. After several pairs had shared right and wrong answers, followed by a

class discussion, learners did change their own work to reflect the correct way to solve the problem.

The way that the team decided to revise the research lesson, based on the two themes that emerged in the post-lesson discussion, was to allow pairs to work together sooner in the lesson and share with the class more often. Earlier in the lesson when Jakes had allowed the learners to work individually and then share, the learner with the wrong answer was more embarrassed when he had to explain on his own how he arrived at that answer. The participants deduced from this observation that maybe when pairs get up together, they are more comfortable about explaining their solution to the problem. They then concluded that allowing them to work together more often might also make them more comfortable about how to start a group discussion.

The post-lesson discussion served as a forum to brief the participants on the data generated during the observation, discuss how instructional strategies met or failed to meet the goals of the lesson, illuminate possible new strategies to move learners closer to the specified goal, and celebrate the completion of the first cycle. Two of the participants commented that the value they perceived in experiencing this phase of the cycle was in listening to the observations of the other team members. They thought it was interesting to hear what the others had seen that they had not noticed. Lola shared that the knowledge gained from this discussion gave her additional insight about how to improve instruction.

The data presented in this section has shown that the participants agreed that the collaboration experienced during the process of lesson study had a positive impact on their instruction. The specific teaching strategies they incorporated included issuing instructions a single time, developing specific, meaningful questions, and relating instruction to a goal. Glenelg shared how he had improved his teaching as a result of collaboration during this cycle:

> *I'm giving less questions, but I make sure that they have enough time to understand the question and then to go on with their answer of the question…I'm aware of that now. I wasn't aware of that … the more I think about it, the more I'm wanting to do it myself because I see this difference.*

Although all of the participants had begun to incorporate new instructional strategies prior to the observation and post-lesson discussion, involvement in these last two phases gave them the added confidence to continue what they had begun.

5.2.5.5 Is lesson study a model they would like to implement in their own school and, perhaps, throughout their district?

All of the participants in the study responded positively when asked if lesson study is something that they thought would benefit the whole school. Four of them gave the reasons why they thought it would be beneficial. They spoke about the benefits of planning lessons together based on a school-wide goal of having the learners improve their listening skills. They also commented on the value they had experienced in being able to observe learners during the research lesson. Glenelg was particularly excited about the idea of implementing lesson study throughout the school. He had already begun to think about how to introduce it to the rest of the faculty. When asked if lesson study was a model that he would like to implement throughout the school, he responded with:

> *I will personally want to see it going through to the whole school … I told my wife yesterday, this is a process we started and I think there's no going back to any practice else. If we can all get on this wagon and say, okay, let's start slowly. Let's do it in this area and then go on to the other area. Okay, not every lesson but try and do it.*

While each of the participants saw the benefit to implementing lesson study throughout their school, they did express the caution that it be implemented slowly – one learning area or phase at a time.

The response about the value of implementing lesson study throughout the district differed among the participants. Although each felt that there would be a benefit in doing so, they also saw obstacles to such implementation. One of the obstacles noted was that of time. Not all schools in the district where this study was conducted have a collaboration time built into the school day. This was a somewhat unique characteristic of this particular school. The participants were concerned that teachers in neighboring schools would have more difficulty scheduling time for collaboration.

Another obstacle that two of the participants commented on was the idea of teaching strategies being implemented from the "top-down." Normi and Jakes both cautioned that if lesson study were introduced to other schools, it would need to be because the teachers wanted to try it, not because someone at the top was telling them that they were going to try it. Their thoughts were consistent with the literature on the culture of teaching in South Africa as discussed in Chapter 3, Section 3.3.7. It is unlikely that teachers would find value in the process of lesson study if it were a program imposed on them from above.

A third obstacle to implementing lesson study throughout the district could be the motivation of teachers themselves. The group of teachers who withdrew early in this study indicated that their motivation to become involved was to "cope." The participants remaining in the study spoke about the frustration they had experienced with all that is required of them in their teaching positions. They shared that many teachers may perceive lesson study as just one more thing they do not have time for.

Given the obstacles of time, top-down implementation, and teacher motivation, participants still believed there would be value in district-wide implementation of lesson study. Normi felt strongly enough about the idea that she stated that it would be,

> *stupid if we do it alone and not the other schools in the district. It is, again that communication between the schools, especially when it is a new thing like lesson study. When the learners change from schools, you know, you can't just do it with (our school) alone.*

The principal and deputy principal on the team offered advice about what would be needed in order to begin implementation in other schools. Glenelg saw a benefit in having his own school become comfortable with lesson study and then invite the district-level advisors to come in and observe the process. He would then, with the approval of the advisors, introduce lesson study to a sister school. That school could then decide if it is something that would be of value to them. Glenelg saw this approach as a solution to the obstacle of top-down implementation. Jakes insisted that whatever approach was used to initiate a district-wide implementation of lesson study, adequate training for new participants would be essential.

Although the participants identified the obstacles of time, teacher motivation, and top down implementation, they also discussed some of the benefits to having other schools adopt lesson study. That discussion included the notion that participants would need to have initial training in the steps of the process and that the introduction should come from a school where lesson study was being used successfully.

5.2.5.6 What obstacles would need to be overcome?

Several obstacles were identified by the participants as possible barriers to their continuation of lesson study and furthering its implementation throughout the school or the district. These obstacles seemed to fall into two main categories: time and communication.

The time used for planning the research lesson was seen as the biggest obstacle to the process. The experience of this group of participants is consistent with that of many teachers who participate in the process of lesson study. According to the literature, as discussed in Chapter 2, Section 2.2.4, the availability of time for collaboration is one of the most common barriers to the successful implementation of lesson study.

Table 5.2 shows the amount of time that the participants spent in collaborative meetings during the first cycle of lesson study. Three of the six members of the team attended the training session (discussed in Chapter 4, Section 4.5) held prior to the commencement of the first cycle. The duration of that meeting was four hours. That time is not included in the average amount of time that participants spent in the lesson study process.

Table 5.2: Lesson study group meetings first cycle

Date	Time	Minutes	Activity	Number of participants present out of 6
Feb. 5, 2007	07:30 – 08:25	55	*Steps 1 & 2 in cycle* *DSLP IA to IIC	6
Feb. 12, 2007	07:35 – 08:20	45	DSLP IIC to IIID	5
Feb. 19, 2007	07:30 – 08:25	55	DSLP IIID	6
Feb. 26, 2007	07:35 – 08:25	50	DSLP IIID	6
Mar. 5, 2007	07:40 – 08:25	45	DSLP IIID, E, F	4
Mar. 12, 2007	07:35 – 08:25	50	Obs. guidelines and checklist, Obs. focus, Discussion session roles, Reflection survey	6
Mar. 19, 2007	07:35 – 07:55	20	Collect reflection survey, Review focus, lesson plan, seating chart.	6
Mar. 19, 2007	07:55 – 08:30	35	*Step 3 in cycle* Observation of research lesson	6
Mar. 19, 2007	13:30 – 14:30	60	*Step 4 in cycle* Discussion session	5
Total time		**6 hrs.,55 min.**		

* Description of Study Lesson Plan (Appendix I)

Although three of the participants had begun work on the first step of choosing a goal during the training session, they finalized the wording of the goal during their first meeting as an entire team on February 5. They were able to complete that and move right into the second step in the cycle. This second step, or planning phase, continued for six weeks after which the research lesson was taught and observed. Later that same day, the post-lesson discussion was held. Table 5.3 indicates how much time each participant

recorded in their logs as time spent on lesson study outside the scheduled, collaborative meetings.

Table 5.3: Time spent outside scheduled, collaborative meetings

Document	**Jakes**	**Glenelg**	**Mark**	**Lola**	**Normi**	**Nandi**
Time log	13 hrs, 30 min.	1 hr.	20 min.	55 min.	2 hrs, 40 min.	2 hrs, 45 min.

Jakes spent much more time than any other participant because he was the teacher of the research lesson. To save time in the collaborative meetings, he worked independently on some parts of the description of the study lesson. This practice is consistent with that of many lesson study groups.

Table 5.4 combines the first two tables and shows how much time each individual participant spent on lesson study during the first cycle. Excluding Jakes, who was the teacher of the research lesson and, therefore, spent much more time than any other participant, the average amount of time spent per participant was 7 hours and 48 minutes. Most of this time was spent during Step 2 in the process.

Table 5.4: Total time spent individually by participants during first cycle

Jakes	**Glenelg**	**Mark**	**Lola**	**Normi**	**Nandi**
20 hrs, 25 min.	6 hrs, 25 min.	6 hrs, 15 min.	6 hrs, 40 min.	6 hrs, 35 min.	6 hrs, 5 min.

All the team meetings were held on Monday mornings during the team's regularly scheduled planning hour. This school has a unique situation on Monday mornings: parents volunteer in the classrooms for the first hour of the day so that teachers can meet collaboratively with other members in their learning areas or grade levels. The participants agreed to devote that time to the process of lesson study. The research lesson, Step 3 of the cycle, was also taught and observed during that first hour of Monday morning. The only meeting that was held outside that time was Step 4, the post-lesson discussion. That session was held after school on the same day that the research lesson was taught.

In a tentative timeline for the proposed research given to participants in the introductory session, it was estimated that the second step in the cycle would take between three and

five hours. In reality, this step took five hours and twenty minutes to complete. It was estimated that the third step would take one class period, which is consistent with the reality during the study. It was estimated that the fourth step would take between two and three hours. This step took one hour in the actual study.

Because the second step took longer than anticipated, participants did not attempt the optional part of the fourth step in the lesson study cycle, that of teaching the revised research lesson. The second step may have taken longer than anticipated because, as one participant pointed out, the meetings were frequent and short. There were also participants absent from some of the planning meetings. This made it necessary to review material already covered at the beginning of each meeting. If the planning meetings had been longer and all the participants had been present at each one, time may have been saved.

Participants were each asked to fill out a survey at the completion of Step 2 in the lesson study cycle (Appendix J). The third question asks participants to reflect on any obstacles they see to the process of implementing lesson study. All six responded that time was the only obstacle. When asked the same question during the interviews at the end of the cycle, participants responded in much the same way. They still viewed time as being the major obstacle to lesson study. Part of the issue was that the meeting time for lesson study was previously used to collaborate with other colleagues. They found it necessary, as a result of participation in this study, to reschedule or give up planning time with the other teachers.

Another factor contributing to the time obstacle was that of participants' involvement in after-school activities. Although those activities did not necessarily pose a problem during the first cycle because we were conducting the meetings during school hours, participants did express a desire to have our planning sessions after school during the second cycle. In anticipation of that, they discussed the time obstacles for after-school meetings. Normi described her involvement in after-school activities. Her experience is typical of the other participants in the study:

> *Three days of the week I've got sport and on Saturdays we've got matches – there isn't time to sit in the afternoon and plan. It should be like that, it*

would be wonderful if it is like that but it can't be, we haven't got the time to sit and plan and listen to others.

Another factor creating the obstacle of time is the number of learning areas each participant is required to prepare for and teach. When some of the members had as many as eight learning areas to prepare for, spending this amount of time on just the learning area of math limited the time they were able to use to prepare for the other subjects. Lola described the frustration she felt with spending so much time on lesson study at the expense of other learning areas:

The obstacle I can think of was we actually neglected our own learning areas because we have our meetings on a Monday with Afrikaans, or English, or say, Social Studies, or whatever and in the process we couldn't do that because we spent all our time with the lesson study.

In reflecting on the obstacle of time, several of the participants offered suggestions during the interviews about how to restructure the second step of the cycle in order to use the time more efficiently. Three of them suggested meeting after school for longer sessions. They felt that by doing that, more would be accomplished in a shorter amount of time. They thought a lot of time was wasted with "recap" at the beginning of each planning session. They suggested that having a two-hour session would be much more efficient than two one-hour sessions.

Participants also seemed to think that the second cycle would move more quickly than the first cycle did. The reason for that is that they felt like they were familiar with the process of lesson study and that it would, therefore, run more smoothly. Glenelg summed up the group's thinking by stating,

The more you do it, the less time you will spend.

The second category for perceived obstacles to the process of lesson study during the first cycle was communication. There were two barriers that emerged within the theme of communication. The first was that of language. All the planning sessions and team discussions were conducted in English. The only part of the whole process that was conducted in Afrikaans was the delivery of the research lesson. The reason that the lesson was not given in English was that the learners receive their math instruction in

their first language, Afrikaans. English is the second language of all the participants in the study. They all agreed, even though they didn't mind speaking in English, that the process would be easier and faster if they were allowed to conduct the meetings in Afrikaans. Nandi, a first-year teacher at this school, was the least vocal during the planning sessions. She indicated (after her interview) that conducting the meetings in Afrikaans would make it easier for her to continue her involvement in the research. She felt that the meetings would go faster and she would be able to contribute more if everyone were able to communicate in the language they are more comfortable with.

The second barrier that fell under the theme of communication is the lack of complete understanding of the lesson study process. The three members who were present at the initial training session seemed to dominate the discussion during the planning sessions. They explained the process to the other members as the meetings progressed. Jakes was one of the team members who attended the training session. At the end of the second step in the cycle he expressed his thoughts about the importance of attending the training:

> *From the start everybody didn't understand the process. We all didn't attend the first meeting.*

Even the members who were at the training seemed a bit confused about how to use the Tool (Appendix B) along with the Description of the Study Lesson template (Appendix C). Although each step of the process was outlined in great detail in the tool, team members still wanted to skim through much of the detail. It is hard to say whether the participants did not understand some of the finer details because it was explained in their second language, or if they wanted to save time on the items that seemed to be less important.

Each of the obstacles identified by the participants during the first cycle of lesson study was analyzed and addressed in anticipation of the second cycle. This is a vital component in an action research design. According to Greenwood and Levin (2007:92), "When we construct an action research model … we must plan comprehensively for the social change and learning processes that will occur throughout the project." In an effort to honor and address the learning by participants during the first cycle, each of the obstacles identified received attention. The treatment of these obstacles is discussed in the next section on sustainability and integrity.

5.2.5.7 Summary of questions guiding the research

Through the analysis of the preceding sub-questions, this study sought to determine the extent to which teachers would experience lesson study as a viable strategy to reduce isolation and facilitate meaningful collaboration in an effort to make improvements in classroom instruction. Since all of the participants were eager to continue their involvement through a second cycle, it can be deduced that their experience during the first cycle was positive.

All of the participants believed that they had improved their own classroom instruction as a result of their involvement with lesson study. The reasons for these improvements, discussed in detail in Sections 5.2.5.3 and 5.2.5.4, were the type of collaboration they experienced and the teaching strategies they employed as a result of that. They experienced meaningful collaboration while developing the research lesson and also while reflecting on their observations during the post-lesson discussions.

The participants also credited specific elements of the process of lesson study, discussed in Section 5.2.5.1, for instructional improvement. These elements included the observation of the research lesson and the choice of an overarching goal to plan the lesson around. Each of the participants was able to give examples of instructional improvements they had made as a direct result of their involvement in the first cycle of lesson study.

5.2.6 Sustainability and integrity

Even with the stated obstacles in mind, each member of the team was enthusiastic about participating in a second cycle of lesson study. At the end of the first cycle, many of the criteria for sustainability and integrity were met. Each of the components suggested by Perry and Lewis (2003:17) and discussed earlier in this chapter (Section 5.1.2) was addressed during this first cycle. These three components are: a lesson study cycle that is balanced, coherent, and responsive to needs; access to content and pedagogical knowledge; and personal and collegial qualities that support learning.

5.2.6.1 Component 1: A lesson study cycle that is balanced, coherent and responsive to needs

The first cycle did include all of the following elements found essential to maintain balance: Participants worked together in selecting a well-defined goal and then consistently referred back to that goal during each step in the process. A lesson plan was designed, taught, observed, and reflected on with that goal in mind. Data were generated by all participants at several different points in the cycle. The post-lesson discussion revealed learner behaviors in relation to the goal. Data about learners' performance were generated in the work produced by learners.

There was also evidence of coherence in the first cycle of lesson study. The participants used the adopted NCS as a guide for developing the research lesson. They targeted Learning Outcome 1: Numbers, Operations, and Relationships for a sixth-grade lesson and based their planning on the stated goals and assessment standards for that outcome (Appendix I).

The first cycle was successful in responding to the local needs of the participants and their learners. Because the participants collaboratively chose a goal and then related the research lesson to that goal, they were enthusiastic about the results in relation to their perceived needs. The specific element of the goal imbedded in the research lesson was to, "develop learners who listen properly to the task." As a result of their collaborative efforts during planning, every participant improved their instruction based on that need. The teachers all changed the way they gave instructions in class and, consequently, felt that their students were moving closer to the goal as a result. There were other needs that gained attention during this cycle.

To be responsive to these needs, thereby increasing the likelihood of sustainability, they were addressed where possible prior to the initiation of the second cycle. Table 5.5 shows the five obstacles identified by participants at the end of the first cycle. I added a sixth obstacle to the sustainability of lesson study. Although the sixth obstacle was not identified by any of the participants during the cycle, it was discussed in anticipation of the second cycle. The table also shows how each obstacle was addressed prior to the commencement of the second cycle.

Table 5.5 Obstacles to sustainability in Cycle 1

Obstacles identified during Cycle 1	**How obstacles were addressed prior to Cycle 2**
1. Amount of time spent	1. Participants anticipate the process moving faster.
2. Scheduled meeting time	2. Changed meeting time
3. Number of learning areas taught	3. Cannot be addressed within the scope of this research
4. Language barrier	4. Conduct meetings in Afrikaans
5. Incomplete understanding of lesson study process	5. Review process and tools, keep same team members
6. Learners out of normal setting for research lesson	6. Discussed keeping learners in classroom

Of the six main obstacles identified at the end of the first cycle, all but the number of learning areas were addressed prior to the commencement of the second cycle. Each of these obstacles is discussed in detail as follows.

1. *Amount of time spent planning, teaching, and discussing the research lesson*

Although each of the participants felt that the most significant barrier to continued participation in lesson study was the amount of time it took to plan and conduct the research lesson, they believed that the second cycle would progress more quickly than the first because they had become familiar with the process during involvement in the first cycle. Normi commented,

> *When you become more clued up with how the process is, then it will be quicker and not such a long thing.*

Glenelg added,

> *The more you do it, the less time you spend.*

2. *Scheduled meeting time*

During the first cycle, planning meetings were scheduled every Monday morning for seven weeks. The meetings ran anywhere from 45 to 55 minutes in length. Although the meeting time was convenient because it was held during the regular school day, it was seen as an obstacle in that it prevented the team members from meeting with teachers not involved in the study. Several of the team members teach multiple learning areas, and that time on Monday mornings had previously been used to collaborate with other colleagues. Participants suggested that, rather than continue with many short planning

sessions held on Monday mornings, we change the meeting time to the end of the school day.

After conducting interviews at the end of the cycle, I met informally with Glenelg and Jakes to discuss scheduling times for the second lesson study cycle. To address some of the time barriers that emerged during the first cycle, we agreed to meet as a team for two two-hour sessions after school to plan the lesson, rather than meeting for one hour a week on Monday mornings. We also decided that we would allow an additional one-hour after-school session to prepare for the observation of the research lesson. By conducting the meetings after school for a longer time period, we felt that we could save the time that it usually took at the beginning of each meeting to recap what had occurred during the previous session. We also felt that it would allow the team members responsible for teaching multiple learning areas to meet with the other teachers who they had previously been using the Monday morning planning time to collaborate with. A time concern that may be raised by rescheduling is the after-school activities that some of the team members are involved in. Glenelg and Jakes also agreed that if time allowed, we would include the teaching of a revised lesson in the second cycle.

3. *Number of learning areas taught*

This is a difficult obstacle to address because of the nature of teaching in a primary school. The accepted expectation is for teachers to be responsible for multiple learning areas. To address this barrier in the middle of a school year is all but impossible, so this obstacle remained unaddressed. However, even the participants responsible for teaching many learning areas still saw enough value in the process of lesson study to agree to continue through a second cycle.

4. *Language barrier:*

Two of the participants thought that it would be easier for the team to communicate during discussion sessions if they could speak in their first language, Afrikaans. Glenelg stated,

> *If we go on and do it in Afrikaans, that would be much easier. I think then it will go faster.*

To address the language barrier, we agreed that the discussion sessions would be conducted in Afrikaans during the second cycle. The team agreed to pause every 15 minutes or so during the sessions to inform me in English of what the discussion had been about and to ask for any direction that they felt they needed or that I may want to offer. They thought that by doing this, the sessions would not only proceed more quickly, but that each member would be more comfortable taking part in the discussion.

5. *Incomplete understanding of the lesson study process*

Because this was the first cycle of lesson study that any of the team members had ever participated in, complete understanding of the process had not yet been achieved. Only three out of the six participants were in attendance at the initial training session. That, coupled with the language barrier, resulted in this first cycle becoming more of an introduction to than a complete understanding of the process of lesson study. To facilitate further understanding of the process, we decided to keep the same team members during the second cycle. Time was also spent on reviewing each step of the process and the proper use of the planning tools.

6. *Learners out of normal setting for research lesson*

I added a sixth obstacle to the sustainability of lesson study. Although it was not identified as such by any of the participants during the cycle, it was discussed in anticipation of the second cycle. The research lesson was taught to a sixth-grade class in the library, which was not the normal setting for math instruction. Moving the learners to a different location for the research lesson may have an effect on the sustainability of lesson study. It also may amplify the effect already observed by the teacher of the lesson that the learner's behavior was better than it usually is because of all the teachers in the room.

Each of the six obstacles acknowledged during this first cycle continued to receive attention in each cycle throughout the study. New obstacles discovered in each subsequent cycle were then added to the list and addressed, where possible, prior to the commencement of a new cycle. This is consistent with the final step in a spiral of action research. It is necessary to reflect and revise as you begin to plan for the next spiral. By addressing the obstacles identified at the end of each cycle, it is hoped that the criterion of being responsive to the needs of the teachers is met.

This first cycle of lesson study satisfied the criteria for the first component of sustainability. It included all of the elements essential for balance and coherence. This cycle was also responsive to the needs of the participants. The research lesson was related to a collaboratively-chosen goal and any obstacles identified during the process of the first lesson study cycle were addressed prior to the commencement of the second cycle.

5.2.6.2 Component 2: Access to content and pedagogical knowledge

To satisfy the criteria for this component, an outside specialist, whether in lesson study or the content area, must be present. During this first cycle, there was no inclusion of a knowledgeable other in the content area of mathematics. The participants agreed that they were more comfortable going through the steps of the cycle for the first time without anyone outside the immediate team becoming involved. My role was that of outside specialist in lesson study as I facilitated the process. In that capacity, I provided the pedagogical knowledge required to fulfill the criteria for this component.

5.2.6.3 Component 3: Personal and collegial qualities that support learning

The criteria for this third component are met when teachers have a desire to improve, are open to new ideas, exhibit the capacity to work together, and have a sense of efficacy. The participants in this study, individually and as a group, embodied the qualities contained within this component. They each volunteered, without any extrinsic incentive, to take part in the study. Each of them indicated that their motivation to participate in this study was to become a better teacher (Participant Background Survey: Appendix G1). The members of the group welcomed this opportunity and were constructive and supportive of each other throughout the cycle.

Careful attention was paid to satisfying the criteria for the three components considered essential for the sustainability of lesson study. The action research design of this study allowed me to make the changes necessary to address the obstacles identified in this first cycle before proceeding into the second cycle of lesson study. A more detailed discussion of this reflection can be found in Chapter 4, Section 4.5.2.4.

5.2.7 Summary of first cycle

At the conclusion of the first cycle of lesson study, all of the participants expressed the desire to continue their involvement through a second cycle. Each of them believed that they had improved classroom instruction as a result of their experience in lesson study. The elements of the process they found to be particularly rewarding were the type of collaboration they experienced and the opportunity to observe the research lesson. As a result of experiencing these two elements, they felt confident making instructional changes in their own classrooms. The new strategies they employed included issuing instructions a single time; developing specific, meaningful questions; and relating instruction to a goal.

Participants were also able to identify possible obstacles to the continuation of lesson study in their school. These obstacles included the amount of time the process takes, the specific time that planning meetings had been scheduled, the number of learning areas they were responsible for teaching, the Afrikaans/English language barrier, incomplete understanding of the lesson study process, and the need to move the learners out of the normal classroom setting so that there would be room for the observers. In an effort to encourage sustainability, each of these obstacles was addressed, where possible, prior to the initiation of the second cycle.

Even when taking all the identified obstacles into consideration, participants were excited about continuing with lesson study. They also expressed an interest for extending involvement in the project to other members of the faculty. They felt that all the teachers in their school could benefit from the process, but also thought that it should be extended slowly, one learning area at a time.

5.3 CYCLE TWO

5.3.1 Context

The second lesson study cycle that team members participated in began on April 25, 2007. Like the first cycle, it continued through six weeks, ending on June 4. The difference, though, was that this second cycle included the optional part of the fourth step, the teaching of the revised lesson. That element was left out of the first cycle because the participants were starting to feel rushed to include a research lesson and a

revised lesson. The group agreed that it was more important to understand the process of lesson study than to teach both the research and revised lessons.

This section discusses my role as the researcher and the generation and coding of the data. It provides an analysis of the data in relation to the applicable research questions and a discussion of the sustainability of lesson study beyond involvement in a second cycle.

5.3.2 Role of the researcher

My role during the second cycle was less active than during the first. As is consistent with the participant-observer continuum in an action research design, I took a step back from my role as *full participant* during the first cycle of lesson study to *participant as observer* during this second cycle. According to Mertler (2009:81) in this role, the researcher "continues to observe and take notes on what is observed but also has the opportunity to interact with the participants in the study." It was agreed prior to the commencement of this cycle that the team would communicate during planning meetings in Afrikaans rather than in English. Since I have a very limited understanding of Afrikaans, I could not actively participate in the discussions.

It was my initial intent, as discussed in Chapter 4, Section 4.5.3.1, to take a less active role during the second cycle, so this change in my role was not a direct result of the group's decision to communicate in Afrikaans. I became an active observer. The planning team agreed to stop during discussions about every fifteen minutes or so, or whenever they felt they needed guidance, to ask for my input. Any direction that I gave the team centered around the specific strategies to focus on during observation of the research lesson. I did meet individually with the staff member chosen to participate as the knowledgeable other. I also met individually with the teacher of the revised lesson to help her focus on the areas of the revised lesson that needed to be rewritten. We talked about ways to ensure that the reading strategies were receiving focus, rather than the amount of time allotted to each section of the lesson. During both the research lesson and revised lesson, I acted as observer of the process. Both of the post-lesson discussions were conducted in Afrikaans and were run entirely by the team members. The participants seemed very comfortable with little direction from me.

5.3.3 Data generated

The sources that provided data during the second cycle of lesson study were the lesson study documents (Appendices C, D & E), the answers to interview questions at the end of the cycle (Appendix N), and my own field notes and journal entries. The data generated during the second cycle of lesson study continued to support the notion that lesson study was perceived by the participants to be a valuable strategy for instructional improvement. The primary data generating sources on which this deduction is based, are the responses to interview questions at the end of the cycle, and my own journal entries. When participants were asked, at the end of the interviews, whether they would like to be involved during future lesson study cycles, they all gave positive responses. Glenelg expressed his own enthusiasm for continuing the process by stating:

> *I think that this is a great process. Surely I think we must go on with it. I think we all benefit from that, our whole school will benefit from that… It makes it so easy for everyone. We have to do that ourselves. And I think this is a great tool to help ourselves. It was great for me and I think for the other teachers as well.*

Because of the positive feedback at the conclusion of this second lesson study cycle, data analysis was again approached by answering the research questions applicable to the notion that lesson study is a valuable strategy for instructional improvement.

5.3.4 Coding of the data

The data generated during the second cycle were coded in the same way as the data from the first. I began by transcribing all research documents used to generate data. Documents in the second cycle included descriptions of the study lesson (Appendix L) and the revised study lesson (Appendix M), observation forms, post-lesson discussion forms, interviews at the end of the cycle, time logs, and my own field notes. All sessions were also video-recorded and downloaded onto DVDs. Team discussion sessions were not transcribed. The only exception to this was the portion of the post-lesson discussion where the knowledgeable other was providing input. Because the discussion was being conducted in Afrikaans and I was particularly interested in what the knowledgeable other was contributing, I had that segment translated and transcribed by a person fluent in both Afrikaans and English. The first cycle did not include a knowledgeable other. This person was new to the process, and I needed to be sure that I understood exactly what she

was adding to the experience of the team as a whole. I also felt that by having her words translated and transcribed, any questions I asked the other participants at the end of the cycle about the experience of including a knowledgeable other would be more meaningful.

Upon the initial reading of the documents, it was evident that several of the codes were consistent with those in the first cycle. On the second reading, those codes were applied to the documents. During the third reading, additional codes were assigned. The codes were then placed in categories. Three of the categories carried over from the first cycle. The category of including people outside the planning team emerged during the second cycle. The resulting four categories were then assigned to the same six research questions addressed in the analysis of the first cycle. Data generated in answer to these six questions are discussed in the next section.

5.3.5 Questions guiding the research and analysis

Analysis of the second cycle addressed each of the research sub-questions individually. At the conclusion of the second cycle, the participants unanimously agreed, that lesson study is a valuable strategy for instructional improvement, therefore, analysis is based on the corresponding research questions.

5.3.5.1 What do the participants see as the most rewarding elements of the cycle?

During the second cycle of lesson study, participants found two elements of the process to be rewarding: One of them, the effect of observation on instruction, was consistent with their experience during the first cycle. Participants commented specifically on the effects that observation during this second cycle of lesson study had had on their own instruction and on the instruction of team members.

Glenelg was excited about the idea of inviting his peers to observe in his own classroom. He also witnessed the effect that collegial observation had on the team member who was also a new teacher in his school. After observing Nandi teach the revised lesson in front of her peers, he applauded her courage by saying,

> *I thought that she was great in doing that lesson… I think the knowledge of her observing the whole cycle…I think that was a learning school for*

> *her as well, I think she benefited from that and that she had the courage to do that.*

He could see that she benefited enough from her experience of observing two research lessons that she felt comfortable trying new instructional strategies in front of her colleagues.

Mark, the teacher of the research lesson for this cycle, used the peer observation as a catalyst for improving instruction during the lesson. He was more conscientious about the questioning strategies and instructional techniques that he was planning to use. However, when reflecting on the experience of having his colleagues observe his teaching and the personal anxiety that can be generated thereby, he notes,

> *they weren't watching me, did I do something wrong, did I say the assignment in the wrong way or did I jump from something – there was no pressure on me. I know they were observing the children, the students and the lesson itself.*

Mark's reflections about being observed by his peers are consistent with the experience of other participants in the process of lesson study. As discussed in Chapter 2, Section 2.2.3, the teachers of the research lessons in other lesson study groups have discovered that the observers concentrated on evaluating the collaboratively designed lesson rather than critiquing their performance as a teacher.

A second element of the process that participants found valuable during the second cycle was the inclusion of a knowledgeable other. They did not experience this during the first cycle. Because they felt comfortable enough with the process of lesson study after going through the first cycle, they wanted to add to their experience by inviting a knowledgeable other to observe the research lesson and contribute to the post-lesson discussion. The goal the team had selected to focus the research lesson on was to develop "learners who read with attention and understanding." The team, therefore, invited the school librarian to act as the knowledgeable other.

All of the participants agreed that it was a positive experience in some way. They commented on the value of having someone new participate in the process. Mark, however, was the only one who offered a clear example of the contribution that Sally made to the revision of the research lesson:

It was very interesting to hear her opinions also, her comments….I think she said that there was no relevancy for her between the introduction and the word problems.

Even though Mark was the only member who commented on Sally's input, the team did revise the research lesson based on her observations. Participants did make several recommendations for involvement of a knowledgeable other in future cycles. These included asking the senior math person to participate, expanding the opportunity to all teachers in the school, and including the knowledgeable other in discussion sessions earlier in the process.

At the end of the second cycle, participants indicated they still found value in observing each other and in being observed. They also discovered some value in including a knowledgeable other as part of the process.

5.3.5.2 How do participants measure improvement in instruction?

During the first cycle of lesson study, participants initiated the teaching strategy of giving instructions only one time. That strategy was employed as a tool to move learners closer to the goal of becoming better listeners. Participants continued to use this strategy in their classrooms during the second cycle of lesson study. Glenelg and Jakes specifically stated that the continued use of this strategy had resulted in improvement in the listening skills and behavior of their learners. They shared that it had become a natural part of their instructional practice.

Although all of the participants were still focusing on the strategy they learned during the first cycle, three of them did revise the way they gave instructions as a result of their experience in the second cycle. Two of the three were teachers of the research lessons. Mark learned, during the post-lesson discussion, that it may be more effective to give instructions one at a time. He, therefore, began incorporating that strategy into his instruction. He commented that he tries to give instructions,

one at a time. Sometimes you can give them two if its very easy to do.

Nandi, the teacher of the revised lesson, decided that it was acceptable to explain instructions two times because of the age of her learners. She also posted the instructions

on the board. This idea came as a result of the discussion after the research lesson that Mark had taught. The third teacher who changed the way she gave instructions was Normi. After observing the research lesson and revised lesson, she indicated that she was employing the instructional strategy she observed during the revised lesson taught by Nandi. The reason Normi gave was,

> *Nandi's lesson was ... more like mine. In grade four I cannot give many instructions at the first time. So it was better to give one or two instructions and to repeat it once.*

The observation focus, for both the research and revised lesson, was centered on how learners listened to and followed instructions. During the research lesson, all observers recorded input about how the learners responded to instructions. This input included observations about what learners did if they were not following instructions. Further clarity to learner's responses was provided by the knowledgeable other during the post-lesson discussion. Glenelg summed up the value that the group perceived as a result of this strategy when he stated,

> *I am cutting down on time. I think more of the group listen from the first time because I expect them to listen from the first time .... It works, yes, I think it works.*

Although this strategy was introduced during the first cycle, participants in this study still measured improvement in instruction by the way they gave instructions in the classroom. They each continued to expect their learners to listen to instructions when given the first time. Three of the participants also revised the strategy by posting the instructions on the board. They believed that it saved time and also moved the learners closer to the goal of becoming better listeners.

5.3.5.3 What do participants see as reasons for their improvement?

The instructional strategy that all of the participants continued to employ during this second cycle was that of giving instructions once. At this stage of the research, a reason why this strategy was impacting positively on instruction was that the participants were becoming more comfortable with incorporating it as part of the classroom routine.

Another reason that participants pointed out as being beneficial was the inclusion of a revised lesson in this cycle. It allowed them to refine the strategy of giving instructions one time. As a result of the post-lesson discussion, the group decided to limit the number of instructions given at one time and to also post them on the blackboard. They hoped that by doing that, it would be easier for the learners to understand the instructions the first time. They were then able to observe the revision to see if it made a difference by the way that learners responded to their instructions. In the ensuing post-lesson discussion it was decided that posting the instructions did make it easier for learners to understand and respond positively the first time round.

Four of the six team members participated in the revised lesson. They all agreed that the planning, teaching, and discussion of a revised lesson provided a catalyst for improvement in instruction. This is consistent with the findings of Chokshi and Fernandez (2004) and Steward and Brendefur (2008), in that teachers who participate in a full cycle of lesson study, including the teaching and observation of the revised lesson, find the experience rewarding.

5.3.5.4 What effect did collaboration have on the improvement of instruction?

The type of collaboration experienced in the lesson study process continued to provide impetus for instructional improvement during the second cycle. During the second phase, participants again focused on specific teaching strategies intended to move learners closer to the goal of listening properly to the task and reading with understanding.

During the third phase of this cycle, Jakes, the teacher of the research lesson in cycle one, was able to assume the role of observer for both lessons taught during cycle two. He commented about the value he found, not only in observing others teach at a different grade level, but also in collaborative discussion between grade levels:

> *I'm only teaching mathematics and geography in Grades six and seven. So it was nice for me to be part of a Grade five lesson … if we can sit and be observers in the lesson, I think we can learn from each other.*

Much of the collaborative value, as far as effect on classroom instruction is concerned, comes from the discussion held after the research lesson. This fourth phase in the cycle can be particularly helpful for the teacher of the lesson. It is a time when he can reflect

personally on the success of the lesson that was developed collaboratively. It is also the time when he can receive input from the observers about learner's responses to instruction.

Mark, the teacher of the research lesson, was looking forward to the post-lesson discussion for two reasons: He knew that while he was teaching, he would be unable to gauge learner responses to his instructions. He was hoping that the team's observation would shed light on that. He also welcomed critical analysis of the strategies he used to give instructions to the learners. He was not disappointed with the discussion that addressed both of those concerns. He did admit that he, at first, felt a bit attacked by the rest of the team but he added,

> *It also (teaches) me to take critique from other people but as we go on with this discussion I let go of that fear that they were attacking me… It was an experiment for me and for our lesson, so then it faded away, that attacking atmosphere.*

As a result of this discussion session, the participants revised or refined the strategy of giving instructions once to also limiting the number of instructions you give at any one time. By observing and noting the confusion of the learners, the team concluded that if you want learners to understand instructions the first time, those instructions need to be clear and concise. Rather than give three instructions at the same time, as Mark did, it may be more effective to give them one at a time.

The post-lesson discussion in this second cycle contained an element of lesson study not experienced during the first cycle. A knowledgeable other was invited to observe the research lesson and comment on the themes developed by the participants during the post-lesson discussion. Sally, the school librarian, was asked to fill this role because of her background in relation to the goal of reading with understanding. She was briefed prior to the research lesson about her role and given an observation focus. During the post-lesson discussion she was asked to comment on the themes that the rest of the planning team found emerging from their observations. The team had already discussed the learner's responses to hearing multiple instructions given at once. They had also questioned the length of the introduction to the math problems. That was a deviation

from the lesson plan. Sally added her own observations and suggestions as knowledgeable other and final commentator.

> *For [three of the learners] at the back and for me I could actually not understand what the lesson was about. For me the introduction was not in line with the rest – to me it's about the lesson and problem solving. I could not place the two together… Simplify instructions given at one time. Perhaps write them down so learners can see them.*

In response to her comments and the input from other team members, the participants revised the lesson plan by reducing the introduction time and changing the way instructions were to be given. Instead of giving instructions all at once, the lesson was revised to give instructions one at a time and also to post them on the board at the front of the room.

The collaboration that participants experienced in this cycle continued to focus on learners' reactions to instructions given by the teacher. Mark, Nandi, and Normi each indicated that they had changed instruction as a result of that collaboration. The value Jakes found in this type of collaboration was the interaction among teachers of different grade levels.

5.3.5.5 Is lesson study a model they would like to implement in their own school and, perhaps, throughout their district?

Although, at the end of this cycle, participants were not asked about implementing lesson study throughout their school or district, they were asked if they thought it would be beneficial to invite other observers to the research lesson and discussion sessions. They all agreed that participation by members outside the planning team could only be beneficial. Glenelg felt that involvement in lesson study would,

> *benefit every teacher, everyone that is part of this lesson study and observing. We all can benefit from that.*

Jakes and Mark thought that participation in lesson study would be beneficial to the Foundation Phase teachers. Mark specifically stated that the teachers of the young children could benefit by observing the learners' response when instructions are not only given orally but also presented visually. He was also enthusiastic about including

parental involvement in future lesson study cycles. He thought that parents could learn a lot about the struggles their children face if they had the opportunity to observe them in the classroom. At the end of the second cycle, the participants were still enthusiastic about sharing lesson study with people beyond the study group.

At the conclusion of the second cycle of lesson study, Glenelg mentioned another way that lesson study could be beneficial to the whole faculty at his school. At the time of the interviews, his school was busy conducting teacher evaluations. IQMS, the system used for evaluation, was in its third year of implementation. Glenelg described IQMS as a

> *quality assurance where the teacher must have a peer helping him or her and a senior person. There are three. Two listen to a lesson or help a teacher develop in certain ways. So one teacher has two in the peer group and a senior person to help him or her in the whole development of the teacher herself.*

Glenelg was excited about the possibility of a connection between the process of lesson study, specifically peer observation, and the requirements for IQMS. When asked about any final comments at the conclusion of the second cycle, he responded ,

> *I think that this is a great process. Surely I think we must go on with it. I think we all benefit from that and it's part of our IQMS. It makes it so easy for everyone. We have to do that ourselves, and I think that this is a great tool to help ourselves. It was great for me and I think for the other teachers as well.*

5.3.5.6 What obstacles would need to be overcome?

Participants were not specifically asked during the interviews about obstacles to continuing lesson study. At the beginning of this study, they had each agreed to participate in two cycles. The end of this cycle, then, marked a turning point in the nature of this study. My own interest had evolved into lengthening the research to three additional cycles.

With that in mind, I asked the participants what their interest would be in continuing through subsequent cycles of lesson study. I believed that asking that question would reveal any hidden obstacles. When asked if lesson study was a process they would like to continue using, each of the participants responded that they would. I then asked if they

would be willing to commit to participate in a third, fourth, and fifth cycle of lesson study. Although all agreed to remain a part of the team for a fourth and fifth cycle, two of the participants asked to be excused from the third. The obstacle they considered too great to allow them to continue in a third cycle, which would start within a few weeks, was the number of learning areas they were currently required to teach. Even though Nandi and Normi indicated they would rather not participate in a third cycle, they were both enthusiastic about being involved in a fourth and fifth cycle, tentatively scheduled for the 2008 school year.

Although the number of learning areas was the only obstacle mentioned by participants, I was also concerned that none of the participants were in attendance at all of the planning sessions during the second cycle. None of them commented about their attendance. Nor was there any mention of time being an obstacle during this cycle. All planning sessions during the second cycle were held after school. None of these sessions was attended by all of the members. The obstacle to attendance was the participants' involvement in after-school activities. Details relating to attendance at the scheduled meetings and the time spent in those meetings can be found in Table 5.6.

Although Table 5.6 indicates that the participants began this cycle during phase two, the first step in the lesson study cycle, that of choosing the goal, was not overlooked. The participants had previously decided to keep the same goal as developed at the beginning of the first cycle as they progressed through each cycle in the study. When the planning team met for their first session in the second cycle, they briefly reviewed the goal briefly to determine whether or not it needed revision based on their experiences in the first cycle. They all agreed that the specified goal continued to suit their needs. Therefore, they started their planning for the research lesson with step two of the process.

The other element of the cycle that appears to be missing from Table 5.6 is the time allotted for the revision of the research lesson prior to re-teaching it. As previously stated, most of the work for that was done by the teacher independently of the planning team. I did meet with her for 30 minutes but did not include that time in the table. The ideas that she used to revise the lesson came as a result of the themes brought out in the post lesson discussion at the end of the research lesson. She then wrote a revised description of the study lesson (Appendix M) on her own with some input from me.

Table 5.6: Lesson study group meetings second cycle

Date	Time	Minutes	Activity	Number of participants present out of 6
April 25, 2007	14:00 – 16:00	120	*Step 2 in cycle* *DSLP (IB – IIID)	3 during first hour 4 for second hour
May 7, 2007	14:40 – 16:30	110	*Step 2 in cycle* DSLP (IIID) Observation focus roles	5
May 14, 2007	14:30 – 15:30	60	*Step 2 in cycle* DSLP (IIID – F) Obs. guidelines and checklist, Obs. focus, Discussion session roles	3 during first half, 4 during last half.
May 21, 2007	07:30 – 08:30	60	*Step 3 in cycle* Observation of research lesson	6 team members 1 knowledgeable other
May 21, 2007	14:30 – 15:30	60	*Step 4 in cycle* Discussion session	5 team members 1 knowledgeable other
Total time through discussion session in step 4		6 hrs, 50 min.		
June 4, 2007	07:45 – 8:30	45	*Alternate step 4 in cycle* Teaching and observation of revised lesson	4 team members
June 4, 2007	14:30 – 15:30	60	Discussion session after revised lesson	4 team members
Total time of alternate step 4		1 hr, 45 min.		
Total time for cycle 2		**8 hrs, 35 min.**		

*Description of Study Lesson Plan (Appendix L)

Glenelg, Jakes, and Normi were present at the beginning of the first two-hour planning session. Jakes joined during the second hour. All team members, with the exception of Jakes, were present at the second session. Mark, Nandi, and Normi were present at the beginning of the third planning session. Jakes joined about half way through the session. All participants and a knowledgeable other were present during the research lesson. Jakes was the only one absent from the post-lesson discussion. Members present for the observation of the revised lesson were Normi, Glenelg, and Jakes. Nandi taught the lesson. Those same members were at the post-lesson discussion.

At the end of the first cycle of lesson study, all of the participants indicated that time was the biggest obstacle to continuing with the process. Perhaps the participants did not mention time as an obstacle during the second cycle because, individually, they did not invest as much time. However, the total amount of time spent in planning for this cycle took only five minutes less than in the first cycle.

5.3.5.7 Summary of questions guiding the research

With the analysis of the preceding sub-questions, this study sought to determine the extent to which teachers would experience the second cycle of lesson study as a viable strategy to reduce isolation and facilitate meaningful collaboration in an effort to improve classroom instruction. Although participants were initially approached about involvement in two cycles of lesson study, they were asked,at the conclusion of this cycle about their willingness to proceed through additional cycles. Two of the participants expressed the need to step out of the planning team for the third cycle. All of the participants, however, expressed the desire to be included in a fourth and fifth cycle of lesson study. It can, therefore, be deduced that their experience during the second cycle was positive.

Participants continued to find the observation of the research lesson to be a particularly valuable element of the process of lesson study. Another element they found useful, one unique to their experience in the second cycle, was the inclusion of a knowledgeable other. Analysis of both of these elements is discussed in Section 5.3.5.1. All of the participants continued to implement the instructional strategy of giving instructions once as employed during the first cycle. Three of them revised the way they gave instructions as a result of their experiences in the second cycle. Their instructional improvements are discussed in Sections 5.3.5.2 and 5.3.5.3.

The participants continued to experience meaningful collaboration during the second cycle. Specifically discussed in Section 5.3.5.4 were the collaboration between grade levels and the value of the post-lesson discussion with the inclusion of a knowledgeable other.

The only obstacle mentioned at the conclusion of this cycle was that some of the participants were required to teach multiple learning areas. This obstacle was the reason

that two of the participants gave for asking to be excused from involvement in a third cycle. A discussion of this obstacle is included in section 5.3.5.6. However, as discussed in Section 5.3.5.5, the rest of the participants were already talking about inviting additional members to become involved in the study.

5.3.6 Sustainability and integrity

Data generated during the second cycle of lesson study provided evidence of sustainability and integrity based on the criteria stated in section 5.1.3. It also highlighted areas where sustainability may become marginalized if not addressed. If participants made changes in instruction as a result of lesson study and those changes have become part of their routine classroom practice, there is at least one small step toward sustainability. Each of the participants in the study indicated that the practice of giving instructions only once, initiated during the first cycle, had become part of their classroom routine. They all believed that by incorporating that practice, the learners were becoming better listeners, thereby moving closer to the specified goal. Jake's reflection about giving instructions once was indicative of the experience of the rest of the participants. He stated,

> *I'm still doing some of the strategies in class like giving the instructions once and the pupils have to listen so that's very positive in my classroom.*

Each of the components for the sustainability suggested by Perry and Lewis (2003) was addressed in this second cycle of lesson study. These components will now be discussed.

5.3.6.1 Component 1: A lesson study cycle that is balanced, coherent and responsive to needs

Although this cycle did include all of the elements found to be essential to maintain balance, some of them may not have been addressed as thoroughly as in the first cycle. The first element to be addressed is how well defined the goal was during this cycle. Participants used the goal established during the first cycle to guide the planning and observation of the research lesson and the revised lesson. The part of the goal they focused on during this cycle was to, "develop learners who read with attention and understanding." My role during this cycle allowed me to offer suggestions during any of the phases of the cycle. When participants were developing the description of the study lesson, I made suggestions on specific strategies to focus on for observation of the goal.

The second element essential to balance is to determine if the lesson was well defined in terms of revealing learners' thinking. Both the research lesson (Appendix L) and the revised lesson (Appendix M) were designed to reveal learners' behaviors and performance in relation to the goal. My concern during the designing of the research lesson was that none of the planning sessions were attended by all of the members. The first two-hour planning session began with three of the six participants in attendance. A fourth member arrived during the second hour. The teacher of the research lesson had begun the outline for the description of the study lesson and had given it to another team member to bring to the meeting. The teacher, himself, was unable to attend because of his involvement in after-school activities. The second two-hour planning session was attended by five of the six participants, including the teacher. The last one-hour session began with three team members. A fourth arrived about half way through the meeting. Although ideas for the revision of the research lesson were initiated during the post-lesson discussion, the actual planning of the revisions within the study lesson was done outside the lesson study team. Because the teacher of the revised lesson needed to present the material to her learners within a limited time frame, and because it seemed impossible for team members to meet together within that time to collaborate on the writing of the revised lesson, I met with the teacher to help her make the necessary changes.

A third element to consider in achieving balance is the thorough collection of data from various viewpoints. Data generated during this cycle were collected from various viewpoints and through a variety of documents. However, some of the documents were not as thorough as those generated during the first cycle. Research lesson observation forms were submitted at the end of the research lesson by each of the observing participants. However, two of the participants filled in their observation focus only just before the lesson began. These were the same two participants who had been absent from the last planning session. Although each of the forms had a noted focus related to the goal of the lesson, few contained a summary of the data generated in answer to the focus question. Most of the forms included just the raw data in the space allotted for a summary. There were no research lesson observation forms submitted at the conclusion of the revised lesson, although I did see the participants using them as they observed the

teaching of the lesson. The revised lesson was observed by three of the team members and there was no inclusion of a knowledgeable other.

The final element to be addressed in achieving balance is the success with which discussion was able to pinpoint the implications and limitations of the data. The results of the data generated were discussed during the team meetings held after the observation of each lesson. Implications drawn from the observation of the research lesson led to the subsequent revisions: The team decided to shorten or even exclude the introduction because it had little relevance to the math problems. They also decided to give instructions one at a time and, possibly, display them in written format. The discussion following the revised lesson brought participants to the conclusion that if their focus of observation was to look at the learners' performance relative to "reading with attention and understanding," they may want to choose simpler math problems. They discovered that, because of the nature of the math problems in the lesson, learners may not have been able to solve them even if they did find a reading strategy that worked.

To address the concerns I had with the cycle retaining balance, I met with participants prior to the commencement of the third cycle to review the process through the first two cycles and retrain members in the use of the tool to develop the study lesson. Four of the six original team members had agreed to be involved in a third lesson study cycle. Three of them attended the training meeting. The principal had invited the math department head for the Foundation Phase to participate in the third cycle as a new team member. She was also in attendance at the training meeting. During the meeting, we reviewed the use of the tools guiding the process. We also compared the three study lesson plans produced by the team to the example that I had initially developed. We focused on areas that needed to be addressed. I developed a list of points to remember in an effort to address each of my concerns with the maintenance of balance (Appendix P).

Even though the group was enthusiastic and seemed receptive to the ideas presented, I left that meeting with the impression that they would refer to the planning tools only as a reference, rather than a guide. That is one of the reasons why I decided to have all of the tools and documents they would need translated into Afrikaans before the beginning of the third cycle. I wanted to remove any barriers to their usefulness for the process.

There was evidence of coherence in the second cycle of lesson study. The participants again used the adopted NCS as a guide for developing both the research and the revised lessons. They targeted Learning Outcome 1: Numbers, Operations, and Relationships for a fifth-grade lesson and based their planning on the stated goals and assessment standards for that outcome (Appendices L & M).

The second cycle of lesson study was successful in responding to the local needs of the participants and their learners. The participants continued to use the goal collaboratively chosen during the first cycle. They related the research lesson and the revised lesson to that goal. The specific element of the goal imbedded in both lessons was to, "develop learners who read with attention and understanding." The participants also continued to focus on the learners' listening skills.

To ensure continued success in responding to the needs of the participants, each of the six obstacles identified during the first cycle and addressed prior to the commencement of the second cycle continued to receive attention. Table 5.7 shows the response during the second cycle to the manner in which each obstacle was addressed prior to its commencement. (A discussion of Table 5.7 is included with the discussion of Table 5.8.)

Table 5.7: Response to treatment of obstacles to sustainability at conclusion of Cycle 2

Obstacles identified during Cycle 1	**How obstacles were addressed prior to Cycle 2**	**Response to treatment of obstacles at end of Cycle 2**
1. Amount of time spent	1. Participants anticipate the process moving faster.	1. Time spent was 5 minutes shorter in Cycle 2
2. Scheduled meeting time	2. Changed meeting time	2. Participants happy with meeting after school
3. Number of learning areas taught	3. Cannot be addressed within the scope of this research	3. Remains unaddressed
4. Language barrier	4. Conduct meetings in Afrikaans	4. Participants more comfortable communicating in Afrikaans
5. Incomplete understanding of lesson study process	5. Review process and tools, keep same team members	5. Participants still learning process of lesson study
6. Learners out of normal setting for research lesson	6. Discussed keeping students in classroom	6. Learners out of normal classroom setting for research lesson, but kept in normal classroom for revised lesson

Evidence for sustainability rests, in part, with successfully overcoming the obstacles identified by the participants in the research. A seventh obstacle, not identified in the first cycle, became apparent during the second cycle. Each of the seven obstacles were addressed in anticipation of the third cycle, the results of which can be seen in Table 5.8. Further discussion about how this cycle was responsive to the needs of the participants follows the table.

Table 5.8: Obstacles to sustainability prior to Cycle 3

Obstacles identified during Cycle 1	**How obstacles were addressed prior to Cycle 3**
1. Amount of time spent	1. Participants anticipate the process moving faster
2. Scheduled meeting time	2. Meeting time will be the same for Cycle 3
3. Number of learning areas taught	3. Cannot be addressed in the scope of this research
4. Language barrier	4. All documents and tools translated into Afrikaans
5. Incomplete understanding of lesson study process	5. Two review sessions before commencement of Cycle 3
6. Learners out of normal setting for research lesson	6. Research lesson will be taught in regular classroom
Obstacles identified during Cycle 2	
7. After-school activities	7. Cannot be addressed in the scope of this research

There were two areas taken into consideration in addressing the obstacles identified. The first was the response by participants to the manner in which each of the obstacles identified during the first cycle was addressed prior to the commencement of the second cycle (Table 5.7). The second area taken into consideration was the continued treatment of obstacles previously identified and any new obstacles arising during the second cycle (Table 5.8). Both of these areas are discussed with reference to the obstacle being addressed.

1. *Amount of time spent*

Although fewer planning meetings were held during the second cycle, the actual time spent in the second phase of the cycle was only five minutes less than in the first cycle. Participants had anticipated that the process would move faster because of their familiarity with it. It may have felt like less time was spent in planning for two reasons: First, individually, less time was spent because no single participant attended all of the planning sessions. The other reason may be that it took six weeks to work through three phases of lesson study during the first cycle, but only four weeks to get that far in the second cycle. Because it took less time, in terms of weeks, participants were able to include the optional part of the fourth phase in their experience. Although both cycles ran for six weeks each, participants were able to experience the entire fourth phase in the second cycle.

Even though this cycle ultimately took more time than the first, participants did not perceive it that way. There is the continued perception among the participants that each cycle will take less time as they become more familiar with the process. I also suggested, prior to the commencement of the third cycle, that the teacher of the research lesson come to the first meeting with the first part of the study lesson description already filled out.

2. *Scheduled meeting time*

Planning meetings during the second cycle were scheduled after school rather than during the first hour of the school day. There were two meetings that lasted for two hours and one that lasted one hour. By addressing this obstacle, participants felt their needs were met in two ways: Firstly, they were able to devote the time we had used on Monday mornings, during the first cycle, to collaborate with other colleagues. They also believed that it was more efficient for each of the meetings to be longer in duration, thereby saving the time of recapping at the beginning of each planning session. All team members agreed that the scheduled meeting time should remain the same for the third cycle.

3. *Number of learning areas*

This obstacle remained unaddressed during the second cycle. At the end of the cycle, participants were asked if they would be willing to continue through a third, fourth, and fifth cycle of lesson study. Two of the six participants expressed the desire to step out of the team for the third cycle scheduled to begin in July 2007. They also asked to be allowed to return for the fourth and fifth cycles tentatively scheduled for the 2008 school year. The only reason they gave for asking to be excused from the third cycle was the number of learning areas they were required to teach. The both felt concern about devoting this amount of time to one subject, math, when they had so many others to also prepare for.

4. *Language barrier*

Five out of the six participants indicated that being allowed to conduct planning sessions in Afrikaans not only sped up the process but also made it easier to participate freely in the discussions. To further remove this barrier and facilitate their effective use, I had all the research tools and documents translated into Afrikaans prior to the commencement of the third cycle.

5. *Incomplete understanding of the lesson study process*

All participants in the second cycle had been introduced to the process of lesson study through their experience with the first cycle. Although they all felt more comfortable with their knowledge of the process, they also expressed that at times they felt a bit lost. Two changes in this cycle may have contributed to that feeling: My role was less active and, since they were conversing in Afrikaans, and I was not able to sense the precise moments when the group would deviate from the lesson study process. My thought at the end of this cycle was that the team is attempting to hurry through the process. Part of the reason that I felt this way is that some of the research documents were either not filled out thoroughly or not collected. Another rationale for this perception is that the team did not plan the revised lesson together, nor did they include the knowledgeable other in any discussion prior to her observation of the research lesson. To help facilitate learning of the lesson study process, potential participants for the third cycle met for a one-hour review session prior to the initiation of that cycle.

6. *Learners out of normal setting for research lesson*

During the second cycle, the research lesson was again taught in the library. This was not the normal classroom setting for the learners. After discussion of the impact that it may have on the ability of the participants to observe true behaviors, the team decided to keep the setting for the revised lesson in the regular classroom. They agreed that by keeping the learners in their normal setting, the "observer" effect would be minimized. During post-lesson discussion, the team decided that future research lessons would be conducted in the regular classrooms if at all possible.

7. *After- school activities*

This is the only new obstacle identified at the end of the second cycle. Although none of the participants mentioned it, this was the reason why team members were absent from the planning sessions. After the first planning session where only four out of the six participants were present, I prepared a DVD of the video from that meeting for the absentees to view prior to the second meeting. Although certainly not as effective as actually being in attendance, it would at least allow the absent members to have the necessary background information to participate in the next planning session. I do not believe that either of the absentees viewed the video prior to the second planning session.

At the conclusion of the second cycle of lesson study, I had some concerns with regard to this first component of sustainability. Although I believe that it contained the necessary coherence and that it was responsive to the needs of participants, there were elements of balance that were not completely satisfied. The research lesson was well-defined and related to the goal but the data generating documents were incomplete. The lesson study planning tools were used as a reference rather than a guide. Since this was only the second cycle that any of the participants had any experience of, the use of the planning tools was an important guide to maintaining the integrity of the process. The other concern I had was that none of the participants were present at all of the planning meetings.

5.3.6.2 Component 2: Access to content and pedagogical knowledge

To satisfy the criteria for the second component, the lesson study cycle needs to include an outside specialist either in lesson study or in the content area. I assumed the role of lesson study specialist during the first cycle. During the second cycle, participants invited a knowledgeable other to observe the research lesson and contribute to the post-lesson discussion. Since the part of the goal receiving focus during the lesson was connected to reading with attention and understanding, the librarian, Sally, was asked to fill that role. Sally had not been in attendance at any of the discussion sessions. I did arrange that some background materials on lesson study, be given to her to read. I met with her individually five days prior to the research lesson. At that time she had not yet received the materials, so she had no background in lesson study. During our short meeting, I briefly explained the concept of lesson study, gave her a copy of the lesson plan, and the focus questions for the other observers in the group. We talked specifically about the reading strategies the group was focusing on and what her role would be while observing and during the post-lesson discussion.

Although Sally was somewhat confused about the process and what her precise role was, she was able to make a contribution during the post-lesson discussion that was used in the revised lesson plan. During post-cycle interviews, participants indicated that it would be a good idea to involve any knowledgeable other earlier in the process. They did not feel that it was necessary to bring them in at the beginning, but involvement should at least occur during the discussion session prior to the teaching of the research lesson. When

asked if he thought it was necessary to involve outside observers in discussion sessions prior to the research lesson, Glenelg responded by saying,

> *No, I don't think it's necessary for all the sessions…the last session before the observing, I think that would benefit, that would help.*

Participants also thought it would be helpful to have a math teacher act as knowledgeable other so that their content knowledge could be improved. To address this, the principal decided to invite the head of the math department for the Foundation Phase to participate as knowledgeable other throughout all the phases of the third cycle.

5.3.6.3 Component 3: Personal and collegial qualities that support learning

The criteria for this third component are met when teachers have a desire to improve, are open to new ideas, exhibit the capacity to work together, and have a sense of efficacy. The participants in this study continued to exhibit all the criteria related to this component. They were enthusiastic at planning meetings and supportive of each other as colleagues and teachers. During the post-lesson discussions, the teachers of the research and revised lessons felt the support of the team as a whole. Even though the teacher of the research lesson, Mark, indicated that at first he was feeling somewhat "attacked", the feeling soon abated as the team referred to the lesson taught as "ours." Rather than becoming defensive, he was able to stay engaged in the discussion until he felt comfortable with it. I believe this attitude is a result of the collegiality that existed in this group prior to the beginning of this research. Involvement in this study seems to have strengthened their collegial bond. Further evidence that participants were not coerced by the administrator into being involved in this study was clear during the post-cycle interviews. The principal indicated to me that the decision was absolutely up to each individual whether or not to continue through a third cycle. Both of the team members, who chose not to remain active, declined participation without any negative repercussions.

If the sustainability of lesson study is dependent on the thorough implementation of each of these three components, I had some concerns at the conclusion of the second cycle. In order for the third cycle to be more balanced, I thought it would be important for all of the team members to be present for each planning session. It was also important that the planning tools were used accurately and that data-generating documents be filled out by

the participants and collected at the end of the cycle. Although the second component did include access to content knowledge through the inclusion of a reading specialist, I thought it would be more effective to invite any such participant to join the team before the teaching of the research lesson. I had no concerns with relation to the third component. Concerns over the first two components were addressed prior to the commencement of the third cycle.

5.3.7 Summary of second cycle

At the conclusion of the second cycle of lesson study, all of the participants expressed a desire to continue on at some level. This was particularly encouraging because they initially committed to involvement through two cycles only. Although two of the team members asked to be excused from the third cycle, all six participants expressed the desire to stay involved through a fourth and fifth cycle of lesson study.

The elements of the process that participants found particularly rewarding in this second cycle were consistent with their experience in the first cycle. They found value in collaborating with teachers of different grade levels. They also continued to place value on the opportunity to observe the research lesson and discuss the data generated therein. In the second cycle they also discovered the value of including a knowledgeable other as an observer during the research lesson and final commentator during the post-lesson discussion. Her insight was used to revise the lesson for re-teaching. As a result of the revision, three of the participants began posting instructions visually as well as giving them orally. All of the participants continued to use the strategy initiated during the first cycle of expecting learners to listen to instructions a first or second time. They felt that by doing so, the learners were moving closer to the goal of becoming better listeners. They also believed that classroom discipline had improved as a result of using this strategy.

The obstacles identified and addressed during the first cycle continued to receive attention during the second cycle of lesson study. These obstacles are discussed in Section 5.3.6.1 in the first component of sustainability. An additional obstacle, discovered during the second cycle, was the participants' involvement in after-school activities. This obstacle was also addressed and discussed in that same section.

At the end of the second cycle, I did have some concerns about the sustainability of lesson study through additional cycles. My reflections about these concerns are discussed in Chapter 4, Section 4.5.3.4. They are also discussed in Section 5.3.6.3 of this chapter. To encourage sustainability, I had all the lesson study documents translated into Afrikaans to facilitate their use. I also met twice with the participants to review the process and the correct use of the tools prior to the commencement of the third cycle.

5.4 CYCLE THREE

5.4.1 Context

The third lesson study cycle that team members participated in began on July 27, 2007. The group dynamics were somewhat different in this cycle. The planning stage in this third action research spiral was greatly influenced by self-reflection and the participants' reflections at the end of the second spiral. Two of the original participants chose to participate only in the observation and post-lesson discussion. The other four original participants formed the lesson study team for this cycle. Two review sessions were held between the second and third cycles. A teacher from the Foundation Phase attended both of those sessions in anticipation of participating in the third cycle. A detailed description of these review sessions can be found in Chapter 4, Section 4.5.4.2. The teacher from the Foundation Phase was not able to participate because of scheduling conflicts during the lesson planning time. We agreed to have the four original participants who attended the review sessions act as the planning team for the third cycle. The intent was to invite the other two original participants to the planning session prior to the teaching of the research lesson so that they could be involved in the observation and post-lesson discussion.

The first meeting began with Jakes sharing what he had accomplished toward the description of the study lesson. Within ten minutes of the beginning of the meeting, Jakes indicated to me that they were done and could finish up at the next meeting. He quickly recapped the discussion and asked if I had any feedback to offer the group. Since they had not yet started to outline the process of the study lesson, I suggested that the three members present take some time to specifically write down the parts of the lesson they wanted to use as a focus for observation so that the ideas were a combined effort of the group. The discussion proceeded for another 30 minutes. I did not see the group refer either to the points to remember or to the planning tool. None of the members recorded their time in the time logs.

The second planning meeting began without any input from me. Jakes passed out the updated version of the description and explained what had occurred at the first meeting to Glenelg, since he had not been in attendance. The group discussed the work that the learners would be doing, what the anticipated questions from them would be, and possible responses by the teacher to those questions. Mark was the only participant who had his lesson study notebook with him. At no time did anyone refer to the planning tool or the points to remember. I did not see any of the participants record their time in the logs. My thoughts at this point in the series of cycles was that participants wanted to keep the focus on giving instructions once – the teaching strategy initiated during the first cycle. Rather than use the planning tool to generate new ideas for strategies, they were referring to the lesson plans already developed during the previous cycles. The group seemed to want to get through the planning phase as quickly as possible. The actual integrity of following the exact process based on the planning tool seemed to be of lesser importance to them. It appears that the consistent use of the planning tool needs to be closely monitored if participants are going to stay true to the process.

The third cycle was conducted over a period of less than three weeks, ending on August 13, 2007. It took less than half the time of the previous two cycles. There are several possible explanations for this: One is that the participants were not only able to communicate verbally in Afrikaans but all the documents that they were using were also written in Afrikaans (Appendices O1, O2, O3, & O4). Another reason is that all of the participants were quite familiar with how the cycle ran since this was their third time experiencing the process. A third reason it may have progressed more quickly is that I interacted less during the discussion sessions. I did not interrupt during the planning to ask questions or to seek regular clarification. Therefore, the participants did not need to summarize and translate their conversations into English to share them with me. A final explanation might be that the teacher of this research lesson did much of the actual lesson planning or description of the study lesson independently of the group. There was also no revised lesson taught as part of this cycle.

5.4.2 Role of the researcher

Consistent with an action research design, my role changed during the third cycle of lesson study. Although I filled an active role as facilitator to the process of lesson study between the second and third cycles, once the third cycle began on July 27, 2007, my role

became that of *observer as participant*. According to Mertler (2009:80), in this role, "the teacher-researcher remains primarily an observer but has some level of interaction with the participants." The participants and I had agreed that my role during the third cycle of lesson study would be to observe and offer suggestions if asked.

In the first discussion session, I responded to Jakes' request for input ten minutes into the meeting. At that point, he related in English what the discussion had included thus far and I suggested that the planning team specifically outline the place in the study lesson where they wanted to focus observation. It was a bit difficult to take a step back and act as observer to the process. After playing a very active role in the first cycle and a somewhat active role in the second cycle, maintaining the less interactive role as observer was a challenge. Exacerbating that challenge was the fact that I understood little of what the group was saying as they were discussing the planning of the study lesson.

During the second meeting on July 30, 2007, I did not engage in the discussion at all. The planning team began with no input from me and conducted the meeting independently of me. My only role was to observe and video-record the session. I did have concerns about a couple of items but did not voice them because of the role I assumed during this cycle. One concern was that the group maintains the integrity of the process. Neither the planning tool nor the points to remember was referenced at any time during the session. I had also not heard mention of including either of the former participants in the upcoming planning session prior to the teaching of the research lesson.

The last planning session before the teaching of the research lesson was held on August 6, 2007. I had little interaction with the participants during the discussion. My concern while observing was that steps in the process were being overlooked. Jakes did refer to the points to remember during this meeting, and the group discussed each point. However, I saw no evidence that some of the items were being documented. I had seen no time logs being filled out at any of the sessions, the final two sections of the description of the study lesson remained unfinished at the end of this last discussion, and none of the observation forms had been filled out in anticipation of the upcoming research lesson. When Jakes asked for input, I responded with questioning about the observation forms, and he indicated to me that it was taken care of.

During both the teaching of the research lesson and the post-lesson discussion, my role was that of observer and video-recorder. At the conclusion of the post-lesson discussion, we talked briefly about what to focus on as they moved into their next cycle. I encouraged them to stay focused on the goal they had chosen, with the emphasis on finding instructional strategies that would help move the learners closer to that goal. I also handed out surveys for each of them to complete. We went over the questions on the survey in case there were any misunderstandings. There did not seem to be any. The rationale for using surveys rather than interviews at the end of this cycle was the time factor. There was not enough time to conduct interviews before I was scheduled to fly back to the USA. The group agreed to have the surveys filled out by the following week so that I could collect them and take them home with me. They further agreed to correspond with me via email if I had further questions to ask based on their responses to the survey questions. I returned to the school the following week, where I was given the completed surveys and the completed observation focus forms, time logs, and the post-lesson discussion form.

5.4.3 Data generated

The data generated during the third cycle continued to support the idea that the process of lesson study was perceived by the participants to be a viable strategy for instructional improvement. All six participants responded favorably when asked, upon completion of the cycle, if lesson study is a process they would like to continue using. Data generation documents for this cycle included the description of the study lesson, observation forms, the post-lesson discussion form, participant's time logs, end of cycle surveys and my own journal entries. All discussion sessions and the research lesson were also video-recorded and downloaded onto DVDs.

5.4.4 Coding of the data

Of the documents used for possible generation of data, the only ones coded were the surveys and my journal entries. All other documents had been completed in Afrikaans. The description of the study lesson, observation focus forms, and post-lesson discussion form were not translated from Afrikaans into English. Since it is the process that I am interested in, I decided that it was unnecessary to have them translated into English to use for coding. The reason for this was that I did not feel it was necessary unless the results

of the surveys indicated something that would lead to me needing to use the information in those documents. Since my focus was on the process, it was not necessary to see exactly what they had written on those documents. It was obvious whether or not the participants had used the forms correctly, and that is all that was necessary for this particular study. The survey did ask questions pertaining to the process and sustainability of lesson study. Participants' entries in their time logs were compared to the corresponding entries in my journal in an effort to assess the accuracy of each entry. The video-recordings of the sessions were only used for clarification.

Upon my initial reading of all the surveys, I decided to approach the coding along the same lines as the first two cycles. Because each participant expressed a desire to continue with lesson study, I again approached the data analysis by answering the research questions applicable to the notion that lesson study is perceived as a valuable strategy for instructional improvement.

During the second reading, I coded some of the responses to survey questions, using the four categories that remained consistent from the first cycle through the second. The remainder of the responses were assigned categories applicable to sustainability. I then began to look at the assigned categories in relation to the six research questions and decided that, because of the very limited amount of data generated for analyses during this cycle, it was more effective to code directly to the research questions rather than categorizing first.

5.4.5 Questions guiding the research and analysis

Analysis of the third cycle of lesson study addressed each of the research sub-questions applicable to the notion that lesson study was perceived to be a viable strategy for instructional improvement. The rationale for this conclusion was that all of the participants indicated in the survey administered at the end of the cycle that they would like to continue with lesson study.

5.4.5.1 What do the participants see as the most rewarding elements of the cycle?

Two themes emerged in answer to this first question. One of the key components of lesson study is that it provides teachers with the opportunity to look at tasks or classroom instruction through the eyes or mind of the learner. By relating this component to the

goal selected by the participants, Mark stated that the reason he would like to continue with lesson study was that it allowed him to

> *learn about the learners' way of reading and understanding facts.*

He also indicated that, as a result of experiencing two previous cycles of lesson study, during this third cycle he was

> *more observant on the lesson goals…more observant on the teacher and learner's response.*

Another key component or objective of lesson study is to improve classroom instruction based on an overarching goal. The part of the goal that continued to receive focus was to develop learners who listen properly to the task and read with attention and understanding. When asked why he would like to continue using lesson study, Glenelg's comments were related to this goal:

> *It definitely improved skills and classroom situations. When we have motivated, disciplined learners, you have better listening skills, reading skills, understand the curriculum and better results.*

Participants continued to see the value of relating the lesson to a goal and then observing the response by the learners.

5.4.5.2 How do participants measure improvement in instruction?

During the third cycle, participants continued to measure improvements in instruction in terms of strategies developed during the first two cycles. When discussing the strategy initiated during the first cycle of giving instructions only once, thus moving learners closer to the goal of being attentive listeners, Lola indicated that she was still working to get the attention of all her learners, but felt like she was getting closer. Jakes believed that his classroom instruction had improved because he was feeling successful at

> *getting the attention of learners by only giving instructions once [resulting in] better discipline in class.*

Mark felt that he was continuing to improve on the instructional strategy initiated during the second cycle. He said that he had learned to be more patient with the different reading skills of his learners and was still conscientious about not giving too many tasks

at one time. By the end of the third cycle, the participants had been employing these instructional strategies for several months.

5.4.5.3 What do participants see as reasons for their improvement?

Although this question was not specifically addressed in the data generated during the third cycle, it is my perception that the continued focus on the strategies initiated prior to this cycle had facilitated their routine use in classroom instruction. All of the participants indicated that they had become more comfortable with the expectation for their learners to listen to instructions the first time.

5.4.5.4 What effect did collaboration have on the improvement of instruction?

The collaboration experienced by team members during the three cycles of lesson study went through something of an evolutionary process. Participants were specifically asked to reflect on the effects that lesson study had on their own feelings of isolation as they progressed through each cycle. Jakes shared that during the first cycle the group was a little uneasy because

> *working in a large group is not part of daily teaching practice.*

Glenelg also felt a little strange at first because none of the participants had done this kind of lesson planning before. He did think they were comfortable as a group and excited about being involved in the research. He thought the strangest part of collaboration during the first cycle was conversing in English in front of a video camera.

During the second cycle, the planning team felt more relaxed with each other. Glenelg stated,

> *It went better – it started to feel that we, as a group, belong together – that we were sharing ideas and opinions more freely.*

Part of the reason for this may be that they conducted planning sessions during the second cycle in Afrikaans rather than English.

As the planning team progressed into the third cycle, they continued to relax as a group and feel less isolated. Mark stated frankly that

> *teacher isolation was nowhere to be found.*

Glenelg added,

Teacher isolation in lesson planning and in the context of lesson study is something of the past now.

Although participants felt a bit awkward with the process initially, they grew more comfortable through each cycle together. At the end of the third cycle, team members agreed that the collaboration experienced in lesson study continued to have a positive effect on their classroom instruction. Normi shared the value she found through collaboration with colleagues during this process. She believed that

> *to be involved in each other's planning and teaching of the lesson is precious in terms of advice, ideas, handling of problems and organization of class.*

Although the teaching culture in South Africa continues to be one of isolation, as discussed in Chapter 3, Section 3.3.7, the experience of this group of participants deviated from the norm. As suggested by Stigler and Hiebert (1999) and discussed in Chapter 2, Section 2.2.3, lesson study is an approach that can be an agent of change in a culture of isolation.

5.4.5.5 Is lesson study a model they would like to implement in their own school and, perhaps, throughout their district?

Participants in the study all agreed that if lesson study were to continue to be implemented within their school, that it was important to keep the original team members involved. They demonstrated this desire by inviting the two participants not included in the planning phase to remain involved by observing the research lesson and then assuming the roles of facilitator and knowledgeable other during the post-lesson discussion. All participants felt that it was important to keep each other informed through the process. Glenelg stated,

> *The group is already comfortable with each other – they know the idea – they know the different roles within the concept.*

Jakes expanded on that idea by reasoning that keeping all members involved allows you to

> *have continuity throughout the whole process. If people know what to do it makes it much easier, also for the new members.*

When asked what they thought would be the best way to introduce new members to the lesson-planning team, all the participants said they should receive the initial training. Even though only three of the six members in this team had attended the training workshop, all of them felt it would be beneficial to new members. Jakes, one of the three who attended the training session, expressed the collective sentiment by stating that you must

> *first give them (new members) a total background of lesson study. Make them part of a whole planning session for the lesson. Make them feel part of the team. It's very important that everyone should attend all of the sessions.*

Glenelg was excited enough about the effects of lesson study on instructional improvement that he was already making a plan to gradually implement the process throughout the school. After this third cycle his plan was to

> *explain the lesson study idea to all the educators of the Foundation Phase (Grades 1-3) and then ... invite one or two to be part of the next cycle.*

Beyond that he saw the following vision for his school's involvement in the process of lesson study:

> *The whole school must be grouped in lesson study teams – at least four in a team. The school must set goals they want to achieve. All teams are at the same time busy with the planning phase, the research lesson and the post-lesson activities.*

Although there was no mention of initiating lesson study beyond their school, all the participants agreed that it would be beneficial to implement the process throughout their school.

5.4.5.6 What obstacles would need to be overcome?

The only obstacle that participants commented on during the third cycle was the number of learning areas they were required to teach. They thought it would be much easier to devote the required amount of time to lesson study if they were responsible for teaching only one learning area. All three female participants responded in much the same way as Lola when she stated that

one should only have one learning area to teach and no extra-mural activities… sport, etcetera.

Further discussion pertaining to this obstacle is included in Section 5.4.6 on sustainability.

5.4.5.7 Summary of questions guiding the research

Through analysis of the preceding sub-questions, this study sought to determine the extent to which teachers would experience the third cycle of lesson study as a viable strategy to reduce isolation and facilitate meaningful collaboration in an effort to make improvements in classroom instruction. Four out of the six original participants formed the lesson planning team. The other two participants observed the research lesson and participated in the post-lesson discussion by assuming the roles of moderator and knowledgeable other.

The participants continued to experience the opportunity to observe the research lesson as a catalyst for instructional improvement. They appreciated the ability to look at instruction through the eyes of the learner. Participants also continued to experience meaningful collaboration during the third cycle. The believed that it had been successful in bring them out of isolation and that it was making a positive impact on classroom instruction.

At the conclusion of the third cycle, the only obstacle mentioned to continuing the process was the number of learning areas that some of the participants are required to teach. Because of the learning-area requirements in a primary school, it is necessary for some teachers to be responsible for several learning areas. Even with the knowledge that this would not change, all of the participants were willing to continue their involvement with lesson study. In an effort to support that, sustainability was addressed during the third cycle.

5.4.6 Sustainability and integrity

Data generated during the third cycle of lesson study continued to provide evidence of sustainability. However, there were still obstacles that remained unaddressed. The four original participants who were members of the planning team during this cycle all

indicated that they had continued to use the strategies developed in the first lesson study cycle. As a result, the strategy of giving instructions once, thereby bringing learners closer to the goal of becoming better listeners, had become more firmly embedded in routine teaching practice. Each of the components for the sustainability was addressed during this third cycle.

5.4.6.1 Component 1: A lesson study cycle that is balanced, coherent and responsive to needs

Of the four criteria essential for achieving balance in a cycle of lesson study, only two were satisfied during the process of this third cycle. Participants continued to use the well-defined goal developed during the first cycle and they designed the research lesson to reveal the thinking of the learners.

The goal used to guide the development of the research lessons for the first two cycles also provided the basis for the research lesson in the third cycle. The specific focus continued to be developing the learners' skill to "listen attentively."

The research lesson for this cycle was also designed, as in the previous cycles, to allow observers to focus on learners' reactions to the instructions given by the teacher. Although this may not have revealed the learners' thinking about the instructions, their reactions were considered to be an indicator of whether or not they were moving closer to the goal of being attentive listeners.

The two criteria for balance that were not successfully achieved during this cycle were connected to the generation of data. Although the data were collected from various viewpoints, there was a lack of thoroughness and consistency in documenting. This may have had an effect on how efficient discussion was in drawing out the implications and limitations of the data.

The documents used to generate data during this cycle were somewhat different from those used in previous cycles. The lesson study forms were the same, although translated into Afrikaans. The biggest difference in data generation was the format used to assess the value that participants placed in their involvement in this cycle. There were no interviews conducted at the conclusion of the cycle. In the interest of time, and as a

precursor to the expectation for the fourth cycle, participants were rather asked to complete a survey in English (Appendix Q). This survey and the time logs were the only data generated in English. Afrikaans was used as the language for all other documents and discussion sessions. Although all of the requested documents were used, some of them were incomplete. There were also some inconsistencies in the time logs.

Much of the description of the study lesson was completed in isolation by the teacher of the research lesson. The planning team did collaborate on the specific areas in the lesson they would focus on for observation. Together, they looked at the questions the teacher would ask, the learners' responses to those questions, and the teacher's consequent reaction. The last section of the description, the evaluation, was not completed. This may be one of the more important elements of the description as it guides the evaluation of the lesson's success in bringing the learners closer to the goal. During the discussion session held prior to the teaching of the research lesson, Jakes stated,

> *I haven't completed it yet but it's not so important at this stage.*

The observation focus forms were completed and submitted by all participants. However, the focus questions were not written on the forms during any of the discussion sessions. During the observation, I was able to see one of the participant's forms as he was recording his observations. There was no focus question written on the form. The question may have been filled in after the observation was complete. The post-lesson discussion form was completed by the participant who assumed the role of facilitator for that meeting.

Each participant completed a time log. However, there were several inconsistencies when comparing individual records with the record I kept of each team session. The amount of time spent in planning sessions can be found in Table 5.9:

Table 5.9: Lesson study group meetings third cycle

Date	Time	Minutes	Activity	Number of participants present
June 21, 2007	13:30 – 14:30	60	Pre-cycle discussion	3 from original team, 1 new
July 23, 2007	13:45 – 14:30	45	Pre-cycle discussion	2 from original team, 1 new
July 27, 2007	13:15 – 13:55	40	*Step 2 in cycle* SLP description IIID	3 original members
July 30, 2007	07:45 – 08:30	45	SLP description IIID	4 original members
Aug. 6, 2007	07:45 – 08:15	30	SLP description IIID Observation focus	5 original team members
Aug. 13, 2007	07:35 – 08:15	40	*Step 3 in cycle* Observation of research lesson	6 original team members
Aug. 13, 2007	13:35 – 12:30	55	*Step 4 in cycle* Discussion session	6 original team members
Total time		**5 hrs., 15 min.**		

After logging the time for each of the discussion sessions, I compared the above table with the individual participants' logs. I found inconsistencies in the recording of the amount of time spent in each of the meetings. Table 5.10 outlines each participant's time-log entries. Also included is a column with my own time record. I have indicated with italics the places where there are inaccuracies. Empty cells indicate that the participant was not in attendance on the corresponding date. Following the table is a discussion of the inaccuracies.

Table 5.10: Participants' time log entries Cycle 3

Date	Researcher	Jakes	Glenelg	Mark	Lola	Nandi	Normi
7/23 pre-cycle discussion	45	*60*	*60*		*40*		
7/27 planning session	40	*no time recorded*		*90* *7/24 in log*	40		
7/30 planning session	45	*60*	*60*	*90* *7/31 in log*	*40*		
8/6 planning session	30	*60*	*60*		40	30	30
8/13 lesson	40	40	40	*30*	*30*	*no time recorded*	*no time recorded*
8/13 post-lesson discussion	55	*60*	*60*	*60*	*45*	*60*	*60*

On 7/27, three participants were in attendance at the meeting, but none of them recorded the time accurately. Lola underestimated it by only five minutes but Jakes and Glenelg overestimated the time by 15 minutes.

On 7/27, there were also three participants in attendance at the meeting. Lola did record the time accurately. Jakes was in attendance at the discussion, but there was no corresponding entry in his log. Mark was in attendance, but he overestimated the time by 30 minutes and had the wrong date recorded.

On 7/30, four of the participants were in attendance. None of them recorded the time accurately. Lola underestimated it by five minutes, Jakes and Glenelg overestimated it by 15 minutes, and Mark recorded the wrong date and overestimated the time by 30 minutes.

On 8/6, there were five participants in attendance at the planning meeting. Two of them, Nandi and Normi, recorded the time accurately. Lola overestimated the time by ten minutes. Jakes and Glenelg overestimated it by 30 minutes.

Of the 27 possible entries in the participant's time logs, only four were accurately recorded. Most of the inaccuracies were a result of overestimating the amount of time spent in planning sessions.

On 8/13, all six participants were in attendance for the research lesson. Jakes and Glenelg recorded the time accurately, Mark and Lola underestimated it by ten minutes, and Nandi and Normi did not include any time at all.

On 8/13, all six participants were also in attendance for the post-lesson discussion. Although their recorded times were close to accurate, Lola underestimated by ten minutes and the rest of the team members overestimated by five minutes.

Each participant completed the survey. The questions and answers were recorded in English. The participants all agreed to add any clarifications needed via email. Although I did later ask for that clarification, I did not receive a response from any of the participants. Because of that, the answers may not be as complete as they were using the technique of interviewing at the end of the first and second cycles.

Because of some of the inconsistencies and incompleteness in the data generation, I had some concerns about sustainability at this point in the study. As each lesson study cycle progressed through the corresponding action research spiral, my role became less active. Without my direct involvement in the planning sessions, the participants skipped some elements of the process. The focus seemed to be more on speeding up the process rather than being thorough with the process. My reflections about this are detailed in Chapter 4, Section 4.5.4.4. This focus on hastening the process was highlighted in a comment from one of the participants during the final planning session when he stated,

> *We're doing it much quicker than at the beginning.*

I cannot say that the participants were able to achieve balance during this cycle. Although they continued to base the research lesson on their goal and were also able to focus on the learners, data were not rigorously generated.

As in the first two cycles, this third cycle contained the element of coherence. The participants continued to use the adopted NCS as a guideline for developing the research

lesson. Again, the study lesson was based on Learning Outcome1: Numbers, Operations, and Relationships. The sixth-grade lesson was planned according to the stated goals and assessment standards for that outcome.

The third cycle of lesson study continued to be responsive to the needs of the participants. Each of the seven obstacles discovered during the first two cycles and addressed prior to the commencement of the third cycle continued to receive attention. Table 5.9 shows the response during the third cycle to the manner in which each obstacle was addressed prior to its commencement.

Table 5.11: Response to treatment of obstacles to sustainability at conclusion of Cycle 3

Obstacles identified during Cycles 1 and 2	**How obstacles were addressed prior to Cycle 3**	**Response to treatment of obstacles at end of Cycle 3**
1. Amount of time spent	1. Participants anticipate the process moving faster	1. Time spent was half that of Cycles 1 and 2
2. Scheduled meeting time	2. Meeting time will be the same for Cycle 3	2. Participants met before and after school
3. Number of learning areas taught	3. Cannot be addressed within the scope of this research	3. Remains unaddressed
4. Language barrier	4. All documents and tools translated into Afrikaans	4. Using Afrikaans documents continued to make the process easier and faster
5. Incomplete understanding of lesson study process	5. Two review sessions before commencement of Cycle 3	5. Participants still learning, becoming more comfortable
6. Learners out of normal setting for research lesson	6. Research lesson will be taught in regular classroom	6. Learners stayed in regular classroom
7. After-school activities	7. Cannot be addressed in within the scope of this research	7. Remains unaddressed

In an effort to increase the likelihood of sustainability, it is important that the manner in which each obstacle was addressed prior to the cycle did, indeed, meet with some level of success during the third cycle. The response to the treatment of each identified obstacle is as follows:

1. *Amount of time spent*

The amount of time that the planning team spent proceeding from the beginning of step 2 in the lesson study cycle through the first part of step 4 – that of the post-lesson discussion following the research lesson – was half the amount of time spent during the first and second cycles. Although there was 1 hour, 45 minutes spent in discussion sessions prior to this third cycle, the time spent by the planning team during the actual cycle was 3 hours, 20 minutes. (The amount of time spent through the corresponding place in the lesson study process was 6 hours, 55 minutes for the first cycle and 6 hours, 50 minutes during the second.) There could be several reasons why the time spent in the third cycle was so much shorter: One could be that the planning team had fewer active participants – four rather than six. Another could be that since this was the third cycle for all of the members, they were more familiar with the process and, therefore, could proceed more quickly. A third reason may be that the documents were all translated into Afrikaans, the language they were all more comfortable with. When asked how having the lesson study documents translated into Afrikaans affected this cycle, each of the participants responded that it made it easier and faster to communicate. According to Glenelg,

> *It was easier to express yourself and I was more comfortable explaining different concepts. Doing this cycle in Afrikaans set everyone at ease and made the conversation much easier.*

The team was also not obligated to pause regularly and fill me in on what had been discussed. A fourth time-saver could be that the teacher of the research lesson did much of the work on the description independently from the planning team. My own observations indicated that a lot of time was saved at the expense of meticulous use of the planning tools and thorough and accurate documentation.

2. *Scheduled meeting time*

Although both of the pre-cycle review sessions were conducted after school, during the cycle itself, only the first meeting was held then. The other two planning sessions were conducted at the same time as in the first cycle, on Monday mornings during the first hour of the school day. The reason this time was chosen was because of the numerous after-school activities that participants were involved in. Thus, finding a suitable time for all members to meet continues to be an obstacle to sustainability.

3. *Number of learning areas*

This obstacle remained unaddressed during the third cycle. When asked at the end of this cycle about continuing with lesson study, three of the six participants indicated that it would be much easier to do so if they only had one learning area that they were responsible for.

4. *Language barrier*

Each participant responded favorably when asked if having the documents translated into Afrikaans made the process easier. Glenelg articulated the consensus of the group by stating,

> *Doing this cycle in Afrikaans set everyone at ease and made the conversation much easier.*

5. *Incomplete understanding of the lesson study process*

All of the participants expressed an increased understanding or familiarity with the process of lesson study. Four of the six participants commented that the post-lesson discussion was much easier during the third cycle. When asked if there was a way that lesson study could be adapted to suit their particular needs, three of the participants expressed a desire to leave it just the way it is. Nandi responded by saying,

> *No changes need to be made. It is already a new process to us all.*

Jakes, however, indicated that,

> *After doing it in three cycles there are certain sessions you can do individually. It's not necessary to have long planning sessions.*

Although there is some truth to this – in terms of the initial sequence for the classroom lesson – to remain true to the intent of lesson study, that of collaboratively designing, observing, and evaluating instruction intended to move learners closer to the prescribed goal, the team needs to be committed to systematically working together toward that end. If too much is done in isolation, or elements of the process are skipped or rushed, then the integrity of lesson study becomes compromised.

6. *Learners out of normal setting for research lesson*

The research lesson for this third cycle was taught in the regular classroom setting. This is no longer seen as an obstacle to sustainability. There was enough room for the

observers to move around the learners' desks to look closely at what they were working on.

7. *After-school activities*

This obstacle was still not overcome during the third cycle. The first discussion session was held after school. Only three of the four original team members were in attendance. The new member was not able to continue as part of the team because of after-school commitments. The planning team held their second and third meetings during the first hour of school on Monday mornings. This is the same time that meetings were conducted during the first cycle. The obstacle to meeting discovered during that time was that participants were thus not able to meet with other colleagues to conduct the regular planning. So, this continues to remain an obstacle to sustainability.

In answer to the question if this cycle was responsive to the needs of the participants thus helping to ensure sustainability, it seemed less likely after this cycle than it did after the second cycle. One of the first criteria for this component of sustainability is balance. To achieve the required balance, data generation must be thorough. Without the necessary balance, it is difficult to determine if the cycle was responsive to the needs of the participants. There was a lack of thoroughness and consistency in the generation of the data. The focus questions for observation were not consistently filled out prior to the research lesson. Without rigorous attention to an observation focus, the post-lesson discussion may not be very effective in drawing out the implications and limitations of observations in relation to the goal of the lesson. Participants were also inconsistent in their journaling of time spent in discussion sessions. If one of the biggest obstacles perceived by the participants is the amount of time required to run a cycle of lesson study, it is important to keep an accurate record of that time. Even though all of the participants expressed the desire to continue with lesson study, without these obstacles becoming resolved, sustainability may be difficult.

5.4.6.2 Component 2: Access to content and pedagogical knowledge

No outside specialists, either in lesson study or in content area, were invited to participate in the third cycle. The planning team, comprised of four out of the six original participants, did invite the other two to serve as observers during the research lesson and as facilitator and knowledgeable other during the post-lesson discussion. Although, they

could possibly be seen as outside specialists in lesson study, involvement in only two cycles does not really qualify them as being experts in the field of lesson study. If the planning team were to continue with the process of lesson study without inviting outside experts, they run the risk of making this into a process of simply developing lesson plans, thus compromising the integrity and ultimately the sustainability of lesson study.

5.4.6.3 Component 3: Personal and collegial qualities that support learning

All the team members involved in this study continued to fit the criteria for this component. They all seemed positive and committed to using the process of lesson study to improve their classroom instruction. They worked well together as a team, even though much of the discussion during the planning of the research lesson was dominated by the teacher of that lesson. The reason for this is most likely that he did much of the work on his own, so discussion time was used largely to explain what had been done outside the collaborative planning session. The two members who were not part of the planning were able to participate easily during the observation and post-lesson discussion. They all seemed to be able to work well together toward a common goal.

By looking critically at each of these components for sustainability, it seems less likely at the end of this third cycle that the participants will be able to continue to use lesson study without compromising its integrity. Unless the team embraces the whole process, they are running the risk of reducing lesson study to the collaborative writing of lesson plans.

5.4.6 Summary of third cycle

At the conclusion of the third cycle, all the participants expressed the willingness to be included in a fourth and fifth cycles of lesson study. Participants had continued to improve instruction in their classrooms as a result of their experience in the process of lesson study. At the end of cycle, participants were talking about including other faculty members in the process. Their vision was to implement lesson study slowly, one learning area at a time. They emphasized the importance of lesson study training for any new team members.

Although I was encouraged by the participants' positive attitudes toward their experience during the third cycle, I was concerned about the integrity of the process of lesson study being maintained. When I had similar concerns at the end of the second cycle, I

addressed them through translating all the documents into Afrikaans and by conducting two review sessions with the participants. Since I had previously planned for my role to become less interactive through each subsequent cycle, I decided not to conduct another review session but rather to let the participants experience a fourth cycle with no input from me. This decision was made in compliance with the action research design chosen for this study. The rationale for this particular decision is discussed in Chapter 4, Section 4.5.5.2. I had already addressed all the obstacles identified as we proceeded from one cycle to the next and brought the participants' attention to the areas where I saw the integrity of the process being marginalized. I decided that the fourth cycle would show what they would do on their own.

5.5 CYCLE FOUR

5.5.1 Context

All the participants in this research expressed the intention to be involved in a fourth cycle of lesson study. They planned to conduct that cycle during the final term of the 2007 school year. Because they ran out of time, they rescheduled the fourth cycle for the beginning of the 2008 school year.

In February 2008, Glenelg and Jakes invited all ten teachers of the Foundation Phase to participate in the fourth cycle. Although Jakes indicated that the decision to turn this cycle over to the Foundation Phase teachers was reached by consensus among the original participants, half of them had no recollection of involvement in that decision. Glenelg and Jakes met with the new group of participants, briefly explained lesson study and gave them some background materials to read. Normi was also invited to share some of what she had experienced during her participation in the first three cycles. The reason they chose Normi was that she had previously been a teacher in the Foundation Phase.

When the Foundation Phase teachers met together to decide whether or not to participate in the research, they were not all excited about becoming involved. However, they came to a group consensus that if they could learn something from lesson study, they were willing to be participants in the process. They agreed to become involved for their own personal improvement, not just because it was part of a research project.

Maria, the scheduled teacher of the research lesson, shared that the dominant reason why the teachers were hesitant to participate is that the process of lesson study is something they already do as a group. When I asked her what it was that made them change their minds and become involved, she said that Glenelg and Jakes convinced them of the following:

> *Maybe there's something new that we're not aware of and maybe we're going to find new things learned from each other. If they are looking at the lesson – observe the lesson, you are maybe going to see something new and learn by that and go back to your classroom and try that. For example – something about discipline or something about learners who don't listen to their instructor. So that's the thing that triggered us that maybe there's something that we can add to our way of teaching now.*

The whole group of Foundation Phase teachers met early in March 2008 to decide on the goal for the research lesson and to choose the person who would teach the lesson. The goal remained similar to that which was used during the first three cycles. Although the wording was slightly different, the focus was still on listening skills and following instructions.

Maria volunteered to be the teacher of the lesson. She developed the description of the study lesson independently from the rest of the participants. The group did meet together to go over the proposed research lesson but there was no collaboration. Maria just shared the work she had done with the rest of the participants. The research lesson was scheduled for March 18, 2008. This date, however, coincided with the annual fund-raiser for the school. Because all the teachers were involved with preparations for this event, the lesson needed to be postponed. Other conflicts then arose in the teachers' schedules and as of August 2008, the research lesson had not yet been taught. The combination of my timeline and that of the participants necessitated the closing of data generation before the completion of the fourth cycle.

5.5.2 Role of the researcher

My participation during the fourth cycle was very limited. I maintained contact with two of the participants via email through the end of the 2007 school year and into the beginning of the 2008 school year. I wanted to remain as uninvolved in the cycle as

possible so that I could determine to what extent my involvement influenced the sustainability of lesson study. As discussed in Chapter 4, it was important to determine the participants' ability to take over the process. Therefore, the only communication between the participants and myself was just to inform me about what they were doing. I initiated any communication by emailing Glenelg and Jakes. They subsequently responded to some of those emails. Although my role may not be considered strictly that of observer because of my interaction with two of the original participants, I had no interaction with any of the new participants as they were proceeding through the process of the fourth cycle of lesson study. According to Mertler (2009:80), "At this end of the continuum, those individuals being observed typically do not know they are being observed." This is not entirely the case with regard to my role during the fourth cycle. The participants knew, even though they had never met me, that I would be collecting the data they generated as part of my study. They were aware that I would be analyzing their experiences. I believe that my role during this cycle fell somewhere between observer and observer-participant. When I returned to South Africa in June 2008, I did not interact directly with participants in the process of the fourth cycle. When the participants made the decision to postpone the teaching of the research lesson indefinitely, I conducted interviews with each of the six original participants and with the new participant scheduled to teach the research lesson for this cycle.

5.5.3 Data generated

The data generated during the fourth cycle does not support the notion that participants perceived lesson study as a valuable strategy for instructional improvement. Of the ten teachers participating in the fourth cycle, only one documented the experience. Maria, the intended teacher of the research lesson, kept a journal and created the description of the research lesson. She also granted me an interview. Because the participants did not get past the second phase in the lesson study cycle, it is impossible to ascertain if they would have found any instructional value through their experience with the process of lesson study. Therefore, it was necessary to use Maria's perceptions of the value of the process after only completing the first two phases of the cycle. When I asked if she had experienced any benefits from her involvement thus far, she responded with,

> *Until this point, no.*

The analysis for the fourth cycle, therefore, differs from the first three cycles. Whereas the analysis of the previous cycles addressed the six research questions that are tied to the notion that lesson study was perceived as a valuable strategy for instructional improvement, the analysis of this cycle addressed the two questions aligned with the notion that little or no instructional value was found through involvement in the process of lesson study.

5.5.4 Coding of the data

The documents generated by Maria during the fourth cycle were translated into English. Although some of the same type of documents (i.e. observation forms) were not translated in the third cycle, I thought it was important to have everything from this cycle in English for several reasons. Firstly, I was not present to observe the participants as they experienced the process. Secondly, I wanted to know how closely the process of lesson study had been followed. Thirdly, there was only one person generating any data during this cycle and triangulation would have been impossible if I had only used the single interview. Although I don't contend that triangulation was achieved, I do believe that the use of multiple data-generation techniques, albeit from the same source, added to the legitimacy of the analysis. Fourthly, I wanted to be able to compare the information generated during the interview to the data generated during Maria's experience in the process. I did video-record and transcribe the interview verbatim. After reading through the data several times, I assigned codes corresponding to the two research questions aligned with the notion that lesson study was not perceived to be a valuable strategy for instructional improvement.

5.5.5 Questions guiding the research and analysis

There are two questions that were addressed in the analysis of the fourth cycle: The first question discusses the obstacles that participants encountered, and the second discusses benefits that were perceived as a result of this experience.

5.5.5.1 What obstacles were there that could not be overcome?

One of the first obstacles that Maria mentioned was the task of documentation. The Foundation Phase teachers felt like their regular planning was already in close alignment with the process of lesson study. They were already meeting within and across grade levels to discuss the vertical alignment from one grade to the next. They also had regular

discussions about individual learners and instructional techniques they could employ to reach every child. What they found difficult, and thus considering it an obstacle, was to take the time to write what they were routinely doing in a completely different format for lesson study. Maria shared ,

> *If we don't have to write it down in another matter for you its great, but now we've got to write it down and fill in a form here and do this and do that and do the administrative things. That was the obstacle, not the idea or the process because we are already teaching that way.*

When Maria mentioned the different format they have been routinely using, she may have been referring to the guidelines issued by the Western Cape Education Department (Chapter 3, Section 3.4.1) for developing learning programs. At the time of this interview, I was unaware of the training she and her colleagues may have been involved in and the type of documentation they were using to accommodate that.

A second obstacle mentioned by Maria was the idea of participating in this study for an outside researcher. When the new participants made the decision to get involved in the study, they were adamant that they would do it for themselves. When I returned to South Africa, the participants were asked by Jakes if they would teach and observe the research lesson earlier than scheduled so that I could include the data in my analysis. The group was not willing to do that. It was important to them that the work was done to benefit their own teaching rather than be hurried so that it could be included in the data.

A third obstacle that participants in this cycle experienced was finding a time to collaborate. Maria indicated that the individuals in the group were each so busy with their different programs and responsibilities that it was a struggle to find a time when they could all come together.

A final obstacle that Maria identified had not yet been experienced by the group, but was anticipated if they were to teach the research lesson. The obstacle would have been classroom coverage for all the teachers involved in observing the research lesson. Since this was a large group – ten members – it meant that nine classrooms would have needed substitute teachers while the research lesson was being taught and observed.

The first obstacle, that of documentation, was overcome by only one of the participants. Maria took the sole responsibility for developing the description of the study lesson. She also kept a journal that contained the amount of time spent on the process. The two obstacles that could not be overcome, perhaps providing the barrier to timely completion of the fourth cycle, were the notion of doing the research for an outsider and finding the time to meet together as an entire group. The fourth obstacle, that of class coverage during the research lesson, was only perceived and not realized at the conclusion of this study.

5.5.5.2 Were there any perceived benefits?

There were two benefits that the group of participants anticipated as they became involved in this research: Firstly, they were hopeful that they would learn something through this experience that would be beneficial to their teaching. Secondly, they were excited about the opportunity to have many eyes observing learners while a lesson was being taught. The group had decided to focus on the effect that disruptions originating outside the classroom had on the attention of their learners. The group's primary motivation for volunteering to be part of this study was the benefit they perceived by being able to observe the reaction of the learners when disruptions took place. Maria declared that they wanted proof that,

> *the disturbance has an influence on the listening skill, the self-doing of the task, and the interpreting.*

The members of the group felt that if they could observe the learners' reactions to the disruption, they could develop classroom strategies to overcome them.

5.5.5.3 Summary of questions guiding the research

The goal of this study was to determine the extent to which teachers would experience lesson study as a viable strategy to reduce isolation and facilitate meaningful collaboration in an effort to make improvements in the classroom. Since the data generated during the fourth cycle did not support the notion of value in the lesson study process, the two applicable sub-questions were used to analyze the data.

The three obstacles identified during the fourth cycle are discussed in Section 5.5.5.1. These obstacles were the type of documentation, conducting the research for an outsider,

and time for all the participants to meet together. The benefits, discussed in Section 5.5.5.2, were perceived but not realized. The cycle was aborted prior to the teaching of the research lesson and any perceived benefits would have come about as a result of the observation and post-lesson discussion.

Although obstacles to the process and perceived benefits as a result of participating in the process were both identified by the participant interviewed, the obstacles outweighed the benefits. Not only were more obstacles than benefits identified but both of the benefits could only have been realized if the participants had completed the lesson study cycle.

5.5.6 Sustainability and integrity

5.5.6.1 Component 1: A lesson study cycle that is balanced, coherent and responsive to needs

The first element to be addressed in the balance of a lesson study cycle is the use of a well-defined goal. The overarching lesson study goal used during the fourth cycle was similar in content to the goal employed during the first three cycles of lesson study. Although the wording of the goal deviated somewhat from that used in the previous cycles, it was well-defined and similar in content. Several times during the interview Maria referred to the goal chosen as the basis for the development of the research lesson and focus for observation.

The lesson developed by Maria was designed to reveal the thinking of the learners. She wrote down the questions she would ask, the anticipated response of the learners, and how she planned to respond and ascertain that any misconceptions had been cleared up.

During the fourth cycle, data was generated by only one of the ten participants. Maria was meticulous in developing the description of the study lesson. She used the tools that I had developed to help guide the process. She also kept a journal of her activities as the cycle progressed, and she kept any copies of written correspondence between herself and the other participants. The English translation of all the data generated by Maria can be found in Appendix R. My own journal reflections were added to the data generated during this cycle.

Very little discussion occurred among the participants during this cycle. None of the discussion centered around drawing out implications and limitations of the data because the research lesson and observation were not completed. Without the data that would have been generated therein, there was no basis for that kind of discussion.

This fourth cycle did not achieve the balance necessary to ensure the sustainability of the process. Although there was a well-developed lesson based on a well-defined goal and adequate generation of data, it was not thorough or collected from various view-points. Without teaching and observing the research lesson, it was impossible to discuss any implications from the data that would have been thus generated.

The fourth cycle of lesson study did meet the criteria for coherence. The participants used the adopted NCS as a guide for developing the research lesson. They targeted Learning Outcome 1: Numbers, Operations, and Relationships; Learning Outcome 4: Patterns and Function; and Learning Outcome 5: Data Handling. The lesson was designed for second-grade learners and planning was based on the stated goals and assessment standards for the Learning Outcomes being targeted.

Since the fourth cycle of lesson study was not completed, it cannot be determined if it was responsive to the needs of the participants or the learners. The participants designed the research lesson based on the need identified in the goal to "develop learners with regard to listening skills as well as the interpretation of assignments and the execution of simple instructions."

Within that context they were planning to focus on the effect that disruption originating outside the classroom had on keeping learners' responses consistent with the goal. Since the research lesson was not taught, it cannot be determined whether or not this element of the first component was satisfied.

5.5.6.2 Component 2: Access to content and pedagogical knowledge

Maria developed the description of the study lesson without input from the other participants or any outside specialists in the Learning Area of mathematics. She did rely on the lesson study tools that I had generated for use in the first and second cycles and then had translated into Afrikaans for use in the third cycle. She used the Afrikaans

version to guide herself through the development and formatting of the study lesson. She also planned to use the forms for the observation of the research lesson and the post-lesson discussion. The lesson study documents that she generated show that she did have at least a basic understanding of the process.

5.5.6.3 Component 3: Personal and collegial qualities that support learning

The participants comprising this lesson study group were routinely engaged in collaborative meetings prior to involvement in this research. They had already demonstrated the capacity to work together. The primary motivation for inclusion in this study was to learn from each other in an effort to improve their teaching. They were open to the new ideas presented through the process of lesson study as long as they felt that they were doing that for themselves. When they were asked to accommodate my desire to include data from the teaching and observing of the research lesson, they declined to do so because it was not in their own best interest to deliver the lesson sooner than planned.

There is evidence of only partial completion of each of these components for sustainability during the fourth cycle. If this cycle alone were the determining factor in the decision for this school to continue with lesson study, it is unlikely that it would happen.

5.5.7 Summary of fourth cycle

Lesson study is a process designed to bring teachers out of isolation and stimulate meaningful collaboration in an effort to improve classroom instruction, thereby moving learners closer to a prescribed goal. This study is designed to determine the value that teachers place in that process.

The value placed in the process of lesson study could not be determined through the experience of the participants in the fourth cycle. There are several possible reasons for this conclusion: The first is that none of the new participants had any training in the process of lesson study. There needs to be at least a basic understanding of the process to be able to determine any value in it. Jakes assumed the responsibility of choosing and training the participants for the fourth cycle of lesson study. He expressed during the interview at the end of the first cycle that any new participants

must have your course you had with us the Saturday morning…without the training, they won't be able to do it.

In the survey at the end of the third cycle, Jakes stated again how important it was to train new members. He believed one should

first give them a total background of lesson study. Make them part of the whole planning session for the lesson. Make them feel part of the team. It's very important that everyone should attend all sessions.

In lieu of a training session, new participants were given background materials to read. Each was given a packet containing the tools and documents that I had translated into Afrikaans for use in the third cycle (Appendices O1, O2, O3 & O4). It seems that the only participant to have read them was Maria. My rationale for this contention came from comments made by Jakes and Maria in the interview at the end of the fourth cycle. Jakes expressed his concern about the new participants having read the background material when he said,

The actual point I want to make is I wasn't sure if everybody had read the package through and studied the whole thing.

Maria confirmed that notion by adding,

I'm the only one with the knowledge about the process at this moment because I'm doing it myself.

A second reason why the value in the process could not be determined during this cycle has to do with the lack of involvement by any of the original participants. In the absence of adequate training for new members, it would have been a good idea to include some of the original participants as members of the lesson study team for the fourth cycle. The reason for that, as stated by Jakes, is

to have continuity throughout the whole process. If people know what to do it makes it much easier, also for the new members.

Glenelg had decided on the best way to introduce new members prior to the commencement of the fourth cycle. In the survey at the end of the third cycle, he revealed his plan:

I am going to explain the lesson study idea to all the educators of the Foundation Phase and then I will invite one or two to be part of the next cycle.

Although the selection of participants was initiated in line with the first part of Glenelg's plan, introduction to the whole Foundation Phase, it was the second part of the plan that was not realized. Rather than have one or two new members join a group of lesson study veterans, the fourth cycle was given to a group entirely made up of novices.

Since my role as researcher was far less interactive during the fourth cycle than it had been during any of the previous cycles, the observation and reflection stages in this action research spiral became crucial. Two personal reflections came as a result of my observations about the training and selection of participants for the fourth cycle. The first is the impact of the researcher's role in the sustainability of a CPTD model such as lesson study. It was obvious that the original participants saw adequate training and the inclusion of team members from one cycle to the next as important criteria for the induction of new participants. However, neither of those ideas was implemented during the fourth cycle.

The second reflection is about the value of the materials that were used to train the new members. They were given the Afrikaans tools as a guide. Maria, the designated teacher of the research lesson, used only those tools and the study lesson plans from the previous cycles to teach herself the process of lesson study. With only that training, I was surprised at how well she could articulate the elements of lesson study. There was even one component that she understood better than Jakes who had experienced three cycles. When she and Jakes were discussing the scheduling of the research lesson and the post-lesson discussion, she wanted to teach the lesson one day and have the post-lesson discussion on the following day. Rather than suggesting that both be held on the same day, which is the ideal scenario, Jakes told Maria that there needed to be more time in between the research lesson and the post-lesson discussion. As I created the materials prior to the first cycle, I anticipated their use to guide the process. Since Maria was able to understand the process, in terms of what to do and document through each phase of a lesson study cycle, I deduced that the materials I created to guide the process were

successful in doing just that. The component that could not be included in the limited training the new participants received was the importance of collaboration.

A third reason that value in the process of lesson study could not be determined during this cycle was that there was little meaningful collaboration experienced by the participants. Part of the reason for this may have been the size of the group. Ideally, a lesson study group should be comprised of four to six people. There were ten members in the new group for the fourth cycle. They did collaboratively decide on the goal for their learners. The goal they chose (Appendix R) was similar to the goal chosen by the original participants in that there was a focus on the listening skills of the learners. This group selection of the goal, step one in the lesson study process, was the only meaningful collaboration experienced by the new participants. Maria worked in isolation to train herself and to develop the plan for the research lesson. Although the participants did meet together, there was little collaboration. Maria described what a meeting was like:

> *I took that (pointed to Afrikaans materials) and told them, in short, what they are supposed to do as all the role players – as observers and all that stuff and then I on my own planned the lesson and gave it to them and we had a good look at it and then we all together decided that it's correct.*

When I asked Maria if the rest of the participants were involved in the discussion about the focus questions to guide the observation of the research lesson, she again claimed that she was solely responsible for the process by stating,

> *No they were just sitting there, I was the one who was writing everything down. I was the one who was doing all the stuff to keep them motivated … they didn't say anything negative … they were just sitting there listening to me.*

The fourth, and perhaps most obvious, reason that value could not be determined through the experience of participants in this fourth cycle is that they did not complete it. However, as expressed by the participants in previous cycles, with so much of the value in the process of lesson study being realized through meaningful collaboration, it is doubtful that the participants in the fourth cycle would have perceived any value in their experience with lesson study.

At the conclusion of the fourth cycle, I was interested in discovering the rationale for recruiting a whole new group of participants. I wanted to understand why the original participants had chosen not to become involved in the fourth cycle when they had all expressed the desire to do so at the end of the second and third cycles. To determine the rationale for that decision, and to find out how the original participants still perceived the value of their experience during the first three cycles of lesson study, I conducted interviews with each of them at the conclusion of this study. The analysis of those interviews is discussed in the next section.

5.6 POST CYCLE FOUR

5.6.1 Context

At the completion of the third cycle of lesson study in August 2007, each of the original six participants expressed an interest in remaining involved in the study through a fourth and fifth cycle. As discussed in Section 5.5, none of these participants actually became involved in the fourth cycle and a fifth cycle never took place. In Chapter 4, Section 4.4.2, I discuss the dynamic and flexible nature of an action research design. That quality has allowed for the changes that have occurred throughout the scope of this study. The decision to conclude this study with the fourth cycle is rationalized through the design employed.

Because there was insufficient time to complete the fourth cycle and proceed with a fifth, I decided to interview all of the original participants in an effort to discern any lasting value they may have perceived from their experience with the process of lesson study. I also wanted to understand the reasons why the group decided not to be involved in the fourth cycle. Therefore, I interviewed each of the original participants in August 2008. This was approximately one year after they had completed the third cycle together.

This section is formatted differently from the other sections because the data generated is not linked to the process of lesson study in any particular cycle. My role as researcher was simply to conduct and transcribe the interviews. The only data generated were the interviews and my own journal entries. Sustainability is discussed in connection to the obstacles identified through the interviews.

5.6.2 Coding of the data

Since all the participants gave favorable responses when asked about their involvement in the process of lesson study, these data were analyzed in connection with the questions applicable to the notion that lesson study is a valuable strategy for improvement of classroom instruction. After the interviews were transcribed verbatim and read multiple times, they were coded in connection with the six questions guiding the research. Analysis of those questions can be found in Section 5.6.3. There was additional coding connected to the participants' lack of involvement in the fourth cycle. Analysis of that decision can be found in Section 5.6.4.

5.6.3 Questions guiding research

Analysis of the data generated by interviewing each of the original participants a year after their involvement in the third cycle addressed each of the six research sub-questions applicable to the notion that lesson study is a viable strategy for instructional improvement. That deduction was reached because participants continued to respond favorably about their experience with the process of lesson study and because all of them expressed a desire to continue with lesson study knowing that I would not be involved with them.

5.6.3.1 What do participants see as the most rewarding elements of the cycle?

All six of the original participants were positive about their experience in lesson study even though they did not participate in the fourth cycle. At the time of these interviews in August 2008, they had not been actively involved in lesson study since their participation in the third cycle in July 2007. The elements they continued to find rewarding were the observation of the research lesson and the collaborative feedback generated as a result of that, the use of a clear goal as a guide for lesson planning and observation, and the focus on the learner.

All of the participants commented about the value they perceived through their experience in observing a research lesson. When Normi spoke to the Foundation Phase teachers prior to their involvement in lesson study, she pointed out the value of observation. She also indicated that she and her colleagues continued to observe each other's teaching even after their participation in the third lesson study cycle. When asked if she would like to continue with lesson study, Normi responded,

> *Everybody must do it like that so that it is fully implemented in our school and that we can support each other with it … the idea of observing and we can tell each other what's good about it or what won't work…. We can share it with each other.*

Clearly the observation of the research lesson and the resulting discussion is an element of lesson study that was perceived as having value.

The participants also continued to find value in relating instruction to the goal they had selected of developing learners who had good listening skills. When Nandi was asked about the purpose of lesson study, she focused on the goal the group had chosen. She believed that as a result of instruction based on the goal, her learners were developing better listening skills. She stated,

> *The children listened more and I know they've learned something at the end of the lesson because they knew they must listen from the start.*

A third element of the lesson study process where participants found value was the focus on learners. Glenelg indicated that because he was given the opportunity to observe how the learners engage with instructions and their peers, he had adjusted his own strategies to reflect that new insight. Lola also commented that she had changed some of her own strategies as a result of being given the time to focus on the learners. She realized that she was "spoon-feeding" sometimes, and began to be more consistent about requiring the learners to be more responsible on their own. She was talking specifically about the learners' listening skills.

A year after direct involvement in lesson study, the participants were still experiencing value in three elements of the process: observation, the use of a clear goal, and the focus on the learner.

5.6.3.2 How do participants measure improvement in instruction?

The original participants continued to measure their improvement by repeated use of the teaching strategies they had developed during their involvement in the first three cycles of lesson study.

Part of the lesson study goal was to develop learners' listening skills. An instructional strategy that all team members had adopted and were still using was to be sure that all learners were paying attention and then to give them clear instructions a single time. Glenelg commented about how he had taken this strategy out of the context of the classroom and extended it to communication with his faculty. The positive experience with his learners caused him to reflect on his communication skills with the teachers:

> *I think that was an area in my leadership that was a little bit – I thought that all of the teachers understand and know what we are aiming for – the same as in the class actually and then I come to the conclusion, no, no they don't understand everything so I have to make it more clear to them.*

Glenelg went on to explain that he now tries to give specific instructions verbally in the morning staff meetings. He also follows that up with short messages in writing. He believes that by doing this,

> *the vibe in the school is much better than previous.*

Another strategy that participants continued to use was the type of questions they asked their learners. Glenelg particularly saw the value of this strategy in relation to the skills of his learners. He has started to look at individual learners who are not performing well academically and changing the way he asks questions to specifically target the skills of those learners. He has also begun using group work more in an effort to reach those learners who are struggling. When commenting on the use of these strategies with one particular learner, Glenelg observed,

> *He's a chap that gets low, very low marks in his assignments as well as with his peer group and he performed the last two or three – he did very well.*

Several participants commented on the use of the blackboard when giving instructions. Nandi explained that not only does she use the board in that way but she has also started leaving the work from the lesson on the board. She states,

> *The good of lesson study is about the board summary ... when I explain new work, especially in math, I try to keep the explanation or what I did on the board so when they work in their workbooks they still can look on the board.*

All the participants were continuing the use of strategies employed as a result of involvement in lesson study. A year later, they had added an additional technique to gauge the attention of their learners. Normi and Jakes both discussed this new technique of "*thumbs up*" to see if the learners were listening. Normi spoke of witnessing this as she was observing Jakes's lesson. She felt that it was a better strategy to check for understanding than having the learners raise their hands. The reason she thinks it is more effective is that,

> *if someone put up his hand, the others think, 'Okay, she's going to ask him, I don't need to think about the answer.' But when they are doing this (Normi puts up thumbs), that's a small thing. Then everybody's thinking and thinking.*

At the end of this study, the participants were not only using the strategies initiated during involvement in the lesson study cycles, but they were building on them by using such techniques as "*thumbs up"*.

5.6.3.3 What do participants see as reasons for their improvement?

In August 2008, when these final interviews were conducted, the participants had been using the strategies previously discussed for more than a year. Requiring the attention of learners before giving instructions; giving clear, concise instructions; posing well-thought-out questions; and keeping the focus on the learner in relation to the goal were all instructional strategies that had become routine. When asked about his use of these instructional strategies with a new group of learners, Jakes reflected,

> *It's difficult to pinpoint now to say exactly this is better than last year but I'm actually doing these things in class, in each period.*

All of the participants indicated that using these new strategies had become part of their daily instructional routine. As discussed in Section 5.1.3, when a new practice becomes routine, it is more likely that it will be sustained.

The participants also continued to utilize peer observation as a catalyst for improvement of instruction. Normi specifically recalled inviting Jakes and Glenelg to observe her learners to see if they were listening. She had become comfortable with inviting outside observers into her class to observe the learners while she was teaching.

5.6.3.4 What effect did the collaboration have on the improvement of instruction?

Participants in the study agreed that the type of collaboration they experienced with lesson study made it easier for them to have open discussions with each other. Jakes indicated that they were now,

> *talking to one another about problems in the class and problems about teaching and about children and about discipline and all the things that are going around the school.*

Mark believed that the collaboration experienced during lesson study allowed him to learn about alternative teaching strategies. He discovered,

> *We can differ our strategies and learn from each other….I think that cooperation and also seeing what the other person or colleague is doing – that will make us better in the future.*

Even though she had not been involved in a post-lesson discussion for more than a year, Normi still remembered it as being very useful. She shared that the experience of observing a research lesson and then discussing what did and did not work in relation to the goal was a unique and meaningful way to use collaboration in an effort to improve instruction.

Although the participants focused on different elements of the type of collaboration contained within the lesson study model, they each saw how it differed from previous experience and contributed to their individual success in the classroom.

5.6.3.5 Is lesson study a model they would like to implement in their own school and, perhaps, throughout their district?

Even though none of the six original participants had been involved in a lesson study cycle for a year, each of them expressed the desire to continue with the process. They all spoke positively about their experience through the first three cycles and were enthusiastic about the idea of continuing with lesson study on their own.

Two of the participants also discussed the importance of expanding lesson study to include other members of the faculty. Normi shared,

I want to keep doing it – everybody must do it like that so that it is fully implemented in our school and we can support each other with it – the idea of observing and someone is helping you with your lesson. We can tell each other what's good about it or what won't work…. We don't have at this moment the time to share enough with each other.

Glenelg talked about planning for future lesson study cycles by using members from the original team and placing them with new members to provide some experience and continuity for the group. He thought it would be possible to have study groups with three or four members proceed through two or three cycles each year. Glenelg concluded his thoughts by stating:

I'm going to commit myself to go on with this because I benefited from that and the other teachers as well and I know they benefited from it and it will be just great for the whole school.

5.6.3.6 What obstacles would need to be overcome?

Each of the participants expressed the desire to continue with the process of lesson study. They felt comfortable enough with their experience in it to be able to run the cycles on their own. They did, however, see several obstacles to school-wide implementation. Three of these obstacles had been identified and addressed, where possible, during the first three cycles of lesson study. Those obstacles were time, after-school activities, and the number of learning areas that participants are required to teach. A fourth obstacle was mentioned during these interviews that did not emerge in any of the previous post-cycle interviews. That obstacle is class coverage while the participants are observing the research lesson.

The one obstacle that all of the participants mentioned was the amount of time that it takes to run a cycle of lesson study. Mark expressed the collective feelings of the group by stating,

Number one again is the time factor.

Nandi, although positive about her continued involvement, was a little unsure about the time commitment:

> *I don't know actually when all this planning is going to take place. Actually it was positive, the one negative thing if I must be honest is it's quite a lot of time that goes into the planning.*

The second obstacle mentioned was the after-school activities that faculty members are involved in. Glenelg and Jakes both commented about the difficulty involved with scheduling a meeting time for lesson study when the teachers were involved in activities beyond the school day.

A third obstacle was the number of learning areas that each participant is required to teach. Some of the participants found it difficult to rationalize spending so much time planning a lesson in one learning area, math, when they had several that they were responsible for.

Each of these obstacles was identified within the first two cycles of lesson study. Although participants did spend less time planning for the third cycle than they did for the first two cycles, it was still considered to be a barrier to involvement in lesson study. After-school activities and the number of learning areas taught, although identified, could not be addressed during previous cycles. To do so would have required a complete restructuring of the faculty's schedule. Therefore, after-school activities and the number of learning areas taught remained obstacles in the minds of the participants.

The fourth obstacle mentioned by two of the participants had not surfaced previously. This new obstacle was the issue of class coverage while teachers are observing the research lesson. The size of the lesson study team would certainly be a factor in the severity of this obstacle. Although Glenelg saw this issue as an obstacle, he was already suggesting ways to address it:

> *If we take four or three teachers to observe one then we don't have anyone else in their classes. That is going to be an obstacle, we can get parents in for that period, we can do that – it's always going to be difficult – or else we do what we did here on Monday morning when there is a group coming in for the classes.*

Of the seven obstacles identified during the first three cycles of lesson study, only three were mentioned during these interviews. The other four obstacles had been addressed from one cycle to the next. Perhaps that is why they were no longer considered obstacles. The three obstacles that were mentioned were difficult to address which could be the reason they remained obstacles. The fourth obstacle mentioned was not addressed earlier because it had not emerged during the first three cycles.

5.6.3.7 Summary of questions guiding the research

A year after their involvement in a cycle of lesson study, the participants were still positive about their experience. The elements of the process they continued to find value in were the opportunity to observe a research lesson, the use of a clear goal in lesson planning, and the ability to focus on the learner. The participants' reflections on these elements are discussed in Section 5.6.3.1.

The participants had continued the use of teaching strategies they employed during their involvement in the first three cycles. These strategies, discussed in Section 5.6.3.2 and initiated during the first cycle in March 2007, had become part of classroom routine by the time of these interviews in August 2008. The participants had witnessed the positive effects of those strategies on the skills of their learners and on the classroom discipline. They believed that the use of the strategies had moved their students closer to the prescribed overarching goal.

The participants had experienced the observation step in such a positive way that they, on their own initiative, were continuing to invite each other to observe in their classrooms. This was something they did not do before their involvement in lesson study. They also spoke in positive terms about the type of collaboration they experienced. They particularly remembered the value they found in using the ideas produced during the post-lesson discussion to improve their own classroom instruction.

Four obstacles to the continuation of lesson study were identified by the participants. These obstacles were time, the number of learning areas they are required to teach, involvement in after-school activities, and class coverage for observers during the research lesson. These obstacles are discussed in Section 5.6.3.6.

Even with these obstacles in mind, all the participants expressed the desire to continue lesson study on their own. Because of the benefits that Glenelg experienced, he, as the principal, made a commitment to continue with lesson study and expand it within his school to include other teachers.

The interviews at the conclusion of this study addressed more than the questions guiding this research. I was also interested in the involvement of the original participants in the decisions that were made about the fourth cycle of lesson study. A discussion about their involvement follows in the next section.

5.6.4 Decision to be non-participants in the fourth cycle of lesson study

At the conclusion of the third cycle, I felt quite confident that the six original participants would all be involved through a fourth and fifth cycle of lesson study. As discussed in Section 5.5, this did not end up being the case. None of the six original participants were involved in any of the phases of the fourth cycle, and the fifth cycle was abandoned completely.

As a result of this occurrence, I had two main concerns: The first concern was about my direct involvement with the participants and the influence it had on the sustainability of lesson study. The second was about what events had transpired in my absence that may have caused the original team members to decline participation in the fourth cycle.

Before I left South Africa at the end of the third cycle in August 2007, the participants seemed excited and motivated to run a fourth cycle before the school year ended at the beginning of December. We made a commitment to keep in contact through the fourth cycle and then I would observe a fifth cycle when I returned in June 2008. The team was unable to begin the fourth cycle before the school year ended in December 2007. Although I did email during that time, I received limited response. (This is discussed in detail in Chapter 4, Section 4.5.5) When the new school year began toward the end of January, 2008, communication between the participants and myself was sparse. I was aware that the Foundation Phase was involved in the cycle with Jakes but I did not know how far they had progressed or what involvement there was by the original participants. It did catch me somewhat by surprise upon my return in June 2008 that none of the original team members had participated and that the new group had not yet taught and

observed the research lesson. This certainly caused me to reflect on the importance of the researcher as a catalyst for sustainability.

The question I had upon discovering that none of the original team members participated in the fourth cycle was, "Why?" I approached the answer to this question by asking myself three specific questions:

The first question I asked was how the decision was made to turn the fourth cycle over to the Foundation Phase teachers. The response I got from the participants was mixed. At the beginning of the 2008 school year, Glenelg asked Jakes to be in charge of the fourth cycle. When I asked Jakes how many of the original team members were involved in the decision to give the fourth cycle to the Foundation Phase teachers, he said that all of them were. He indicated that the whole team of participants met together and,

> *decided (they) wanted to give the fourth cycle to the Foundation Phase.*

Glenelg agreed that it was a collaborative decision by all six original participants. Normi was a little less sure. When asked if the whole group got together to make the decision, she responded with,

> *I think so, I think so.*

The other three original team members – Mark, Nandi, and Lola - were fairly certain that there was no such meeting. Each of them indicated that they had not been approached or involved in any part of the decision to turn the fourth cycle over to the Foundation Phase.

It is difficult to say exactly how the decision was made because the perception of total involvement as opposed to non-involvement was split right down the middle. During the time that the decision was being made – early in 2008 – none of the participants were journaling their activities, or lack thereof, in lesson study. I was also having a difficult time corresponding through email. It was taking a long time to get a response, so I was not sure what, exactly, was being done by the participants. By the time I conducted these interviews it was seven months after the fact and without any documentation of a meeting, all there was to rely on was the participants' recall.

The second question I had was about any level of involvement by the original participants once the decision had been made to turn the fourth cycle over to the Foundation Phase

teachers. Apparently, only three of the six original participants were involved in any way. I found it interesting that these three were the same participants who believed that the decision to turn the fourth cycle over was made by the whole group. Glenelg and Jakes were both involved in presenting the idea of lesson study to the Foundation Phase teachers. They met with them as a group on three separate occasions to introduce lesson study and encourage them to participate in a fourth cycle. During one of these meetings, Normi was invited to address the group and motivate them by sharing her own experience with the process. She believed that the reason Jakes invited her to do this was that she had previously been a teacher in the Foundation Phase. Normi did meet with the group and share her experience. She recalled telling them that lesson study is something that you can use immediately with what you already do as a teacher. She also spoke positively about the experience of having colleagues to help plan and observe a lesson.

The other three original participants were not involved in any way. One of them was even unaware that a fourth cycle was going on. None of the six original team members were involved with the new participants once the cycle had begun. When the teachers in the Foundation Phase agreed to participate they were given the tools developed for planning the research lesson, observation, and post-lesson discussion as guides to run the cycle on their own.

My last question was why the original participants decided not to be involved when they had previously expressed the desire to participate in a fourth and fifth cycle of lesson study. Apparently, the decision about who would participate in the fourth cycle was made primarily by Glenelg and Jakes. Each of the other team members indicated that the reason they did not participate was that they were not asked to do so. Normi was asked to share her experience with lesson study in an effort to motivate the Foundation Phase teachers to participate, but she was not asked to be a part of the new lesson study team. Glenelg chose not to be part of the team because he was too busy with two training courses that he had committed himself to. Jakes assumed a leadership role in recruiting the new participants and introducing them to the process of lesson study but he did not stay actively involved once the cycle had begun. That responsibility was shifted to the new participant who had volunteered to teach the research lesson.

Even though none of the original participants became involved in the fourth cycle, it appears that they would have been willing to do so if they had been asked. The basis for that conclusion is found in their expressed desire to continue with lesson study. Although it is somewhat unclear exactly how the decision was reached to turn the fourth cycle completely over to the Foundation Phase teachers, it is evident that leadership and direction for the original team of participants came from Glenelg and Jakes.

After interviewing all of the participants about the decision to turn the fourth cycle over to the Foundation Phase, I was still somewhat confused. At the end of the third cycle when participants were asked to comment on the best way to expand lesson study throughout their school, three suggestions emerged: Firstly, they believed that it would be important to keep some of the original members as part of any new team thereby providing continuity. Secondly, they thought it would be a good idea to explain the concept of lesson study to the rest of the faculty, but only invite one or two members to join the group. Thirdly they felt that any new participants should have the same initial training that was held at the beginning of the study in February 2007. None of these suggestions seems to have been a part of the decision to turn the fourth cycle over to the Foundation Phase.

5.7 CONCLUSION

The scope of this research included three complete cycles and a fourth partially completed cycle of lesson study. In each of these lesson study cycles the basic premise on which action research is built – plan, act, observe, reflect – was followed, and is reflected in the reporting of the results. The whole process was conducted over a period of approximately 18 months. Data for each cycle of lesson study was analyzed using the research questions guiding this study. Before coding the data generated for each cycle, all documents were read multiple times. The appropriate research questions were applied based on whether or not participants experienced lesson study as a valuable strategy for instructional improvement.

My role as the researcher was discussed in each section. In the first cycle I assumed the role of full participant as facilitator to the process. As each cycle progressed, my role became less active. During the fourth and final cycle my role as researcher was very limited. The only interaction I had with the participants was through emails while I was

in the USA. Upon my return to South Africa, I did not participate in the fourth cycle other than to conduct interviews.

As each cycle progressed, three components necessary for sustainability of lesson study were discussed. The identified obstacles were addressed, where possible, within the first of the three components. The obstacles were re-addressed through each subsequent cycle. Any additional obstacles were also addressed. This continued through the third cycle. Because an action research design was employed for this study, changes were made from one cycle of lesson study to the next based, in part, on the way each obstacle was addressed. Although the obstacles to the sustainability of lesson study were discussed in the fourth cycle, they were not addressed in the same manner as previous cycles. The reason for that is that the fourth cycle was not finished, so any list of obstacles would be incomplete and thus be difficult to address.

The last section of Chapter 5 is not directly connected to any of the four lesson study cycles. The analysis for that section was based solely on interviews administered at the end of the study. Since so much time had been spent on ensuring sustainability within the selected criteria, I wanted to include the reflections of the participants who began the research with me in February 2007. Since they had not participated in any lesson study cycle for over a year, I wanted to know if they perceived any lasting value to their participation in the process. I also wanted to understand why none of the original participants were involved in the fourth cycle and what interest each of them had in continuing and perhaps expanding lesson study within their school.

The analysis of the questions guiding this research in relation to possible implications for effective CPTD programs will be discussed in Chapter 6. There will also be a discussion of the components of sustainability specific to lesson study. Limitations of this research and recommendations for future studies are also included in the next chapter.

CHAPTER 6

FINDINGS, CONTRIBUTIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

My search for a CPTD program that has shown success in bringing teachers out of isolation to work collaboratively with colleagues in an effort to improve classroom instruction led me to focus on lesson study. As a model for improving instruction within the context of the classroom, lesson study has been the primary method of CPTD in Japan for more than 50 years. It is also beginning to receive recognition in school districts across the USA. There are similarities between the newly reformed education system in South Africa and the systems of Japan and the USA. To my knowledge, lesson study had not been introduced in South Africa prior to this study. Because of these factors, I believed that South Africa would be an ideal and interesting setting to conduct research about the value that teachers would place on the process of lesson study.

A group of six Intermediate Phase teachers in a rural school in the Western Cape Province in South Africa volunteered to participate through multiple cycles of lesson study. Data were generated through a variety of techniques and viewpoints. My role as the researcher was discussed and analyzed in connection to the participants through each cycle of lesson study. The sustainability of the process was addressed between each cycle and at the end of the study. As I became involved in the study, my interest was also drawn to the connection between the cyclical nature of lesson study and the spirals in action research.

The primary purpose of this chapter is to discuss the findings and conclusions related to the value that participants placed on the process of lesson study as a method of reducing isolation and encouraging the type of collaboration that truly effects improvement in instruction. Limitations of the research, recommendations for further research, and the connection between the cycles of lesson study and spirals of action research will also be discussed.

The conclusions found by answering the research questions and addressing sustainability are discussed in Section 6.2. The research sub-questions pertaining to isolation and meaningful collaboration will be answered first. Sustainability based on the components detailed in Chapter 5 will then be discussed. The findings from these two areas will be combined to answer the overarching question guiding this research.

The limitations affecting this study are highlighted in Section 6.3. The three limitations discussed are the role of the researcher, the language barrier, and the physical distance between the researcher and participants during the fourth cycle of lesson study.

The contributions of this research are discussed in Section 6.4. The three areas discussed are CPTD, the sustainability of lesson study, and the connection between cycles of lesson study and spirals of action research.

Recommendations resulting from this research are discussed in Section 6.5. Two categories of recommendations are included in this section: There are recommendations for future lesson study groups as well as recommendations for further research.

6.2 SUMMARY OF THE RESULTS OF THE RESEARCH

6.2.1 Questions guiding the research

The overarching question providing the primary focus for this research was:

> *What value will a group of South African teachers place on the process of lesson study as a model for their own learning and instructional improvement?*

The answer to that question was approached in two ways: Firstly, the following sub-questions were focused on:

1. Will the teachers involved in the research group experience the lesson study cycle as a viable strategy for reducing isolation?
2. Does lesson study facilitate meaningful collaboration in an effort to make improvements in classroom instruction?

As the first cycle progressed, further focus was placed on the sustainability of lesson study with this group of participants. This section will first address the sub-questions and sustainability. It will then discuss the connection between those factors and the value that participants placed in the overall process of lesson study.

6.2.2 Research sub-questions

6.2.2.1 Did the participants experience the lesson study cycle as a viable strategy for reducing isolation?

Participants in this study found that their feelings of isolation diminished as they progressed from one cycle to the next. Although they did not necessarily feel uncomfortable with each other initially, some of the members did indicate that it was a bit strange and tense at first because they were not used to working in that particular group. As they worked through the second cycle together, they began to feel more comfortable about sharing ideas freely. By the time they were into the third cycle, the group felt that isolation within the context of the group was nonexistent. Participants commented that a year after involvement in a lesson study cycle, they were continuing to collaborate informally on their own initiative (see Chapter 5, Section 5.6.3.4).

6.2.2.2 Did the participants' experience in lesson study facilitate meaningful collaboration in an effort to make improvements in classroom instruction?

Although all of the participants had previous experience with collaboration, all of them indicated that the type of collaboration they encountered with lesson study was unique. The participants commented that the biggest difference was that the collaboration they experienced during this study was focused specifically on the context of the classroom with particular emphasis on teaching strategies and the learners themselves. They spoke of four different areas where collaboration was particularly effective.

The first area was setting a common goal to develop the research lesson around (see Chapter 5, Section 5.2.5.1). The participants collaboratively developed the overarching goal that served as a guide during each of the lesson study cycles. The goal was initially used as the team developed their first research lesson. Several of the participants incorporated this idea when planning their own lessons. They were able to take this element of collaborative goal setting and transfer it to the independent environment of their own classrooms.

The second area identified by the participants as a result of effective collaboration was the introduction of several specific instructional techniques or strategies (see Chapter 5, Section 5.2.5.2). The two techniques that were initiated in the first cycle and continued to receive attention through subsequent cycles were giving instructions once and asking

clear, concise questions. A third technique initiated in the second cycle was to add to the clarity of the instructions by also posting them visually. The participants felt that by using these strategies several benefits were being realized in their classrooms. First, they felt that they were moving the learners closer to the goal of becoming better listeners. As a result of this they perceived additional benefits, one being better classroom discipline. Some of the participants indicated that their learners were also performing better individually and in group settings. By the end of this study, eighteen months after the beginning of the first cycle, all of the participants had incorporated these techniques as part of their routine classroom instruction. They transferred the techniques to other grade levels and learning areas. They also employed additional strategies, such as "thumbs up", to gauge the attentiveness of the learners.

A third benefit that participants perceived to be a result of their collaboration in this study was the focus on the learners (see Chapter 5, Section 5.2.5.3). They specifically spoke about anticipating what the learners' responses would be to the instructions or questions developed for the research lesson and how they would observe those responses. They found it quite enlightening to have planned together in advance the expected reactions of the learners and then to have the freedom to observe and analyze what they had anticipated.

The fourth benefit that participants discovered in this type of collaboration was realized during the post-lesson discussions (see Chapter 5, Section 5.2.5.3). They commented on how interesting it was to come together after observing the research lesson and listen to each other's analyses. They were able to see the lesson through each other's eyes and discover insights into their learners that they would not have noticed otherwise. They were then able to incorporate the new information into the revision of the research lesson and into their own classroom instruction.

6.2.3 Sustainability of lesson study

Sustainability of the process of lesson study was addressed in this research by paying attention to the three components suggested by Perry and Lewis (2003). These components were discussed in detail in Chapter 5, Section 5.1.3.2. Each component was analyzed at the completion of each cycle of lesson study. Obstacles were acknowledged and addressed, where possible, prior to proceeding through the next cycle. As each cycle

progressed, it became evident that my role as the researcher also played an important part in the sustainability of lesson study. I made observations about that connection through each of the components for sustainability.

6.2.3.1 Component 1

Were the cycles balanced?

Through each of the four cycles of lesson study the goal was well defined. The participants developed the overarching goal at the beginning of the first cycle and it remained consistent through the second and third cycles (Appendix I). Although the wording was changed slightly for the fourth cycle, the intent of developing good listeners remained consistent.

The second element of balance was also retained through the first three cycles of lesson study. The participants used the four-column study lesson template (Appendix C) to anticipate learner responses to instruction and allow for insight into learner thinking during the observation of the research lesson. Although this template was not used during the fourth cycle, the proposed teacher of the research lesson did document what the perceived misconceptions of the learners might be and how she planned to address them (Appendix R).

The third element important in achieving balance is the thorough collection of data from various viewpoints. This is where I began to see a connection between my role as researcher and the successful inclusion of this element. As this research spiraled from one cycle of lesson study to the next, the data generated became less thorough. My observation is that the thoroughness was in direct correlation to my role as researcher. The more active my involvement with the participants, the more meticulous they were about data generation. During the first cycle, where I assumed a more active role as facilitator to the process, data were thorough and generated from all participants at various points during the cycle (Chapter 5, Section 5.2.6.1). During the second cycle, my role was more that of consultant than facilitator. Data continued to be generated from various viewpoints and a variety of documents (Chapter 5, Section 5.3.6.1). However, the documents were not as thorough or complete as in the first cycle. During the third cycle, my role was further diminished to that of observer. Data generated during this cycle were less thorough for two reasons. First, although data generation documents

were used, they were incomplete and somewhat inconsistent between the participants. A second reason is that I used surveys rather than interviews at the end of this cycle to determine the value that participants placed in their experience. Because of this, I was not able to probe further into answers that may not have been complete (Chapter 5, Section 5.4.6.1). I had no involvement with the process of the fourth cycle. The only data generated by participants during that cycle came from the proposed teacher of the research lesson in the form of her journal notes and the resulting research lesson plan (Chapter 5, Section 5.5.6.1).

The fourth element of balance is for the participants to engage in a discussion that is successful in drawing out implications and limitations of the data. The post-lesson discussion during each cycle served as the forum to satisfy this element. Post-cycle interviews also helped to clarify any limitations and draw out implications of the participants' experiences with the lesson study process. This element was satisfied during the first two cycles because the lesson study documents were completed thoroughly enough through each step of the cycles to allow for meaningful observation and the resulting post-lesson discussion. Those cycles were also concluded with one-to-one interviews. I do not believe this element was entirely satisfied during the third cycle. Because the lesson study documents were not completely filled out during each phase of the cycle, the observation of the research lesson may not have been as efficient as in the previous two cycles. Without the valuable data generated prior to the post-lesson discussion, it is difficult to draw out the implications and limitations of those data. I also used surveys rather than interviews at the end of this cycle.

Were the cycles coherent?

The research lessons in each of the four cycles included in this study were aligned to the adopted NCS (Appendices I, L, M & R). Each lesson was based on a specific Learning Outcome in mathematics. The stated goals and assessment standards were also incorporated into every research lesson. Each description of the study lesson also included the placement on the research lesson within the sequence of lessons taught in that particular Learning Outcome. Each description also included the vertical alignment of the principle in the lesson to the grade level below and above the one being targeted for the research lesson.

Were the cycles responsive to the local need?

Obstacles were identified at the end of each cycle. They were then addressed, where possible, before the subsequent cycle began. At the beginning of the second cycle, participants briefly reviewed the process and the use of the planning tools. Since none of the team members had changed, they all felt that the second cycle would proceed more rapidly because they had a better understanding of the process. In an effort to address the obstacle of time, we agreed to have planning meetings after school. The only obstacle we were unable to address was the number of learning areas that each teacher was responsible for. Prior to the beginning of the third cycle, team members who agreed to participate met for two sessions to review the lesson study process and use of the planning tools. Two of the four original members did not participate as part of the planning team during the third cycle. They did, however, join the group for the observation of the research lesson and the post-lesson discussion. A new member from the Foundation Phase joined the group and attended the review sessions. She did not however remain a member once the cycle began. The importance of using the planning tools was iterated in the review sessions. A list of points to remember (Appendix P) was also introduced as a guide for the planning team since my role during the third cycle was that of observer. It was left up to the participants to make use of the planning tools. My observation was that the tools were not systematically used as a guide. This is likely the reason that the data generated during the third cycle were not as complete or consistent as the data generated during the first and second cycles. Here, again, it is my observation that there is a connection between the level of involvement that I assumed in my role as researcher and the participants' actual use of the tools to guide the process.

6.2.3.2 Component 2

Did the participants have access to content and pedagogical knowledge?

The manner in which this component was addressed differed with each cycle of lesson study. This component allows for an outside expert in either the lesson study process or in the content area for the research lesson. During the first cycle, I assumed the role of facilitator to the process of lesson study. I guided the team of participants through all phases of the cycle (Chapter 5, Section 5.2.6.2). During the second cycle, a knowledgeable other was invited to observe the research lesson and contribute to the post-lesson discussion. Although she was not a content-area specialist in the learning area of mathematics, she was a reading specialist. The goal that the participants had

chosen focused on the reading and listening skills of the learners. This knowledgeable other did not attend any of the planning sessions but did observe the research lesson and participated in the post-lesson discussion. When asked to reflect on the significance of her contribution, the participants agreed that she was able to offer valuable insights. They also recommended that in the future, any participants outside the planning team should be invited to at least one planning session before the research lesson was taught (Chapter 5, Section 5.3.6.2). During the third cycle, there was no knowledgeable other or lesson study expert invited to participate. My role during this cycle was to observe the participants as they proceeded through the process. Two of the original team members did not participate as active members of the planning team during this cycle. They were both, however, invited to the last planning meeting before the research lesson. They did observe the lesson and participated in the post-lesson discussion as moderator and knowledgeable other (Chapter 5, Section 5.4.6.2).

Although the requirement for this component was satisfied at a basic level, for lesson study to be sustainable, more attention would need to be directed in this area. By the end of the study, participants were suggesting that it would be advisable to invite a math expert to join the group as a knowledgeable other. They also pointed out that it would be desirable to invite that person earlier in the planning process. The participants arrived at this conclusion through their own reflection.

6.2.3.3 Component 3

Did the participants possess the personal and collegial qualities that support learning?

Throughout the scope of this research, the participants did exhibit all the personal and group qualities required to satisfy this component. They initially volunteered because they were interested in becoming better teachers. They were positive and supportive of each other as individuals and of the group as a whole through each phase of each cycle. At the conclusion of this research, they were each excited about the possibility of continuing with lesson study on their own. A somewhat unique quality that this group possessed was the inclusion of the principal and deputy principal in the planning team. Although including an administrator, such as a principal, as part of a lesson study team may not always work well, this particular group seemed very comfortable with the inclusion of the principal and deputy principal. All team members took part in the

planning sessions. The only decision I am aware of that the principal and deputy principal made for the group was in reference to participation in the fourth cycle. The rest of the team was not involved in the decision to give the fourth cycle to the Foundation Phase (Chapter 5, Section 5.6.4). However, when one of the participants was asked to help motivate the Foundation Phase teachers to become involved after the decision had been made to give the fourth cycle to them, she was happy to do so. It did not seem to be viewed as an authoritative decision by the rest of the planning team.

6.2.4 Overarching research question

There were several elements of the process of lesson study that the participants perceived as valuable. They were positive about their experience through each of the cycles they were involved with. A year after completing their third cycle of lesson study, they continued to use the instructional strategies initiated within the first cycle. The elements of the lesson study process that were perceived as having the highest value were the focus on a common goal, the attention on the learners, and the opportunity to observe and reflect on the research lesson (Chapter 5, Section 5.6.3.7).

The largest obstacle identified by the participants was that of time. Not only was it an obstacle to spend the amount of time required to proceed through a cycle, it was also difficult to schedule a meeting time at a time when all the participants could be present. This is consistent with the experience of many lesson study groups. Another obstacle commented on was the number of learning areas that some of the participants are required to teach. It was difficult to rationalize spending so much time on the single learning area of mathematics when they had several other learning areas to plan for (Chapter 5, Section 5.6.3.6).

Even with these obstacles unresolved, the participants were eager to continue with lesson study. In the post-cycle interviews, they each expressed a desire to be further involved. They saw value in expanding lesson study to include other faculty members and other learning areas. During the final interview, the principal of the school made the commitment to continue with lesson study because of the benefits he and the other team members had discovered through their involvement.

Although all of the participants were enthusiastic about continuing with lesson study, I believe they will need to give more attention to some of the components of sustainability if they want that enthusiasm to endure. Emphasis needs to be given to achieving balance, particularly in the areas of data generation and the ensuing discussion. The invitation of an outside expert needs to be thought out in advance. That person should be supplied with background information about the process of lesson study and should also be invited to at least one planning session prior to the teaching of the research lesson.

6.3 LIMITATIONS OF THE RESEARCH

There are three areas where limitations to this research have become evident. These areas are: my role as the researcher, the language barrier between the participants and myself, and the physical distance between us.

6.3.1 Role of the researcher

Although my role as researcher was firmly established with the original six participants during the first three cycles, that was not the case during the fourth cycle. The Foundation Phase teachers responsible for the fourth cycle were adamant that they would be doing the research for themselves rather than for me. When I returned to South Africa in June 2008 and they were asked to teach the research lesson within a shortened time-frame so that I could use the data generated from that as part of my study, they declined to do so. A detailed discussion about the decision not to teach the research lesson can be found in Chapter 5, Section 5.5.5.1. The nature of an action research design allows for the necessary flexibility required to encourage a group of participants to take full ownership of a project. Even though the fourth cycle was not completed, valuable data relative to the process of lesson study were generated therein.

6.3.2 Language barrier

The language barrier between the participants and myself is a limitation evident in this study. The only language that I speak fluently is English. Although all of the participants were fluent in English, it was not their first language. Afrikaans was the language that they were most comfortable using. Accommodations were made from one cycle of lesson study to the next to minimize the effects of this limitation. These accommodations are discussed in detail in Chapters 4, Sections 4.5.3, 4.5.4 and Chapter 5, Sections 5.2.6.1, 5.3.6.1 and 5.4.6.1.

6.3.3 Physical distance

One obvious limitation to this research is the physical distance between the participants and me. I was physically present in South Africa during the first three cycles of lesson study, so this limitation had little effect on the research until after the third cycle. At the end of that cycle, rather than conducting interviews, I had the participants complete surveys answering questions about their experience. When I returned to the USA, I read their responses to the survey questions and then sent emails to the participants requesting further clarification. That communication received no response. This is the point in the study where the physical distance between the participants and myself became a limitation. However, because this spiral of action research was planned so that my interaction was to be minimal, this limitation did not negatively influence the rigor of this study.

6.4 CONTRIBUTIONS OF THIS RESEARCH

There are three areas where the findings from this research contribute to the wider body of knowledge in this field. Firstly, this study provides insight that may contribute to the effectiveness of CPTD programs. Those contributions are discussed in Section 6.4.1. Secondly, there are findings from this research that add to the body of knowledge surrounding the sustainability of lesson study. That contribution is discussed in Section 6.4.2. Finally, the connection between the cycles of lesson study and the spirals of action research is discussed in Section 6.4.3.

6.4.1 Contributions to continuing professional teacher development

The rationale for this study was initially born out of my personal dissatisfaction with the CPTD programs that I had experienced as part of my teaching career. My interest in conducting the research in South Africa was founded on a personal as well as educational level. Since South Africa is the country of my birth, there was a strong personal connection. The educational connection, discussed in Chapter 1, Section 1.2.1, came as a result of the reform in educational policy at the national level. The combination of those factors, and the belief that lesson study had not yet been experienced in South Africa, provided me with the incentive to conduct my research in this country. As I guided a group of teachers at a school in the Western Cape Province through multiple cycles of the

lesson study model, several elements emerged that may offer valuable insight when considering the implementation of CPTD activities.

There are many ways to characterize the effectiveness of CPTD (Chapter 2, Section 2.1.2). According to Ankiewicz, Adam, Swardt and Gross (2001:201),

> Teachers should be trained to match the aims and objectives of their lessons with strategies for achieving them. Teacher development programmes and curriculum advocates should provide concrete support for teachers in terms of developing strategies to promote thinking as well as means of assessing various strategic options.

Harley, Barasa, Bertram, Mattson and Pillay (2000:300) contend that, "if teacher development is to be successful it needs to incorporate the teacher's purpose, the teacher as a person, the real world context in which teachers work, and the culture of teaching in that context."

Consistent with these views, there are four components for successful CPTD discussed in Chapter 2, Section 2.1.2. Firstly, CPTD should bring teachers out of isolation through meaningful collaboration with their peers. Secondly, an effective CPTD program is delivered within the context of the classroom. Thirdly, the learning presented through the CPTD program must be incorporated into routine classroom practice. Finally, a successful CPTD program includes follow-through or ongoing support to its participants. The following sections discuss the contributions of this research to each of these four components of a successful CPTD program.

6.4.1.1 Bringing teachers out of isolation through meaningful collaboration

Isolation is embedded in the culture of teaching in many countries, including South Africa (Chapter 3, Section 3.3.7). One of the responsibilities of an effective CPTD program is to bring teachers out of isolation through involvement in meaningful collaboration. Providing a venue for collaboration, such as 'cluster' meetings is just one step in the right direction. However, there is more to meaningful collaboration than placing a group of people together who share a common interest.

As discussed in Chapter 2, Section 2.1.4, a successful model for collaboration should include a theoretical framework, peer discussion, observation, and critical analysis. The

participants in this research did experience all of those elements through the process of lesson study. Each of them had previous collaborative experience through Learning Area and cluster meetings. They found their experience with collaboration in lesson study to be more valuable than previous experiences because they connected it directly to improvement of their own instruction. They specifically stated that planning the research lesson together and discussing the impact it had on the learners were the most valuable aspects of collaboration during this study (Chapter 5, Section 5.2.5.3).

As discussed in Chapter 2, Section 2.1.4, not all types of collaboration are successful in bringing teachers out of isolation (Lam et al., 2002). An effective way to achieve that goal is to employ a model of collaboration that focuses directly on classroom instruction (Burney, 2004; Little, 1985). As the participants in this research progressed from one cycle of lesson study to the next, their sense of isolation gradually decreased until by the end of the third cycle they indicated that it no longer existed (Chapter 5, Section 5.4.5.4).

For teachers in South Africa to experience this type of collaboration, thus reducing isolation, the process needs to be driven from the local school level. Participants in this study indicated that it would not work if initiated from the top down (Chapter 5, Section 5.2.5.5). There has already been a move through IQMS to address CPTD within the local school setting thereby possible minimizing the top-down effect. As suggested in Chapter 3, Section 3.4.1, if the IQMS process, which helps to identify the individual CPTD needs of the teachers, is coupled with the proposed CPTD system, then "systematic attention can be given to the real needs in the schooling system" (DoE, 2008:52). Whether or not the model of lesson study is employed as one of the options for CPTD, the type of collaboration contained within the model could be applied to other CPTD programs.

6.4.1.2 CPTD programs contextualized within the classroom

Traditionally, CPTD programs or workshops tend to be delivered by educational experts who have spent little time in the classroom (Berman et al., 2000; Stigler & Hebert, 1999). As noted in Chapter 3, Section 3.4.1, this has been the experience of some of the teachers in South Africa.

The process of lesson study is embedded within the classroom context. It requires the team of participants to select an overarching goal for their learners, analyze the placement

of their learners in relation to the set goal, develop a research lesson designed to move the learners closer to the goal, observe the effects of that design through the learners' experience of the research lesson, and then reflect on those observations. Lesson study uses the classroom as its context through every step of the cycle.

Participants in this study unanimously agreed that they had improved their own classroom instruction as a result of their experience with lesson study. The reasons they gave for that claim were:

- setting a goal and then planning instruction with the purpose for moving learners closer to the goal;
- establishing a connection between the content of the research lesson and the rest of the curriculum;
- planning, in advance, the learners' response to instruction and the consequent teacher's response;
- the opportunity to observe the learners during the research lesson; and
- the value of the post-lesson discussion where they were able to collaboratively validate and build on the perceptions of their learners in relation to the prescribed goal (Chapter 5, Sections 5.2.5.3 & 5.2.5.4).

The experience of the participants in this study is consistent with the recommendations contained in the final report of the *Research Study on Professional Development Practices in Schools* (DoE, 2008). When comparing CPTD models in schools throughout three provinces in South Africa, it was determined that school-based models that placed the focus within the classroom context were successful in effecting positive changes in classroom instruction. The task team responsible for the research commented that "the implication is that local groups, meeting regularly, building confidence in content is good especially in starting in-service [CPTD] training under qualified teachers. Local conditions allow for faster or slower confidence building through adaptive stages" (DoE, 2008:16). They point out that it is in such an environment that teachers become reflective practitioners in their own classrooms.

6.4.1.3 Transfer of learning into routine classroom practice

The ultimate goal of an effective CPTD program, as discussed in Chapter 2, Section 2.1.2, is to effect positive change in classroom instruction. According to Joyce and

Showers (1982:5), teachers need time to process the information gained during a CPTD session in order to be able to transform it into routine practice. The successful implementation of a new practice into routine instruction also addresses, in part, the sustainability of that practice. For any new practice to be proven sustainable, it not only needs to become routine, but must also be able to survive organizational changes (discussed in Chapter 5, Section 5.1.3).

The organizational structure of education in South Africa has gone through and continues to go through organizational changes (Chapter 3, Section 3.3). Specifically with regard to CPTD, principals and teachers have been inundated with a series of policies produced by the DoE (Chapter 3, Section 3.1.4) with the intention of raising the quality of teaching in South African schools. The report on CPTD (DoE, 2008:5) states that "school improvement is an approach to educational change that enhances student outcomes as well as strengthening the capacity of schools to manage change." The most current change in policy related to the professional development of in-service teachers is the proposed CPTD implementation. The research shows (DoE, 2008: 44-45) that there is inadequate alignment between the CPTD system and the IQMS already in place. With organizational changes continually taking place in education in South Africa it becomes increasingly important to offer CPTD programs that sustain teachers through these changes. Such programs would be school- or teacher-driven, designed to improve the quality of routine classroom practice.

The participants in this study indicated that 18 months after the introduction of new strategies used as a result of their experience in the first cycle of lesson study, they had not only incorporated them into routine classroom practice, but had also transferred them to other learning areas and scenarios (Chapter 5, Section 5.6.3.2). The lesson study model, as a CPTD program introduced to this group of participants in the South African setting, did provide the catalyst to effect the type of change in instruction that leads to routine practice. If the expectation by the DoE is for teachers to become "mediators of learning, interpreters and designers of Learning Programmes and materials, leaders, administrators and managers, scholars, researchers and lifelong learners, community members, citizens and pastors, assessors and learning area/phase specialists" (DoE, 2000a:13,14), then CPTD programs such as lesson study deserve close attention.

6.4.1.4 Successful CPTD programs include continuous support

As discussed in Chapter 2, Section 2.1.2, the incorporation of material presented in CPTD programs into the classroom is rarely monitored or supported. An important component to any type of intervention is a plan to follow through or support its successful implementation. According to Bennell (2004:13), "Teachers need continuous professional development as well as support from peers and supervisors. CPTD is usually scarce, one-shot, top-down, unrelated to a broad strategy, and not targeted at teachers who need it most."

This continuous support is contained within the model of lesson study. Fullan and Watson (1999:4) found that

> the most successful schools had teachers and administrators who (1) formed a professional learning community, that (2) focused on student work (assessment), and (3) changed their instructional practice (pedagogy and support for learning in the classroom) accordingly in order to get better results. They did this on a continuous basis.

The participants in this research used the CPTD model of lesson study to experience all the components that Fullan and Watson refer to. This particular lesson study team was comprised of two administrators and four teachers. (The administrators were also classroom teachers.) This team formed the professional learning community. Through the model of lesson study, they collaboratively focused on the learners' work and changed their instructional practice. They then observed those changes, reflected collaboratively on the success of the changes, and made revisions to the instruction based on the reflections. They proceeded to follow this sequence through three cycles.

By following the model of lesson study, this group of participants provided each other with the follow-through and support necessary for the successful implementation of a CPTD program. Although it may also have been effective to have a team comprised only of teachers (as many lesson study teams are), it was very advantageous, in terms of support, to have two administrators on the team. The support of the administration (principal) is vital to the successful continuous implementation of CPTD strategies. The expectation by the DoE for principals in schools in South Africa is evident through the IQMS. The responsibility of administration in relation to CPTD is outlined in the DoE

report (DoE, 2008:50) and states, "the IQMS process requires schools to assist educators to prepare Professional Development Plans linked to the School Improvement Plan…. Generally, principals reported that implementation, monitoring and evaluation systems were in place in schools."

Although it may have been the inclusion of two administrators that encouraged the continuous involvement of each of the participants through three cycles of lesson study, it was the experience of the process itself that promoted the necessary follow through. Participants indicated that more than a year after their experience with lesson study, they were continuing to observe each other and informally discuss the use of teaching strategies initiated during their participation in this research (Chapter 5, Sections 5.6.3.2 & 5.6.3.4).

6.4.1.5 Conclusion of the contribution of this study to CPTD

CPTD programs could be more effective if delivered in the context of the classroom in a way that brings teachers out of isolation and encourages them to incorporate new strategies as part of routine classroom instruction. Such programs may also be more effective if they contain a component that allows for follow-through and continuous support.

As the educational reform movement that began in South Africa nearly two decades ago continues to evolve, teachers will also be asked to make continuous changes in classroom instruction. Harley et al. (2000:300) argue that

> for real change then, what teachers need is not impersonal policy directives implemented from above with the overtones of authority and control, but localized, contextualized, even personalized, developmental support and assistance in the everyday business of teaching. And what this requires is policy that is sensitive to contextual diversity being implemented at local community level by those most in touch with local conditions.

If the DoE moves forward with implementing the proposed CPTD system, the contributions from this study, as described above, can be used at the local school level to influence a variety of CPTD programs. The implementation of a lesson study model,

although a possibility, is not necessary in order to benefit from the positive pedagogical results contained within its elements. The contributions previously described in this section can inform many existing CPTD programs. Lesson Study as a CPTD model could be used to fill the professional-development gaps, spoken of in Chapter 3, Section 3.4.1, that are identified through the IQMS. It could also, as Glenelg suggested in Chapter 5, Section 5.3.5.5, be used in schools to help facilitate the process of the IQMS.

6.4.2 Sustainability

Through each cycle of lesson study during this research, the issue of sustainability was addressed (Chapter 5, Sections 5.2.6, 5.3.6, and 5.4.6). Proceeding through the steps in a lesson study cycle does not necessarily guarantee sustained improvement in classroom instruction. Perry and Lewis (2003:19) claim, "although lesson study is often described as a particular set of practices, these practices do not guarantee that the lesson study will offer opportunities for teachers to learn". As a result of their own three-year study, Perry and Lewis (2003) suggested three components that may be necessary for lesson study to continually contribute to the improvement of instruction. These components are discussed in detail in Chapter 5, Section 5.1.3.2. Perry and Lewis (2003:18) suggested that more research was needed to determine the effect that these components have on the "robustness of the lesson study effort."

By systematically applying each of the three components suggested by Perry and Lewis to four cycles of lesson study, this research seeks to help determine the effect the components have on the sustainability of the process. I believe that paying attention to each of these components as the study spiraled from one lesson study cycle to the next, helped facilitate the desire expressed by all of the original participants to continue with the process. According to Stepanek et al. (2007), "After completing one or two lesson study cycles, teachers sometimes lose their initial enthusiasm for lesson study." This was not the case with the participants in this research. Each of the original six participants remained involved through three cycles of lesson study. A year later, they continued to express enthusiasm about their experience and a desire to continue with lesson study on their own. They also discussed (Chapter 5, Section 5.6.3.5) the importance of expanding lesson study within their school to include other members of the teaching corps.

6.4.3 Connection between lesson study and action research

Action research was the design chosen for this study. The rationale for this decision can be found in Chapter 4, Section 4.2. Although I sensed a connection between the spirals of action research and the cycles of lesson study prior to the commencement of the first cycle, it was during the process of experiencing repeated cycles of lesson study through the corresponding spirals of action research that I realized how close the connection really was.

There are differing views about how many steps there are in a cycle of lesson study (Fernandez & Chokshi, 2002; Lewis, 2002; Stigler & Hiebert, 1999; Yoshida, 1999). The cycles in this study contained four steps. These are discussed in detail in Chapter 2, Section 2.2.2. There are also differing views of how many stages there are in a spiral of action research (Bassey, 1998; Lewin, 1946; Riel, 2008; Stringer, 2007). The four-stage action research design chosen for this study is discussed in Chapter 1, Section 1.5.2.

The following graphic connects the steps of a lesson study cycle (found in Chapter 1, Figure 1.1), directly to the stages of an action research spiral (found in Chapter 4, Figure 4.1).

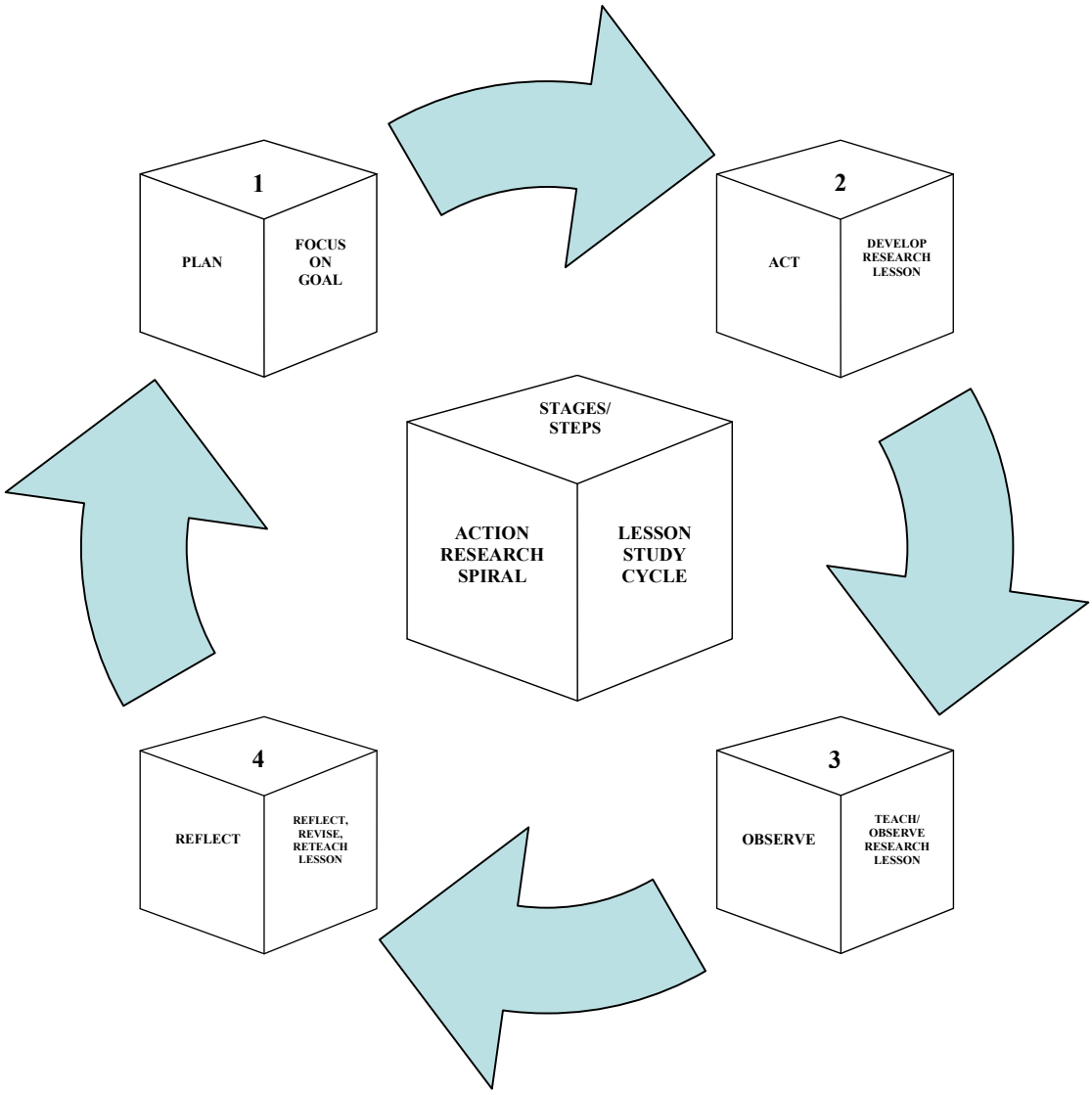


Figure 6.1: Connection between action research spiral and lesson study cycle (adapted from Lewin, 1946; Lewis, 2002; Stepanek, 2007; Weeks & Stepanek, 2001)

There are connections beyond the structure between the model of lesson study and the design of action research. Yoshida (in Wang-Iverson & Yoshida, 2005:5) suggests a summary of what lesson study *is* and what it *is not.* Furthermore, Mertler (2009:18,19) provides a summary of what action research *is* and what it *is not.* The following table shows the connection between those two summaries:

Table 6.1: Connection between the "is" and "is not" of action research and lesson study

Action Research *is*:	**Lesson Study *is*:**
A process involving educators working together to improve their own instruction.	Teacher-led, ongoing professional development.
A process that improves education, in general, by incorporating change.	Conducted with a common overarching goal.
A planned systematic approach to understanding the learning process.	Focused on subject content in the context of student thinking.
Collaborative, that is, it is composed of educators working with other educators in empowering relationships.	Informed by outside expertise through knowledgeable others.
A cyclical process of planning, acting, developing, and reflecting.	A cyclical process of goal setting, developing a research lesson, teaching and observing the research lesson, and reflecting.
Action Research *is not:*	**Lesson Study *is not:***
Done "to" or "by" other people; it is research done be particular educators, on their own work, with students and colleagues.	Teacher training.
Simply problem solving; it involves the specification of a problem, the development of something new (in most cases), and critical reflection on its effectiveness.	Creating a perfect lesson.
The usual thing that teachers do when thinking about teaching; it is more systematic and more collaborative.	Done in isolation.

Based on the work of Mertler (2009) and Yoshida (in Wang-Iverson & Yoshida, 2005).

Each row in the table above contains a connection between action research and lesson study. The table, along with Figure 6.1, shows the logical relation between action research and lesson study. For the purposes of this study, an action research design was employed as the analytical framework to investigate the classroom practice of lesson study. I believe that this study has also shown that the reverse process can also happen. The model of lesson study provides the classroom teacher with a structure (practice) to develop or inform the theory (research).

It should not be confused that I am trying to equate lesson study with action research. They are two distinct processes – the one being a rigorous scientific approach to the study of a certain phenomenon, in this case the implementation of lesson study – the other being a practice-based tool within a school context.

The contributions from this research may be transferable to other settings. As discussed in detail in Chapter 4, Section 4.3, careful attention was paid to the rigor of data generation. Therefore, the reader may be able to transfer the findings described in this section to his or her own setting.

The following section will discuss the recommendations proposed as a result of this research.

6.5 RECOMMENDATIONS

This section will approach recommendations from two different views: Firstly, Section 6.5.1 will discuss recommendations for future lesson study groups based on the findings from this study. Secondly, Section 6.5.2 will highlight recommendations for further research.

6.5.1 Recommendations for future lesson study groups

The recommendations for this section fall into two categories: Section 6.5.1.1 will discuss the findings from this study that may be valuable to incorporate into other lesson study groups. Section 6.5.1.2 will suggest possible changes or additions that may make the lesson study experience more valuable for participants.

6.5.1.1 Elements from this study that may be valuable to continue incorporating

I found the following elements, specific to this group of participants, to be a valuable part of their experience and, therefore, recommend incorporating them where possible:

1. The lesson study documents used in this research were developed in alignment with the adopted curriculum being used by the participants (ie. Appendix F). The process of developing these documents is discussed in detail in Chapter 4, Section 4.5.1.2. Aligning the documents with the adopted curriculum contributed to the participants' understanding of the lesson study process. By using an example for the research lesson from the NCS (the known), the teachers on the team found it easier to conceptualize the process of lesson study (the unknown). I therefore recommend providing an example of the Description of the Study Lesson that is embedded within the curriculum being taught by the lesson study team.

2. A three-hour training session for participants was held prior to the beginning of involvement in the first cycle. Feedback from those in attendance was very positive (Chapter 4, Sections 4.5.1.2 and 4.5.1.3). The team members who attended the training indicated that it would have been very difficult to proceed through the process of lesson study without that training session. I therefore recommend that initial training be offered to new lesson study groups and to new members joining the existing group.

3. All of the participants were teachers in the Intermediate Phase (grades 4-6). They also taught mathematics as one of their Learning Areas. Having common grade levels and a common subject, even though the lesson study goal was not specific to mathematics, helped to involve all team members in active discussion and observation. I therefore recommend that the lesson study team be comprised of teachers within the same discipline and/or within the same Phase.

4. The lesson study team in this research was comprised of a heterogeneous mix of teachers. The six team members provided diversity in educational qualifications, teaching experience, age, and gender. This allowed for valuable insight from a variety of levels during group discussions. I therefore recommend including lesson study team members with differing levels of education, experience, age and gender.

5. With the exception of one team member, this group had already experienced collaboration with each other prior to involvement in this study. (The exception, Nandi, was in her first year of teaching.) Because the group was already comfortable with each other, they were able to work well together from the beginning of their involvement in the study. It was unnecessary to do any team-building activities. I therefore recommend beginning lesson study with a group of teachers who are already comfortable working with each other.

6. The experience of this group of participants was not necessarily characteristic of the average lesson study group. Two of the six team members were also administrators. The South African context lends itself more easily to this scenario because principals and deputy principals in primary schools are also expected to

teach in the classroom. Although this expectation is not the norm in schools in the USA, it would still be a valuable addition to have an administrator as part of the lesson study team. This would probably only be effective if the relationship between the principal/deputy principal and the rest of the lesson study team was viewed by all participants as collegial and supportive. I recommend including an administrator in the planning and, where possible, as a member of the lesson study team.

7. At the end of each cycle of lesson study, any obstacles to its continuation were identified and addressed, where possible, prior to the initiation of the subsequent cycle. It may be that by paying attention to the obstacles as they were identified, participants were more eager to continue through multiple cycles of lesson study than they otherwise might have been. I therefore recommend that obstacles to the process be identified during each cycle and addressed prior to the initiation of subsequent cycles of lesson study.

6.5.1.2 Elements from this study that could be changed

Based on the data from the research and my own reflection throughout this study, I suggest the following changes that may contribute to making the lesson study experience more valuable for participants:

1. It is important that *all* members of the planning team receive the initial training. Each of the participants also expressed that same desire (Chapter 5, Section 5.4.5.5). Even though only three of the six participants were in attendance at the initial training session, they all felt that it was important for any new members joining the team to be exposed to that training.

2. In the interest of time and continuity, an important expectation for any lesson study group is that all participants be in attendance at group planning and discussion sessions. Participants in this study did indicate that time was wasted at the beginning of some of the planning sessions because a recap of the last session needed to be done for those who had been absent (Chapter 5, Section 5.3.5.6). Although none of the participants in this study mentioned that it would have saved time if everyone had been at all group sessions, it is my impression that

time would have been saved and that all participants would have had a more complete understanding of the process had they been in attendance. I recommend that members of a lesson study team make the commitment to attend all planning sessions.

3. During the second cycle of lesson study conducted during this research, a knowledgeable other was invited to observe the research lesson and act as final commentator during the post-lesson discussion. She was not in attendance at any of the planning sessions. The participants indicated that it would be a good idea to have invited her to join the group earlier in the process (Chapter 5, Section 5.3.6.2). For the knowledgeable other to understand the goals of the group, I recommend that the invitation is extended to join the team for at least one discussion session prior to the observation of the research lesson.

4. There were two ways that new members were introduced into the lesson study process during this research. At the end of the second cycle, a teacher from the Foundation Phase expressed a desire to be part of the third cycle. She did attend both review sessions between the second and third cycles of lesson study. The inclusion of this new member is discussed in detail in Chapter 4, Section 4.5.4.2. Because of a conflict in schedules, this new member was not able to participate in the third cycle.

   The other way that new members were introduced to lesson study was prior to the fourth cycle. The whole Foundation Phase was approached by two of the original participants. Although not given any training, they were supplied with background reading materials. This study group began with ten participants, only one of whom read the materials. This ultimately resulted in the fourth cycle remaining incomplete by the end of this study. A complete discussion of the fourth cycle can be found in Chapter 4, Section 4.5.5 and Chapter 5, Section 5.5. After reflecting on the fourth cycle, the principal concluded that the best way to introduce new members would be to place them with the experienced participants, thereby providing continuity (Chapter 5, Section 5.6.3.5). My recommendation is in agreement with that of Glenelg. I believe that a lesson study team will find

more value in their experience if the group is comprised of a mix of lesson study veterans and new inductees to the process.

As stated previously, the best way to introduce new members into the process of lesson study is to include them in a training session. If that is not possible, then I recommend including new members in a review session prior to their involvement in the process of lesson study. I further recommend that new members be added, one or two at a time, to a team of lesson study veterans.

5. One area we could have changed to make the whole experience more valuable would have been to share this process with the rest of the teacher corps. During the second cycle of lesson study, one other faculty member was invited to act as knowledgeable other during the observation of the research lesson, but that was the only time during the process of the first three cycles that an invitation was extended. Perhaps other teachers could have been invited to observe the research lesson and attend the post-lesson discussion. That alone may have helped with continuity into the fourth cycle. My recommendation is to have a discussion early in the process of how to include other members and how to share the experience of lesson study with the larger school community.

Perhaps the most efficient way to implement these changes for use with future lesson study groups would be to develop a set of norms for participants. The norms could include such elements as initial training, attendance/absenteeism, inclusion of a knowledgeable other, the process for initiating new group members and the expectation for sharing the results of their experience with colleagues.

6.5.2 Recommendations for further research

The following recommendations are made for further investigation:

1. Further exploration of the connection between action research and lesson study is required. The connection between action research and lesson study may be more meaningful if there were no "outside" researcher involved. The researcher(s) could be the teacher(s) in the school where the lesson study process is taking place.

2. The necessary tools for planning, teaching, and observing a research lesson were developed for use in this study. These tools are available in English (Appendices B, C, D, E) and in Afrikaans (Appendices O1, O2, O3, O4). I recommend that a different group of teachers in South Africa use the same tools to guide their own cycles of lesson study. This could increase its external validity.

3. During the scope of this research a lot of attention was paid to the proper use of the tools and lesson study documents. Further research could be done on the relationship between the tools and high-quality lesson study. This would require a longitudinal study with in-depth feedback from the participants.

4. A replication of this study could begin with a more in-depth profile of the roles and expectations of the participants in the research. I conducted a background survey (Appendix G) that gave a "snapshot" of the participants' demographics and prior experience with collaboration. It may be beneficial to explore participants' roles in relation to each other; a more detailed description of prior experience with collaboration; their experience with CPTD programs or activities; and their expectations through their involvement in lesson study.

5. Further research could explore lesson study as a model for successful CPTD. In Chapter 2, Section 2.1.2, I discussed four components of successful CPTD programs. The reader may know of other components that were not included in this study. The process of lesson study could be analyzed in connection with other components of a successful CPTD program to determine its viability as a strategy for instructional improvement.

6.6 CONCLUSION

This final chapter has discussed the findings, contributions, and recommendations as a result of this study. The overarching question guiding the research was:

> *What value will a group of South African teachers place on the process of lesson study as a model for their own learning and instructional improvement?*

Through their experience in multiple cycles of lesson study, the group of participants did find value in the process as a strategy for reducing isolation and improving classroom instruction. The elements of the process that they found most valuable were the focus on a common goal, the attention to the learners, and the opportunity to observe and reflect on the research lesson.

Lesson study can be employed as an effective CPTD program. The teachers in this study participated in the type of meaningful collaboration, suggested by Little (1985), where the focus was placed on the classroom. The teachers were given the opportunity to discuss, observe, and reflect on instruction based on a prescribed goal for their learners. All of the participants in this study became researchers in their own classrooms. Glenelg summarized the sentiments of the group by reflecting,

> *This is a process that we started and I think there's no going back.*

With the increased pressure that educational reform has placed on teachers, both in South Africa and in the USA, lesson study offers a viable strategy to effect the kind of change necessary. The process of lesson study empowers teachers to be active creators and reformers of their own profession.

APPENDIX A

CONSENT TO PARTICIPATE IN RESEARCH

You are asked to participate in a research study conducted by Karen Coe, under the direction of Professor A.E. Carl, from the Faculty of Education at the Stellenbosch University.

You may choose whether or not to be in this study. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind.

- **PURPOSE OF THE STUDY**

This study is to determine the value that teachers will place on the process of lesson study as a strategy to improve instruction.

- **PROCEDURES**

If you volunteer to participate in this study, we would ask you to actively engage in the process of lesson study, keep a journal, communicate during lesson study sessions in English and participate in individual and focus-group interviews. These interviews will be recorded. Analysis of these recordings will be presented in a qualitative findings section of this study.

- **POTENTIAL RISKS AND DISCOMFORTS**

While there are no foreseeable risks or discomforts to research participants, continued monitoring and dialogue will be conducted to ensure continued comfort of research participants. Subjects may discontinue participation of the study at any time.

- **POTENTIAL BENEFITS TO PARTICIPANTS AND/OR SOCIETY**

Teachers participating in this study will learn to refine effective teaching strategies and develop high quality lessons that increase student understanding. Data and analysis from this study will also be used to support continued research in the area of lesson study. Articles will be published in education research journals to help build the body of research and current thinking in this area.

- **PAYMENT FOR PARTICIPATION**

Participants involved in this study will receive no compensation for their participation in this research study.

- **CONFIDENTIALITY**

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission. Confidentiality will be maintained by means of post coding of data generated and complete anonymity of all research teachers, students and school sites.

All research participants will have the right to review/edit any recordings that will be created as a result of this study. These recordings will be used solely for the purpose of creating transcripts of the data generated during the process of the study. All recordings will be destroyed at the completion of this research project.

- **PARTICIPATION AND WITHDRAWAL**

You may choose whether or not to be in this study. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you do not want to answer and still remain in the study.

- **IDENTIFICATION OF RESEARCHER**

If you have any questions or concerns about the research, please feel free to contact Karen Coe: email karencoe1@msn.com, cell phone number 0729658697.

SIGNATURE OF PARTICIPANT

I understand the procedures described above. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

_____
Name of Participant

_____ _____
Signature of Participant Date

SIGNATURE OF RESEARCHER

In my judgment the participant is voluntarily and knowingly giving informed consent and possesses the legal capacity to give informed consent to participate in this research study.

_____ _____
Researcher's signature *Date*

APPENDIX B

Tool for Planning and Describing Study Lessons

This tool is designed to help you describe your study lesson. It is organized by sections, each focusing on a particular aspect of the lesson or its context. Each section contains a list of guiding questions you should think about as you complete that section. Keep in mind that the list of questions provided is not meant to be comprehensive, but rather, to give you an idea of key issues that you should be thinking about. Many other questions or issues are likely to surface as your group plans its study lesson.

Logistical information about the lesson
Date:
Grade:
Period and Location:
Instructor:

I. Background Information

A. Goal of the Lesson Study Group:
This is a description of the group's lesson study goal and its focus. This goal will have evolved out of identifying the gap that exists between aspirations your group has for students and the kinds of learners that are actually being fostered at your school. Therefore, you may want to describe in this section: the aspirations that your group has for students and why they are important; ways in which, as a group, you feel you are falling short of these aspirations and how this is manifested in your students; how the goal your group has chosen represents an attempt to close this gap. You may also want to explain concretely what your exploration of this goal entails.

- *What kind of learners do we want to see develop at our school?*
- *What kinds of learners are actually developing at our school? What evidence do we have for this?*
- *Why does this gap between our aspirations and reality exist? How can we close this gap?*
- *How will the lesson study goal we have chosen help us close this gap?*
- *How will we go about exploring our lesson study goal?*

B. Narrative Overview of Background Information:
This is a description of the lesson context. It is a way for you to set up and put in perspective the lesson. You should include all the background information that you feel is needed to appreciate the lesson in a meaningful way. For example, you may want to provide information regarding your students, what they know, and why this lesson is important to their continued learning and development. You may also want to mention any teaching techniques or approaches that you will be exploring in this lesson. Make this personal to you as the teacher, your classroom, and your individual students.

- *What do observers need to know about my classroom?*
- *Who are my students? What do they already know? What strategies do they use? What motivates them?*

- *What personal knowledge can I share with the observers so that they may better understand what is going on with my individual students? What individual differences will they see?*
- *Why is this content important?*
- *What misconceptions might students have?*

II. **Unit Information (Learning Outcome)**

A. Name of Learning Outcome:
State the name of the Learning Outcome from which you have selected your study lesson.

B. Goal(s) of the Learning Outcome:
This is a description of the focus or learning goals for this Learning Outcome.
- *What is the content here?*
- *What should the students know at the end of this Learning Outcome?*

C. How this Learning Outcome is related to the curriculum:
This is a description of how the content that is taught in the Learning Outcome relates to content taught in previous and future grades as well as this grade. It should include the specific concepts that are taught in those grades and how they relate to the concepts taught in this grade. Include only highly relevant concepts in this description.
- *What prior content knowledge is necessary to learn this content?*
- *What new knowledge can be developed from the concepts in this Learning Outcome?*
- *What should students know after studying this area of the content?*

D. Instructional sequence for the Learning Outcome:
This is a sequenced description of the general objectives of the unit. It should identify how the study lesson being described fits within the sequence. It does not need to list each individual lesson, but rather, the topics that are covered.
- *Where does this lesson fall in this Learning Outcome and why?*
- *Do any of the lesson concepts and/or skills get addressed at other points in the Learning Outcome?*

III. **Lesson Information**

A. Name of the study lesson:
State the name of the study lesson being described.

B. Goal(s) of the study lesson:
This is a description of the goals for this lesson. You may also want to include specific strategies, skills, or ways of thinking about the content to be addressed.

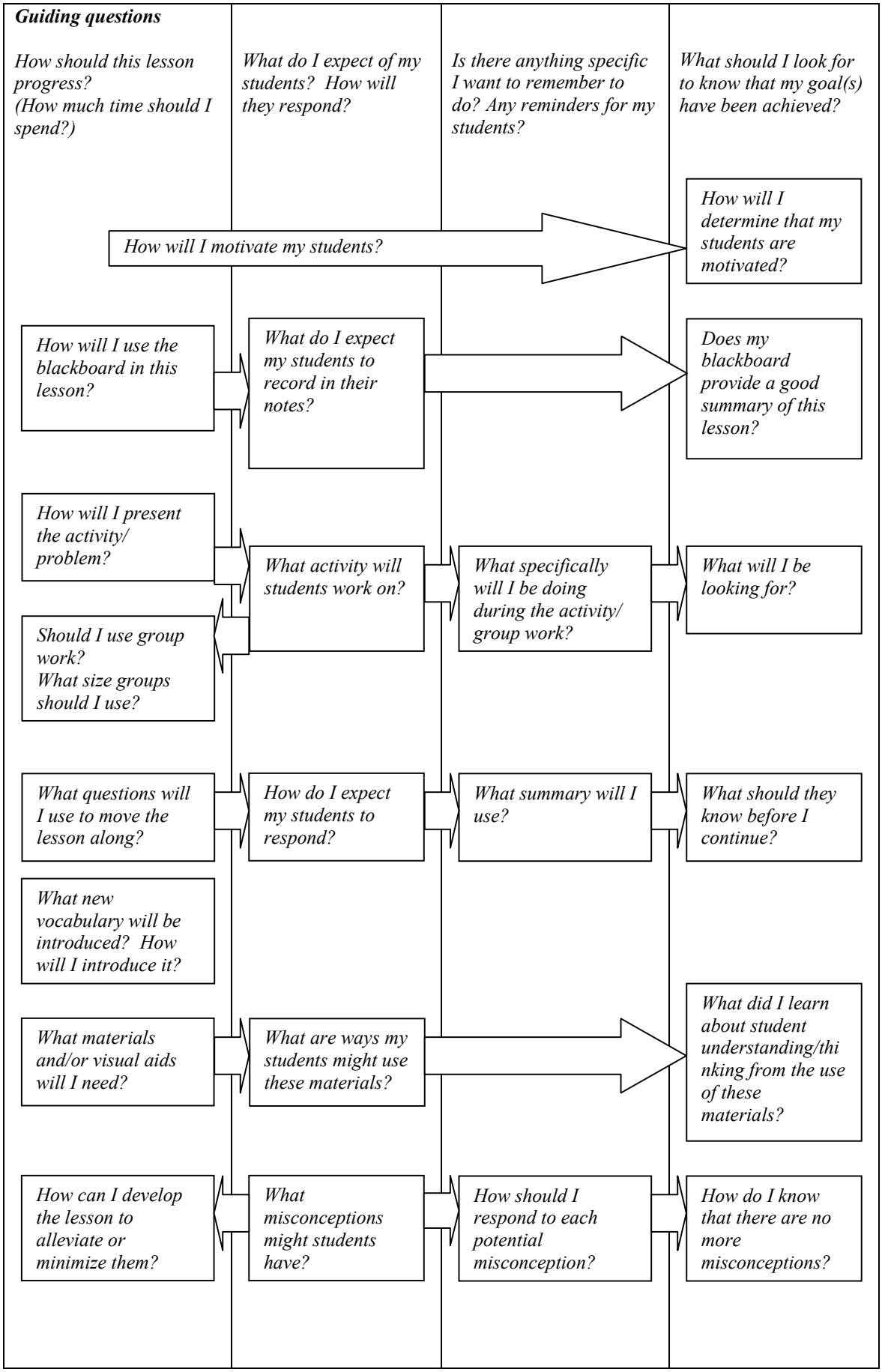
- *What is the content?*
- *What should students know at the end of this lesson?*
- *Are there specific strategies being developed?*

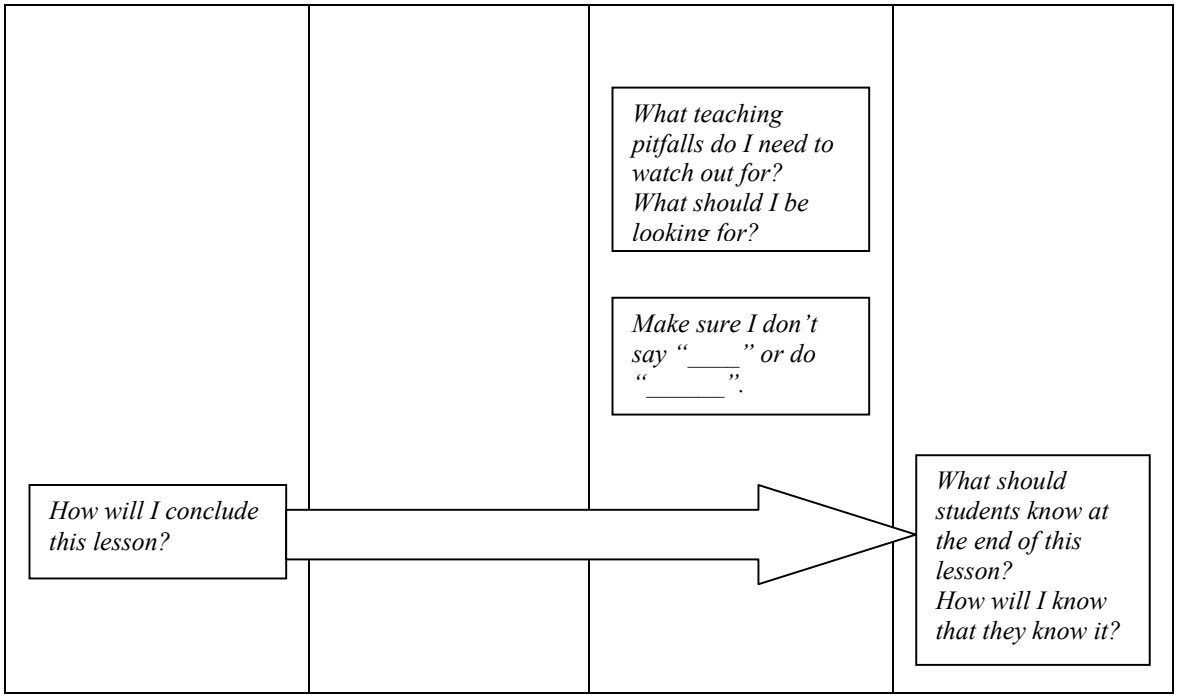
C. How this study lesson is related to the lesson study goal:
This is a description of the specific aspect(s) of the group lesson study goal that you would like to focus on during this lesson. In this section you will want to relate your instructional choices for this lesson to the group lesson study goal.

- *How will I explore our groups' lesson study goal through this lesson?*
- *What aspects of my lesson will address the groups' lesson study goal? In what ways?*

D. Process of the study lesson:
This is a chart of the planned lesson sequence. It represents the bulk of the lesson plan and often spans a number of pages. It describes what you have planned and expect to happen from the beginning of the lesson until the end.

Steps of the lesson: Learning activities and key questions (and time allocation)	**Learner activities/ expected learner reactions or responses**	**Teacher's response to learner reactions/ Things to remember**	**Goals and Method(s) of evaluation**
This column is usually laid out in order by the parts of the lesson and includes the allocation of time for each of these parts. *This column should also include a description of key questions or activities that are intended to move the lesson from one point to another.*	*This column describes what students will be doing during the lesson and their anticipated reactions or responses to questions/problems you will present.*	*This column describes things that you want to remember to do/not to do within the lesson as well s other reminders to yourself. Also, as you have anticipated student responses and reactions (previous column), this column provides a place where you can think through how you might use those responses and reactions in synthesizing a true learning experience within your classroom.*	*This column describes the goals that are being focused upon during each part of the lesson and for each activity/problem.* *It should also include a concrete description of how you will determine that you have achieved each of these goals.*


Guiding questions
How should this lesson progress? (How much time should I spend?)
What do I expect of my students? How will they respond?
Is there anything specific I want to remember to do? Any reminders for my students?
What should I look for to know that my goal(s) have been achieved?
How will I motivate my students?
How will I determine that my students are motivated?
How will I use the blackboard in this lesson?
What do I expect my students to record in their notes?
Does my blackboard provide a good summary of this lesson?
How will I present the activity/ problem?
What activity will students work on?
What specifically will I be doing during the activity/ group work?
What will I be looking for?
Should I use group work? What size groups should I use?
What questions will I use to move the lesson along?
How do I expect my students to respond?
What summary will I use?
What should they know before I continue?
What new vocabulary will be introduced? How will I introduce it?
What materials and/or visual aids will I need?
What are ways my students might use these materials?
What did I learn about student understanding/thinking from the use of these materials?
How can I develop the lesson to alleviate or minimize them?
What misconceptions might students have?
How should I respond to each potential misconception?
How do I know that there are no more misconceptions?



E. Evaluation

Describe your plan for evaluating the success of your lesson overall. Explain what you will look for in your students' in-class behavior and work products to determine if your lesson goals were met. Describe any homework or formal assessment that you plan to use as well. You will also want to be specific about what you are looking to collect information or evidence about with respect to your lesson study goals.

- *How will I determine if students understood the concepts taught in this lesson?*
- *What would be appropriate homework? What will I be able to tell about the student from his homework?*
- *What information do I want to collect in the course of this lesson?*
- *Where in my plan would I like some assistance?*

F. Appendix

Here you should attach or include copies of materials, handouts, etc. that will be used during the lesson. For materials that will be used but cannot be attached (e.g., manipulatives) provide a written description and/or drawing. You should also include any materials that you have made specifically for the observers to use (e.g., observation tools, seating charts, etc.). This appendix is invaluable for observers to acquaint themselves with your lesson prior to entering your classroom. The more familiar they are with what is meant to transpire and what you want them to focus on during their observation, the better they will be able to provide you with useful feedback.

Adapted from tools by: Barbrina Ertle, Sonal Chokshi, & Clea Fernandez (2001,) Lesson Study Research Group (lsrg@columbia.edu).

APPENDIX C

Description of Study Lesson Plan

Date:
Grade:
Period and Location:
Instructor:

I. Background Information

A. Goal of the Lesson Study Group:

B. Narrative Overview of Background Information:

II. Unit Information (Learning Outcome)

A. Name of Learning Outcome:

B. Goal(s) of the Learning Outcome:

C. How this Learning Outcome is related to the curriculum:

D. Instructional sequence for the Learning Outcome:

III. Lesson Information

A. Name of the study lesson:

B. Goal(s) of the study lesson:

C. How this study lesson is related to the lesson study goal:

D. Process of the study lesson:

Steps of the lesson: Learning activities and key questions (and time allocation)	Learner activities/ expected learner reactions or responses	Teacher's response to learner reactions/ Things to remember	Goals and Method(s) of evaluation

E. Evaluation
F. Appendix

Adapted from tools by: Barbrina Ertle, Sonal Chokshi, & Clea Fernandez (2001,) Lesson Study Research Group (lsrg@columbia.edu).

APPENDIX D

Research Lesson Observation Form

Observers' responsibilities during research lesson:

1. Respect the natural atmosphere of classroom
   - Minimize side conversations
   - Remain in class for the entire lesson
   - Do not block learners' view of instruction, do not block video camera
   - Circulate freely when learners are working but move to side or back of room during whole-class instruction
   - Refrain from teaching or assisting learners, interact only to clarify your understanding of the learners' thinking
2. Be a researcher
   - Use the lesson plan, seating chart and/or worksheet to record data
   - Record specific words that learners/teachers use so that data is detailed and accurate
   - Record data specific to the focus of your observation
   - Synthesize data after the lesson and write a summary

Name _____ Date _____

School _____ Grade _____

Are you a member of the lesson planning team? (yes/no) _____

Observation focus: _____

_____

Observation summary:

Adapted from information in: Wang-Iverson, P., & Yoshida, M (2005:66,67).

APPENDIX E

Discussion Session Form

School _____ Date _____

Title of Research Lesson _____

Setting for discussion session _____

Role	Name	Member of planning team? (yes/no)
Moderator		
Recorder		
Timekeeper		
Final commentator		

Other members of planning team:

Names of observers who are not members of planning team:

Themes or key issues:

Observations by final commentator:

Adapted from information in: Wang-Iverson, P., & Yoshida, M. (2005:68,69).

APPENDIX F

Description of Study Lesson Plan

Date: *Friday, August 10, 2001*
Grade: *5*
Period and Location: *Brewer Island School, San Mateo, CA*
Instructor: *Akihiko Takahashi*

IV. Background Information

A. Goal of the Lesson Study Group:
To develop learners who are curious about mathematics and who will engage in the process of inquiry and investigation to determine solutions to problems.

B. Narrative Overview of Background Information:
Learners have already acquired the concepts of recognising, visualising and naming two-dimensional shapes and three-dimensional objects in natural and cultural forms and geometric settings. They are comfortable with the similarities and differences between cubes and rectangular prisms. They are able to describe, sort and compare three-dimensional objects from the environment and from drawings or pictures according to the properties including number and/or shape of faces and number and/or length of sides.

This lesson is designed to provide learners with an opportunity to use their understanding of geometric objects in order to solve a problem. In today's lesson learners are expected to solve the following problem:
How many edges of a cube do you need to cut in order to open a cube completely and make a net? Find the least number of edges that need to be cut.

One reason why we have chosen this problem is that it provides learners with an opportunity to extend their problem solving strategies. In order to solve this problem, first, learners my actually cut and open cube models so that they can find how many edges they need to cut to open the cube. Next, learners are expected to establish a conjecture that the least number of edges might be seven; however, the answer cannot be finalized by opening only one or two cube models. Since there are eleven different patterns of nets, students will have the opportunity to compare and discuss with peers to find general properties and relationships among the eleven nets, and this will lead learners to establish a conjecture. This series of problem solving activities will help learners develop their problem solving strategies.

Another reason for choosing this problem is that it provides learners with the opportunity to use what they learned in the fourth grade about making three-dimensional models using cut-out polygons. Since learners will be expected in the sixth grade to construct three-dimensional models using nets, this problem will establish an opportunity not only to develop learners' problem solving strategies, but also to make a connection from the content learned in prior years to the now content they will be introduced to in future grades.

Since this particular class of learners works better in pairs than it does in groups, that is the format that will be used to solve the problem in this lesson.

V. Unit Information (Learning Outcome)

A. Name of Learning Outcome:

SPACE AND SHAPE (GEOMETRY)

B. Goal(s) of the Learning Outcome:

The learner will be able to describe and represent characteristics and relationships between two-dimensional shapes and three-dimensional objects in a variety of orientations and positions.

C. How this Learning Outcome is related to the curriculum:

Grade 4:
Visualise and describe three-dimensional objects including rectangular prisms, spheres and cylinders in terms of shapes of faces, number of sides, and straight and curved sides; and compare objects by making three-dimensional models using cut-out polygons and drawing shapes on grid paper.

↓

Grade 5:
Visualise and describe similarities and differences between cubes and rectangular prisms in terms of number and/or shape of faces and number and/or length of sides; and compare objects by making models using polygons they have cut out, cutting open models to trace their nets, and drawing shapes on grid paper.

↓

Grade 6:
Visualise and describe similarities and differences between tetrahedrons and other pyramids in terms of faces, vertices and edges, length of sides, and angle size of corners; and compare objects by making three-dimensional models using drinking straws or nets and drawing shapes on grid paper; and describe relationship between two-dimensional shapes and three-dimensional objects within patterns.

D. Instructional sequence for the Learning Outcome:

Lesson 1: Visualising similarities and differences between squares and rectangles in natural and cultural forms.
Lesson 2: Visualising similarities and differences between cubes and rectangular prisms in natural an cultural forms.
Lesson 3: Describe two and three-dimensional shapes according to properties of faces and sides.
Lesson 4: Compare two and three-dimensional shapes according to properties of faces and sides.
Lesson 5: Make models of objects according to properties of faces and sides using cut-out polygons.
Lesson 6: Cut open geometric objects to trace their nets.

Lesson 7: Draw shapes on grid paper.
Lesson 8: Describe rotations, reflections and translations.
Lesson 9: Perform rotations, reflections and translations.

VI. Lesson Information

A. Name of the study lesson:

How many edges do I need to cut in order to open a cube?

B. Goal(s) of the study lesson:

1.Deepen learners' understanding of three-dimensional geometric objects through problem solving activities.
2.Help learners to become good problem solvers by providing a challenging open-ended problem.

a. *Encourage learners to use their existing knowledge to solve a challenging problem.*
b. *Encourage learners to find common properties and relationships among various patterns by comparing peers' solutions in order to find a solution to the problem.*
c. *Encourage learners to consider their solutions from a different perspective, so that they can make reasoned conjectures.*

3.Provide students with opportunities to find the importance of working with peers to deepen their understanding of mathematics.

C. How this study lesson is related to the lesson study goal:

This lesson requires learners to engage in the process of inquiry by working with a partner to find a solution to the problem. The learners' curiosity will be encouraged through discussion at the beginning of the lesson. It will be maintained throughout the lesson as they discover more than one way to approach a solution with their partners and as they witness solutions demonstrated by other pairs of learners.

D. Process of the study lesson:

(40 minute lesson)

Steps of the lesson: Learning activities and key questions (and time allocation)	Learner activities/ expected learner reactions or responses	Teacher's response to learner reactions/ Things to remember	Goals and Method(s) of evaluation
1. Introduction to the problem. (5 min)			
Do you know what this is? (hold up cube)	*A cube.*	*Ask if all agree.*	
What do you know about a cube?	*It is square.* *It has 6 sides.* *It has 8 corners.* *It has 12 edges.*	*Give time to allow several responses. Try to include as many learners as possible.*	*Do learners recall the properties of a cube?*

		Have learners show on the cube the evidence of their answer. *Write correct answers on board as they come up.* *Praise all contributions.*	*Are all learners engaged in the discussion?*
2. Presentation of problem. (5 min) *Have you ever cut and opened a cube before?* Draw line along one edge and cut. *Do you see any difference?*	*No.* *Yes.* *No.* *Yes.*	*Does the shape of the cube look any different?*	
Continue drawing, cutting and asking ? until cube opens. *I'm going to give you a challenging problem:* (on board) *How many edges of a cube do you need to cut in order to open a cube completely. Find the least number of edges that need to be cut.*			*Are learners curious about outcome?* *Do learners understand the problem?*
3. Solving the problem. (15 min) *What do you want to solve this problem?*	*Paper* *Sharp edge* *Cube* *Marker*	*Respond to appropriate requests. Have 3 cubes for each pair.*	*Are learners asking for appropriate tools to solve the problem?*

Give each pair one cube at a time, grid paper, cutting tool, marker.	*Learners will work with partner to cut and count the number of edges.* *Learners will draw the shape of the opened cubes on the grid sheet.*	*Encourage learners to find two to three different ways to open their own cubes.*	*Do learners understand the problem?* *Are learners engaged?* *Do the learners seem curious?* *Does each pair find at least 2 ways to open a cube?*
4. Comparing and discussing. (10 min)			
Invite pairs to bring opened cubes to place on board.	*Some will have the right number of cut, some won't.*	*Write the number of cuts indicated by the learners beside their cut-outs.* *Be sure that all different shapes are represented on the board.*	
There are ____ different answers or solutions. Who agrees that _____ is the least number?	*Students may all come up with the right answer.*	*Point out that even though the shapes are different, the number of edges cut is still the same.*	
Do we have a good way to solve this dilemma?	*Cut them again. Draw them on a piece of paper.*	*Let's take the cubes from the board and put them back together and recount.*	*Do learners understand that the dilemma was in the accuracy of the counting?* *Do learners agree that the least number of cuts is 7?*
Facilitate learner discussion by asking: *How many edges must remain attached in order to*	*Four* *Five* *Six*	*Count the attached edges of cubes on the board.* *Point out shared properties of all*	*Does each learner find out that all the*

make a cube turn into a two-dimensional pattern? Help learners discover a relationship between the number of edges that a cube has and the number of edges that connect 6 faces in each net.		*cubes:* *6 faces* *5 connecting edges* *7 cut edges* *[12: number of edges of a cube] – [5: number of the edges remaining attached after opening a cube] = [7:number of edges to be cut]*	*nets share common properties?* *Do learners understand how this can be expressed as substraction?*
5. Conclusion (5 min) Review the lesson sequence by referring to the blackboard. Ask learners to write a journal entry of what they learned through the lesson.	*Students will refer to board and write journal entries.*	*Encourage learners to work independently.*	*Are all learners able to express what they learned?* *Are the explanations accurate?*

E. Evaluation

i. *Were the learners able to find several ways to open a cube and find out how many edges needed to be cut?*
ii. *Were the learners able to use their existing knowledge to solve the problem?*
iii. *Were the learners engaged and curious during the lesson?*
iv. *Did working with peers help to deepen their understanding?*
v. *Were learners able to review what they learned through the lesson and write about it in their journals?*

F. Appendix

Materials:
1 large cube for teacher
3 small cubes for each pair of learners
1 marker for each pair of learners
I cutting tool for each pair of learners
1 grid sheet for each pair of learners
**Seating chart for observers*

Adapted from tools by: Barbrina Ertle, Sonal Chokshi, & Clea Fernandez (2001,) Lesson Study Research Group (lsrg@columbia.edu) and Lewis (2003).

APPENDIX G

Participant Background Information

Please complete the following information. Any information you provide will be confidential.

Name: _____

School: _____ Date: _____

Grade Level Currently Teaching: _____

Circle the characteristics that describe you.

1. Gender: male female

2. Age: 20 – 29 30 – 39 40 – 49 50+

3. Ethnicity: Black Coloured Indian White Other

Please indicate you educational experience.

4. Formal qualification(s): _____

5. Number of years COMPLETED in teaching: _____

6. Number of years COMPLETED in teaching OBE: _____

7. Number of years COMPLETED in current school: _____

Please indicate your involvement in formal collaboration with colleagues.
Formal collaboration includes any scheduled meeting between two or more teachers where the primary focus is improvement of instruction.

8. Have you had the opportunity to participate in formal collaboration? (yes/no)_____

9. If yes, describe the nature of the collaboration: _____

_____

_____

_____

10. Number of hours spent per week, on average, in formal collaboration: _____

11. Has this collaboration helped you to improve your instruction? (yes/no) _____

12. Please give examples to motivate your answer to question #11. _____

_____

_____

_____

_____

_____

_____

_____

_____

13. What is your motivation for participating in this research? _____

_____

_____

_____

14. What are your expectations for your involvement in this project? _____

_____

_____

_____

_____

_____

_____

_____

_____

APPENDIX G1

Participant Background Information Case Study A

	Jakes	Glenelg	Mark	Lola	Normi	Nandi
Characteristics						
Grade level currently teaching	6 & 7	4 - 7	5	4	4	4 & 5
Gender	Male	Male	Male	Female	Female	Female
Age category	40-49	50+	30-39	50+	50+	20-29
Ethnicity	White	White	White	White	White	White
Educational Experience						
Formal Qualifications	HDE, BA	BA, B.Ed	HED: 4 yrs.	POD 3	3 yr diploma in education	B.Ed
No. of years completed in teaching	27	35	8	30	14	1
No. of years completed in teaching OBE	7	7	7	7	6	1
Number of years completed in current school	14	12	7	10	6	In first year.
Involvement in formal collaboration						
Nature of collaboration	MPP training, OBE training, school meetings, Learnng Area meetings	Curriculum discussions, Cluster meetings, Learning Area discussions	Planning sessions in grade groups and phase groups	OBE training, Learning Area meetings in school and with teachers from other schools	Short workshops at the EMDC while teaching in the Foundation Phase	Planning, Staff development, learner and learning activities
Avrg. no. of hrs./wk	2	2	1	3	1	2

Participant Background Questions Case Study A

	Wilhelm	Glen	Morne	Laura	Marina	Monica
Has collaboration helped you to improve your instruction?	yes	yes	yes	yes	yes	yes
Give examples	Planning year programmes, work schedules, and lesson planning	How to facilitate group work How to set out a work schedule How to structure a lesson plan How to evaluate a given lesson	I got different material and sources from others Methods of teaching are displayed	Sharing ideas Curriculum advisors helping us Excellent colleagues helping one another	To use concrete learning aids effectively To integrate maths effectively with other learning areas	Clear guidance to planning curriculum outcomes Understanding of departmental instruction and inner working of the schools system
What is your motivation for participating in this research?	New learning experience	Just to be a better teacher and to construct a lesson and observe how children learn	We do this together	Trying to improve my way of teaching	I believe that other/new trends/methods are always worthwhile to try or at least "research"	To acquire knowledge about learners and their learning activities in order to develop more efficient learning strategies
What are your expectations for your involvement in this project?	To become a better teacher	To learn from other teachers Experience learner involvement How children learn	To learn more To be a better teacher That children can learn and understand better	I hope to get the most in order to improve my teaching and helping children to understand and enjoy maths	To become a better teacher	To further my knowledge regarding maths in the intermediate phase and to alter my teaching strategies to benefit the learning process of the child

APPENDIX G2

Participant Background Information Case Study B

	Richard	Nosipho	Nomelikhaya
Characteristics			
Grade level currently teaching	7	5,6,and 7	4
Gender	Male	Female	Female
Age category	50+	40-49	30-39
Ethnicity	Black	Black	Black
Educational Experience			
Formal Qualifications	Matric	B.Ed	B.Ed, further diploma in Remedial
No. of years completed in teaching	4	13	17
No. of years completed in teaching OBE	7	7	7
Number of years completed in current school	30	13	5
Involvement in formal collaboration			
Nature of collaboration	Mathematics Learning Area meetings, Reporting to teachers about a workshop	Learning Area meetings, Extramural activities committees	Formulating Learning Programme, work schedule, and lesson plan
Avrg no. of hrs./wk	2	2	5

Participant Background Questions Case Study B

	Michael	Nompumelelo	Benedictor
Has collaboration helped you to improve your instruction?	yes	yes	yes
Give examples	Helped to understand the views and concerns of peers. This helped to structure and outline the task at hand Give feedback and ask assistance to colleagues where necessary	It helps me to work effectively with others (colleagues) as members of a team, group, organization and community. It also helps me to know how to communicate effectively with others. To participate as responsible teacher in the life of local, national and global communities	When we met some of the thins that were discussed were the methods used to achieve goals according to assessment standards
What is your motivation for participating in this research?	To cope and learn with always changing ways of teaching in the new curriculum (RNCS)		
What are your expectations for your involvement in this project?	How to plan lessons How to teach learners with learning barriers How to observe/recognize learners with learning barriers How to revise and give feedback to learners as expected in RNCS	To develop learners with mathematics skills and knowledge. To know different approaches that can help me to help those who are struggling in mathematics. To apply mathematics in a variety of contexts	I think maybe I will be exposed in some of the methods that will make maths enjoyable; easy and understandable towards learners

APPENDIX H

TRAINING WORKSHOP GOALS

Name: _____School: _____

The following are the goals I have outlined for the lesson study training workshop. Please take a moment to offer feedback on each goal. It is important to me that this training session is effective so please comment about things that you feel went well and any improvements that could be made.

1. Participants will have a basic understanding of what is involved in each step of the lesson study cycle.

2. Participants will feel comfortable with the process of developing the long term goal.

3. Participants will understand how to relate the research lesson to the long term goal.

4. Participants will understand how to write a description of the study lesson plan.

5. Participants will be *introduced* to the observation of the research lesson.

6. Participants will be *introduced* to the post-lesson discussion.

Any other ideas that may help to improve the quality of this training session:

ANY GENERAL COMMENT?

APPENDIX I

Description of Study Lesson Plan

Date:	Monday 19 March 2007
Grade:	6B
Period and Location:	Second and third periods in the Library
Time:	08:00 till 09:00
Instructor:	Jakes

VII. Background Information

A. Goal of the Lesson Study Group:

We will develop learners who listen properly to the task. Learners who read with attention and understanding. Learners who know what they have read and what they must do, and then have enough confidence to try to solve the problem on their own.

B. Narrative Overview of Background Information:

The lesson will be taught to the gr. 6B class. There are 33 learners in the class sitting in groups of four around a table. The learners come from social and economic diverse backgrounds as well as other schools. All the learners are not on the same maths level and some of their knowledge of number lines may be defective. Some of our learners are not able to concentrate for certain periods and they may be disturbing throughout the lesson.

VIII. Unit Information (Learning Outcome)

A. Name of Learning Outcome:
Learning Outcome 1 – Numbers, Operations and Relationships

B. Goal(s) of the Learning Outcome:
Recognising, classifying and representing numbers.

C. How this Learning Outcome is related to the curriculum:
The learners did number lines in grade 5 up to six digit numbers, but they are not fluent in using it mathematically correct.

D. Instructional sequence for the Learning Outcome:
Lesson 1: Revision of number lines with simple examples.
Lesson 2: Number lines with more difficult examples. Learners struggled to find the correct answers.
Lesson 3: Doing different number lines on blank examples with more simple examples.
Lesson 4: Adding up on number lines.
Lesson 5: Subtraction on number lines

IX. Lesson Information

A. Name of the study lesson:
Fill in the correct missing numbers on a blank example of a number line by listening with attention, reasoning with yourself and your friend and have the confidence to do it by yourself.

B. Goal(s) of the study lesson:
Deepen learners' understanding of using number lines.
Motivate learners not to be afraid of difficult problems.
Encourage learners to work with peers.
Motivate learners to play with numbers.

C. How this study lesson is related to the lesson study goal:
By creating a nice and comfortable environment for learners to communicate by using numbers and to find solutions for their problems.

D. Process of the study lesson:

Steps of the lesson: Learning activities and key questions (and time allocation)	Learner activities/ expected learner reactions or responses	Teacher's response to learner reactions/ Things to remember	Goals and Method(s) of evaluation
1. Introduction to the problem. (10 minutes) Do you know what this is? (hold up number line) What can you tell me more about a number line?	 A number line Horizontal line It can have numbers It can have open spaces It continues left and right It goes on till eternity It consists of different patterns	 Do everyone agree Give time for several responses Listen to all answers Help them where they make mistakes Be positive the hole time	 Do we get all the answers Maybe we get some more correct answers Write down all the correct answers
2. Presentation of problem. (5 minutes)		Be positive all the	

Have you worked with number lines before? Tell us about it. Let's see if you can master this problems. 3. Solving the problem. (20 minutes) Give each learner an A4 page with blank number lines and the specific questions. *Hand out face down and instruct learners not to turn over.* a) Can I have your attention, please turn your page over and let's look at the first question. b) Teacher read first question. *Look carefully at the following example and then fill in the missing numbers using certain mathematical patterns.*	Yes / No Listen to some answers. Some students listening. Some students looking around. Some students working on answers. Some students may have hands up.	time. Teacher will go on with problem. *I will answer questions later.* Write answers on board	Do students listen and leave page face down. Do students give immediate attention. Are students reading with teacher? If they are not reading with teacher, what are they doing? How do students respond to teacher's comment?

c) How do we get from 1 to 3?	Add 2 Multiply by 3	Are there any other ways to get from 1 to 3?	What strategies do students use to get the answer.
d) How do we get from 3 to 9?	Add 6 Multiply by 3	Are there any other ways to get from 3 to 9?	How many students raise hands?
e) Put your hand up if you can see a pattern.	Some hands will be raised.	Ask students with hands up for answer.	Are there students who know the answer but don't raise hands.
	Multiply by 3	Ask student how he arrived at the answer – invite to come up to board and show.	
How many of you now understand the pattern?	More hands up.		Do more students have hands up?
f) What number do you think goes under A?		Ask different groups for answers. (Write all answers on board)	Are all members of group involved in discussion?
I will give you 10 sec. to talk about this with your group.	Wrong answers. Right answer 27.	*Starting with wrong answers, ask groups to explain how they got their answers.*	What do learners do who are not involved?
		After group with right answer explains, ask group that gave wrong answer to explain the right way.	Did the group who gave the wrong answer to begin with understand how to explain the right answer?
g) On your own fill in the number for B.	Hands raised.	Ask different learners for answer. *Do you all agree?*	Do the students understand the correct answer?
	Correct answer.	*Leave alone.*	
h) Read question 2 with your partner	Some independent.	*Work with partner.*	Do students listen to instructions?

and answer together. *I won't answer any questions.* *You have 2 min.*	Some start immediately with partner. Some hands up.		Do students work with partner?
4. Comparing and discussing. (10 minutes) Give them time too communicate and to solve the problems.		Remind students when they have 1 min. left.	
Ask some of the pairs to demonstrate their answers on the board.	Learners come forward in pairs and communicate their answers to the class.	Write answers on the board.	Did students work with partner to solve the problem?
	Right answers.	How many agree? Ask different pair.	Did students know how to solve the problem?
Your homework is to finish the other two problems on your own on this sheet in pencil.	Wrong answer. Might ask where to do the homework.	*I already gave those instructions.*	Did all students understand the instructions?

E. Evaluation

i. Did more students understand how to do the problem after it was shown on the board? (3e)
ii. Are the students listening to the instructions?
iii. Were the students able to finish the last two questions correctly?

F. Appendix

Prepare the following:
Worksheet with problems for each student and each observer.
Lesson Plan for each observer.
Two big laminated numberlines.
A seating chart – names printed on tables.

APPENDIX J

Reflections after Step 2 of Lesson Study Cycle

Please briefly journal your thoughts in the following areas as you have experienced the first two steps of the lesson study cycle. Use examples where possible.

1. Amount of time you have spent.

2. Benefits of the *process* specific to:
    a. Collaboration with colleagues:

    b. Classroom instruction:

3. Obstacles to the *process*:

4. The most rewarding element so far in the lesson study cycle:

APPENDIX J1

Reflections after Step 2 of First Lesson Study Cycle

Question	Jakes	Glenelg	Mark	Lola	Normi	Nandi
1. Amount of time spent in the planning phase. (*outside the 5hrs/20min. when researcher was present)*	13 hours			45 minutes	1 hour	
2a. Benefits of the *process* specific to collaboration with colleagues.	As maths teachers we had more time discussing issues. This was a positive situation to hear that colleagues have the same problems and how everyone is going about with the issues.	Help to focus on goal setting and on the process of the lesson. Great to spend time planning a specific lesson	Useful tips, discussing different problems and solving strategies.	Sharing ideas. Learning from one another. Specific lesson: Give attention to patterns and number lines in Grade 4.	Planning with colleagues is according to my opinion always time well spent. Other different ideas and views can be valuable.	We learn from one another and get some good, handy tips to apply in the classroom.
2b. Benefits of the *process* specific to classroom instruction.	While working through the lesson study procedure and developing our goal, I tried some of the strategies in my class. Some of the outcomes were reached in a short period of time, but others will take longer to achieve.	My own lessons: -making sure that I set lesson goals. -I focus more on specific learner activities/making sure of time allocation on activities. -making sure that learners understand the problem.	Give better, clearer instructions. Leave answers on the board.	Try not to repeat instructions. Be specific with instructions. Be patient. Do <u>not</u> erase maths sums on board!	I focused on giving instruction once and tried to keep to it.	Don't repeat instructions. Try to always keep an example on the board. Don't clean the board!

3. Obstacles to the *process.*	We had an academic program to run, but couldn't follow it because of lesson study every Monday. From the start everybody didn't understand the process we all didn't attend the first meeting.	Limited time. All members not able to be there at discussions. Should not take more than 2 x 1hr with planning.	Not enough time.	Time limit. Neglecting meetings which should be held for our own learning areas.	Time! I am a new colleague in the Intermediate Phase and I hardly have enough time for planning and preparing my own 6 learning Areas. I would like to have more time for Lesson Study – to be more clued up.	The academic planning of the week became behind. We could rather spend longer time, for example 2-3 hours, instead of an hour a week. We lose unnecessary time on the recap f the previous week.
4. The most rewarding element in this step of the lesson study cycle.	It was a great privilege to be a part of the study. I learned a lot about managing a class of 30+. Specially by talking firmly and giving instructions only once. Upgrading my personal English skills.	Wonderful experience discussing lesson planning with colleagues.	Understan ding the learners, understand ing the questions, and reading abilities.	To develop learners who listen!!	Working together with colleagues on a common goal.	Trying to develop learners who listen and read with attention and under-standing.

APPENDIX K

Interview Questions at the Conclusion of the First Lesson Study Cycle

1. Have you improved any instructional strategies as a result of your participation in lesson study?
   If so:
   1.1 please describe the improvement.

   1.2 what specific element of the lesson study process facilitated your improvement in instruction?

2. To what extent did collaboration with your lesson study team help to improve your instruction?

3. Is the collaboration you experienced in the lesson study process any different from collaboration you have experienced in the past? Please describe.

4. What obstacles did you experience to the lesson study process?

5. In your opinion would there be any benefits to implementing lesson study throughout your school? District?

6. What would be the obstacles to implementing lesson study throughout your school? District?

7. Did you experience the process of lesson study as an effective form of professional development? If so, how and in what ways?

8. Is lesson study a process that you would like to continue using?
   8.1 If so, why?

   8.2 If not, what are the obstacles that cannot be overcome?

9. Can you suggest ways in which the lesson study process can be more useful?

10. Are there any other comments that you would like to add?

APPENDIX L

Description of Study Lesson Plan

Date: 21 May, 2007
Grade: 5B
Period and Location: First and second periods Library
Instructor: Mark

X. Background Information

A. Goal of the Lesson Study Group:
We will develop learners who listen properly to the task. Learners who read with attention and understanding. Learners who know what they have read and what they must do, and then have enough confidence to try to solve the problem on their own.

B. Narrative Overview of Background Information:
Grade 5B has 32 learners. They sit 2-2 at a table. Knowledge of multiplication and word problems is not on the same level.
Rest stays the same.

XI. Unit Information (Learning Outcome)

A. Name of Learning Outcome:
LO1 Numbers, Operations and Relationships

B. Goal(s) of the Learning Outcome:
New method (first knowledge of) a 2-digit multiplication, algorythms and application of it in word problems.

C. How this Learning Outcome is related to the curriculum:
In grade 4 only worked in 1-digit multiplication

2-digit multiplication
Use of ntoation and place value columns
Understanding of above.

D. Instructional sequence for the Learning Outcome:
The lesson

XII. Lesson Information

A. Name of the study lesson:
Multiplication of 2 and 3 digit numbers and application of it.

B. Goal(s) of the study lesson:
Understand tables
Use of note columns
Read with understanding
Listen with attention (strategy) speak only once

C. How this study lesson is related to the lesson study goal:
Focus – multiplication of 2 and 3 digit numbers
Reading with understanding

D. Process of the study lesson:

Steps of the lesson: Learning activities and key questions (and time allocation)	**Learner activities/ expected learner reactions or responses**	**Teacher's response to learner reactions/ Things to remember**	**Goals and Method(s) of evaluation**
1. Introduction to the problem	Give the answer	Write the answer on board	
Problem 1			
Hand out papers face down.	Leave paper and pencil alone	Finish talking, see what others do	See how many listened. (Jakes)
Turn page over			
Read out loud Listen and explain	Left read first Right listen then vice-versa. Then do sum individually.	See if it happens	Have they: Listened hard Read hard Begun immediately (Lola & Glenelg)
Explain to your partner (both) What is your answer?	If you finish turn page over. Wait for your partner, if partner is finished discuss answers.		How do learners communicate with each other? (Lola, Glenelg, Normi)
Explain answer on board	Explain and write answer on board		
Task 2			
Hand out papers face down	Leave paper and pencil alone.		(Jakes)
Turn page over	Left read Right listen and give explanation of problem.		Have they: Read hard Listened Explained

	Do sum individually If you finish turn page over and wait for partner		(Lola, Glenelg, Normi)
Both explain your answers	If partner is finished discuss answers		
Explain answers on board.			How many learners had #1 right? (Nandi) How many learners had #2 right? (Normi)
Task 3			
Hand out papers face down.	Leave paper and pencil alone		Who is listening? (Jakes)
Turn page over.			
Read problem individually and do with calculator if you want to.			See who starts immediately. (Jakes) Who is visualizing? (all)
Ask learners which method works best for them.			

E. Evaluation

1.Did learners use background knowledge to solve introduction?
2.Did learners listen with attention?
3.Did learners read with attention and understanding?
4.Did learners pay attention to the lesson?
5.Did working in group (partner) better their understanding of work problems?

F. Appendix

Big white board
2 flip charts
3 dry wipes
3 pages with problems on them
seating chart

APPENDIX M

Description of Study Lesson Plan

Date: 4 June, 2007
Grade: 5A
Period and Location: First and second periods (7:45 – 8:30) Gr. 5A classroom
Instructor: Nandi

XIII. Background Information

A. Goal of the Lesson Study Group:
We will develop learners who listen properly to the task. Learners who read with attention and understanding. Learners who know what they have read and what they must do, and then have enough confidence to try to solve the problem on their own.

B. Narrative Overview of Background Information:
Grade 5B has 32 learners. They sit 2-2 at a table. Knowledge of multiplication and word problems is not on the same level.
Rest stays the same.

XIV. Unit Information (Learning Outcome)

A. Name of Learning Outcome:
LO1 Numbers, Operations and Relationships

B. Goal(s) of the Learning Outcome:
New method (first knowledge of) a 2-digit multiplication, algorythms and application of it in word problems.

C. How this Learning Outcome is related to the curriculum:
In grade 4 only worked in 1-digit multiplication

2-digit multiplication
Use of ntoation and place value columns
Understanding of above.

D. Instructional sequence for the Learning Outcome:
The lesson

XV. Lesson Information

A. Name of the study lesson:
Multiplication of 2 and 3 digit numbers and application of it.

B. Goal(s) of the study lesson:
Understand tables
Use of note columns
Read with understanding
Listen with attention (strategy) speak only once

C. How this study lesson is related to the lesson study goal:
Focus – multiplication of 2 and 3 digit numbers
Reading with understanding

D. Process of the study lesson:

Steps of the lesson: Learning activities and key questions (and time allocation)	**Learner activities/ expected learner reactions or responses**	**Teacher's response to learner reactions/ Things to remember**	**Goals and Method(s) of evaluation**
2. Introduction to the problem (5 minutes) Begin lesson hour with word problem 4 learners each took out 4 books. Ask learners for solution. (Ans: 4x4=16)	Listen to learner's answers.	Write answers on board. Ask learners how they got the answer.	
3. Presentation of Problem (10 minutes) Hand out worksheet face down. Learners must not turn over. Hand out papers face down.	Some learners listen. Some learners look around.		Did learners listen and leave worksheet face down? *(Jakes)*
Teacher read task 1 out loud. Turn paper over and do task individually – without discussing with partner.	Learners do task individually. As soon as task 1 is finished, learner must turn paper over. (Ans: 42x15=630)		Did learners listen to teacher? *(Jakes)* Did learners immediately, without discussing, start task 1? *(Normi, Glenelg)*

Ask learners for answers and to explain to the class how they got the answers. **4. Solution to Problem.** (10 minutes)	Learners explain answer to task 1 to class.	Learners write possible answers on board.	
Learners quietly read task 2 on their own and then discuss with partner. Task 2 must be finished individually.	Learners do task 2 individually after discussing with partner. As soon as task 2 is finished, learners must turn paper over. (Ans: 12x387=4644)		Did learners discuss task 2 with each other? *(Mark)* How did learners communicate with each other? *(Glenelg, Normi)*
Ask learners for answers and to explain how they got the answers.	Learners explain answers to task 2 to class.	Teacher write possible answers on board.	
Learner read task 3.1 on own then solve individually.	Learners do task 3.1 individually. As soon as task 3.1 is finished, learners must turn paper over. (Ans: 89x12x4=4272)		See which learners start immediately. *(Jakes)*
	Learners explain answer for 3.1 to class.	Teacher write possible answers on board.	
5. Comparing and discussing. (5 minutes) Summary of all 3 tasks Ask learners which of the 3 methods works best for them.			

1. Learners read out loud (as in task 1) 2. Learners read quietly and discuss with partner (as in task 2) 3. Learners read quietly on own and then complete task. (as in task 3)	Learners mark task that worked best for them by circling either task 1, 2, or 3.		Count hands of learners preferring method 1. *(Normi)* Count hands of learners preferring method 2. *(Glenelg)* Count hands of learners preferring method 3. *(Jakes)*
<u>Conclusion</u> Finish task 3.2 by using one of the previous methods. *If time doesn't allow to finish in class, ask mother or father to help with reading if method 1 or 2 is what they chose.*	The class divides in 3 groups, according to the method that the learner chose. Task 3.2 is being done by the method the learner chose.		How do learners communicate who chose method 1? *(Normi)* How do learners communicate who chose method 2? *(Glenelg)* How do learners communicate who chose method 3? *(Jakes)*
<u>Homework:</u> Brain-teaser activity	Learner finish brain-teaser activity at home.	Teacher collect worksheets the following day.	

E. Evaluation

1.Did learners use background knowledge to solve introduction?
2.Did learners listen with attention?
3.Did learners read with attention and understanding?
4.Did learners pay attention to the lesson?
5.Did working in group (partner) better their understanding of work problems?

F. Appendix

1.Blackboard and chalk.
2.Worksheet for each learner.

APPENDIX N

Interview Questions at the end of the Second Cycle of Lesson Study

1. Based on feedback by members of the planning team, the lesson study cycle that we just finished differed from the first in two ways.

   1.1 First, instead of having 6 short planning sessions on Monday mornings, we had 2 long sessions and 1 short session after school. Did you experience that as an improvement to the process?
   1.1.1 If so, describe how.
   1.1.2 If not, describe why not.

   1.2 The second change we made was to conduct most of the sessions in Afrikaans. Did you experience that as an improvement to the process?
   1.2.1 If so, describe how.
   1.2.2 If not, describe why not.

2. Have you improved any instructional strategies as a result of your participation in this second lesson study cycle?

   2.1 Please describe the improvement.
   2.2 What specific element of the lesson study process facilitated your improvement in instruction?

3. What are your thoughts about the value of inviting a "knowledgeable other" to be included in the observation and discussion of the research lesson?

4. Do you think it would be beneficial to invite other observers to the research lesson and the discussion session?

   4.1 If so, describe the possible benefits.
   4.2 If not, describe why not.

5. Do you see any benefit to including the teaching of the revised lesson as part of the lesson study cycle?

   5.1 If so, what are the benefits?

6. Is lesson study a process you would like to continue using?

   6.1 If so, would you be willing to participate in a third cycle between now and the middle of August where my role would be only to observe?
   6.2 If so, would you be willing to participate in a fourth cycle sometime between the end of August and the beginning of June without any input from me?
   6.3 If so, would you be willing to participate in a fifth cycle next year between June and August where my role would be only to observe?
   6.4 If not, why not?

8. Are there any other comments you would like to add?

APPENDIX O1

Instrument vir Beplanning and Beskrywing van Studieles

Die model is ontwerp om jou studieles te beskryf. Dit is per sessie georganiseer sodat die klem op spesifieke aspekte of inhoud fokus. Elke sessie bevat ‘n lys van rigtinggewende vra om oor na te dink soos wat die sessie voltooi word. Hou in gedagte dat die lys vrae nie alles insluit nie, maar net ‘n idee gee van wat om aan te dink. Talle ander vra of idees mag opkom gedurende groepbeplanning van die studieles.

Logistieke informasie rondom les
Datum:
Graad:
Periode and Lokaal:
Onderwyser:

I. Agtergrond-Informasie

A. Doelwit van Studielesgroep:
Dit is ‘n beskrywing van die studielesgroep se doel en fokus. Die doel sal voortspruit deur die identifisering van die gaping wat bestaan uit die inspirasie wat die groep het vir leerders en die tipe leerders wat by die skool is. Daarom sal dit goed wees om die strewe wat julle vir jul leerders het, te beskryf en ook hoekom dit belangrik is. Besin ook oor maniere hoe julle as groep nog nie daaraan voldoen nie, hoe dit voorkom in leerders en hoe jul gekose doel 'n poging bied om die gaping toe te maak. Jy mag ook op 'n konkrete manier aandui wat die ontleding van hierdie doel is.

- *Watter tipe leerders wil ons ontwikkel in ons skool?*
- *Watter tipe leerders is besig om te ontwikkel in ons skool? Watter bewyse het ons daarvan?*
- *Hoekom bestaan gapings tussen ons begeerte en realiteit? Hoe kan ons die gapings toemaak?*
- *Hoe wil ons d.m.v. ons studie die gaping toemaak?*
- *Hoe sal ons die studieles navors?*

B. Beskrywende Oorsig van Agtergrond-Informasie:
Dit is 'n beskrywing van die les-konteks. Dit dien as ‘n manier om die les in perspektief te plaas. Jy kan alle agtergrond-informasie insluit wat jy reken benodig word om die les te waardeer. Jy mag byvoorbeeld informasie oor jou studente voorsien, wat hulle weet, en hoekom die les belangrik is vir voortgesette ontwikkeling. Jy mag ook enige metode of tegnieke noem wat tydens les die les benut mag word. Maak dit persoonlik van toepassing op jouself as leerkrag, jou klaskamer en jou individuele leerders.

- *Wat moet waarnemers weet aangaande my klaskamer?*
- *Wie is my leerders? Wat weet hulle alreeds? Watter strategie gebruik hulle? Wat motiveer hulle?*
- *Watter persoonlike kennis kan ek met waarnemers deel sodat hulle beter kan verstaan wat met individuele leerders gebeur? Watter individuele verskille sal hulle waarneem?*
- *Hoekom is hierdie inhoud belangrik?*

- *Watter wanindrukke mag leerders hê?*

II. Eenheid-Informasie (Leeruitkoms)

A. Naam van Leeruitkoms:

Stel die naam van die Leeruitkoms waaruit jy jou studieles geselekteer het.

B. Doel van Leeruitkoms:

Dit is 'n beskrywing van die fokus of leerdoelstellings vir hierdie Leeruitkoms.

- *Wat is die inhoud hier?*
- *Wat moet leerders weet aan die einde van die leeruitkoms?*

C. Hoe hierdie Leeruitkoms verband hou met die kurrikulum:

Dit is ‘n beskrywing van hoe die inhoud aangebied in die Leeruitkoms, verbind is tot vorige en toekomstige grade sowel as hierdie betrokke graad. Dit moet die nie net die spesifieke konsepte aangebied in daardie grade insluit nie, maar ook hoe hoe dit skakel met daardie konsepte wat in hierdie betrokke graad aangebied word. Sluit alleenlik hoogs-relevante konsepte in die beskrywing in.

- *Watter vorige inhoudskennis is nodig om hierdie inhoud te leer?*
- *Watter nuwe kennis kan ontwikkel word van die konsepte in die Leeruitkoms?*
- *Wat moet leerders weet na bestudering van hierdie deel van die inhoud?*

D. Instruksionele volgorde van die Leeruitkoms:

Dit is 'n opeenvolgende beskrywing van die algemene doel van die eenheid. Dit behoort te identifiseer hoe die studieles wat beskryf word, inpas by hierdie volgorde. Dit is nie nodig om elke individuele les te lys nie, maar eerder die onderwerpe wat gedek word.

- *Waar pas die les in die Leeruitkoms in en hoekom?*
- *Word enige van leskonsepte/of vaardigheid elders aangespreek in die Leeruitkoms?*

III. Les-Informasie

A. Naam van studieles:

Stel die naam van die studieles wat beskryf word.

B. Doelstelling(s) van studieles:

Dit is 'n beskrywing van die doelstellings vir die les. Jy mag dalk ook spesifieke strategiee, vaardighede, of denkwyse rondom die inhoud wil insluit.

- *Wat is die inhoud?*
- *Wat moet leerders weet aan die einde van die les?*
- *Word daar spesifieke strategiee ontwikkel?*

C. Hoe hierdie studieles verband hou met die studieles se doel:

Dit is ‘n beskrywing van spesifieke aspekte van die groepstudieles se doel, waarop jy dalk wil konsentreer gedurende die les. In die sessie sal jy jou instruksionele keuses vir die wil verbind met die studiedoel.

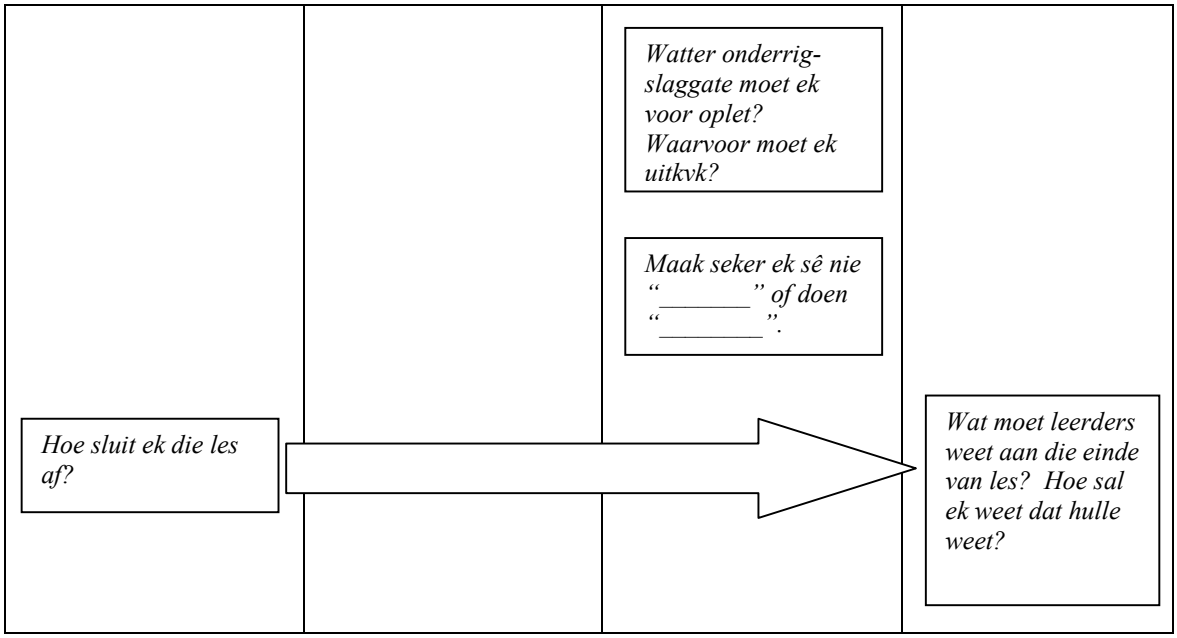
- *Hoe sal ek ons groep se studielesdoel ontdek deur die les?*
- *Watter aspekte van my les sal aandag gee aan die groep se studiedoel? Op watter maniere?*

D. Proses van studieles:

Dit is 'n “kaart” of tabel van beplande lesvolgorde. Dit verteenwoordig die meerderheid van die lesplan en dek soms ‘n paar bladsye. Dit beskryf wat jy beplan het en wat jy verwag moontlik kan gebeur van die begin van die les af tot aan die einde daarvan.

Stappe van les: Leeraktiwiteite en sleutelvrae (en tyd-toekenning)	**Leerder aktiwiteite/verwagte leerderreaksie en -response**	**Leerkragresponse tot leerder response/dinge om te onthou**	**Doelwit(te) en metode(s) van evaluering**
Dié kolom is gewoonlik in volgorde van die dele van die les en sluit allokkering van tyd vir elke deel in. *Hierdie kolom sluit in ‘n beskrying van sleutel vrae of aktiwiteite wat bedoel is om les van een punt na ander te beweeg.*	*Dié kolom beskryf wat leerders sal doen gedurende die les en hul verwagte response of reaksie tot vraag/probleme wat jy sal aanbied.*	*Dié kolom beskryf dinge wat jy wil onthou om te doen/nie wil doen in die les, sowel as ander herinnering vir jouself.* *Ook, soos wat jy leerderresponse geantisipeer het (vorige kolom), gee hierdie kolom die ruimte waar jy kan reflekteer hoe jy daardie response gaan/kan gebruik om ’n werklike leerervaring in jou klas te skep.*	*Dié kolom beskryf die doelwit waarop gefokus word gedurende elke deel van les en vir elke aktiwiteit.* *Dit behoort ‘n konkrete beskrywing in te sluit van hoe jy gaan vastel of jou doel bereik is.*
RigtinggewendeVrae			

Hoe noet die les vloei? (Hoeveel tyd moet ek spandeer?)	*Wat verwag ek van my leerders? Hoe sal hulle reageer?*	*Is daar enigiets spesifiek om te onthou? Enige herinnering vir my leerders?*	*Waarna moet ek kyk om te weet of die doel bereik is?*
	Hoe motiveer ek my leerders?		*Hoe stel ek vas my leerders is gemotiveerd?*
Hoe gebruik ek die swartbord in die les?	*Wat verwag ek sal my leerder opneem in hul notas?*		*Gee my swartbord 'n goeie opsomming van die les?*
Hoe sal ek die aktiwiteit/probleem aanbied?	*Watter aktiwitiet sal leerders aan werk?*	*Wat spesifiek sal ek doen tydens aktiwiteit/ groepwerk?*	*Waarna moet ek oplet?*
Sal ek groepwerk gebruik? *Watter grote groep moet ek gebruik?*			
Watter vrae sal ek vra om die les te laat oorder?	*Hoe verwag ek sal leerders reageer?*	*Watter opsomming sal ek gebruik?*	*Wat moet hulle weet alvorens ek voortgaan?*
Watter nuwe woordeskat sal voorkom? Hoe stel ek dit bekend?			
Watter materiaal of visuele hulpmiddels sal ek benodig?	*Op watter wyses sal leerders die materiaal gebruik?*		*Wat het ek geleer rondom leerders se begrip/ kennis/denkwyses rondom gebruik van materiaal?*
Hoe kan ek les ontwikkel om probleme uit te skakel of te verminder?	*Watter wanbegrippe mag leerders hê?*	*Hoe reageer ek t.o.v. elke wanbegrip?*	*Hoe weet ek daar is nie meer wanbegrippe nie?*



E. Evaluering

Beskryf jou evalueringsplan om die sukses vir die hele les te bepaal. Verduidelik waarna jy in jou leerders se optrede in die klas en jul produkte sal kyk om vas te stel of jou lesdoel bereik is. Beskryf enige huiswerk of formele assesering wat jy beplan om te gebruik. Jy wil ook spesifiek wees ten opsigte van waarna jy kyk om te versamel of bewyse met betrekking tot lesstudiedoelwitte.

- *Hoe sal ek vastel of leerders die konsepte aangebied in dieles, verstaan?*
- *Wat sal toepaslike huiswerk wees? Wat sal ek kan se van leerder na aanleiding van sy huiswerk?*
- *Watter informasie wil ek gedurende die les versamel?*
- *Waar in my plan het ek ondersteuning nodig?*

F. Bylaes

Hier sal jy voorbeeldel van materiaal en uitdeelstukke wat gebruik sou word tydens les, aanheg. Materiaal wat gebruik gaan word, maar nie aangeheg kan word tydens die les (bv. bewerkings), moet voorsien word van 'n geskrewe beskrywing en/of skets/visuale voorstelling. Alle materiaal wat spesifiek vir die waarnemers ontwerp is, moet ook ingesluit word (waarnemings materiaal, plasings kaart, ens.) Die bylae is van onskatbare waarde vir waarnemers sodat hulle hulself met die les kan vereenselwig voor hulle nog die klaskamer betree. Hoe meer hul bekend is met wat moet plassvind en waarop hulle moet fokus gedurende waarneming, hoe beter sal hul in staat wees om goeie terugvoering te kan verskaf.

APPENDIX O2

Beskrywing van Studielesplan

Datum:
Graad:
Periode en Lokaal:
Onderwyser:

I. Agtergrond-Informasie

A. Doel van Lesstudiegroep:

B. Naratiewe of Geskrewe Oorsig van Agtergrond-Informasie:

II. Groep-Informasie (Leeruitkoms)

A. Naam van Leeruitkoms:

B. Doelwit(e) van Leeruitkoms:

C. Hoe die Leeruitkoms verbind is tot kurrikulum:

D. Instruksionele volgorde vir die Leeruitkoms:

III. Les-Informasie

A. Naam van studieles:

B. Doelwit(e) van die studieles:

C. Hoe die studieles verbind is tot lesstudiedoelwit:

D. Proses van studieles:

Stappe van les: Leeraktiwiteite en sleutelvrae (en tyd-toekenning)	Leerderaktiwiteite/verwagte leerderreaksie of response	Leerkragresponse tot leerderresponse/dinge om te onthou	Doelwit(te) en metode(s) van evaluering

E. Evaluering

F. Bylaes

APPENDIX O3

Waarnemingsvorm vir die Navorsingles

Verantwoordelikhede van waarnemer tydens navorsingsles:

1. Respekteer die natuurlike atmosfeer in die klaskamer
    - Beperk onderlangse gesprekke
    - Bly in die klas vir die volle duur van die les
    - Moenie leerders se uitsig van instruksies belemmer, moenie video-kamera blokkeer
    - Beweeg vrylik wanneer leerders werk, maar beweeg aan weeskante/sykante of agter in klas gedurende instruksie aan klas
    - Moenie leerder probeer leer of helpniel, interaksie vind alleenlik plaas om duidelikheid te bring rondom jou begrip van wat leerder dink
2. Wees 'n navorser
    - Gebruik lesplan, sitkaart en/of werksblad om data op te neem
    - Neen spesifieke woorde wat leerder/onderwyser gebruik op sodat alle data akkuraat is
    - Teken spesifieke gegewens aan t.o.v. die fokus van jou observasie
    - Doen samevatting van gegewens na les en skryf opsomming daarvan

Naam _____ Datum _____

Skool _____ Graad _____

Is jy ‘n lid van die lesbeplanningspan? (ja/nee) _____

Waarnemingsfokus: _____

_____

Waarnemersopsomming:

APPENDIX O4

Vorm vir Besprekingsessie

Skool _____ Datum _____

Titel van Navorsingsles _____

Uiteensetting van besprekingsessie _____

Rol	**Naam**	**Lid van beplaningsspan? (ja/nee)**
Moderator		
Registreerder		
Tydopnemer		
Finale kommentator		

Ander lede van beplanningspan:

Name van waarnemers wie nie lede van beplaningsspan is nie”

Temas of sleutelkwessies:

Waarneming van finale kommentator:

APPENDIX P

Points to Remember

1. Refer to planning tool during *each* step of describing the study lesson.

2. Keep observation focus small, detailed, and related to the goal.

3. Include any outside observers in at least one discussion session before the research lesson.

4. Be sure that all observers have observation forms filled out before the research lesson.

5. Observation summaries should be written between the research lesson and post-lesson discussion.

6. Use the checklists to organize the observation and post-lesson discussion.

7. Record time spent in discussion sessions *and* independent work on time logs.

8. Fill in the end-of-cycle surveys independently and immediately at the end of the cycle. (*Please do not do these as a group*)

APPENDIX Q

Survey at Completion of Third Cycle *Name:* _____

You may not have played an active role during each step of the lesson study process in this cycle. However, please respond to each of the following questions based on your level of involvement. (If you need more space for your answers, please attach additional page(s) to this form)

1. What do you feel is the best way to introduce new members to the lesson-planning team?

_____

_____

_____

2. Do you think it is important to keep previous planning team members involved?

   2.1 If so, how? _____

_____

_____

   2.2 If not, why not? _____

_____

_____

3. How has your previous involvement in lesson study influenced your experience in this cycle?

_____

_____

_____

_____

4. In what way did having the lesson-study documents translated into Afrikaans affect this cycle?

_____

_____

5. Have you improved any instructional strategies as a result of your participation in this *third* lesson study cycle?

5.1 If so, please describe the improvement. _____

_____

_____

_____

6. One of the goals of lesson study is to *reduce teacher isolation*. Please describe your experience with this phenomenon during each of the lesson study cycles.

6.1 Cycle 1 _____

_____

6.2 Cycle 2 _____

_____

6.3 Cycle 3 _____

_____

7. Is lesson study a process that you would like to continue using?

7.1 If so, why? _____

_____

_____

7.2 If not, why not? _____

_____

_____

8. How do you think lesson study could be adapted to suit your particular needs/circumstances?

_____

_____

_____

APPENDIX R

LESSON STUDY

18 March 2008 Grade 2 class ± 8 years of age

Learning Area: Numeracy (number field 0 to 34)

Aim: To develop the learners (process) with regard to listening skills as well as in the interpretation of assignments and the execution of simple instructions.

Learning Outcome 1:Numbers, operations and relationships

Learning Outcome 4: Patterns and function

Learning Outcome 5: Data handling

Assessment Standards:

Duration of lesson: 30 minutes

Lesson organisation:

We will be working in groups on the mat again today. I want to see if you can listen to what I say once only and then carry out the task. You are not allowed to ask a second time. Just listen carefully.

We will be working with numbers and we are going to see if you can still remember what comes before a number, after a number and on both sides of a number. We are also going to do place value. We will be making numbers more and less, and we'll try to find out if they are even or uneven and then we'll sort them. Lastly, we'll double numbers and discover patterns.

Let's look at the chart on the board so that you will know exactly what to do while I am busy on the mat. The triangles will go to the mat and the squares and the circles will carry out a task.

I will allocate the tasks. Explain how the two groups must carry out their task, namely 'fill in'. They know about this, because it has already been done in the same way from Grade 1. I will emphasise that I am going to explain the task only once, and if there is anything don't understand they will have to interpret and fill in the way they think it should be. In other words, they must listen very attentively the first time. If they finished before the time, they may go outside to build blocks – quietly – without coming to the mat to ask my permission to go outside.

Activity 1: 5 min.

Counting exercises Count on from 5 to 10

Count on from 15 to 20

Count on from 25 to 30

1 min.

Count back from 5 to 0

Count back from 15 to 10

Count back from 25 to 20 1 min.

I'm counting in 2's. Can you carry on from where I stop? (-20)
1 min.

I'm counting in 5's. Can you carry on from where I stop? (-20)
1 min.

I'm counting in 10's Can you carry on from where I stop? (-20)
1 min.

Activity 2

Triangles move to mat and the other 2 groups begin with their task immediately. 10 sec.

Aids on mat: Cards with numbers 0-34 on them

Number cards

Flard cards

Pins/pegs

Motivation marks

Before the activities commence I clearly say that I will give an instruction once only, and that if they know an answer and want to give it, they must raise their hands. I motivate them all to take part. At the end of the lesson all who participated get a dot on the class motivation chart. 30 sec.

- Each one draws a number from a container. Each one gets a turn to say what comes before his number, after his number and on both sides of his number.
  1 min.

- Each one gets a number card. All count in 2's up to 20. Colour it red. These are the even numbers. Draw their attention to the fact that if a number ends in 2 4 6 8 0 it is always an even number. The rest are uneven. They did this in Grade 1 by handing it out to two class-mates. If 1 remains they know that it is an uneven number. However, the numbers are now becoming greater, so the association is becoming more abstract. Put the cards back again. 6 min.

- Each one draws a card with a number again. We are now going to sort the numbers according to the features of even and uneven. Draw their attention to the properties of collections. We are going to make the one set even and the other one uneven.
  6 min.

- What is the meaning of 'to double'? Revise this concept. Show concretely a small number, namely 2. Association – add the same number. Learners' ready knowledge of numbers smaller than 10 is now used so that they can discover a pattern, e.g. 2 + 2

= 4 has something to do with 20 + 20 = 40. Ensure that retention takes place regarding doubles by using a little competition. The learner who is the first to answer gets a pin. At the end the one with the most pins is given a reward dot on the wall chart of the class.

6 min.

- I draw two-digit numbers from a container. They say the name of the number each time. I take it apart without showing the answer. I ask: 'What does the number consist of, e.g. a 20 and a ?'

20 sec.

Thank you to all of you who listened so attentively and carried out the instructions as I expected of you. Now you may go and sit down.

Process of the lesson study

<u>How can I develop the lesson to eliminate or lessen problems?</u>

State instructions clearly. Explain the work on the learners' level. Motivate them towards self-activity. Motivate them not to interject by asking questions just because they have got into the habit of doing so.

<u>Which misconceptions might the learners have?</u>

Could possibly confuse concepts: before and after, even and odd.

Could regard 'between' and 'on both sides' as two separate concepts.

Could confuse 'double' with 'halve', even if we are not doing this today.

Place value: Might not see tens and units in correct places.

<u>How do I react to each misconception?</u>

Make sure to remind them again and again of the meaning of the various concepts.

<u>How do I know that there are no more misconceptions?</u>

I know it if the majority of the learners apply the concepts correctly.

I must make sure that I do not repeat instructions.

If I see that someone is not listening or does not carry out the instruction correctly, I must make sure that I do not want to teach individually (in essence, this is actually how we teach most of the time).

Description of lesson study plan

Date: 18 March 2008

Grade: 2

Period and venue: Period 2 Room Grade 2A Classroom

Teacher: Maria

B. Descriptive overview of background information

My classroom space is taken up by the placement of six tables for cooperative learning, as well as by two more ordinary foundation phase tables and chairs. There are two big cupboards at each door. There is a door leading to the outside and one leading into the passage. There is a long row of shelves that provide space for a display as well as for storage. There is a single washbasin, two book shelves, two small tables and a puzzle cupboard. A quarter of the floor space is covered by a mat. The electric lighting, which is provided by fluorescent lights, is good, and the wall space, which consists of windows from floor to ceiling, allows for a good flow of natural daylight. There are also two ceiling fans, which help to keep the room cool on hot days. Pin boards have been fixed to two parts of the upper wall, and below these there are writing boards. These pin boards are used to display relevant information or learning matter. Behind the door there is a filing cabinet. The learners place their bags against the wall nearest to the passage. They have free access to the cases, but they are requested to avoid moving to and from their cases unnecessarily. The teacher's table is in the front of the classroom near the outer door. Two waste bins are available in the classroom. There are also containers with apparatus in the classroom. A filing basket is next to my table.

Learners are allowed to drink water when the feel like it, except when something is being explained. With my permission, they may also leave the classroom to go to the toilets.

Certain learners receive LSEN for an hour at a time on Mondays and Tuesdays. On Tuesdays they have art after break. On Wednesdays they go out in three groups for computer work. On Thursdays and Fridays they have motor skills development and on Fridays they have singing.

There are also three learners who receive individual help from parents who have been trained, for instance, a little girl with limited abilities and two boys who missed the selection for LSEN.

There is also a little boy who suffers from ADHD (attention deficit hyperactivity disorder) and has a certain level of dyslexia.

Refer to the attached class list to see the names of the children in my class. On the whole their socioeconomic circumstances are very good. There is only one learner whose parents are unemployed.

Their acquired knowledge is reflected in their written tasks as well as in my workbook. Not all of them are concrete-bound as far as the understanding of numbers is concerned. Most of them are semi-concrete or abstract in their thinking.

The strategies that they will be using in today's lesson have been based on ready knowledge of numbers as well as on their knowledge of the use of the number card and certain basic concepts that they acquired in Grade 1.

They are chiefly motivated by reward and praise as well as by the motivation that some of them receive at home. And we work for Jesus.

Refer to the class list for individual differences that I have observed in learners thus far.

The above-mentioned information is important to ensure that the observers will not look critically at the learners, but that they will be objective about the purpose of the observation, namely to observe the learners' listening skills, self-activity, interpretation of instructions and carrying out instructions.

The learners may possibly think that the observers have come to criticise them and may appear to be nervous. At their age they have a natural curiosity and this might influence the way in which they carry out their tasks. Or they may feel motivated if they are told in advance that the observers are all important people who have come to see how clever they are. I most certainly intend to reward them if they behave well, because it is difficult for them to perform well in unnatural situations. They are and remain the most important people in the school.

III Lesson information

A. Name of lesson study

Numeracy – LO 1 (Numbers, operations and relationships) integrated with LO 4 (Patterns and functions) and LU 5 (Data handling)

B. Objectives of lesson study

See objectives.

See lesson for content.

See lesson for specific strategies and what is to be achieved at the end of the lesson.

See it as a development (process) of strategies and skills.

C. Relevance of lesson study to the aim of the lesson

I will achieve my aim by clearly stating the task once to the learners.

The questioning and instructions will give the observers an indication as to whether the objectives of the lesson study have been achieved or not.

D. Evaluation

The learners' reactions to questions on concepts that are presented will determine whether they have learnt something about the understanding of numbers today.

Homework can be counting exercises. The previous counting exercises for homework will help them with today's counting exercises.

The information I want to gather during the lesson is:

- Do the learners understand the concepts 'before' and 'after', and can they apply them?
- The expression 'on both sides' is a new concept for some of the learners. Can they apply it?
- How does one distinguish between an uneven and an even number?
- Are they able to double numbers and can they see the similarity with other numbers that have a 0 at the end?
- Can they see that a two-digit number is made up of tens and units?

I only need support in the case of learners who have barriers to learning and therefore do not understand the latter concepts.

E. Addenda

Examples of tasks

Examples of questioning and presentation in the course of mat work.

Examples of aids provided on the mat

Each observer's aim of is given to him/her in writing before the time. This is important for feedback on the lesson.

Not. 3/3

Lesson study Les 18/3

L/A Numeracy

Aim? Listen for self-study; self-activity; interpretation of simple instructions

Assessment.

Tuesday, 18/3 08:00-08:30

Aims:

To develop the learners' (process) listening skills and self-activity, and to enable them to interpret and carry out simple instructions.

Fill in forms for CC.

Section D.

Time spent

55 min.	07:30 - 08:25	Mon. 3/3 Intro. and objectives
5 hours 30 min.	08:30 - 01:00	Sun. 9/3 Plan lesson
30 min.	08:00 - 08:30	Mon. 10/3Roles: What do we want? - Where?
Discussion		10/3 Exposition of lesson
		17/3
		18/3 Presentation of lesson and observation
		Feedback session

Observation form for Research Lesson

Responsibilities of observer during lesson

1. Respect the natural atmosphere in the classroom

- Limit disruptive discussion among learners (while lesson is taking place).
- Stay in classroom for the full duration of the lesson.
- Do not obstruct learners' view – do not block video camera.
- Move around freely while learners are at work, but move around the whole perimeter / both

sides (along the side or at the back of the class) when giving instructions to the class.

- Do not help, guide or teach learners – interact only to clarify your understanding of what learners think.

2. Be a researcher

- Use lesson plan, seating chart and / or work sheet to record data.

- Make a note of specific words used by teacher or learners so that all the data is correct.

- Make a note of specific data with regard to focus of observation.

- Sum up all data after the lesson and write a summary of the lesson.

Name Date

School Grade

Are you a member of the planning team? Yes / No

Observational focus:

Summary by observer:

Moderator

- Research questions
- Objectives of lesson
- Agenda for discussion

  .....

  .....

  ……

  …….

- Organise feedback from teacher.

  .....

  .....

  ……

- Limit unnecessary remarks from observers.
- Make sure that one person does not dominate feedback discussion.
- Ensure that teacher waits and reacts when observers comment on specific instructions.

Not. 10/3

1. Demonstration lesson
2. Roles of observers
    - Moderator
    - Registrar
    - Timekeeper
    - Final commentator
    - Other observers
3. [10/3] What are we going to observe (objectives)?
    - Listening skills
    - Interpretation of instructions
    - Execution of instructions
    - Self-activity
4. Sessions: What was completed in each (13:3018/3)

I

1. Background information

    Questions p.1

2. Description of context of lesson

    - p.1

11

Unit information (learning outcomes)

    p. 2

111

Lesson information

Name

FOCUS QUESTIONS FOR OBSERVERS:

intercom? / queries? / parent? / listen? / ill? / nauseous? / disturbing each other?

Date of lesson

10/5 Observation after lesson

During lesson – questionnaire

Names saved:

- Lesson study
- Descriptive review
- Process of lesson study
- Description of lesson study

Head of Department – Instructions for process while away

208.05.12

Deborah

I am causing a delay in our progress with the lesson study. Please see whether this will be of any help. Here is the paper work thus far. (In case you want to look through it.)

1. A new lesson date must be fixed. Please just take into consideration that we will be attending a course on Monday 19 May.

2. I will prepare the observation lists.

3. The discussion must take place directly after the lesson and in the same venue.

4. Which knowledagable other/expert will we invite to the lesson?

5. Who will make a video recording or take photographs? Not any of the observers, please.

6. Please make a list of questions about the lesson that observers could possibly ask afterwards. Remember, not the same questions (e.g. 'What could interrupt the lesson?' or unexpected questions from the learners).

7. The roles are the following:

Registrar: Deborah

Moderator: Jane

Commentator: Linda

Observers: Cathy

Marney

Madeline

Sandra

Please study your role (indicated in the notes) as provided by Jakes.

Regards

Maria

APPENDIX S

Interview Questions for Participants of the Fourth Cycle

1. What was your motivation for participating in this research?

2. What were your expectations for involvement in lesson study?

3. Did you have any impressions or thoughts about lesson study before you agreed to participate?

   If so, what were your impressions and how did you get them? What background materials did you read? What had you heard from other people?

4. How much time did you spend in direct involvement with lesson study?

5. How would you describe the collaboration during lesson study discussion sessions? How was it different from or similar to previous collaboration with colleagues? Did you see any benefits to this type of collaboration?

6. Did anything change in your own classroom instruction as a result of your involvement in lesson study?

   If so, what changed?

7. What do you think the purpose of lesson study is?

8. How would you describe the *process* of lesson study?

9. Were there any benefits to your involvement in lesson study?

10. What were the obstacles to lesson study? What were the obstacles to completing the fourth cycle? Why did you decide not to continue with the cycle?

APPENDIX T

Interview Questions at the Conclusion of the Research Study

1. How many cycles of lesson study were you involved in?

2. Describe your involvement in the fourth cycle. What was your involvement in the decision to have the foundation phase participate? Why did you decide not to participate directly and hand it over to the foundation phase?

3. Describe any difference that your experience with lesson study has made on the way you collaborate with your colleagues today.

4. Did your experience in the process of lesson study have any lasting effect on classroom instruction?
   How has your experience in the process of lesson study affected the way you teach?

   Are there strategies you began using during participation in lesson study that you are still using today? Explain.

   In your opinion, how effective were those strategies in moving students closer to the goal?

5. Do you and the other participants continue to discuss your experience with lesson study? What are the things you say?

6. Have you discussed your experience or anything about lesson study with colleagues outside the planning team? What was the nature of the discussion?

7. Have you discussed the fourth cycle with any of the foundation phase? If so, how do you think their experience differed from yours?

8. Is lesson study something you would like to continue in your school?
   If so, what are the benefits you see?

   If not, what are the obstacles?

9. What do you think the purpose of lesson study is?

10. How would you describe the *process* of lesson study?

11.Are there any comments about lesson study or the experience you had with it that you would like to add?

REFERENCES

Achinstein, B. (2002). *Community, diversity, and conflict among schoolteachers: The ties that blind.* New York: Teachers College Press.

Alfonso, R.J. & Goldsberry, L. (1982). Colleagueship in supervision. *Supervision of Teaching* (pp. 90-107). Alexandria, VA: Association for Supervision and Curriculum Development.

Anderson, G.L. & Herr, K. (1999). The new paradigm wars: Is there room for rigorous practitioner knowledge in schools and universities? *Educational Researcher, 28(5),* 12-21.

Ankiewicz,P., Adam, F., De Swardt, E. & Gross, E. (2001). The facilitation of critical thinking in a technology education classroom. *Ata Academica, 33(3),* 188-206.

Avalos, B. (2000). Policies for teacher education in developing countries. *International Journal of Educational Research, 33,* 457-474.

Badat, S. (1997). Educational politics in the transition period, in P. Kallaway, G. Kruss, A. Fataar, & G. Donn (eds.). *Education after apartheid.* Cape Town: University of Cape Town Press.

Bassey, M. (1998). Action research for improving educational practice, in R. Halsall (ed.) *Teacher research and school improvement: Opening doors from the inside.* Buckingham: Open University Press. pp. 93-108.

Bassey, M. (1999). *Case study research in educational settings.* Buckingham: Open University Press.

Beijaard, D., Meijer, P.C. & Verloop, N. (2004). Reconsidering research on teacher's professional identity. *Teaching and Teacher Education, 20,* 107-128.

Bell, J. (1999). *Doing your research project: A guide for first-time researchers in education and social science.* Buckingham: Open University Press.

Bennell, P. (2004). Teacher motivation and incentives in sub-Saharan Africa and Asia. *Knowledge and skills for development.* Brighton

Berman, B.F., Desimone, L., Porter, A.C. & Garet, M.S. (2000). Designing professional development that works. *Educational Leadership*, *57(8),* 28-33.

Berman, P. & McLaughlin, M.W. (1977). *Federal programs supporting educational change, Volume 7: Factors affecting implementation and continuation.* Santa Monica, CA: Rand.

Bruner, J. (1996). *The culture of education.* Cambridge, Mass.: Harvard University Press.

Burney, D. (2004). Craft knowledge: The road to transforming schools. *Phi Delta Kappan*, *85(7),* 526-531.

Carl, A.E. (2002). *Teacher empowerment through curriculum development: Theory into Practice.* 2nd ed. Lansdowne: Juta.

Carl, A.E. (2005). The "voice of the teacher" in curriculum development: A voice crying in the wilderness? *South African Journal of Education, 25(4)*, 223-228.

Carl, A.E. (2007). Onderwysers in die Wes-Kaap se persepsies en belewing van huidige onderwysverandering: Vir of teen? (English translation: Perceptions of teachers in the Western Cape in terms of current educational changes: For or against?). *Acta Acadamica, 39(3)*, 200-223.

Carl, A.E. (2009). *Teacher empowerment through curriculum development: Theory into practice.* 3rd ed. Lansdowne: Juta.

Carr, W. & Kemmis, S. (1986). *Becoming critical: Education, knowledge, and action research.* London: Deakin University Press.

Carrim, N. (1998). Anti-racism and the 'new' South African educational order, *Cambridge journal of education,* 28, pp. 301-320.

Chokshi, S., Ertle, B., Fernandez, C. & Yoshida, M. (2001). *Lesson study protocol.* Lesson Study Research Group (lsrg@columbia.edu).

Chokshi, S. & Fernandez, C. (2004). Challenges to importing Japanese lesson study: Concerns, misconceptions, and nuances. *Phi Delta Kappan*, *85(7),* 520-525.

Christie, P. (1991). *The right to learn.* Johannesburg: SACHED/Raven.

Chisholm, L. (2001). Values, multiculturalism and human rights in apartheid and post-apartheid South African curriculum. Paper delivered at conference on values, education, and democracy. Cape Town, January.

Chisholm, L. & Petersen, T. (1999). Education policy and practice on the eve of the 99 election, *Quarterly Review of Education and Training in South Africa,* 6, 1-15.

Costello, P.J.M. (2003). *Action research.* London: Continuum

Csikszentmihalyi, M. (1990). *Follow the psychology of optimal experience.* New York: Harper Perennial.

Datnow, A. & Stringfield, S. (2000). Working together for reliable school reform. *Journal of Education for Students Placed at Risk, 5(1-2),* 183-204.

De Clerq, F. (2008). Teacher quality, appraisal and development: The flaws in the IQMS. *Perspectives in Education, 26(1),* 7-18.

Department of Education. (1992). *Educational Renewal Strategy Report.* Pretoria: DoE.

Department of Education. (1995). *White paper on education and training.* Pretoria: DoE.

Department of Education. (1997a). *Curriculum 2005. Lifelong learning for the 21st century.* Pretoria: DoE.

Department of Education. (1997b). *Understanding the South African Schools Act.* Pretoria: DoE.

Department of Education. (2000a). Norms and Standards for Educators. *Government Gazette, 415 (20844).* Pretoria: DoE.

Department of Education. (2000b). *South African curriculum for the twenty-first century: Report of the curriculum 2005 review committee.* Pretoria: DoE.

Department of Education. (2002). *Revised National Curriculum Statement Grades R-9 (Schools): Overview.* Pretoria: DoE.

Department of Education. (2003). *Revised National Curriculum Statement Grades R-9 (Schools): Consumer Studies.* Pretoria: DoE.

Department of Education. (2005). *Grade 6 systemic evaluation.* Paper presented at the teacher development HEDCOM sub-committee workshop. Johannesburg: RSA.

Department of Education. (2008). *Research study on professional development practices in schools.* Pretoria: DoE.

Design-Based Research Collective. (2003). Design-based research: An emerging paradigm for educational inquiry. *Educational Researcher 32(1),* 5-8.

DeVos, A.S., Strydom, H., Fouche, C.B. & Delport, C.S.L. (2005). *Research at grass roots for the social sciences and human service professions.* Pretoria: Van Schaik.

Dick, B. (1997). *Action learning and action research* [Online]. Available: www.scu.edu.au/schools/gcm/ar/arp/actlearn.html [2007, 10 July].

Ensor, P. (2001). From preservice mathematics teacher education to beginning teaching: A study in recontextualizing. *Journal for Research in Mathematics Education, 32(3),* 296-320.

Ertle, B., Chokshi, S. & Fernandez, C. (2001). *A tool for planning and describing study lessons.* Lesson Study Research Group (lsrg@columbia.edu).

Fernandez, C., & Chokshi, S. (2002). A practical guide to translating lesson study for a U.S. setting. *Phi Delta Kappan*, *84(2),* 128-134.

Fiske, E.B. & Ladd, H.F. (2004). *Elusive equity: Education reform in post-apartheid South Africa.* Washington, D.C.: Brookings Institution Press.

Florian, J. (2000). Sustaining education reform: Influential factors. *Mid-Continent Research for Education and Learning.* Aurora, CO.

Frick, B.L. (2007). *Integrating scholarship and continuing professional development (CPD)in the natural sciences at a South African university.* Dissertation: Stellenbosch: Stellenbosch University.

Frost, P. (2002). Principles of the action research cycle, in R. Ritchie, A. Pollard, P. Frost and T. Eaude (eds.). *Action research: A guide for teachers. Burning issues in primary education.* Birmingham: National Primary Trust, 24-32.

Fullan, M.G. (1999). *Change forces: The sequel.* Philadelphia, PA: Falmer Press.

Fullan, M.G. (2001). *Leading in a culture of change.* San Fransisco: Jossey-Bass.

Fullan, M. & Watson, N. (1999). School-based management: Reconceptualizing to improve learning outcomes. Final paper prepared for the World Bank, *Improving Learning Outcomes in the Caribbean.* Toronto: University of Toronto.

Gall, P.G., Gall, M.D. & Borg, W.R. (2005). *Applying educational research: a practical guide.* Boston: Pearson.

Gallimore, R. (1996). Classrooms are just another cultural activity. *Research on classroom ecologies: Implications for inclusion of children and learning disabilities.* Mahwah, N.J.: Erlbaum.

Glesne, C. (2006). *Becoming qualitative researchers: An introduction.* 3rd ed. New York: Longman.

Greenwood, D.J. & Levin, M. (1998). *Introduction to action research: Social research for social change.* London: Sage Publications.

Greenwood, D.J. & Levin, M. (2007). *Introduction to action research: Social research for social change.* 2nd ed. London: Sage Publications.

Grossman, P., Wineburg, S., & Woolworth, S. (2001). Toward a theory of teacher Community. *Teacher College Record*, *103(6),* 942-1012.

Grundy, S. & Kemmis, S. (1981). Educational action research in Australia: The state of the art, in W. Flanagan, C. Breen & M. Walker (eds.). *Action research: justified optimism or wishful thinking?* Cape Town: University of Cape Town. 2-30.

Guba, E.G. (1981). Criteria for assessing the trustworthiness of naturalistic inquiries. *Educational Communication and Technology, 29(2),* 75-91.

Gutierrez, R. (1996). Practices, beliefs and cultures of high school mathematics Departments: Understanding their influence on student advancement. *Journal of Curriculum Studies*, *28(3),* 495-529.

Halsall, R. (1998). *Teacher research and school improvement:Oopening doors from the inside.* Buckingham: Open University Press.

Harber, C. (2001). *State of transition: Post-apartheid educational reform in South Africa.* UK: Symposium books.

Hargreaves, A. & Fink, D. (2000). The three dimensions of reform. *Educational Leadership, 57(7),* 30-33.

Harley, K., Barasa, F., Bertram, C., Mattson, E. & Pillay, S. (2000). "The real and the ideal": Teacher roles and competences in South African policy and practice. *International Journal of Educational Development, 20,* 287-304.

Herr, K. & Anderson, G.L. (2005). *The action research dissertation: A guide for students and faculty.* California: Sage.

Henning, E., Van Rensburg, W. & Smit, B. (2004). *Finding your way in qualitative research.* Pretoria: Van Schaik.

Holloway, I. (1997). *Basic concepts for qualitative research.* Oxford: Blackwell

Hopkins, D. (2002). *A teacher's guide to classroom research.* Buckingham: Open University Press.

Huberman, M. & Miles, M. (1984). *Innovation up close: How school improvement works.* New York, NY: Plenum Publishing Corporation.

Jackson, L.T.B. & Rothmann, S. (2005). An adapted model of burnout for educators in South Africa. *South African Journal of Education, 25(2),* 100-108

Jansen, J. (1998). Curriculum reform in South Africa: A critical analysis of outcomes-based education. *Cambridge Journal of Education, 28,* 321-332.

Johnson, S., Monk, M. & Hodges, M. (2000). Teacher development and change in South Africa: a critique of the appropriateness of transfer of northern/western practice. *Compare, 30(2),* 179-192.

Joyce, B. & Showers, B. (1982). The coaching of teaching. *Educational Leadership, 40(1),* 4-10.

Kallaway, P., Kruss, G., Fataar, A. & Donn, G. (eds.). (1997). *Education after apartheid.* Cape Town: University of Cape Town Press.

Kemmis, S. (2001). Exploring the relevance of critical theory for action research: Emancipatory action research in the footsteps of Jurgen Habermas', in P. Reason & H. Bradbury, (eds.). *Handbook of action research: Participative inquiry and practice.* London: SAGE publications. 91-102.

Kemmis, S. & McTaggart, R. (1988). *The action research planner.* Victoria, Australia: Deakin University.

King, M.B. & Newmann, F.M. (1999, April). School capacity as a goal for professional development: Mapping the terrain in low-income schools. Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada.

Lam, S., Yim, P. & Lam, W. (2002). Transforming school culture: Can true collaboration be initiated? *Educational Leadership*, *44(2),* 181-195.

Lewin, K. (1946). Action research and minority problems. *Journal of Social Issues, 2,,*34-46.

Lewis, C. (2002). *Lesson study: A handbook of teacher-led instructional change.,*Philadelphia: Research for Better Schools.

Lewis, C. (2003). *To open a cube (dvd*). Mills college lesson study group. www.lessonresearch.net [2006, 20 December].

Lewis, C., Perry, R. & Hurd, J. (2004). A deeper look at lesson study. *Educational,Leadership*, *61(5),* 18-22.

Lewis, C., Perry, R. & Murata, A. (2006). How should research contribute to instructional improvement? The case of lesson study. *Educational Researcher,35(3),* 3-14.

Lincoln, Y.S. (2001). Engaging sympathies: Relationships between action research and,social constructivism, in P. Reason & H. Bradbury (eds.). *Handbook of action research: Participative inquiry and practice.* London: SAGE publications.,124-132.

Little, J.W. (1985). Teachers as teacher advisors: The delicacy of collegial leadership.,*Educational Leadership*, *43(3),* 34-36.

Little, J.W. (1990). The persistence of privacy: Autonomy and initiative in teacher's,professional relations. *Teachers College Record*, *91(4),* 509-536.

Little, J.W. (1999). Teachers' professional development in the context of secondary,school reform: Findings from a three-year study of restructuring schools. Paper presented at the annual meeting of the American Educational Research,Association, Montreal, Canada.

Little, J.W. (2003). Inside teacher community: Representations of classroom service.,*Teachers College Record*, *105*, 913-945.

Little, J.W., Gearhart, M., Curry, M. & Kafka, J. (2003). Looking at student work for teacher learning, teacher community and school reform. *Phi Delta Kappan*, *,85(3)*, 184-192.

Louis, K.S. & Kruse, S.D. (1995). *Professionalism and community: Perspectives on,reforming urban schools.* Thousand Oaks, CA: Corwin Press.

McLaughlin, M.W. & Talbert, J.E. (2001). *Professional communities and the work of high school teaching.* Chicago: University of Chicago Press.

McNiff, J. (1988). *Action research principles and practice.* London: Routledge.

McNiff, J., Lomax, P. & Whitehead, J. (1996). *You and your action research project.,*London: Routledge.

McTaggart, R. (1991). *Action research: A short modern history.* Victoria, Australia:,Deakin University.

Mertler, C.A. (2009). *Action research: Teachers as researchers in the classroom.,*2nd ed. California: Sage.

Miles, M.B. & Huberman, A.M. (1994). *Qualitative data analysis.* California: Sage.

Mills, G.E. (2007). *Action research: A guide for the teacher researcher.* 3rd ed. NJ:,Pearson Education.

Montgomery, A., Mostert, K. & Jackson, L. (2005). Burnout and health of primary,educators in the North West Province. *South African Journal of Education, 25(4),,*266-272.

Mouton, J. (2001). *How to succeed in your master's and doctoral studies: A South African guide and resource book.* Pretoria: Van Schaik.

Newmann, F.M. (1996). *Authentic achievement: Rrestructuring schools for intellectual quality.* San Fransisco: Jossey-Bass.

Nkabinde, Z. (1997). *An analysis of educational challenges in the new South Africa.* Maryland: University Press of America.

No Child Left Behind Act of 2001. U.S. Public Law 108-110, amending Title I of Elementary and Secondary Education Act of 1965 (20 V.S.C. 6301 et seq.).

October, S.G. (2009). *The new roles and responsibilities of principals as educational leaders and managers in educational change.* Unpublished Masters of Education, Stellenbosch University.

Pampallis, J. (2003). Education reform and school choice in South Africa. In D. Plank, G. Sykes (eds.). *Choosing choice: School choice in international perspective.* New York: Teachers' College Press. 143-63.

Perry, R. & Lewis, C. (2003). Teacher-initiated lesson study in a northern California district. Paper presented at the annual meeting of the American Educational Research Association. Chicago, IL, April 21-25, 2003.

Porter, A.C. & Brophy, J. (1988). Synthesis of research on good teaching: Insights from the work of the Institute for Research on Teaching. *Educational Leadership, 45(8),* 74-85.

Ramparsad, R. (2001). A strategy for teacher involvement in curriculum development. *South African Journal of Education, 21(4),* 287-292.

Reeves, C. (2000). *The struggle to teach.* Johannesburg: SACHED Trust.

Riel, M. (2008). Understanding action research, in C.A. Mertler (2009). *Action research: Teachers as researchers in the classroom.* 2nd ed. CA: Sage.

Ritchie, R., Pollard, A., Frost, P. & Eaude, T. (2002). *Action research: A guide for teachers. Burning issues in primary education,* No. 3. Birmingham: National Primary Trust.

Robinson, M. (2001). Teachers as mentors: A critical view of teacher development in South African schools. *Perspectives in Education, 19(2),* 99-115.

Robson, C. (2002). *Real world research.* Oxford: Blackwell.

Randraje, I., Van der Merwe, A., Urbani, G. & Van der Walt, J.L. (2005). Efficacy of teachers in a number of selected schools in the KwaZulu-Natal province of South Africa. *South African Journal of Education, 25(1),* 38-43.

Russell, E. (1998). A study of the curriculum processes and practices of the participants involved in the implementation of outcomes-based education. Unpublished M.Ed dissertation. Durban: University of Natal.

Schmoker, M. (2004). Tipping point: From freckles reform to substantive instructional improvement. *Phi Delta Kappan*, *85(6),* 424-432.

Slavin, R.E. (1996). Reforming state and federal policies to support adoption of proven practice. *Education Researcher, 25(9),* 4-5.

Sparks, A. (1990). *The mind of South Africa.* Boston: Little, Brown.

Stepanek, J., Appel, G., Leong, M., Mangan, M.T. & Mitchell, M. (2007). *Leading lesson study: A practical guide for teachers and facilitators.* California: Sage.

Stewart, R., & Brendefur, J. (2005). Fusing lesson study and authentic achievement: A model for teacher collaboration. *Phi Delta Kappan*, *86(9),* 681-687.

Steyn, G.M. (2004). How do professionals develop? Lessons for the effective implementation of the South African Skills Development Act. *South African Journal of Education, 24(3),* 217-224.

Steyn, G. M. & Schulze, S. (2005). The induction of inexperienced teachers: Problems and needs. *Acta Academica, 37(3),* 234-259.

Stigler, J.W. & Hiebert, J. (1999). *The teaching gap: Best ideas from the world's teachers for improving education in the classroom.* New York: The Free Press.

Stringer, E.T. (1999). *Action research.* 3rd ed. California: SAGE.

Stringer, E.T. (2007). *Action research.* 3rd ed. California: SAGE.

Stringfield, S. (1998). Organizational learning and current reform efforts, in K. Leithwood & K.S. Louis (eds.). *Schools as learning communities.* Lisse, NL: Swets & Zeitlinger. 255-268.

Vally, S. & Dalamba, Y. (1999) *Racism, 'racial integration' and desegregation in South African public secondary schools.* Johannesburg: South African Human Rights Commission.

Wallace, J. (1998). Collegiality and teachers' work in the context of peer supervision. *Elementary School Journal*, *99*, 81-98.

Wang-Iverson, P. & Yoshida, M. (2005). *Building our understanding of lesson study.* Philadelphia: Research for Better Schools.

Watanabe, T. (2002). Learning from Japanese lesson study. *Educational Leadership*, *59(6),* 36-39.

Western Cape Education Department (2003). *Teacher's guide for development of learning programmes: Summary.* Western Cape Education Department.

Weeks, D.J. & Stepanek, J. (eds.). (2001). The lesson study process. *Northwest Teacher, 2(2),* 5.

Westheimer, J. (1998). *Among schoolteachers: Community autonomy and ideology in teachers' work.* New York: Teachers College Press.

Witziers, B., Sleegers, P. & Imants, J. (1999). Departments as teams: Functioning, variations and alternatives. *School Leadership & Management*, *19*(3), 293-304.

Yin, R.K. (1978). *Changing urban bureaucracies: How new practices become routinized.* Santa Monica, CA: Rand Corp.

Yonezawa, S. & Stringfield, S. (2000). Special strategies for educating disadvantaged students follow-up study: Examining the sustainability of research based school reforms. Baltimore, MA: Johns Hopkins University CRESPAR.

Yoshida, M. (1999). Lesson study: A case of a Japanese approach to improving instruction through school-based teacher development. *Dissertation Abstracts International*, *60 (11).*

Zafar, S. (1998). School-based initiatives to address racial and cultural diversity in newly integrating public schools. Durban: Research report, education policy unit, University of Natal.